U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
VOL. 922
MAY
1974

MICRO PHOTO DIVISION
BELL & HOWELL

COMMERCE
PUBLICATIONS

Vol. 922 Number 1

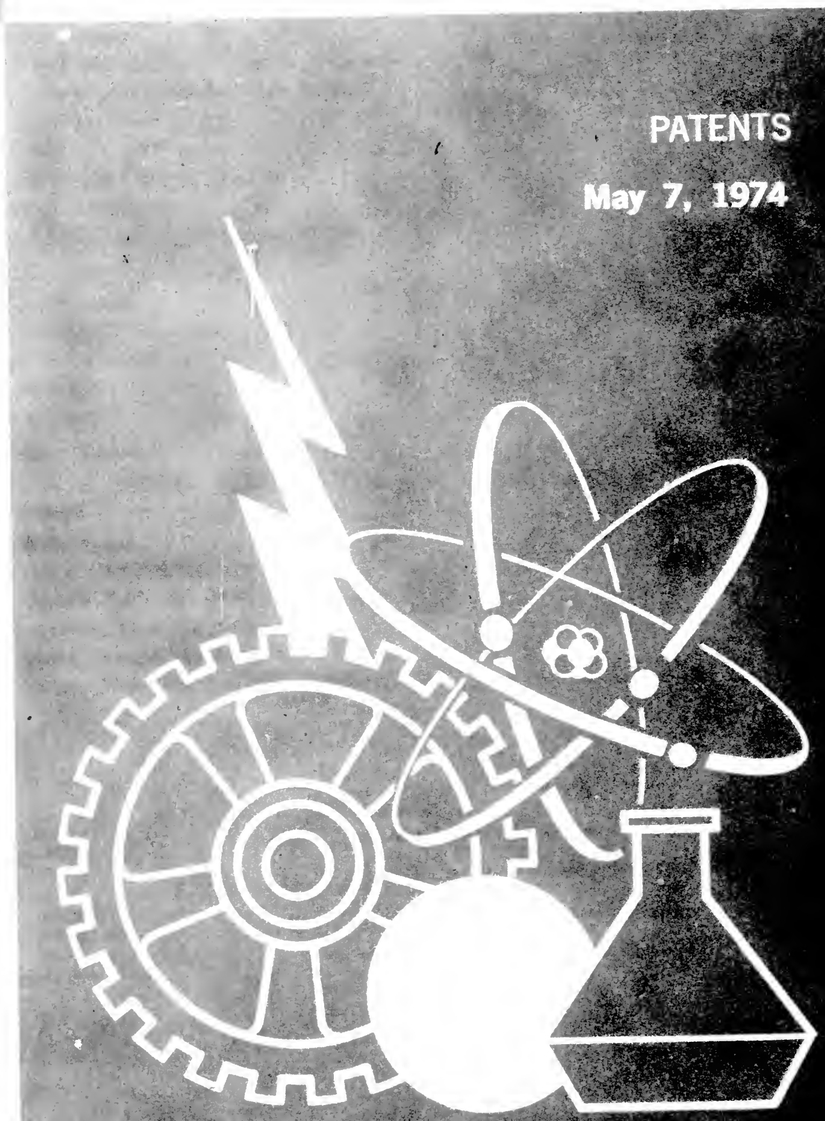
OFFICIAL GAZETTE

of the

UNITED STATES PATENT OFFICE

PATENTS

May 7, 1974



U.S.
DEPARTMENT
OF COMMERCE

Patent
Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 7, 1974 Volume 922 Number 1

CONTENTS

	Page
Patent and Trademark Notices	
Suspension from Practice	2
Patent Suits	2
Patent Notices	
Certificates of Correction for the Week of May 7, 1974	4
National Technical Information Service	4
Disclaimers	6
Errata	7
Condition of Patent Applications	8
Defensive Publications (T922,001)	9
Reissue Patents Granted (28,003)	12
Plant Patents Granted (3,541)	14
Patents Granted	
General and Mechanical (3,808,604)	15
Chemical (3,809,532)	254
Electrical (3,809,784)	301
Design Patents Granted (231,584)	429
Index of Patentees	PI 1
Indices of Applicants of Defensive Publications, Reissues, Plants and Designs	PI 47
Classification of	
Patents (Including Reissues)	PI 49
Designs, Plants and Defensive Publications	PI 52
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 53
Designs, Plants and Applicants of Defensive Publications	PI 55

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $211.00 per annum, foreign mailing $52.75 additional; single copies $4.10 each.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly, subscription $60.25 per annum, foreign mailing $15.10 additional; single copies $1.25 each.

CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

PATENT OFFICE NOTICES

Suspension from Practice

Donal E. McCarthy (Registration No. 18,067) has been suspended from further practice before the Patent Office, without prejudice to reinstatement after August 22, 1974, or sooner if circumstances warrant.

C. MARSHALL DANN,
Apr. 11, 1974. *Commissioner of Patents.*

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,707,775, Hoffman and Hoike, ELECTRICAL CONNECTORS; **3,322,888,** C. G. Zemels, COMPRESSION CONNECTOR; **Reg. No. 596,526** (SQUEEZON), Kearney-National, Inc.; **Reg. No. 737,050,** same, **filed** Oct. 20, 1972, D.C., N.D. Ala. (Birmingham), Doc. 72-938, *Kearney-National, Inc.* v. *Electrical Specialty Products Co., Inc.* Consent judgment, patents and trademarks valid and owned by plaintiff, defendant has infringed. Defendant permanently enjoined from further infringement of patent, and permanently enjoined from perpetrating any further acts of unfair competition, defendant's counterclaims A, B, and C are dismissed with prejudice, Sept. 13, 1973.

2,868,249, Taylor and Puckett, WOODWORKING APPARATUS, **filed** Sept. 26, 1973, D.C., N.D. Tex. (Dallas), Doc. CA-3-7717-E, *Industrial Woodworking Machine Co., Inc.* v. *Charles F. Gordon, Vernon E. Wyatt and Steve A. Wyatt, doing business as Wynot Machinery Co.*

2,933,333, Bredtschneider, Drewes, Laird and Omak, PIPE COUPLING, **filed** Nov. 1, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c2755, *Crane Co.* v. *Acroquip Corp.* Final judgment order, plaintiff owner of patent, patent is valid and enforceable against defendant as to Claims 1-4, 6, 9, 11, 14 and 15. Defendant restrained and enjoined, plaintiff's request for judgment that license agreement dated June 1, 1968 had been terminated denied. Defendant's counterclaim dismissed, Oct. 5, 1973.

3,027,477, E. E. Sheldon, ENDOSCOPES; **3,205,390,** same, ENDOSCOPIC INSTRUMENTS; **3,265,892,** same, SCANNOGRAPH USING FLEXIBLE FIBER LIGHT CONDUCTORS; **3,286,087,** same, DEVICE FOR ILLUMINATION; **3,305,690,** same, ELECTRON DISCHARGE DEVICE WITH FIBER OPTIC END WALL; **3,324,326,** same, ELECTRON DEVICES WITH FIBEROPTIC MEMBERS; **3,345,531,** same, DEVICES FOR LIGHT TRANSFER BY FIBER OPTIC MEMBERS; **3,375,388,** same, VACUUM TUBES PROVIDED WITH LIGHT CONDUCTING MEMBERS AND WITH A SCREEN OF A HIGH PHOTOELECTRIC SENSITIVITY; **3,423,620,** same, VACUUM TUBE DEVICE HAVING LIGHT CONDUCTING RODS AND LUMINESCENT SCREEN; **3,499,107,** same, LIGHT TRANSFER DEVICES USING LIGHT CONDUCTING MEMBERS OF MULTILAYERED CONSTRUCTION AND PHOTOELECTRIC MEANS; **3,636,366,** same, OPTOELECTRIC SCREENS PROVIDED WITH LIGHT-CONDUCTING MEMBERS, **filed** Sept. 4, 1973, Ct. of Claims (District of Columbia), Doc. 330-73, *Eward Emanuel Sheldon* v. *The United States.*

3,040,968, Long and Crane, WRAPPER FOR PACKAGED PRODUCE, **filed** Sept. 28, 1973, D.C., N.D. Ill (Chicago), Doc. 73c2484, *Standun, Inc.* v. *Polycraft Corp.*

3,205,390. (See 3,027,477.)

3,208,409, J. A. Gale, DESK DEVICE; **3,259,431,** same, SEATING DEVICE; **9,370,885,** same, CONTOUR LOUNGE CHAIR; **3,441,310,** same, SEATING STRUCTURE; **3,556,522,** same, SLIDE; **D. 198,312,** same, ROCKING CHAIR; **D. 198,324,** same, TABLE; **D. 200,240,** same, DESK; **D. 201,879,** same SWIVEL CHAIR; **D. 207,105,** same, CHILD'S SLIDE; **D. 213,271,** same, SLIDE; **D. 221,784,** Gale and Heinz, ROLLING TOY; **Reg. No. 851,849** (STEP'N SLIDE), The John Gale Company, **filed** June 19, 1973, D.C. Minn. (Minneapolis), Doc. 4-73-C-323, *Richard H. Barry, as trustee for Moulded Products, Inc.* v. *John A. Gale and John Gale Company.*

3,246,336, Barlbo, Porter, Turner and Wright, MOLASSES FEED BLOCKS AND METHOD OF PREPARATION AND USE, **filed** June 20, 1972, D.C., N.D. Ind. (South Bend), Doc. 72S123, *A. E. Staley Manufacturing Company* v. *VyLactos Laboratories, Inc.* Cause transferred to U.S. District Court for S. D. of Des Moines, Iowa, pursuant to Section 1404(a), Title 28, U.S.C., order to transfer entered Sept. 27, 1973.

3,259,431. (See 3,208,409.)

3,265,892. (See 3,027,477.)

3,286,087. (See 3,027,477.)

3,305,690. (See 3,027,477.)

3,306,221, K. W. Goodpasture, MAGNET DRIVE PLASTIC PUMP, **filed** Oct. 12, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2623, *Kenneth Wayne Goodpasture* v. *Service Filtration Corp. and Jack H. Berg.*

3,322,888. (See 2,707,775.)

3,324,326. (See 3,027,477.)

3,345,531. (See 3,027,477.)

3,360,157, Bolt and Wobbe, METHOD OF FORMING A COATED METAL CONTAINER AND ARTICLE PRODUCED THEREBY, **filed** Sept. 20, 1973, D.C., E.D. Wis. (Milwaukee), Doc. 73-C-516, *American Can Company* v. *Crown Cork & Seal Company, Inc.*

3,370,885. (See 3,208,409.)

3,375,388. (See 3,027,477.)

3,423,620. (See 3,027,477.)

3,441,310. (See 3,208,409.)

3,499,107. (See 3,027,477.)

3,556,327, H. K. Garrison, LOOSE HAY WAGON; **3,728,849,** E. C. Lundahl, HAY LOADER, **filed** Sept. 28, 1973, D.C., C.D. Utah (Salt Lake City), Doc. C-299-73, *Deere & Company* v. *Hesston Corporation.*

3,556,522. (See 3,208,409.)

3,623,289, J. L. Lowery, FLEXIBLE SPACING DEVICE FOR CONCRETE REINFORCING MATERIALS; **3,632,209,** E. F. Kingman, SYSTEM FOR MEASURING LIGHT TRANSMITTANCE THROUGH ABSORBTIVE OR DIFFUSIVE MEDIA, **filed** Apr. 3, 1973, D.C.N.J. (Newark), Doc. C-452-73, *Celesco Industries, Inc.* v. *Robert H. Wager Co., Inc. et al.* Stipulation and order of dismissal of complaint, Oct. 10, 1973.

3,627,608, Steiner and Paulsen, METHOD OF FORMING A PANEL HAVING A COMPOUND CURVATURE, **filed** Sept. 24, 1973, D.C., E.D. Mich. (Detroit), Doc. 74-70379, *Woodall Industries, Inc.* v. *W-K Manufacturing Company.*

3,632,209. (See 3,623,289.)

3,636,366. (See 3,027,477.)

3,728,849. (See 3,556,327.)

3,758,151, F. M. Re, RECLINING CHAIR, **filed** Oct. 17, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2667, *Dual Manufacturing & Engineering et al.* v. *Burris Industries, Inc.*

Re. 25,506, C. H. Stevens, Jr., CABLE CONNECTOR ASSEMBLY, **filed** Dec. 26, 1968, D.C., S.D. Ohio (Cincinnati), Doc. 6958, *Empire Products, Inc.* v. *Helox Industries, Inc. et al.* Consent judgment and decree, plaintiff owner of patent, all claims and counterclaims are dismissed with prejudice, Aug. 28, 1973.

Re. 25,899, A. J. Walbel, HIGH PRESSURE VALVE ASSEMBLY, **filed** Sept. 27, 1971, D.C., W.D.N.Y. (Buffalo), Doc. C-1971-426, *Ingersoll-Rand Company* v. *Dresser Industries, Incorporated.* Order of dismissal entered Mar. 23, 1973.

D. 198,312. (See 3,208,409.)

D. 198,324. (See 3,208,409.)

D. 200,240. (See 3,208,409.)

D. 201,879. (See 3,208,409.)

D. 207,105. (See 3,208,409.)

D. 213,271. (See 3,208,409.)

D. 221,784. (See 3,208,409.)

D. 224,248, W. E. Bennett, PASSENGER CARRYING TOW KITE, **filed** June 12, 1973, D.C., W.D. Wash. (Seattle), Doc. 389-73C2, *William Edward Bennett* v. *Jobe Corporation and Jeffrey A. Jobe.*

Reg. No. 596,526. (See 2,707,775.)

Reg. No. 737,050. (See 3,707,775.)

Reg. No. 851,849. (See 3,208,409.)

Certificates of Correction for the Week of May 7, 1974

Re. 27,895	3,748,656	3,770,324	3,780,075
D. 227,542	3,749,974	3,770,612	3,780,123
D. 228,516	3,752,037	3,770,614	3,780,404
D. 228,614	3,752,620	3,770,990	3,780,743
D. 229,889	3,753,916	3,771,155	3,781,177
3,582,255	3,754,051	3,771,825	3,782,072
3,655,512	3,754,905	3,772,667	3,782,376
3,657,213	3,755,541	3,772,684	3,782,411
3,657,219	3,755,591	3,772,929	3,782,845
3,657,306	3,756,941	3,773,006	3,783,207
3,657,438	3,757,412	3,773,422	3,783,415
3,665,994	3,757,446	3,773,484	3,783,950
3,681,059	3,758,269	3,773,530	3,784,251
3,681,108	3,759,011	3,773,817	3,784,809
3,692,719	3,759,193	3,774,313	3,784,857
3,692,794	3,760,012	3,774,584	3,785,303
3,694,348	3,760,171	3,775,607	3,785,413
3,705,119	3,760,858	3,775,960	3,785,555
3,712,140	3,762,626	3,776,122	3,785,590
3,712,808	3,763,141	3,776,468	3,785,659
3,713,799	3,763,225	3,776,476	3,785,676
3,715,354	3,763,311	3,776,735	3,785,735
3,717,141	3,764,036	3,776,848	3,785,902
3,719,612	3,765,147	3,776,879	3,786,358
3,719,726	3,765,405	3,777,040	3,786,887
3,719,817	3,765,731	3,777,138	3,786,916
3,720,656	3,765,810	3,777,703	3,786,974
3,721,386	3,765,813	3,777,805	3,788,861
3,736,303	3,765,992	3,777,845	3,789,198
3,736,977	3,767,309	3,778,238	3,789,346
3,738,360	3,767,589	3,778,244	3,789,402
3,738,935	3,767,824	3,778,371	3,790,067
3,739,204	3,768,014	3,778,633	3,790,142
3,743,323	3,768,568	3,778,989	3,790,182
3,743,660	3,768,604	3,779,424	3,790,526
3,743,930	3,770,072	3,779,676	
3,748,440	3,770,074	3,779,879	

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the listing policy of each agency-sponsor.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,

Patent Program Coordinator, National Technical Information Service.

DEPARTMENT OF THE AIR FORCE
AF/JACP, Washington, D.C. 20314

Patent application 300,002. Chemical Laser Nozzle System. Filed Oct. 24, 1972. PC $3/MF $1.45.

Patent application 301,029. Liquid Expulsion Subsystem. Filed Oct. 26, 1972. PC $3/MF $1.45.

Patent application 304,585. Modified Polybenzothiazole-Based Adhesive. Filed Nov. 7, 1972. PC $3/MF $1.45.

Patent application 306,504. Variable Angle Jet Flap System. Filed Nov. 14, 1972. PC $3/MF $1.45.

Patent application 306,648. Treatment of Graphite Fibers. Filed Sept. 29, 1972. PC $3/MF $1.45.

Patent application 319,591. Inner Surface Single Beam Reflected Light Hologram. Filed Dec. 29, 1972. PC $4/MF $1.45.

Patent application 328,158. Rotor Blade Capturing Assembly. Filed Jan. 30, 1973. PC $4/MF $1.45.

Patent application 329,509. Vinyl-Substituted Siloxane and Siloxazane Polymers. Filed Feb. 5, 1973. PC $4.25/MF $1.45.

Patent application 341,634. Process for Fabricating Porous Berryllium Billets. Filed Mar. 15, 1973. PC $4/MF $1.45.

Patent 3,702,326. Fused Ring Tetraamino Compound, the Tetratosylate Thereof, and Their Synthesis. Filed Aug. 5, 1970. Patented Nov. 7, 1972. Not available NTIS.

Patent 3,714,695. Method for Forming Thrust Chambers. Filed Sept. 17, 1970. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,715,509. Method and Means for Providing Resolution Level Selection in a Spectrum Analyzer. Filed Feb. 18, 1971. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,716,809. Acoustic Surface Wave Resonator. Filed Aug. 11, 1971. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,719,206. Refillable Cooling Package. Filed Feb. 12, 1971. Patented Mar. 6, 1973. Not available NTIS.

Patent 3,719,831. Logarithmic IF Amplifier. Filed Feb. 18, 1969. Patented Mar. 6, 1973. Not available NTIS.

Patent 3,719,889. Laser Pulse Train Totalizer and Interval Counter. Filed Dec. 14, 1971. Patented Mar. 6, 1973. Not available NTIS.

Patent 3,719,899. Stabilized, Optimizable, Gaseous Electrical Discharge. Filed Nov. 4, 1971. Patented Mar. 6, 1973. Not available NTIS.

Patent 3,721,625. Solid Lubricant Compositions Employing Polybenzimidazole Resins and Lubricating Pigments. Filed June 11, 1968. Patented Mar. 20, 1973. Not available NTIS.

Patent 3,724,495. Apparatus for Clean Sealing Valves. Filed Feb. 11, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,736,542. High Voltage Transformer. Filed June 15, 1971. Patented May 29, 1973. Not available NTIS.

Patent 3,736,587. Coherent Frequency Hopped, Phase Modulated Acoustic Surface Wave Generator. Filed May 26, 1971. Patented May 29, 1973. Not available NTIS.

Patent 3,738,168. Laser Beam Scanning Device. Filed Nov. 16, 1971. Patented June 12, 1973. Not available NTIS.

Patent 3,738,750. Doppler Shift Laser Velocimeter Data Processor. Filed Dec. 10, 1970. Patented June 12, 1973. Not available NTIS.

Patent 3,739,391. Metallized Channel Guide Antenna. Filed June 12, 1972. Patented June 12, 1973. Not available NTIS.

Patent 3,739,634. Apparatus for Generating Ultra High Total Enthalpy Gases With Multicomponent Flow. Filed July 6, 1972. Patented June 19, 1973. Not available NTIS.

Patent 3,740,374. Poly (Quinoxalino-bisimidazonaphthaldimide) Polymers and Method of Preparation. Filed Sept. 26, 1972. Patented June 19, 1973. Not available NTIS.

Patent 3,740,538. Digital Sorter and Ranker. Filed July 28, 1971. Patented June 19, 1973. Not available NTIS.

Patent 3,740,654. Signal Conditioning Circuit. Filed Mar. 7, 1972. Patented June 19, 1973. Not available NTIS.

Patent 3,740,920. Method for Packaging Hybrid Circuits. Filed May 26, 1971. Patented June 26, 1973. Not available NTIS.

Patent 3,741,648. Acoustic Beam Splitter for Infrared Lasers. Filed July 16, 1971. Patented June 26, 1973. Not available NTIS.

Patent 3,742,390. Multi-Frequency Microstrip Filter-Detector. Filed Nov. 23, 1971. Patented June 26, 1973. Not available NTIS.

Patent 3,742,399. Vertical Tapeline Microwave Coupler for Paramagnetic Spin Resonance. Filed May 19, 1971. Patented June 26, 1973. Not available NTIS.

Patent 3,742,501. Radar Apparatus With Directional Discrimination and Increased Radar Sensitivity. Filed Mar. 21, 1972. Patented June 26, 1973. Not available NTIS.

Patent 3,743,624. Benzofuroisoquinoline Polymers and Method for Synthesizing Same. Filed Oct. 6, 1972. Patented June 26, 1973. Not available NTIS.

Patent 3,743,765. Redundant Area Coding System. Filed May 26, 1971. Patented July 3, 1973. Not available NTIS.

Patent 3,743,955. Radiation Hardening Read Preamplifier. Filed July 13, 1971. Patented July 3, 1973. Not available NTIS.

Patent 3,744,295. Photochromic-Thermochromic Coating Composition. Filed Nov. 24, 1971. Patented July 10, 1973. Not available NTIS.

Patent 3,745,567. Wideband Radar Receiver Protective Apparatus. Filed Mar. 9, 1972. Patented July 10, 1973. Not available NTIS.

Patent 3,745,568. Spectrum Analysis Radar. Filed Apr. 11, 1972. Patented July 10, 1973. Not available NTIS.

Patent 3,745,785. Solid Cryogen Heat Transfer Apparatus. Filed Jan. 17, 1972. Patented July 17, 1973. Not available NTIS.

Patent 3,745,877. Intervalometer for Parachute Flare Launcher. Filed Dec. 22, 1971. Patented July 17, 1973. Not available NTIS.

Patent 3,747,004. Injection-Locked Laser Stabilizer. Filed May 14, 1971. Patented July 17, 1973. Not available NTIS.

Patent 3,748,206. Cured Polyferrocenylenes and Process for Curing. Filed May 26, 1971. Patented July 24, 1973. Not available NTIS.

Patent 3,753,472. Light Pressure Operated Microbalance System. Filed Aug. 12, 1971. Patented Aug. 21, 1973. Not available NTIS.

Patent 3,753,616. Laser Doppler Velocimeter Detector. Filed Nov. 22, 1971. Patented Aug. 21, 1973. Not available NTIS.

Patent 3,756,779. Spectral Analysis of Ketoximes. Filed Nov. 16, 1971. Patented Sept. 4, 1973. Not available NTIS.

Patent 3,757,412. Lanthanide Isopropoxides and Preparation of Same. Filed Oct. 20, 1971. Patented Sept. 11, 1973. Not available NTIS.

Patent 3,761,303. Method for Impregnating Microcracks in Chromium Plating. Filed Dec. 7, 1971. Patented Sept. 25, 1973. Not available NTIS.

Patent 3,762,644. Stress Relief Grooves for Pyrolytic Graphite Coated Rocket Nozzle Inserts. Filed May 11, 1970. Patented Oct. 2, 1973. Not available NTIS.

Patent 3,764,830. Stripline Video Pulse Generator. Filed June 27, 1972. Patented Oct. 9, 1973. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Chief, Research Agreements and Patent Mgmt. Branch,
Federal Building
General Services Division, Agricultural Research Service,
Hyattsville, Md. 20782

Patent application 306,770. Non-Aqueous Process for Reacting Sultones With Cellulosic Materials. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 309,833. Treatment of Cotton With Glycidyl Methacrylate Using Ionizing Radiation. Filed Nov. 27, 1973. PC $4/MF $1.45.

Patent application 311,609. d,d'-BIS-(Phosphono) Dicarboxylic Acid Derivatives. Filed Dec. 4, 1972. PC $4/MF $1.45.

Patent application 314,651. Use of Sodium Bisulfite in an Improved Process for the Treatment of Cellulose Textile Materials With Carbamate Finishing Agents and Sulfurous Acid. Filed Dec. 13, 1972. PC $4/MF $1.45.

Patent 3,676,052. Polypropylene Glycols and Substituted Polypropylene Glycols are Used in Conjunction With Crosslinking Agency to Produce Durable Press Fabrics With Improved Soil Release Performance. Filed Nov. 3, 1969. Patented July 11, 1972. Not available NTIS.

Patent 3,676,056. High Energy Radiation Stabilization of Cellulose Obtained by Esterifying With Thenoyl Chloride. Filed Apr. 30, 1971. Patented July 11, 1972. Not available NTIS.

Patent 3,677,692. High Energy Radiation Stabilization of Cellulose Obtained by Esterifying With Furoyl Chloride. Filed Apr. 30, 1971. Patented July 18, 1972. Not available NTIS.

Patent 3,678,537. Card Cover With Fiber Conveying Air Flow Channel. Filed June 26, 1970. Patented July 25, 1972. Not available NTIS.

Patent 3,680,219. Process for Steam Straightening and Kiln Drying Lumber. Filed Sept. 22, 1970. Patented Aug. 1, 1972. Not available NTIS.

Patent 3,681,268. Mastic Adhesive Composition Containing Zinc Salt of Formaldehyde-Modified Rosin. Filed Feb. 27, 1970. Patented Aug. 1, 1972. Not available NTIS.

Patent 3,685,100. Card Cover With Fiber-Conveying Channels. Filed June 26, 1970. Patented Aug. 22, 1972. Not available NTIS.

Patent 3,694,256. Process for Rendering Cellulosic Textiles Flame Retardant. Filed Jan. 12 1971. Patented Sept. 26, 1972. Not available NTIS.

Patent 3,694,397. Hexachlorocyclopentadiene Adducts of Unsaturated Amides. Filed Dec. 16, 1971. Patented Sept. 26, 1972. Not available NTIS.

Patent 3,696,603. Electrostatic Fiber Collecting and Yarn Spinning Apparatus. Filed Apr. 12, 1971. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,697,316. Fire-Resistant Organic Products and Method for Production. Filed May 7, 1971. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,698,854. Process for Producing Flame Resistant Organic Textiles. Filed June 24, 1970. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,698,857. Fibrous Crosslinked (Aminoalkyl) Amino-Chlorodeoxy-Cellulose and Method of Preparation. Filed Jan. 26, 1971. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,699,146. Synthesis of Methyl Malvalate and Methyl 5,6-Methano-5-Undecenoate. Filed Mar. 31, 1970. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,701,626. Process for Rendering Cellulosics Water- and Oil-Repellent. Filed Dec. 23, 1970. Patented Oct. 31, 1972. Not available NTIS.

Patent 3,702,230. Use of Polymer Additive to Improve the Optical Brightener Absorption Characteristics of Durable-Press Fabrics. Filed Jan. 7, 1971. Patented Nov. 7, 1972. Nat available NTIS.

Patent 3,702,232. Tris(2-Chloroethyl) Phosphoramide used as a Crosslinking Agent for Cellulosic Compositions. Filed Nov. 19, 1971. Patented Nov. 7, 1972. Not available NTIS.

Patent 3,702,754. Fibrous (Carboxyalkylthio) and (Carboxyarylthio) Chlorodeoxycelluloses and Method of Preparation. Filed Jan. 24, 1971. Patented Nov. 14, 1972. Not available NTIS.

Patent 3,702,857. Decolorization of Cottonseed Oil With Ferric Chloride. Filed Mar. 10, 1970. Patented Nov. 14, 1972. Not available NTIS.

Patent 3,704,257. N-Cyclohexyl-N-(2-Cyanoethyl) Oleamide as a Plasticizer. Filed Nov. 13, 1969. Patented Nov. 28, 1972. Not available NTIS.

Patent 3,705,004. Pad Bath Formulation of Iron Salt, Potassium Permanganate, Ammonium Oxalate and Zirconyl Ammonium Carbonate. Filed Mar. 21, 1972. Patented Dec. 5, 1972. Not available NTIS.

Patent 3,706,762. Fungicidal Method. Filed May 7, 1971. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,708,450. Elastomeric Polyester-Derived Polyurethanes Containing 12-Hydroxymethyl-Tetrahydroabietanol. Filed Dec. 16, 1971. Patented Jan. 2, 1973. Not available NTIS.

Patent 3,714,144. Process for the Production of Sucrocid-Esters of Fatty Acids. Filed May 29, 1969. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,813. Bispyrrolidone-Formaldehyde Addition Products and Their Use as Crosslinking Agents With Cellulose. Filed Feb. 17, 1971. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,715,910. Determination of Residual Solvent in Oilseed Meals and Flours by a Volatization Procedure. Filed Jan. 26, 1971. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,716,540. Hexachloropentadiene Adducts of Unsaturated Piperazine Amides. Filed Dec. 16, 1971. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,719,448. Organo-Phosphorus Compounds Containing Perfluoroalkyl Radicals and Their Application to Cellulosic Textiles. Filed June 9, 1971. Patented Mar. 6, 1973. Not available NTIS.

Patent 3,722,202. Spinning a Filament-Wrapped Staple Fiber Core Yarn. Filed Sept. 24, 1971. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,723,057. Process for Stabilizing Organophosphorus Solutions and Imparting Rot and Flame Resistance to Organic Textile Materials. Filed July 19, 1971. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,723,133. Method of Preparing a Dehydrated Deacidified Citrus Juice Product. Filed Feb. 7, 1972. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,724,243. Chainless Mercerizer Suitable for Use With Liquid Ammonia. Filed May 7, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,731,466. Continuous Flow Multiple Trap for Low Temperature Reduced Pressure Gas Chromatography. Filed July 14, 1971. Patented May 8, 1973. Not available NTIS.

Patent 3,732,179. Process for Preparing Polyurethanes From Hydroxy-Methylated Derivatives of Resin Acids. Filed Mar. 15, 1972. Patented May 8, 1973. Not available NTIS.

Patent 3,734,684. Flame Retardant Phosphorus Containing Fibrous Products and Method for Production. Filed May 7, 1971. Patented May 22, 1973. Not available NTIS.

Patent 3,737,453. 2-Aminoethanol Salt of Dehydroabietic Acid. Filed Dec. 2, 1970. Patented June 5, 1973. Not available NTIS.

Patent 3,745,020. Process for Preparing Citrus Puree. Filed May 5, 1971. Patented July 10, 1973. Not available NTIS.

Patent 3,745,191. Flame-Resistant Organic Textiles Through Treatment With Halogen Containing Soluble Methylol Phosphine Adducts. Filed May 7, 1971. Patented July 10, 1973. Not available NTIS.

Patent 3,746,731. Process for Refining Glyceride Oils and Fats. Filed Dec. 31, 1969. Patented July 17, 1973. Not available NTIS.

Patent 3,749,552. Simultaneous Introduction of Quaternary Ammonium Salt Residues and Sulfone Residues Into Fibrous Cellulose. Filed Dec. 9, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,754,860. Wrinkle-Resistance Finishes for Cotton Fabric Using Citric Acid Derivatives for Soil Release. Filed Nov. 5, 1971. Patented Aug. 28, 1973. Not available NTIS.

Patent 3,754,932. Proteare and Pectmare Additive to Citrus Juices. Filed Apr. 16, 1971. Patented Aug. 28, 1973. Not available NTIS.

Patent 3,755,418. Finishing Agents With Reduced Formaldehyde Odor for Cellulose Containing Textile Materials. Filed Sept. 18, 1970. Patented Aug. 28, 1973. Not available NTIS.

Patent 3,746,722. Hexachlorocyclopentadiene Adducts of Unsaturated Amides. Filed Dec. 16, 1971. Patented July 17, 1973. Not available NTIS.

Patent 3,756,777. Pad-Cure Process for the Preparation of DEAE-Cotton. Filed July 30, 1971. Patented Sept. 4, 1973. Not available NTIS.

DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent application 419,830. Process for Making Preformed Support Structures. Filed Nov. 28, 1973. PC $4/MF $1.45.

Patent application 789,577. Personal Dust Sampler Holder. Filed Jan. 7, 1969. PC $4/MF $1.45.

Patent 2,821,499. Method for Controlling Sea Lampreys (Petromyzon Marinus). Filed May 9, 1956. Patented Jan. 28, 1958. Not available NTIS.

Patent 2,826,897. Fish Diversion Louver System. Filed Dec. 1, 1954. Patented Mar. 18, 1958. Not available NTIS.

Patent 2,889,528. Standardizing Strain Gage. Filed Feb. 27, 1957. Patented June 2, 1959. Not available NTIS.

Patent 2,893,633. Bi-Directional Electric Counting System. Filed Oct. 10, 1957. Patented July 7, 1959. Not available NTIS.

Patent 2,913,846. Apparatus for Controlling the Upstream Movement of Fish. Filed Mar. 24, 1958. Patented Nov. 24, 1959. Not available NTIS.

Patent 2,955,068. Method for Controlling Boring Sponges and Other Pests of Commercial Mollusks. Filed Oct. 10, 1958. Patented Oct. 4, 1960. Not available NTIS.

Patent 2,962,632. Overload Protection Device for Direct Current Generators. Filed Jan. 19, 1959. Patented Nov. 29, 1960. Not available NTIS.

Patent 2,979,442. Process for the Prevention of Scale in Sea Water Evaporators. Filed June 28, 1957. Patented Apr. 11, 1961. Not available NTIS.

Patent 3,016,296. Method for Reduction of Refractory Metal Oxide to Metal by Calcium Carbide. Filed Sept. 23, 1959. Patented Jan. 9, 1962. Not available NTIS.

Patent 3,028,008. Separation of Spodumene and Beryl by Flotation. Filed July 27, 1960. Patented Apr. 3, 1962. Not available NTIS.

Patent 3,031,287. Process for Manufacturing Mixtures of Hydrogen, Carbon Monoxide, and Methane. Filed June 23, 1958. Patented Apr. 24, 1962. Not available NTIS.

Patent 3,045,861. Closure for Evacuated and/or Pressurized Vessel. Filed Dec. 1, 1959. Patented July 24, 1962. Not available NTIS.

Patent 3,046,215. Electrolytic Cell With Vertical Mercury Electrode. Filed May 26, 1959. Patented July 24, 1962. Not available NTIS.

Patent 3,054,243. High Temperature Electrostatic Precipitator and Method of Operation. Filed Sept. 16, 1960. Patented Sept. 18, 1962. Not available NTIS.

Patent 3,054,685. Fluormica-Fluoramphibole Ceramics and Processes of Making Same. Filed Feb. 9, 1960. Patented Sept. 18, 1962. Not available NTIS.

Patent 3,069,255. Production of High Purity Titanium by Metallic Sodium Reduction of Titanic Halide. Filed Nov. 25, 1957. Patented Dec. 18, 1962. Not available NTIS.

Patent 3,088,805. A Method for Producing Zirconium Diboride. Filed Aug. 21, 1959. Patented May 7, 1963. Not available NTIS.

Patent 3,088,909. Mixed Solvents for Saline Water Extraction. Filed Feb. 9, 1961. Patented May 7, 1963. Not available NTIS.

Patent 3,107,215. Flotation Process for Concentration of Pollucite Ores. Filed Jan. 25, 1962. Patented Oct. 15, 1963. Not available NTIS.

Patent 3,108,716. Pressure Control Mechanism. Filed Sept. 15, 1961. Patented Oct. 29, 1963. Not available NTIS.

Patent 3,113,017. Method for Reacting Titanic Chloride With an Alkali Metal. Filed July 6, 1960. Patented Dec. 3, 1963. Not available NTIS.

Patent 3,128,744. Method for Investigating the Migratory Habits of Macro-Organisms. Filed Jan. 2, 1962. Patented Apr. 14, 1964. Not available NTIS.

Patent 3,138,637. Process for Recovering Ethylenediamine-Tetraacetic Acid (EDTA) From Copper EDTA-Ion Exchange Effluent Solutions. Filed Jan. 9, 1962. Patented June 13, 1964. Not available NTIS.

Patent 3,140,148. Method of Treating Exhaust Gases With Urania-Containing Catalysts. Filed July 26, 1961. Patented July 7, 1964. Not available NTIS.

Patent 3,148,577. Rock Bolt Anchored by Explosive Forming. Filed Feb. 27, 1962. Patented Sept. 15, 1964. Not available NTIS.

Patent 3,162,257. Barrel-Type Soil Auger. Filed Oct. 12, 1962. Patented Dec. 22, 1964. Not available NTIS.

Patent 3,164,905. Universal Tracing Table. Filed Aug. 16, 1961. Patented Jan. 12, 1965. Not available NTIS.

Patent 3168,814. Automatic Water Control Gate. Filed Sept. 14, 1961. Patented Feb. 9, 1965. Not available NTIS.

Patent 3,175,459. Meter for Optically Measuring Fluid Current Velocity. Filed Oct. 1, 1962. Patented Mar. 30, 1965. Not available NTIS.

Patent 3,285,765. Cellulose Acetate Reverse Osmosis Desalination Membranes Cast From Nonaqueous Solutions and a Method of Making the Same. Filed Oct. 18, 1963. Patented Nov. 15, 1966. Not available NTIS.

Patent 3,289,753. Use of Gold Surfaces to Promote Dropwise Condensation. Filed Nov. 2, 1964. Patented Dec. 6, 1966. Not available NTIS.

Patent 3,289,754. Use of Silver Surfaces to Promote Dropwise Condensation. Filed Nov. 2, 1964. Patented Dec. 6, 1966. Not available NTIS.

Patent 3,290,286. Partially Hydrolyzed Cellulosic Reverse Osmosis Membranes and Methods of Preparing the Same. Filed Oct. 18, 1965. Patented Dec. 6, 1966. Not available NTIS.

Patent 3,291,400. Bacteria Disintegrator. Filed Sept. 23, 1963. Patented Dec. 13, 1966. Not available NTIS.

Patent 3,305,091. Method of Separating Liquid-Solid Suspensions Into Individual Phases. Filed Apr. 20, 1965. Patented Feb. 21, 1967. Not available NTIS.

Patent 3,332,894. Polyvinyl Carbonate Desalination Membrane and a Method of Producing the Same. Filed Dec. 6, 1966. Patented July 25, 1967. Not available NTIS.

Patent 3,336,161. Biochemical Method of Producing Electricity. Filed Mar. 11, 1963. Patented Aug. 15, 1967. Not available NTIS.

Patent 3,384,451. Production of Spherical Granules of Alkali Earth Phosphate Salts. Filed Oct. 22, 1965. Patented May 21, 1963. Not available NTIS.

Patent 3,387,487. Recording Gas Collector. Filed Oct. 18, 1965. Patented June 11, 1968. Not available NTIS.

Patent 3,397,040. Spectrophotometric Method for the Determination of Gold. Filed Feb. 28, 1966. Patented Aug. 13, 1968. Not available NTIS.

Patent 3,463,713. Electrodialysis Process Using Inorganic Ion Exchange Membranes. Filed Dec. 13, 1966. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,463,717. Reference and Glass Electrodes Capable of Withstanding High Pressures. Filed Jan. 7, 1966. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,480,144. Process for Removing Phosphorus From Waste Water. Filed May 3, 1968. Patented Nov. 25, 1969. Not available NTIS.

Patent 3,481,695. Process for Extracting Aluminum Values From Oil Shale. Filed Jan. 7, 1969. Patented Dec. 2, 1969. Not available NTIS.

Patent 3,482,374. Process for Electrostatic Precipitation. Filed Oct. 3, 1967. Patented Dec. 9, 1969. Not available NTIS.

Patent 3,992,884. Process for the Removal of Sulfur Oxides From Gases. Filed Oct. 7, 1959. Patented July 18, 1961. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINSTRATION
Assistant General Counsel for Patent Matters
NASA—Code GP–2
Washington, D.C. 20546

Patent application 416,135. Simultaneous Acquisition of Tracking Data From Two Stations. Filed Nov. 15, 1973. PC $3.25/MF $1.45.

Patent application 419,747. Position Determination Systems. Filed Nov. 28, 1973. PC $3/MF $1.45.

Patent application 420,813. Inert Gas Metallic Vapor Laser. Filed Dec. 3, 1973. PC $3.25/MF $1.45.

Patent application 433,968. Diode-Quad Bridge Circuit Means. Filed Jan. 16, 1974. PC $3/MF $1.45.

Patent application 436,313. Anthropomorphic Master/Slave Manipulator System. Filed Jan. 24, 1974. PC $4/MF $1.45.

Patent 3,732,297. Inherent Redundancy Electric Heater. Patented May 8, 1973. Not available NTIS.

Patent 3,777,552. Ultrasonic Scanning System for In-Place Inspection of Brazed Tube Joints. Patented Dec. 11, 1973. Not available NTIS.

Patent 3,780,827. Gas Turbine Exhaust Nozzle. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,780,966. Attitude Sensor. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,111. Short Range Laser Obstacle Detector. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,549. Use of Thin Film Light Detector. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,562. Mossbauer Spectrometer Radiation Detector. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,902. Recorder/Processor Apparatus. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,958. Method of Making Rolling Element Bearings. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,177. Method and Apparatus for Nondestructive Testing. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,181. Dual Measureemnt Ablation Sensor. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,334. Automatic Real-Time Pair-Feeding System for Animals. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,825. Method and Apparatus for Checking the Stability of a Setup for Making Reflection Type Holograms. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,904. Compact Hydrogenator. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,783,354. Phase Protection System for AC Power Lines. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,783,399. Full Wave Modulator-Demodulator Amplifier Apparatus. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,783,443. Ejectable Underwater Sound Source Recovery Assembly. Patented Jan. 1, 1974. Not available NTIS.

[FR Doc. 74, 8653; Filed 4–15–74; 8:45 am]

Disclaimers

Design No. 225,474.—*Paul E. Brooks*, Detroit, Mich. POCKET COMB. Patent dated Dec. 12, 1972. Disclaimer filed Nov. 30, 1971, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to Apr. 21, 1984.

3,651,349.—*Dawon Kahng*, Bridgewater Township, Somerset County, and *Edward Haig Nicollian*, Murray Hill, N.J. MONOLITHIC SEMICONDUCTOR APPARATUS ADAPTED FOR SEQUENTIAL CHARGE TRANSFER. Patent dated Mar. 21, 1972. Disclaimer filed Apr. 4, 1974, by the assignee, *Bell Telephone Laboratories, Incorporated*.

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,757,268.—*John M. Genovese*, Trenton, N.J. SELF-GROUNDING RECEPTACLE. Patent dated Sept. 4, 1973. Disclaimer filed Mar. 28, 1974, by the assignee, *Circle F Industries, Inc.*

Hereby enters this disclaimer to claim 1 of said patent.

3,767,518.—*Duane H. Beninga*, Arvada, and *Hugh P. Gibbons*, Boulder, Colo. ORGANIC RESIN GLASS COMPOSITE AND METHOD FOR MAKING SAME. Patent dated Oct. 23, 1973. Disclaimer filed Mar. 28, 1974, by the assignee, *Coors Porcelain Company*.

Hereby disclaims the portion of the term of the patent subsequent to Sept. 21, 1988.

Errata

All reference to Tsuyoshi Kutino, Nippon Kokan Kabushiki Kaisha, Hidehisa Yamagishi, and Fumitoshi Yokoi as the patentees of Patent Number 3,703,407 appearing on pages PI 11, 14, and 22, respectively, in the OFFICIAL GAZETTE of November 21, 1972, should be deleted as the patent issued to William James Hannan, John Patrick Russell, Arthur Herbert Firester and the RCA Corporation.

All reference to Jerry L. Malls and Marvin E. Rosenthale as patentees and American Home Products Corporation as assignee to Patent Number 3,740,436 appearing on pages PI 22, 30, and 2, respectively, in the OFFICIAL GAZETTE of June 19, 1973, should be deleted as the patent issued to James G. Rigsby and the Olin Corporation.

All reference to Defensive Publication T911,014 to Thomas A. K. Watson of Montreal, Canada, for System for a Rotary Mechanical Translation Device, appearing in the OFFICIAL GAZETTE of June 26, 1973, should be deleted since no defensive publication should have been published.

All reference to Patent Number 3,775,804 to Ralph H. Hoener, Jr. for Window Wall Washing Device for High-Rise Buildings, appearing in the OFFICAL GAZETTE of December 4, 1973, should be deleted since no patent should have been granted.

All reference to Patent Number 3,781,909 to Edwin Ira Stearns for Reduced Iteration in Computer Color Matching, appearing in the OFFICIAL GAZETTE of December 25, 1973 should be deleted since no patent should have been granted.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 13, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro. Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-07-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids, Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-23-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	4-24-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	5-04-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-05-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	9-05-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	11-06-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	2-23-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	1-01-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-27-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director. Industrial Arts; Household, Personal and Fine Arts.	4-27-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-17-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	5-02-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—Director (Vacant). Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	5-07-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	7-11-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—Director (Vacant). Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	1-22-73

Expiration of patents: The patents within the range of numbers indicated below expire during April 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,787,000 to 2,790,970, inclusive
Plant Patents..... Numbers 1,586 to 1,597, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED MAY 7, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T922,001
PROCESS FOR TOPICALLY TREATING POLYESTER FIBER AND FABRICS WITH A DURABLE FLAME RETARDANT COMPOSITION

John Richard Schwier, 437 Kitty Lane, Cincinnati, Ohio 45328, and Kenneth Ray Barton, 201 Claymore Drive, Kingsport, Tenn. 37663

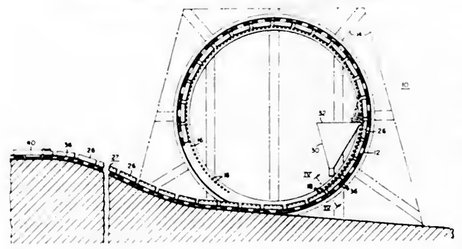
Filed Apr. 10, 1973, Ser. No. 349,889
Int. Cl. C09k *3/28*
U.S. Cl. 117—136
No Drawing. 16 Pages Specification

Process in which polyester fiber or fabric is treated with aqueous solution containing tetrakis(hydroxymethyl)phosphonium halide, triazines and carbamic acid derivatives, dried, and then cured to produce a polymeric coating on the polyester surface. The polymeric coating is durable to severe washings and repeated dry cleanings and renders the polyester substantially flame retardant.

T922,002
BULK HAULING FREIGHT CAR UNLOADING APPARATUS AND METHOD OF OPERATION

Paul W. McCormick, 723 Oak St., Johnstown, Pa. 15902

Filed Aug. 13, 1973, Ser. No. 387,804
Int. Cl. B25g *67/34*
U.S. Cl. 214—62 R
5 Sheets Drawing. 8 Pages Specification



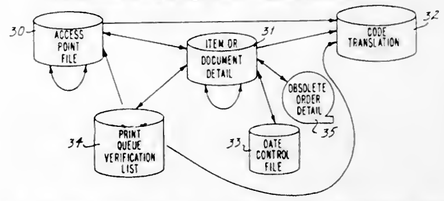
An apparatus for unloading bulk cargo from a train of freight cars of the gondola or hopper type is provided. The unloading apparatus comprises a helical loop of track having a horizontal axis and with a loop extending vertically and positioned such that a train of a large number of open top hopper cars is pushed through the loop in a manner wherein the open tops of the cars always faces the center of the loop while the cars are passing through the loop. A second, inner loop of guide devices is provided to engage the cars adjacent the open end thereof in order to support the cars while they are inverted or partially inverted as they pass through the loop. A load retention device is provided along a portion of the loop to retain the cargo in the cars as the cars are being partially inverted by passing through the loop to prevent premature dumping of the cargo.

In certain embodiments, means are provided for adjusting the distance between the inner and outer loops to accommodate different car sizes.

T922,003
LIBRARY MANAGEMENT SYSTEM

Robert W. Alexander, Jr., Los Gatos, John M. Bell and John A. Christensen, San Jose, Roger W. Harvey, Santa Cruz, Katherine A. Hitchcock, Atherton, Robert W. Martin, San Jose, and Alice K. McMullen, Campbell, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 327,252, Jan. 26, 1973, which is a continuation of application Ser. No. 150,853, June 7, 1971. This application Sept. 17, 1973, Ser. No. 398,140
Int. Cl. G06f *9/12*
U.S. Cl. 444—1
51 Sheets Drawing. 284 Pages Specification



A file structure for an on-line system. A central processing system having core and direct access storage devices and input/output terminals is programmed for on-line applications such as inventory control, manufacturing process control, library management. The file structure for those applications includes an item detail file including a logical record for each individual item in the inventory, an access point file including inverted lists of item details having search or control significance, a code translation file having alphameric translations of coded data in the other files. Also included may be a print queue/verification file and date control file. Each file includes one or more index and data files. Forward and reverse indexing connects the files through use of implicit pointers and item numbers. On-line updating of record detail is simultaneously performable with review of that record. Events having future significance are triggered automatically. Logical and physical overflow records are accommodated, as are variable length logical records built on variable length counters. Last-in/last-out updating of logical record lists together with reverse order data fields and length/sequence fields optimizes "get" time. The application functions include ordering, receiving, cataloging, circulating, searching, and file maintaining.

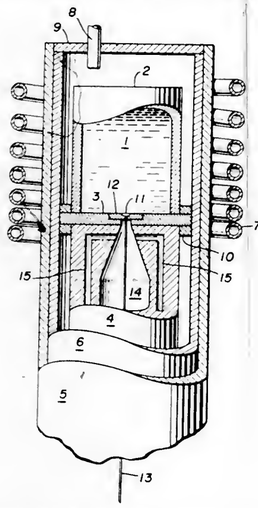
T922,004
ORIFICE STRUCTURE IN APPARATUS FOR EXTRUDING MOLTEN METALS

Jerome J. English, Cary, and Nicholas K. Harakas and Bernhard T. Junker, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 1, 1973, Ser. No. 412,370
Int. Cl. B22d *11/00*
U.S. Cl. 164—82
1 Sheet Drawing. 10 Pages Specification

An improved orifice structure is provided in an apparatus for extruding fine diameter wire. In the prior prac-

tice, repeated orifice failure in such apparatus had been experienced when extruding steel containing melts, such as alloys of steel and aluminum, which must be processed at temperatures in excess of 1500° C. The cause of such failure was largely due to an insufficient high temperature strength of the ceramic material from which the orifice structure was constituted. It has now been found that this problem is overcome when the orifice defining element consists of a hot-pressed beryllium oxide ceramic having a density of from 2.9 gm./cm.³ to 3.0 gm./cm.³



T922,005
FLUORIDE SALTS AS DEHYDROCHLORINATING AGENTS IN THE PREPARATION OF CHLOROPRENE OR 2,3-DICHLORO-1,3-BUTADIENE

Paul Clayton Briggs, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 28, 1973, Ser. No. 419,892
Int. Cl. C07c *21/20*
U.S. Cl. 260—655
No Drawing. 13 Pages Specification

Chloroprene is prepared in high yields and without the formation of brine by reacting 3,4-dichloro-1-butene with cesium fluoride, potassium fluoride, an organic quaternary ammonium fluoride, a mixture of cesium fluoride and potassium fluoride, or a mixture of cesium fluoride and sodium fluoride, said reaction being conducted in an aprotic organic solvent.

In the alternative embodiment of this invention 2,3-dichlorobutadiene is similarly prepared from 2,3,4-trichloro-1-butene or meso-1,2,3,4-tetrachlorobutane.

The aprotic solvents useful in this invention are polar organic materials which are liquid under the conditions of the reaction and which form a homogeneous phase with the organic chlorine-containing starting material. The fluorides are only slightly soluble in the solvent, but the solvent should be one which is capable of effectively solvating the cation while leaving the fluoride ion unsolvated in solution. Hydrogen-bonding solvents, such as water and the alcohols, are ineffective.

Suitable solvents include, for example, aliphatic carboxylic acid amides, aliphatic sulfones and sulfoxides, and hexaalkyl phosphoric triamides.

The temperature of the reaction is conveniently from about 25° C. up to about 150° C. In general, the preferred range is about 50° to about 125° C. Temperatures of around 90° to about 110° C. are usually most satisfactory.

T922,006
METHOD FOR PREPARING FIRE RETARDANT POLYESTER FIBERS

Winston J. Jackson, Jr., 4408 Greensprings Circle 37664, and John R. Caldwell, 404 Colonial Heights 37663, both of Kingsport, Tenn.

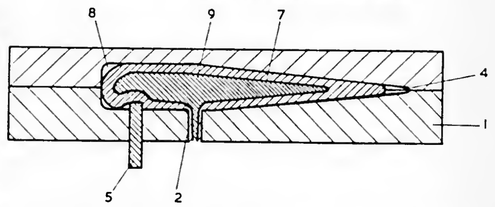
Filed Mar. 30, 1973, Ser. No. 346,511
Int. Cl. C09d *5/18;* **C09k** *3/28*
U.S. Cl. 117—136
No Drawing. 12 Pages Specification

Disclosed is a process for preparing fire retardant polyester fibers comprising applying to the surface of the polyester fiber an organic bromine compound, and subsequently heating the fiber in a temperature range of about 160° to about 220° C. to diffuse into the fiber structure a sufficient quantity of the organic bromine compound to result in, based on the weight of the fiber, 0.3 to 3 weight percent bromine in the fiber structure. Poly(ethylene terephthalate) and poly(1,4-cyclohexylenedimethylene terephthalate) fibers are particularly desirable polyester fibers. Tris(2,3-dibromopropyl) phosphate is a particularly desirable organic bromine compound.

T922,007
INJECTION MOULDING

Alan George Smith, Harrow, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Apr. 5, 1973, Ser. No. 348,143
Claims priority, application Great Britain, Apr. 20, 1972, 18,378/72
Int. Cl. B29d *27/00*
U.S. Cl. 264—55
5 Sheets Drawing. 18 Pages Specification



Injection moulding process with sequential injection of dissimilar materials into a mould cavity defined by at least two mould members in at least one of which a retractable member is slidably mounted, the retractable member being initially in the non retracted position, preferably protruding beyond the surface of the mould member into the cavity, and said member being retracted before or during injection of the second material but before the mould cavity is filled. This enables the distribution of the first and second materials inside the mould cavity to be modified.

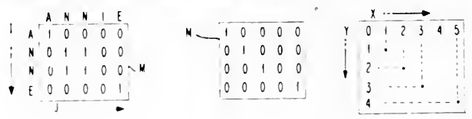
T922,008
DATA PROCESSOR PROGRAM FOR DETERMINING CHARACTER STRING SIMILARITY

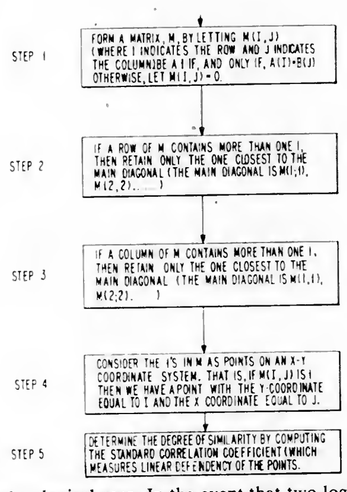
Donald C. Gause, Owego, and Eduardo Kellerman and Gerald L. Rouse, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 154,093, June 17, 1971. This application Oct. 18, 1973, Ser. No. 407,733
Int. Cl. G05b *19/28;* **G06f** *7/34*
U.S. Cl. 444—1
4 Sheets Drawing. 27 Pages Specification

An improved program method is shown for determining the similarity of two character strings where they are not necessarily equal character by character. Each character of one character string is compared with each character of the other character string, and the results are stored in a matrix. Each row of the matrix corresponds to a respective one of the characters of the first string, and each column of the matrix corresponds to a respective character of the other string. A logical one value is

stored in each matrix position where corresponding characters of the first and second string are equal, and a logical zero is stored in each position where they are not equal. In the event that there is more than one logical one in each row (or in each column, or both), all of the logical ones in that row (or column, or both) except that which is closest to the major diagonal of the matrix are changed to logical zero. In the event that two logical ones in a row (or column, or both) are equidistant from the major diagonal, both may be retained. The remaining logical ones in the matrix are then considered as points on an X, Y coordinate system, and the standard correlation coefficient (which measures linear dependence) of the points is calculated to determine the degree of similarity between the two character strings. A decision that sufficient similarity exists to make a determination that a match has occurred may be based upon various known tests, for example, exceeding predetermined thresholds; or, in the event that a match is made against several character strings, the highest coefficient calculated can be determined as the match. The improved method can be used in programming areas such as inquiry (or query) systems and the job control language processor of an operating system. The program usually handles missing characters, transposed characters and other common errors. The program can be either a fixed or an adaptive type.

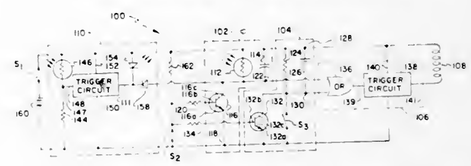




T922,009
SHUTTER CONTROL CIRCUIT FOR A PHOTOGRAPHIC CAMERA

Robert V. Alessi, 901 Elmgrove Road, Rochester, N.Y. 14650

Filed Oct. 24, 1973, Ser. No. 409,228
Int. Cl. G03b *7/08*
U.S. Cl. 354—31
1 Sheet Drawing. 17 Pages Specification



A photographic camera includes an electronic shutter control circuit for controlling a camera shutter mechanism to permit smear-free exposures. The shutter control circuit includes a timing device for closing the shutter, comprising a first timer responsive to prevailing scene light conditions and a second timer having a fixed predetermined time constant, the second timer being adapted to close the shutter after a fixed time interval to eliminate extended time exposures which occur under low scene light conditions. The shutter control circuit further includes a network for indicating the adequacy of scene light for obtaining a proper exposure within the fixed time interval. The network is coupled to the light responsive timer through a reversed biased diode to effectively render that timer incapable of controlling the shutter mechanism under low scene light conditions.

REISSUES

MAY 7, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

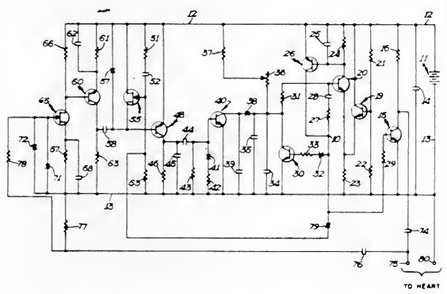
28,003
ELECTRONIC DEMAND HEART PACEMAKER WITH DIFFERENT PACING AND STANDBY RATES

David H. Gobeli, Minneapolis, Minn., assignor to Medronic, Inc., Minneapolis, Minn.

Original No. 3,656,487, dated Apr. 18, 1972, Ser. No. 1,178, Jan. 7, 1970, which is a continuation-in-part of abandoned application Ser. No. 832,706, June 12, 1969. Application for reissue June 30, 1972, Ser. No. 267,961

Int. Cl. A61n *1/36*

U.S. Cl. 128—419 P **20 Claims**



A demand type heart pacer which provides electronically generated stimulating pulses to the heart at a first frequency in the continued absence of natural heartbeats, but which inhibits output pulses once the natural heart rate exceeds the first frequency, and allows the heart to beat naturally at any rate above a second, lower frequency before again providing stimulating pulses, thereby creating a different standby frequency. The pacer also reverts to a third frequency in a non-demand type operation in the presence of an interfering electrical noise pattern.

28,004
CENTRIFUGAL ACTUATOR FOR LIMITED SLIP DIFFERENTIAL

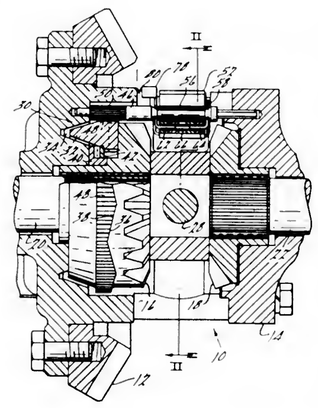
William C. Ottemann, Union Lake, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Original No. 3,606,803, dated Sept. 21, 1971, Ser. No. 858,700, Sept. 17, 1969. Application for reissue June 7, 1973, Ser. No. 367,860

Int. Cl. F16d *13/04;* **F16h** *1/44*

U.S. Cl. 74—711 **35 Claims**

A limited slip differential mechanism having a normally disengaged main clutch producing lock-up when activated, which is operated by means of an actuator device in turn activated by a predetermined level of differential action which is varied with the rate of change of levels of differential action. The actuator includes an actuator member which is rotationally driven by differential action and upon which spring-biased centrifugal weights are pivotally mounted and arranged so that at a predetermined velocity and acceleration of the actuator member one of the weights move outwardly and applies a braking force to the actuator member inhibiting its rotation. An arrangement is provided for actuation of the normally disengaged main clutch in response to this inhibited rotation, so that the differential action is uninhibited at



low levels of differential action. A high road speed cutout of the actuator is also provided so that no lock-up will occur at relatively high road speeds.

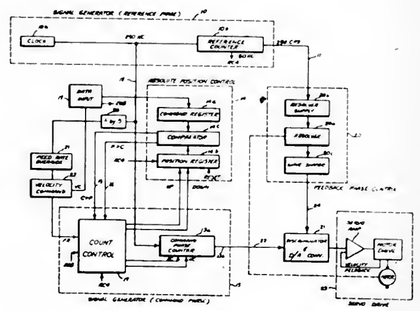
28,005
NUMERICAL POSITIONING CONTROL SYSTEM

William P. Wilson, Waynesboro, Va., assignor to General Electric Company

Original No. 3,400,314, dated Sept. 3, 1968, Ser. No. 459,410, May 27, 1965. Application for reissue Feb. 24, 1970, Ser. No. 13,800, which is a continuation of abandoned reissue application Ser. No. 835,892, June 12, 1969

Int. Cl. G05b *19/28*

U.S. Cl. 318—569 **17 Claims**



A positioning control system using absolute dimension programming and incremental position feedback from a single feedback transducer, and controlling the frequency of a command phase counter of the type utilized in prior art coniouring systems in accordance with the results of a comparison operation between the commanded and the actual position of the tool under control.

28,006
APPARATUS FOR VARIABLE SPEED PLAYBACK OF PLURAL TRACK RECORDS

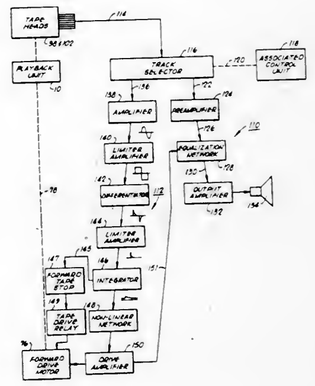
David D. Price, Jr., Oklahoma City, and Lawrence R. De Bell, Bethany, Okla., assignors to The Economy Company, David D. Price, Jr., and Ford C. Price, all of Oklahoma City, Okla., fractional part interest to each

Original No. 3,596,007, dated July 27, 1971, Ser. No. 755,573, Aug. 27, 1971. Application for reissue Apr. 27, 1972, Ser. No. 248,325

Int. Cl. G09b *5/04;* **G11b** *15/52*

U.S. Cl. 179—100.2 S **12 Claims**

An apparatus for playback of plural tracks of recorded information at selectively different track record speeds, the apparatus consisting of a record playback unit capable of playing back a selected one of plural record tracks each carrying a control signal of predetermined, constant frequency, and having control circuitry for receiving playback control signal and converting it to a DC control voltage proportional to frequency for use in controlling the record playback speed of the playback unit. The DC control voltage is applied through a nonlinear network to control a drive amplifier which, in turn, regulates the forward drive motor of the record playback unit to



maintain the played-back control signal at is proper reference frequency value.

PLANT PATENTS

GRANTED MAY 7, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,541
APPLE TREE
Frank Paganelli, Yakima, Wash., assignor to Stark Bro's Nurseries & Orchards Co., Louisiana, Mo.
Filed Jan. 29, 1973, Ser. No. 327,824
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—35 **1 Claim**

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a spur type and general habit of tree growth similar to that of the apple variety "Starkrimson Red Delicious," the production of fruit which is similar in shape, size and flavor to the fruit of "Starkrimson Red Delicious," and a distinctive and attractive bright cherry red fruit color which develops as a blush like the fruit of "Starkrimson Red Delicious," but which is retained throughout the full harvest season contrary to other varieties, including "Starkrimson Red Delicious," which become a very dark red fruit color when fully tree-ripened.

3,542
MAPLE TREE
Virgil James Drake, Rte. 1, Hartford, Mich. 49057
Filed Jan. 23, 1973, Ser. No. 325,994
Int. Cl. A01h *5/12*
U.S. Cl. Plt.—51 **1 Claim**

A maple tree of the *Acer rubrum* type, having distinctively colored leaves turning from green to a colored border through shades of blue violet to red and yellow.

3,543
ROSE PLANT
Alain Meilland, Cap d'Antibes, France, assignor to The Conard-Pyle Company, West Grove, Pa.
Filed Mar. 15, 1973, Ser. No. 341,463
Claims priority, application Morocco, Mar. 22, 1972, 16,035
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—18 **1 Claim**

A rose plant of the hybrid tea class, whose vegetative type corresponds to that of the variety Meichim 0257 F., more generally known in the trade as the rose Carina (U.S. Plant Pat. No. 2,378), but of a more even pink and less crimson color, with a pink color on the reverse side of the petals.

3,544
ROSE PLANT
Roy L. Byrum, Richmond, Ind., assignor to Joseph H. Hill Company, Richmond, Ind.
Filed Feb. 15, 1973, Ser. No. 332,877
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—15 **1 Claim**

A new variety of hybrid tea rose capable of continuous and abundant production under greenhouse culture and distinguished by its vigorous and prolific growth with longer and stronger stems, the more constant intense color of its blooms which does not fade under extreme temperature or low light intensities, and by its improved propagation capabilities.

3,545
ROSE PLANT
Ralph George Leighty, deceased, late of Gainesville, Fla., by Rosa Maria Arguelles Leighty, executrix, Gainesville, Fla., assignor to Robert W. Hyde, doing business as Hyde's House of Roses, Crystal River, Fla.
Filed Jan. 2, 1973, Ser. No. 320,665
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—23 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by being substantially identical in all respects, including the vigorous, tall, well-branched, well-filled and well-shaped habit of the rose variety known as "Gene Boerner" (Plant Pat No. 2,885) except for its flower color, said flower color being essentially nearly pure white uniformly throughout during hot weather, but becoming very slightly suffused with light pink or peachy pink tints during cold weather, as distinguished from the normal bright pink flower color of "Gene Boerner" when grown under the same conditions.

3,546
ROSE PLANT
Marie-Louis Meilland, Cap d'Antibes, France, assignor to C. H. Stuart & Company, Inc., Newark, N.Y.
Filed Aug. 18, 1972, Ser. No. 281,929
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—28 **1 Claim**

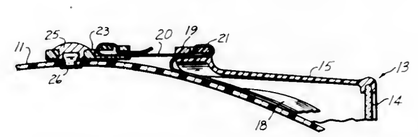
A rose plant of the floribunda class originated by crossing Tamango (U.S. Plant Pat. No. 2,857) with an unnamed and unpatented rose seedling which resulted from a crossing of Fire King (U.S. Plant Pat. No. 1,758) with Banzai (U.S. Plant Pat. No. 2,142).

PATENTS

GRANTED MAY 7, 1974,

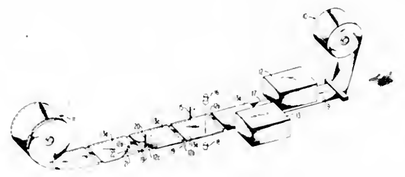
GENERAL AND MECHANICAL

3,808,604
HELMET WITH QUICK RELEASE MEANS FOR STORING GOGGLES THEREON
Daniel G. Rose, 2321 Sunset Dr., Ventura, Calif.
Filed Dec. 27, 1971, Ser. No. 212,169
Int. Cl. A61f *9/02*
U.S. Cl. 2—10 **5 Claims**



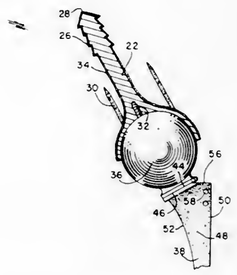
Improved goggles and quickly adjustable fast action release means for storing the goggles on a helmet when not in use. The fastener means is attachable to the goggles or to cover means for the goggles and is operable to hold the goggles compactly stored against the exterior of the helmet crown with the head-embracing goggle-mounting band captive within the goggle shroud. The cover conforms to adjacent surfaces of the helmet and conceals and protects the goggles while preserving the same appearance whether the goggles are present or absent.

3,808,605
A SERIES OF SHIRT CUFF ASSEMBLIES
Richard D. Campbell, 135 Yaupon Ter., P.O. Box 296, Morehead City, N.C.
Division of Ser. No. 69,526, Sept. 4, 1970, Pat. No. 3,670,679.
This application June 6, 1972, Ser. No. 260,210
Int. Cl. A41b *7/00*
U.S. Cl. 2—123 **2 Claims**



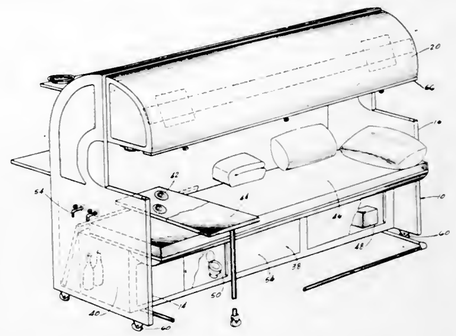
A shirt sleeve cuff making method and apparatus wherein a continuous length of cuff lining material is passed through tandem sewing heads, and pairs of cuff panels are placed upon the lining material and are sewn along their aligned edges to one edge of the lining material by one sewing head and the overlying edge of the lower cuff panel of each pair is folded downwardly about the opposite edge of the lining material and sewn thereto by the other sewing head. The continuous lining material with the cuff panels sewn thereto are then passed to a second sewing station where the lining material is cut between the pairs of cuff panels and the edges of the cuff panels adjacent the cut in the lining material are sewn to the lining material.

3,808,606
BONE IMPLANT WITH POROUS EXTERIOR SURFACE
Raymond G. Tronzo, 133 S. 36th St., Philadelphia, Pa.
Continuation-in-part of Ser. No. 228,052, Feb. 22, 1972, abandoned. This application Mar. 19, 1973, Ser. No. 342,461
Int. Cl. A61f *1/24*; **A61c** *13/00*
U.S. Cl. 3—1 **11 Claims**



A bone implant for vertebrates, including humans and animals in veterinary surgery such as hip prosthesis or a bone implant into the jaw in dental surgery, having a solid surface adapted to be in contact with the growing bone, said surfaces having at the outside at least a depth of 100 microns and preferably of ⅛ inch of 20 to 50%, preferably 30 to 40%, and most desirably about 33% of the pore area. The pores are divided between small, intermediate and large pores and the area of each is between 20 and 40% of the total pore area, preferably 30 to 36% and most desirably about 33%. The small pores range in size between 50 and 200 microns in diameter, preferably 75 to 100 microns and most desirably about 100 microns. The intermediate pores range in size from about 200 to 800 microns. The large pores range in size from above 800 to 3,500 microns.

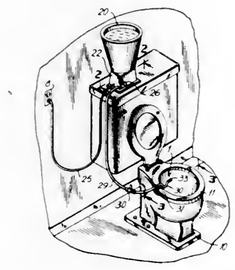
3,808,607
MULTIPLE PURPOSE APPARATUS
Arthur John Harder, 609 Pine St., New Lenox, Ill.
Filed Aug. 30, 1971, Ser. No. 176,007
Int. Cl. A47k *4/00*; **B61d** *31/00, 35/00, 27/00, 29/00*
U.S. Cl. 4—2 **1 Claim**



An improvement in apparatus adapted to provide therein means for sustaining the elementary needs of man including

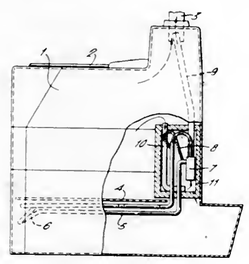
an overall housing. A plurality of variegated structural members are secured together to provide an integral unit. The unit may accommodate any number of structural arrangements that provide for the day to day living comfort of man. The unit may be located in a stationary location or may be moved from one location to another.

3,808,608
PORTABLE BIDET
David Caplan, 37 Banbury Rd., Rockville Center, N.Y.
Filed June 27, 1972, Ser. No. 266,710
Int. Cl. A47k *3/22, 11/08;* **A61h** *35/00*
U.S. Cl. 4—7 **10 Claims**



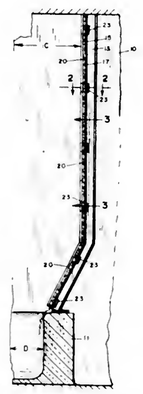
A portable nozzle is secured to the edge of a toilet bowl with a spring-clamp. Water is supplied to the nozzle from a self-contained, portable pump and reservoir device, powered by an electric motor. The portable bidet is made ready for use by filling the aforementioned reservoir with water at the preferred temperature, plugging the motor into any convenient electric outlet, clamping the nozzle to the toilet bowl and starting the pump by actuating the electrical on-off switch provided therewith.

3,808,609
BIOLOGICAL TOILET
Hans Andersson, Tallidungen, 45080 Tanumshede, Sweden, and Hakon Eidet, Sannesundsveien 6, Sarpsborg, Norway
Filed Aug. 8, 1972, Ser. No. 278,864
Claims priority, application Sweden, Aug. 17, 1971, 10430/71; Norway, June 15, 1972, 2136/72
Int. Cl. A47k *1/02*
U.S. Cl. 4—133 **6 Claims**



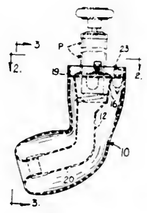
A biological toilet in which excrement and possibly garbage on a grid are brought to accelerated fermentation by supplemental heat and ventilation. The heat is supplied from a closed pipe loop containing a liquid heat transferring medium, which is circulated by a thermosiphon pump inserted in the loop and heated by a gas burner or an electric heating element.

3,808,610
SHOWER CURTAIN GUARD DEVICE
Don Mortensen, 305 S. Second St., Gallup, N. Mex.
Filed June 19, 1972, Ser. No. 263,971
Int. Cl. A47k *3/14;* **A47h** *1/18*
U.S. Cl. 4—149 **6 Claims**



A shower curtain guard for use particularly in connection with shower enclosures above conventional bath tubs, comprises a vertical bar or rail, attached by a double adhesive medium, to the wall at one or both ends of the tub. The rail is bent inwardly above the tub to hold the lower end of the curtain within the tub while affording a wider shower compartment above the tub. A spongy plastic seal prevents escape of water between the tub and the lower end of the bar or rail. Interlocking fibre patches on the curtain and on the rail which are separable secure the curtain so as to prevent water passing outside the compartment.

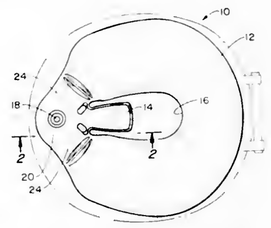
3,808,611
SEWER OPENING ADAPTER MEANS
August Neuman, 14283 Fordham, Detroit, Mich.
Continuation-in-part of Ser. No. 143,496, May 14, 1971. This application Jan. 24, 1972, Ser. No. 220,119
Int. Cl. E03c *1/304, 1/308*
U.S. Cl. 4—255 **2 Claims**



Sewer opening adapter means for use in unplugging sewer lines are disclosed having inner wall means in the form of rigid pipe means and outer wall means in the form of a rubber tube bonded at the top and bottom of said pipe means so as to form therewith an inflatable air bag covering said pipe means, said pipe means having first and second cavities formed therein inwardly of the upper end thereof, said second cavity formed inwardly of and being smaller in diameter than said first cavity, said second cavity being first-conical and inwardly converging so as to mate with and liquid seal against the lower end of a manually operable fluid pump, and air valve carried in said pipe means for inflating said air bag, and clamp means carried

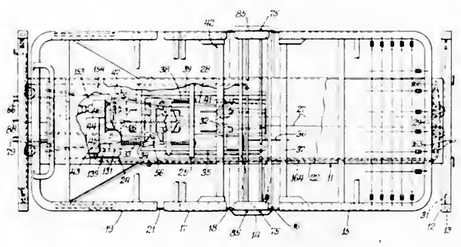
in said pipe means for clamping said adapter means to said fluid pump, said air valve and said clamp means both disposed in said first cavity radially outwardly of said second cavity.

3,808,612
INFLATABLE TOILET SEAT
Robert G. Boyle, and Marian F. Boyle, 5296 Willow Wood Rd., both of Rolling Hills Estates, Calif.
Filed Mar. 9, 1972, Ser. No. 233,261
Int. Cl. A47k *13/06*
U.S. Cl. 4—239 **4 Claims**



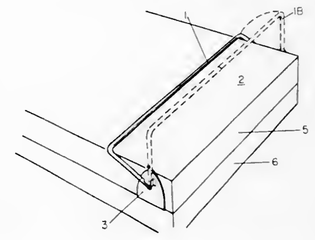
An integral plastic inflatable toilet seat to be placed upon the conventional fixed, hard seat of a toilet wherein the inflatable seat is foldable into a quite small volume when deflated, the inflatable seat is easily inflated and positionable upon the fixed, hard toilet seat, the inflatable seat includes an integral male deflector.

3,808,613
ELECTRIC HOSPITAL BED
John H. Carpentier, and Frederick A. Rose, both of Fort Atkinson, Wis., assignors to Joerns Furniture Company, Stevens Point, Wis.
Filed Jan. 26, 1973, Ser. No. 327,000
Int. Cl. A61g *7/00*
U.S. Cl. 5—63 **12 Claims**



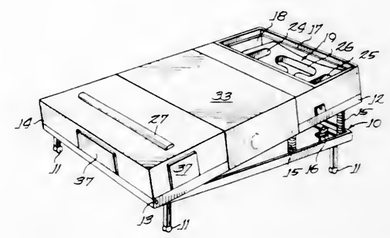
Economical electric hospital bed having drive screws for moving parts of an articulated mattress support relative to a supporting frame, motor means, transmission unit spaced from motor for actuating the drive mechanism, control unit spaced from transmission unit for determining desired operation thereof and effecting motor energization by actuating switches in motor circuit, and manually operable control members for selectively actuating control unit; supplementary insulation means to provide effective double insulation and minimize low level current leakage, comprising a switch bracket of high dielectric strength or nonconductive material for supporting the motor switches on the frame and electrically isolating them from the control unit, a single nonconductive coupling between the motor means and the transmission unit, nonconductive mounting brackets between the motor means and the bed frame, a nonconductive cone on motor shaft to enable manual crank operation in event of power failure, and a flexible fiber member interposed between thermal overload reset button on motor and small finger hole in motor shroud to permit manual resetting of button while preventing contact with inaccessible dead metal.

3,808,614
TOE PROTECTING BED CLOTHING RAIL
Florence Reinhard, 324 W. Main St., Crestline, Ohio
Filed Feb. 7, 1972, Ser. No. 179,138
Int. Cl. A47c *21/00*
U.S. Cl. 5—319 **3 Claims**



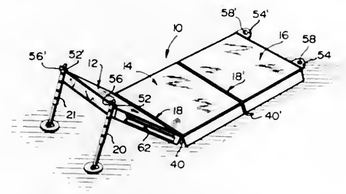
A support for easing the pressure of sheets and bed clothing on the feet of a sleeping person. A telescopic rod is pivotally connected at each end to a bracket which is positioned between mattress and springs.

3,808,615
BED AND PILLOW ASSEMBLY
William M. Geary, 9347 S. Crawford Ave., Evergreen Park, Ill.
Filed May 22, 1972, Ser. No. 255,427
Int. Cl. A47c *23/00;* **A61g** *7/04*
U.S. Cl. 5—338 **5 Claims**



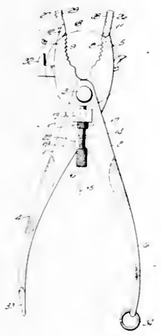
A conventional bed frame having a tiltable base, box spring and mattress with the box spring and mattress of less length than the frame and base to provide a space at the head end of the bed for the reception of a hollow padded receptacle and a pillow having spaced cut-outs or slots for reception of the face, nose, mouth and ears whichever is aligned with its slot and depending upon the reclined position of the occupant, such as the aligned ear over its slot when the occupant is lying on one side or the other of the face, the pillow being shiftable in its receptacle as the occupant moves to any one of the normal sleeping positions and especially on the stomach or either side. When the bed is occupied the body is covered by the folds of a relatively wide sheet material lying across the bed for shifting or turning the body and thereby effecting most comfortable sleeping positions.

3,808,616
FREE FORM CUSHION ASSEMBLY
Charles M. White, 19 Contentment Island Rd., Darien, Conn.
Filed Nov. 10, 1972, Ser. No. 305,473
Int. Cl. A47c *27/00*
U.S. Cl. 5—344 R **5 Claims**



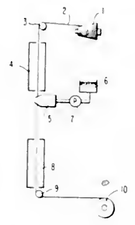
A free form cushion assembly adaptable for selective arrangement in plural operative configurations and especially suitable for use on a beach, patio, lawn or recreational area. The assembly includes articulated cushion segments detachably hinged together to provide pivotal independent movement for each segment. The segments can be vertically stacked for use as a hassock, arranged horizontally on a planar surface to form a bed, or alternately positioned in various other combinations to form a chair, lounge, hammock, etc. Additionally, brace members are incorporated for supporting one of the cushion segments in an inclined position for a back or head rest and the cushion segments can also be separated for independent use, such as for a pillow. In a variant embodiment, the cushion segments are fabricated with a floatation material to provide buoyancy for use in a pool, lake or on another body of water.

3,808,617
COMBINATION PLIER TOOL
George O. Lindsten, Stockholm, Maine, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed June 14, 1972, Ser. No. 262,777
Int. Cl. B25b *7/22*
U.S. Cl. 7—6.2 **5 Claims**



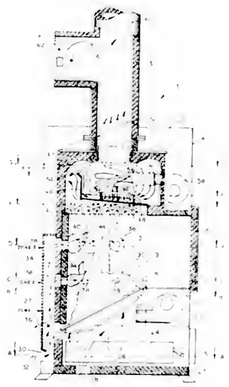
A jar lid opener for removing a lid from a jar is affixed to one of the arms of a plier tool in the area of the pivot pin and is affixed to the free end of the jaw portion of each arm. A bottle cap remover for removing a crimped bottle cap from a bottle is on one of the arms of the tool. Stove lid lifters for lifting a stove lid extend from the free end of the jaw portion of each arm. A can opener is affixed to one of the arms in the jaw portion thereof. A screw driver is provided at the free end of the handle portion of one of the arms of the tool.

3,808,618
METHOD FOR CONTINUOUS DYEING OF YARNS
Heiji Arimoto; Tokujo Goto; Kunio Amemiya, and Tunekatu Seki, all of Kyoto, Japan, assignors to Unitika Ltd., Amagasaki-shi, Japan
Filed June 14, 1972, Ser. No. 262,846
Claims priority, application Japan, June 14, 1971, 46-42316
Int. Cl. D06p *5/00*; **B05c** *1/16*
U.S. Cl. 8—149 **10 Claims**



A method of continuously dyeing a yarn, which comprises, heating a running yarn to a temperature above the boiling point of a solvent in a dye and contacting said heated yarn with one or more dye applicators having a dye discharge aperture while discharging a dye through said aperture and onto said yarn is disclosed. An apparatus for continuously dyeing a yarn is also disclosed.

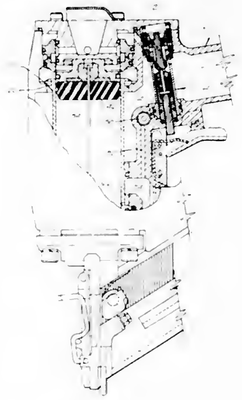
3,808,619
POLLUTION-FREE INCINERATION SYSTEM
Donald A. Vanderveer, 94 Radcliffe Ave., Port Washington, N.Y.
Filed Aug. 7, 1972, Ser. No. 278,632
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 C **31 Claims**



An incinerator has a first combustion chamber which receives the waste to be incinerated. An ignition-burner is provided in the first chamber to ignite the waste; the burner automatically turns off at waste incineration temperature.

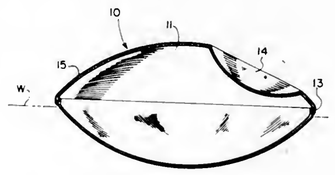
Burning of the refuse is accomplished in three zones, each zone being provided with proper temperature and a supply of regulated air at low velocity by means of natural aspiration, controlled by thermal feedback wherein the changing of the refuse fire changes the heat and vacuum applied to a conduit and orifice system of fire air injection resulting in automatic combustion control. A second combustion chamber is spaced above and communicates with the first chamber. Separators are provided in each chamber for separating partially burned particles from the fully burned combustion gases and preventing the particles from rising beyond the respective separators. An after-burner is arranged to project a substantially horizontal flame into the second combustion chamber; the flame produced by the after-burner substantially filling the cylindrical second chamber and reducing any microscopic particles or unburned gases which have passed through the separators. The second chamber passes fully reduced combustion gas to the stack at a temperature of 2,000° Fahrenheit.

3,808,620
REMOTE VALVE FOR PNEUMATIC TOOL
Robert G. Rothfuss, Bellevue, Ky., and Lester D. Park, Cincinnati, Ohio, assignors to Senco Products, Inc., Cincinnati, Ohio
Filed Apr. 17, 1972, Ser. No. 244,404
Int. Cl. F01l *25/06*
U.S. Cl. 91—308 **12 Claims**



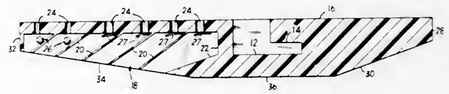
Structure for controlling the actuation of a fluid pressure operated main valve in a pneumatic tool, including a normally manually actuatable member which is effective upon movement to utilize fluid pressure to shift an oscillating stem. The stem, in turn, controls the fluid pressure acting upon the main valve. Thus, the opening and closing of the pressure operated main valve is dependent upon movement of the stem and independent of variations in speed of movement of the actuatable member.

3,808,621
SWIMMER'S VIEWING FLOAT
Park French, 59 S. Chillicothe Rd., Aurora, Ohio
Filed Nov. 24, 1972, Ser. No. 309,194
Int. Cl. B63b *35/72*
U.S. Cl. 9—310 H **13 Claims**



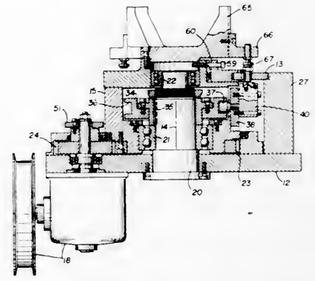
A swimmer's viewing float having generally spherical facing upper and lower parts, the latter being transparent and the former having a transparent concave viewing port. The concave shape of the viewing port prevents direct reflection of overhead light by the viewing port surfaces from entering the swimmer's field of view. The field of view is also shielded against reflection of overhead light by the lower part by making the upper part non light transmitting and/or an intermediate masking partition. The float can be rigid or wholly or partially collapsible and air inflatable.

3,808,622
SHOES FOR WALKING ON WATER
Neal R. Webster, 267 W. 71st St., New York, N.Y.
Filed Aug. 9, 1972, Ser. No. 279,191
Int. Cl. A63c *15/04*
U.S. Cl. 9—310 D **10 Claims**



Shoes which enable a person to walk on the water are disclosed. The shoes comprise an elongated buoyant body member having a fixed volume propulsion chamber therein in combination with a passage whereby said chamber is in open communication with the atmosphere.

3,808,623
END WORKING MACHINE TOOL
Ronald J. Matej, Parma, Ohio, assignor to Prutton Corporation, Cleveland, Ohio
Filed Jan. 3, 1972, Ser. No. 214,763
Int. Cl. B23g *9/00*
U.S. Cl. 10—21 **18 Claims**

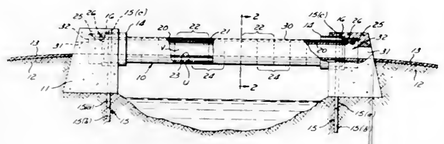


A bolt blank chamfering machine tool is disclosed which rotates a blank workpiece held in a space between an arcuate shoe and a pair of rollers on a table. As the table revolves, the workpiece moves in a form of planetary motion and rotates. A slide carrying a tool moves to cut or otherwise shape the end of the workpiece blank by means of a cam follower acting on a stationary cam. This provides chamfering, pointing or otherwise shaping the end of the workpiece. The above description is merely one form of the invention and is not to be construed as limiting on the scope of the invention.

3,808,624
BRIDGE CONSTRUCTION
Howard L. Barkdull, Jr., 15117 Edgewater Dr., Lakewood, Ohio
Filed July 15, 1971, Ser. No. 162,783
Int. Cl. E01d *1/00*
U.S. Cl. 14—1 **7 Claims**

Viaduct construction comprised of a set of taut lengthwise cables surrounding and supporting tubular sections having in-

ternal roadway surface for vehicles. Sections, cradled in cables, stiffen the set of cables against catenary sag. Assembled



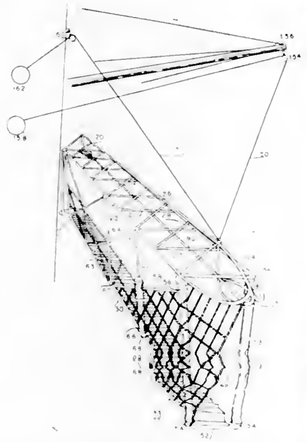
sections and surrounding set of cables wrapped with high tensile strength sheeting further stiffening the assembly. Assembly received in tubular anchors supported in abutments.

3,808,625

DEVICE FOR TRANSFERRING PERSONNEL TO AND FROM A VESSEL

Walter E. Fowler, Rio Rd., Rt. 8, Charlottesville, Va.

Filed Aug. 10, 1972, Ser. No. 279,321
Int. Cl. B65g *1/00*
U.S. Cl. 14—71 **20 Claims**



A gangway to enable personnel to be transferred to and from a platform or vessel in turbulent water. The gangway is constructed of pliant or inflatable, elastomeric, plastic or other flexible material supported by a rope network from a rigid overhead framework. An overhead rail is supported by said framework and runs longitudinally of the gangway. Trolleys are mounted on the rail and are provided with means to grasp the trolleys by hand and to hook safety belts thereto to support personnel ascending or descending the gangway. One end of the gangway is pivoted to a platform or vessel and the free end is supported by two lines operated by two winches. One of these lines is led through a block on the side of the vessel or platform, and the other line is led through a block on a boom projecting from the vessel or platform so that the gangway can be raised or lowered as well as swung horizontally.

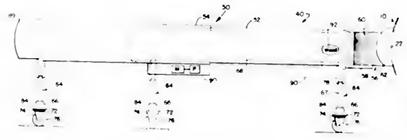
3,808,626

SELF-CONTAINED MOBILE PASSENGER BRIDGE FOR AIPLANE LOADING AND UNLOADING OPERATIONS

John Willett Magill, 643 S. Oak Knoll Ave., Pasadena, Calif.

Continuation of Ser. No. 70,148, Sept. 8, 1970, abandoned. This application Aug. 28, 1972, Ser. No. 284,229
Int. Cl. B65g *1/00*
U.S. Cl. 14—71 **2 Claims**

A mobile passenger bridge which is of tunnel-like design, is extensible and contractible and open at both ends, has steerable wheels adjacent to its opposite ends, and is supported on its wheels by way of vertically adjustable supporting assemblies so that the ends thereof may be individually and adjustably raised and lowered. The bridge is motorized so that it may be driven over the ground and the ends thereof individually and selectively steered from a storage location to a position wherein one open end thereof may be operatively connected to the distal end of a swing-type loading ramp lead-



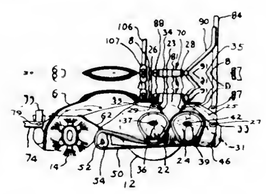
ing from a depot building doorway and the other open end connected to one of the doorways in the fuselage of an aircraft. Hydraulic equipment and manually operable controls therefor are provided so that the bridge may be maneuvered into an approximate position and then adjusted for proper height, inclination and length so that an approximately in-line passageway between the loading ramp and the airplane is provided.

3,808,627

BAG CARRYING STRUCTURE

Charles W. Doering, Clarksville, Ind., and Samuel W. Smith, Carlisle, Ky., assignors to Brinly-Hardy Co., Inc., Louisville, Ky.

Division of Ser. No. 195,607, Nov. 4, 1971, abandoned. This application Nov. 7, 1972, Ser. No. 304,378
Int. Cl. A01g *1/12*
U.S. Cl. 15—83 **10 Claims**



Lawn and parking lot sweepers of the rotary brush type in which sweepings are discharged into bags are known. However, in such sweepers the debris generally is not compressed sufficiently prior to entering the bag. As a result bags must be changed too frequently. The apparatus herein is provided with compression rollers, and means for force filling the bag. Conveying means transport debris from the cylindrical brush to the compression rollers.

3,808,628

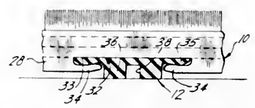
FLOOR MAT

Kenneth H. Betts, Mississauga, Ontario, Canada, assignor to Construction Specialties, Inc., Cranford, N.J.

Filed June 15, 1972, Ser. No. 263,126
Int. Cl. A47l *23/24*
U.S. Cl. 15—215 **20 Claims**

A floor mat comprises a multiplicity of substantially rigid elongated rails joined together in closely spaced parallel relation by spaced apart flexible strips that extend transversely across the rails. Each rail has at least two matching slots spaced longitudinally from each other. Each slot is open at the free edge of the rib remote from the base and has an undercut portion spaced from the free edge to leave a projection at the opening of the slot. The connector strips are shaped in cross-

section generally to match the shapes of the slots in the rib and extend through the slots. The projections are staked toward



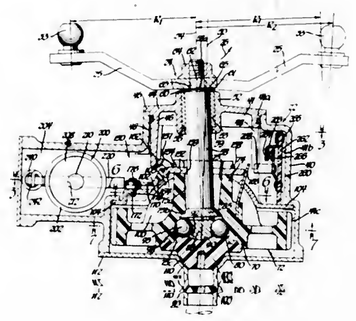
the rail bases to engage and secure the connector strips to the rails.

3,808,629

ACTUATING MECHANISM FOR A DEPRESSED PARK WINDSHIELD WIPER SYSTEM

Frederick Druseikis, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 29, 1972, Ser. No. 310,384
Int. Cl. B60s *1/24*
U.S. Cl. 15—250.17 **2 Claims**



In a preferred form, this disclosure relates to an actuating mechanism for use in oscillating a pair of windshield wipers across a windshield between inboard and outboard positions during running operation and to move the wipers to a depressed park position spaced from the inboard position when wiper operation is being terminated. The actuating mechanism includes a rotatable crank assembly having a crank shaft and a crank arm connected thereto. The crank arm is rotated about the rotational axis of the crank shaft through an orbit having a first radius during running operation of the wipers to move the same between their inboard and outboard positions and the crank assembly is both rotated and swivelled about its rotational axis to increase the throw of the crank arm of the crank assembly to effect movement of the wipers to a depressed part position when wiper operation is being terminated.

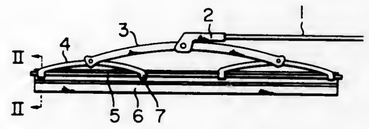
3,808,630

WINDSHIELD WIPER FOR VEHICLES

Isao Ito, 119 Kamezakitakanecho-8-chome, Handa-shi, Japan

Filed Sept. 26, 1972, Ser. No. 292,275
Claims priority, application Japan, Oct. 4, 1971, 46-91090
Int. Cl. B60s *1/04*, *1/40*
U.S. Cl. 15—250.42 **1 Claim**

A windshield wiper for vehicles is provided in which a spring member elastically carrying a squeegee is longitudinally slidably retained by a pair of pawl or retaining members made of a synthetic resin and securely fixed to both ends of a second connecting or retaining member which in turn is pivoted to a first connecting member pivoted to a clip member fixed to an oscillating wiper arm. In operation no noise is produced because the second connecting members and the spring members which are made of a metal are separated from each other by the pair of synthetic resin pawl or retaining members, and in production the saving of the blank material from which a



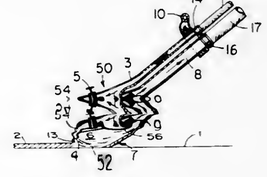
second connecting member is drawn may be realized because a flat blank having a uniform width may be used.

3,808,631

DEVICE FOR REMOVING A SLUDGE FROM A SURFACE

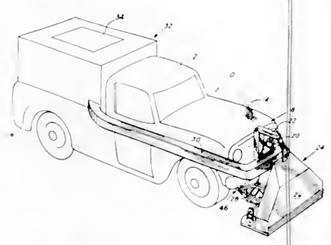
Katsuhiko Shibata; Yajuro Selka, both of Nishisonogi-gun; Iwao Sakamoto, Nagasaki; Kango Yamada, Nagasaki, and Setsuo Kondo, Nagasaki, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 876,371, Nov. 13, 1969, abandoned. This application Mar. 1, 1972, Ser. No. 230,948
Int. Cl. A47l *7/00*
U.S. Cl. 15—321 **3 Claims**



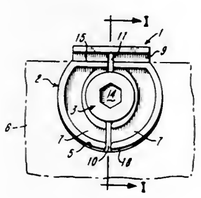
A device for removing a sludge from the surface of a liquid or from a floor such as a deck of a tanker includes a shovel which is adapted to be moved along the sludge with its opened mouth positioned to receive the sludge. The construction includes a connection for directing a high velocity liquid jet into the shovel in the vicinity of the mouth to impinge upon the sludge and to break it up into a slurry and, in addition, means are provided for withdrawing the slurry upwardly through a conduit for discharge at a remote location. The discharging connection advantageously includes a liquid ejector which is operated partly by the conduit connected for supplying the high velocity jet of liquid to the shovel and which is connected to the shovel for providing a withdrawing suction or pumping action on the slurry which is formed in the shovel. In a further embodiment, the interior of the shovel is provided with a screen or grate across the shovel interior onto which the slurry is directed and against which the high velocity liquid jet is directed. The action breaks up the slurry elements into finer elements for withdrawal through the discharge conduit. A still further embodiment includes an intermediate chamber at the rear of the shovel which is adapted to receive the slurry after it is first acted upon by the high velocity jet and which includes a plurality of turning water streams which are directed in a whirling flow to cause a rotation and further pulverizing of the slurry material before it is delivered through the discharge conduit.

3,808,632
VEHICLE MOUNTABLE AREA CLEANER
Elvin A. Aagesen, 2491 W. Evans, Denver, Colo.
Filed Dec. 13, 1971, Ser. No. 207,094
Int. Cl. A47l *5/00*
U.S. Cl. 15—340 **10 Claims**



An area cleaner, mountable on the front of a wheeled vehicle, includes a rotary brush sweeper and a blower arranged to pick up dirt and trash by suction, both units being driven from the vehicle engine drive shaft. Picked up trash and dirt is pneumatically conveyed to a container mounted on the vehicle.

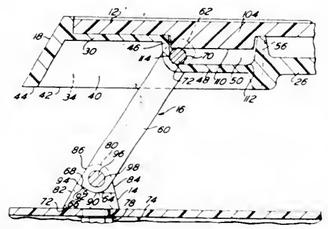
3,808,633
FURNITURE FITTING, SPECIFICALLY FOR DETACHABLE SUSPENSION OF A SLIDING DOOR FROM A GUIDE RAIL
Heinrich Lauterbach, Nurnberg, Germany, assignor to Trola-Kunststoffer-Zeugnisse GmbH & Co.,, Nurnberg, Germany
Filed Mar. 2, 1972, Ser. No. 231,247
Claims priority, application Germany, Mar. 4, 1971, 2110360
Int. Cl. E05d *13/02*
U.S. Cl. 16—87 R **20 Claims**



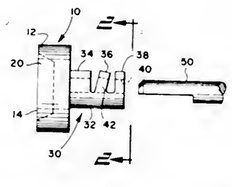
A fitting, especially for detachably suspending a sliding door from a guide rail, which comprises a hanger guided in a guide rail and a holder sunk into a recess at the top end of the sliding door and connectable to the sliding door so that the weight of the sliding door is carried by the guide rail through the intervention of the holder and the hanger, the holder comprising two jaws connected to the hanger and also comprising means, e.g., an eccentric cam, for spreading the jaws radially apart so that contact pressure will secure the holder in the above mentioned recess positively to the sliding door.

3,808,634
COLLAPSIBLE SELF-RETURNING HANDLE WITH HIDEAWAY LINKAGE
Marton J. Szabo, Camden, N.J., assignor to Philadelphia Handle Company, Inc., Camden, N.J.
Filed July 26, 1973, Ser. No. 383,011
Int. Cl. A47b *95/02*
U.S. Cl. 16—115 **13 Claims**

A collapsible self-returning handle for carrying cases, portable television and radios, electronic test equipment and the like in which the elongated handgrip is operatively connected to the wall of the carrying case by links equipped with rolling pins so that the raising and lowering action is smooth and relatively noiseless, and in the collapsed position in with the lower edges of the handgrip are against or adjacent the attaching wall, the attaching brackets and links are received in hideaway recesses.

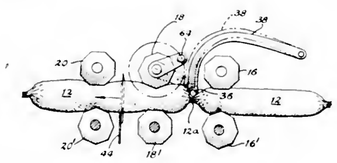


3,808,635
SELF RETAINING KNOB
Thomas M. Moran, Cleveland, and Joseph H. Paskert, Lakewood, both of Ohio, assignors to Eaton Corporation, Cleveland, Ohio
Filed June 2, 1972, Ser. No. 258,965
Int. Cl. A47b *95/02*
U.S. Cl. 16—121 **17 Claims**



A one-piece all plastic knob adapted for self retention on a standard shaft. The knob includes a guideway substantially conforming to the shaft for receiving the shaft in proper axial relation to the knob. A resilient member having an aperture through which the shaft must pass upon insertion into the guideway is provided in a position where the aperture is partially offset from the guideway. Upon insertion of the shaft through the guideway and aperture, the resilient member is resiliently deformed and resiliently engages the shaft. The undeformed position of the resilient member may be varied in accordance with the required degree of shaft retention.

3,808,636
LINK CUTTING MACHINE
Alfred J. Gouba, 339 Atlantic Ave., Sloan, N.Y.
Filed May 25, 1972, Ser. No. 256,960
Int. Cl. A22c *11/00*
U.S. Cl. 17—1 F **7 Claims**



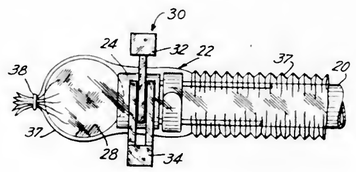
A machine for severing joining areas of a chain of articles, such as sausages or weiners, as the chain is fed by a conveyor along a given course. A sensing device is provided for the purpose of sensing the presence of a joining area and releasing a follower finger for movement into engagement with the chain in the area of the sensed joining area. The engaged follower finger, which is forced to travel at a speed determined by that of the sensed joining area, serves to operate a joining area severing device, as a sensed joining area is presented thereto.

3,808,637
DEPILATION DEVICE
Herbert Lapidus, Edison, N.J., assignor to Combe Incorporated, White Plains, N.Y.
Filed July 14, 1972, Ser. No. 272,051
Int. Cl. A22b
U.S. Cl. 17—1 D **8 Claims**



A device for removing hair from animal skin, which device may take the form of a laminate of flexible sheet material, at least a part of which has been impregnated with a tacky substance. The device is pressed against the skin so that the impregnated part is in contact therewith, and is then removed therefrom by a quick movement, the device carrying with it the undesirable hair on the skin and maintaining that area of the skin substantially free from hair.

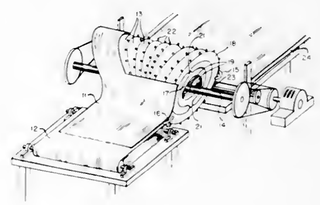
3,808,638
METHOD AND APPARATUS FOR PRODUCING A LARGE SAUSAGE PRODUCT HAVING A PRE-FLATTENED END
Vytautas Kupcikevicius, Chicago, and Michael Joseph Myles, Downers Grove, both of Ill., assignors to Union Carbide Corporation, New York, N.Y.
Filed Dec. 28, 1971, Ser. No. 212,914
Int. Cl. A22c *11/00*
U.S. Cl. 17—35 **6 Claims**



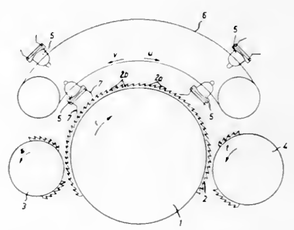
A method and apparatus are provided for positioning a flat circular disc in a large sausage casing so that after the food casing has been stuffed with a food emulsion and the thusly stuffed food emulsion has been cooked and cured, there if obtained a large sausage product having a pre-flattened end.

3,808,639
APPARATUS FOR ALTERING THE WIDTH, WEIGHT AND THICKNESS OF FABRIC WEBS
Bonaventura Tautvaisas, Quincy, Mass., assignor to The Kendall Company, Walpole, Mass.
Filed Jan. 15, 1973, Ser. No. 323,596
Int. Cl. D04h *11/00*
U.S. Cl. 19—161 R **6 Claims**

A plurality of disks, mounted on a rotatable shaft, each having a plurality of spaced apart flexible protuberances extending radially out from the perimeter thereof. Each disk is composed of two concentric rings — the innermost ring being attached to the rotatable shaft by means of two swivel pins that are mounted on the shaft directly opposite each other, thereby facilitating the free arcuate movement in a horizontal plane of the ring about the shaft, while the outermost ring is mounted on two swivel points that are positioned on the perimeter of the inner ring at 90° from the swivel pins, thereby facilitating the free, arcuate movement in a vertical plane of the inner ring about the shaft and producing a gyroscopic movement of the disk about the shaft. Guiding means are provided to orient the disks in a diverging or converging manner as desired, via the swivel pins and swivel points. A web of fabric, moving into the disks on the converging side thereof, is then engaged by the flexible protuberances and drawn along divergent lines so as to increase the width of the web while decreasing the thickness thereof. The thickness, uniformity, weight and the width of the web can be accurately controlled by simply varying the angle of divergence of the individual disks.



3,808,640
CARD CLOTHING ARRANGEMENT
Werner Franz Graf, Rapperswil, Switzerland, assignor to Graf & Cie AG, Rapperswil, Switzerland
Filed May 28, 1971, Ser. No. 147,740
Claims priority, application Switzerland, June 3, 1970, 8323/70
Int. Cl. D01g *15/24*
U.S. Cl. 19—113 **8 Claims**

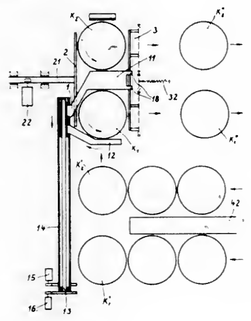


A card clothing arrangement, especially the flat clothing of a revolving flat card incorporating a number of flats arranged in succession. Each of the flats is provided with hooklike clothing elements which are inserted in the base of the support element or elements and each of such hook-like clothing elements possesses an inner section located at the base region and an outer section. The inner base section is inclined at an angle, the so-called penetration angle, and the outer section is inclined at an angle, the so-called comb angle, with respect to a vertical of the base plane. The invention contemplates providing a multiplicity of groups of such hook-like elements, wherein the comb angle within a group of such hook-like elements always varies in the same direction of the feed or transport of the material.

3,808,641
CAN CHANGING DEVICES

Gottfried Schneider, and Friedrich Hauner, Ingolstadt, both of Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

Continuation of Ser. No. 33,724, May 1, 1970, abandoned.
This application Apr. 17, 1972, Ser. No. 244,974
Int. Cl. B65h 54/80
U.S. Cl. 19—159 A 7 Claims

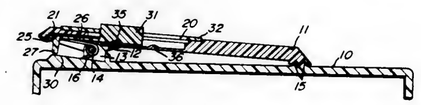


In a sliver can changing device adapted for use with sliver processing machinery passing sliver along a given direction to at least two sliver cans in a filling position simultaneously, means for moving at least two cans out of a reserve position into the filling position and then out of the filling position into an ejection position, the movement of the empty cans into the machine being perpendicular to the direction of sliver travel in the machine and the cans after being filled being ejected in the same direction as the direction of the sliver travel in the machine, drive means and at least one support part for holding the cans in the filling position and centering them for concentric rotation in the filling position.

3,808,642
LOCKING CLIP FOR FASTENING AN ARTICLE TO A BELT OR THE LIKE

Melvin S. Nation, Pompano Beach, Fla., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Dec. 22, 1972, Ser. No. 317,577
Int. Cl. A44b 21/00
U.S. Cl. 24—3 F 4 Claims



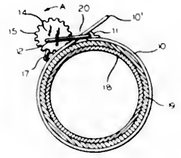
An elongated clip pivotally mounted to a housing with an L-shaped locking member having one arm slidably mounted on the clip for axial movement with the other arm projecting inwardly toward the housing and movable between a first position adjacent the pivotal axis of the clip to allow pivotal movement and a second position spaced from the pivotal axis to prevent pivotal movement of the clip.

3,808,643
ADJUSTABLE CLAMPS

Edwin Gouge, 1021 Milwaukee Ave., South Milwaukee, Wis.

Filed May 30, 1972, Ser. No. 257,821
Int. Cl. B65d 63/00
U.S. Cl. 24—19 3 Claims

A cable or hose clamp arrangement comprises an eccentric gear with a flexible tongue or strap having a rack of teeth or slots thereon. The strap is wrapped around a cable, hose or similar member, and the tongue is slipped under the gear and pulled tightly while the eccentric gear is in a position which

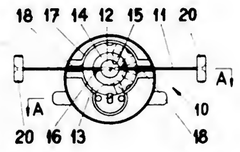


does not engage the tongue. A pin on the gear rotates the gear so that its tooth engages the rack and holds it tightly to prevent unintended counter rotation.

3,808,644
CLOSURE DEVICE FOR SHOES, PARTICULARLY FOR SKI SHOES

Robert Schoch, Singen/Hohentwiel, Germany, assignor to Weinmann Aktiengesellschaft, Schaffhausen, Switzerland

Filed Mar. 13, 1973, Ser. No. 340,899
Claims priority, application Germany, Mar. 21, 1972, 2213720
Int. Cl. A43c 11/00
U.S. Cl. 24—68 SK 6 Claims

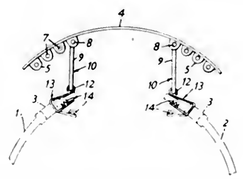


A closure device for a shoe has a housing, a Geneva mechanism with a Geneva wheel journalled for rotation relative to the housing, a pulley coaxially secured to the Geneva wheel, and a pair of tie cables each having one end secured on the pulley and the other end on the housing, thereby forming a pair of tie loops engaged to the shoe upper and operable for being wound on the pulley by rotating the Geneva wheel for releasably tying the shoe upper.

3,808,645
FASTENING DEVICE

Yut Chow, 15 Warren St., Rm. 22, Hackensack, N.J.

Filed Sept. 11, 1972, Ser. No. 288,024
Int. Cl. A43c 11/00; A44b 21/00
U.S. Cl. 24—71 SK 1 Claim

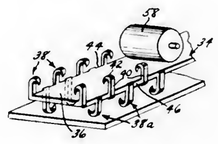


The invention provides a fastening device, for the "uppers" of articles of footwear, having an elongated bridge member, a pair of cranks journalled on the bridge member at respective points along its length for pivotal movement in the direction of elongation of the bridge member, and means rotatably mounted on each crank at a spacing from its journal for coupling the crank to a respective one of two portions of the upper.

3,808,646
MULTI-ELEMENT SELF-GRIPPING CHANNEL

George C. Brumlik, 154 Upper Mountain Ave., Montclair, N.J.

Filed Mar. 18, 1971, Ser. No. 125,591
Int. Cl. A44b 9/00; F16b 15/06
U.S. Cl. 24—87 R 10 Claims

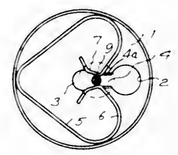


A multi-element self-gripping device is made in channel form with parallel rows of gripping members extending longitudinally along the edges of an elongated web or strip, and projecting perpendicularly from one face or both faces of the strip. The gripping members are formed with sharp hooks or barbs and provide a pair of parallel lines for penetration of an opposing surface.

3,808,647
DEVICE FOR RETAINING BUTTONS

Carlos Ricci Febrer, Calle Menendez Pelayo, 141, Barcelona, Spain

Filed May 12, 1972, Ser. No. 252,839
Claims priority, application Spain, May 17, 1971, 169290; Nov. 25, 1971, 174940
Int. Cl. A44b 1/32
U.S. Cl. 24—108 2 Claims



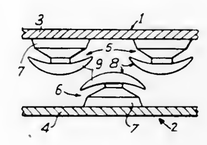
A button is retained on a garment or the like by a pin having an enlarged head on the button being pushed into a retaining device. The retaining device is a hollow body with two orifices connected by a narrow neck, the pin head being smaller than one orifice so as to pass through it but larger than the other orifice so that by pushing the pin sideways through the neck into the second orifice, the button is retained there by engagement of the large head behind the smaller orifice. Resilience of the neck is provided by inturned flanges and by a spring so as to resist accidental removal of the button from the device.

3,808,648
SEPARABLE FASTENING SHEET

Patrick Billarant, Nantes; Robert Goubeau, Bois Le Roi, and Jacques Langlois, Paris, all of France, assignors to Velcro France, Paris, France

Filed Dec. 1, 1971, Ser. No. 203,754
Claims priority, application France, Dec. 4, 1970, 70.43663
Int. Cl. A44b 17/00
U.S. Cl. 24—204 6 Claims

In a separable fastening sheet having clasping elements which are designed to co-operate with corresponding clasping elements of another sheet and at least some of which have at their end an enlarged or bulbous terminal head connected to the base by a stem, web or foot, the heads of at least part of these elements having a widened head have at least one flexible lip or edge adapted to bend with respect to the remainder of the element for penetration of said heads between or into the corresponding elements of the other sheet and the locking

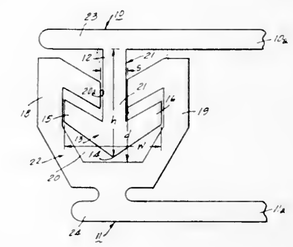


thereof by the last-mentioned elements by elastic retraction of said lip on contact thereof with said corresponding elements and its at least partial return to its position of rest.

3,808,649
PERMANENTLY CLOSABLE FASTENER

Steven Ausnit, 124 E. 61st St., New York, N.Y.

Filed July 26, 1971, Ser. No. 166,198
Int. Cl. A44b 17/00, 19/00
U.S. Cl. 24—201 C 9 Claims



A flexible fastener for joining plastic sheets such as in closing the tops of bags wherein the fastener strips remain permanently closed once they are joined. The strips include a first strip formed of a plastic material having a web portion with a rib element extending continuously therealong having a neck portion and an enlarged head with a second fastener strip formed of a plastic material with a web portion having a groove element extending therealong formed of a pair of spaced jaws with a head retaining groove therein shaped to correspond to the shape of the head and with an entrance slot leading to the groove with the head and jaws being such that they will not interlock when pressed together but can be interlocked only by an external joining tool which forcibly spreads the jaws apart, places the rib element in position and allows the jaws to close around said rib so that once interlocked, they cannot be separated by pulling apart on the webs.

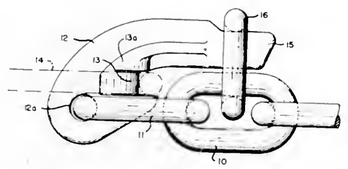
3,808,650
CABLE LOCKING HOOKS

Harold A. Guthans, Mobile, Ala., assignor to Guthans Engineering Co., Mobile, Ala.

Filed Oct. 12, 1971, Ser. No. 188,094
Int. Cl. A43c 11/08; A44b 13/00
U.S. Cl. 24—230.5 3 Claims

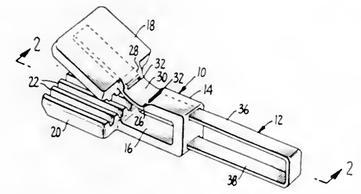
A safety cable hook is provided for receiving a cable loop which hook includes a rigid loop, a hook means rotatable on the loop and having a throat with a substantial radius in the

plane of the loop exceeding the minimum bending radius of the cable, and a free end on said hook extending parallel to the



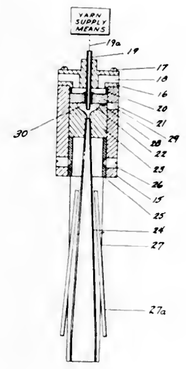
rigid loop receiving a lock ring slidable in said rigid loop to prevent removal of said cable.

3,808,651
CLASP
Charles Almendarez, P.O. Box 1892, Vallejo, Calif.
Filed Nov. 21, 1972, Ser. No. 308,429
Int. Cl. A44b *21/00*
U.S. Cl. 24—260 **1 Claim**



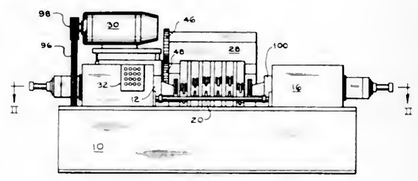
A clasp having a pair of jaws and a jaw-actuating member slidably related to both jaws to effect closing and opening of the jaws.

3,808,652
TREATMENT OF YARNS
David Robert Elliott, and John Michael Greenway, 64 Hookstone Rd., both of Harrogate, Yorkshire, England
Division of Ser. No. 889,518, Dec. 31, 1969, Pat. No. 3,644,968. This application Nov. 23, 1971, Ser. No. 201,424
Claims priority, application Great Britain, Dec. 31, 1968, 61962/68
Int. Cl. D02g *1/16*
U.S. Cl. 28—1.4 **5 Claims**



Apparatus for relaxing a running yarn composed of thermoplastic polymer material comprising a yarn supply means, a fluid tension device having a yarn passageway, means for introducing a gaseous fluid under pressure to the fluid tensioning device and a heating zone comprising an externally heated divergent passageway of a cross section steadily increasing from that of the yarn passageway.

3,808,653
DIVIDED DRIVE SINGLE SPINDLE CRANKSHAFT MACHINE
Joseph A. Oeming; Allan J. Heffrom, both of Saginaw, and Arthur L. Estry, Jackson, all of Mich., assignors to C. M. Systems, Incorporated, Saginaw and Crankshaft Machine Company, Jackson, both of, Mich., part interest to each
Continuation-in-part of Ser. No. 170,100, Aug. 9, 1971, Pat. No. 3,757,615. This application Sept. 6, 1973, Ser. No. 394,747
Int. Cl. B23b *5/18, 21/00;* **B23h** *19/02*
U.S. Cl. 82—9 **9 Claims**

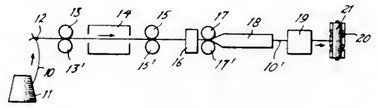


A machine for machining the crankshaft pin bearing surfaces of a crankshaft, such as used in internal combustion engines, wherein rotatable headstock and tailstock spindles support and rotate the crankshaft during machining and tool positioning is accomplished through a master crankshaft rotated in unison with the spindles. To overcome inaccuracies resulting from gear play and cutting tool reaction forces, a portion of the torque driving the headstock and tailstock spindles is transmitted through the master crankshaft, however, the torque transmitted through the master crankshaft is limited to that necessary to overcome adverse reaction cutting forces, and the remainder of the driving torque required during machining is transmitted through a gear train directly interconnecting the headstock and tailstock spindles. Two gear trains driven from a common motor are employed to drive the crankshaft machine spindles, and torque divider means determines the amount of torque transmitted by the respective gear trains.

3,808,654
TEXTILE TREATMENT METHOD
Robert Kenneth Stanley, 620 Meadowvale Ln., Media, Pa.
Continuation of Ser. No. 846,457, July 31, 1969, which is a continuation-in-part of Ser. Nos. 684,230, Nov. 20, 1967, Pat. No. 3,462,815, and Ser. No. 678,428, Oct. 26, 1967, Pat. No. 3,462,814, and Ser. No. 606,420, Dec. 30, 1966, and Ser. No. 835,883, June 9, 1969, said Ser. No. 684,230, and Ser. No. 678,428, each is a continuation-in-part of Ser. No. 302,758, July 31, 1963, Pat. No. 3,376,622, which is a continuation-in-part of Ser. No. 790,658, Feb. 2, 1957, Pat. No. 3,111,740, and Ser. No. 216,524, Aug. 13, 1962, abandoned, said Ser. No. 606,420, Continuation-in-part of Ser. No. 386,489, is a continuation-in-part of Ser. No. 216,447, Aug. 13, 1962, Pat. No. 3,145,947, said Ser. No. 835,883, Continuation-in-part of Ser. No. 650,762, is a continuation-in-part of Ser. No. 349,338, March 4, 1964, Pat. No. 3,348,283. This application Jan. 3, 1972, Ser. No. 214,893. The portion of the term of this patent subsequent to Jan. 4, 1991, has been disclaimed.
Int. Cl. D02g *1/12*
U.S. Cl. 28—72.14 **20 Claims**

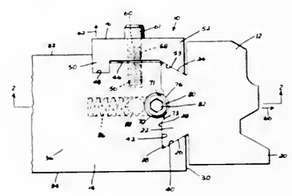
Textile yarns or strands are heated, as by contact with hot

rolls, and then are crimped, preferably compressively as in a



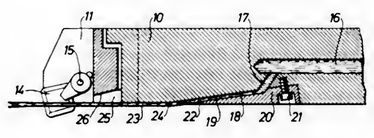
stuffer crimper, after being drawn to increased length if so drawable.

3,808,655
TOOL HOLDER ASSEMBLY
Robert L. Foster, Walton, Ind., assignor to Meredith W. Slusher, Walton, Ind., a part interest
Filed Mar. 28, 1972, Ser. No. 238,841
Int. Cl. B26d *1/02*
U.S. Cl. 29—96 **8 Claims**



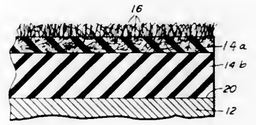
In a tool holder assembly, the combination comprising a forming tool and a support member having complementary interlocking surfaces and clamping means for maintaining the tool and the member in interlocking relationship. The clamping means is operable between a first position in which it positively locks the tool to the support and a second position in which it permits relative sliding movement and limited separation therebetween. A first elongated recess is provided in the support member and a cylindrical threaded element is rotatably received therein. A second recess is formed in the tool in registry with the first recess, the second recess having a threaded wall which is operatively engaged with the threaded element when the clamping means is between its first and second positions and which is slidably engaged therewith when the clamping means is in its second position.

3,808,656
ADJUSTABLE CUTTING TOOL
Bo Gosta Lindskog, Sandviken, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden
Filed Apr. 2, 1973, Ser. No. 346,819
Claims priority, application Sweden, Apr. 10, 1972, 4584/72
Int. Cl. B23p *15/30*
U.S. Cl. 29—106 **6 Claims**



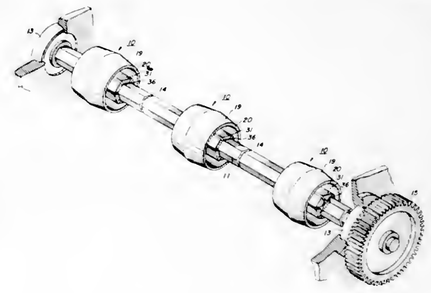
The invention concerns an adjustable cutting tool having cooling or flushing medium supply directed to the cutting insert.

3,808,657
HICKEY ROLL AND METHOD OF MAKING SAME
Louis J. Menges, Barrington, and Robert H. Wolff, Chicago, both of Ill., assignors to Marathon Rollers Incorporated, Chicago, Ill.
Filed Jan. 26, 1972, Ser. No. 220,972
Int. Cl. B21b *31/08*
U.S. Cl. 29—120 **1 Claim**



A cylindrical core having a covering of rubber impregnated with nylon fibers the rubber of which is vulcanized after securing it to the core and then said covering is ground leaving a substantial number of fiber ends protruding from the peripheral surface of the rubber.

3,808,658
SNAP ROLLER
John H. Looney, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Apr. 20, 1973, Ser. No. 353,030
Int. Cl. B21b *31/08*
U.S. Cl. 29—110 **15 Claims**

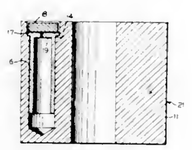


A conveyor roller and support assembly for conveying and guiding a belt or the like along a predetermined path of travel. Means are provided by which a roller can be conveniently relocated or removed from the system which includes a pluraltty of fingers extending from the body of the roller terminating in an inwardly turn lip capable of being seated within any one of a number of complementary grooves formed in the roller support member.

3,808,659
BONDED BRONZE-IRON LINERS FOR STEEL CYLINDER BARREL AND METHOD OF MAKING SAME
Martin J. Alger, Jr., and Nelson H. Dunn, both of Watertown, N.Y., assignors to General Signal Corporation, Rochester, N.Y.
Division of Ser. No. 93,298, Nov. 27, 1970, Pat. No. 3,709,108. This application July 27, 1972, Ser. No. 275,731
Int. Cl. B23p *15/00;* **B22f** *3/26*
U.S. Cl. 29—156.4 WL **9 Claims**

The disclosure concerns cylinder barrels for piston pumps and motors which have lined cylinder bores. Each liner comprises a matrix of sintered, powdered iron which is impregnated with bronze, and which is metallurgically and mechanically bonded to the steel barrel. The liners are formed

from porous, sintered iron sleeves which are placed in the bores in contact with bronze slugs. The assembly is heated in a non-oxidizing atmosphere to a temperature between 1,900°F and 2,000°F to melt the bronze and cause it to infiltrate the



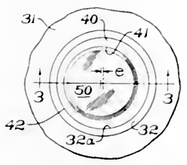
sintered preform and bond to the steel. Thereafter, the assembly is cooled in the non-oxidizing atmosphere to solidify the bronze, followed by air cooling to room temperature. Finally, the finished cylinder bores are machined in the bonded bronze-iron sleeves.

3,808,660

METHOD FOR CORRECTING ROTATIONAL NON-UNIFORMITY OF A PNEUMATIC TIRE AND WHEEL ASSEMBLY

Thomas R. Wik, Middleburg Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Sept. 1, 1972, Ser. No. 285,576
Int. Cl. B21d *53/26*; **B21k** *1/28, 1/42*
U.S. Cl. 29—159 R **8 Claims**



A method to reduce rotational non-uniformity of a pneumatic tire and wheel assembly, produced by radial force variation, comprising determining the first harmonic of the variation in radial force of the assembly while rotating about its axis, providing the wheel with a central opening eccentric with respect to the said axis of rotation, the amount of the eccentricity of the opening and its orientation being selected and disposed so as to counteract and oppose the first harmonic of the variation in radial force of the assembly, and employing the axis of said opening as the axis for rotation of the assembly when in use.

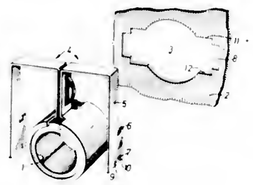
3,808,661

DEVICE FOR FASTENING A BEARING IN A CONSTRUCTION MADE OF PLATE OR STRUCTURAL STEEL

Mats Carlsson, Helgevarma, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden

Filed Feb. 16, 1973, Ser. No. 333,174
Claims priority, application Sweden, Mar. 1, 1972, 2625/72
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 P **2 Claims**

A cage for mounting a bearing in a plate, said cage having a cylindrical portion which snugly receives the bearing, preferably a plain bearing. The cylindrical portion of the cage is formed out of sheet material and has resilient mounting legs which are substantially planar and which are disposed parallel to the cylindrical axis and in outwardly spaced relation to the cylindrical portion. The legs have cut-out notches having a width corresponding to the thickness of the plate. The plate has a cut-out hole with a central circular portion for receiving



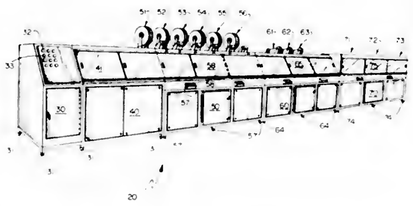
the cylindrical portion of the cage and extensions which form T-slots adapted to receive and hold the notched legs. To permit periodic rotation of the cage within the hole for the purpose of equalizing wear, the legs and T-slots are preferably symmetrically arranged about the cylindrical axis, so that the legs may be flexed to disengage one T-slot and engage in another T-slot.

3,808,662

AUTOMATIC COMPONENT PROCESS SYSTEM

Phillip A. Ragard, Binghamton, N.Y., assignor to Universal Instruments Corporation, Binghamton, England

Filed Mar. 5, 1973, Ser. No. 338,247
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 B **15 Claims**



An electrical component process line for circuit boards having a single control module and a single load and drive module with an unlimited number of attachable component processing and transfer modules, each including a plurality of processing stations therein. Each module is interconnected without modification by a pair of rails upon which the circuit board travels and a transport arm drive shaft.

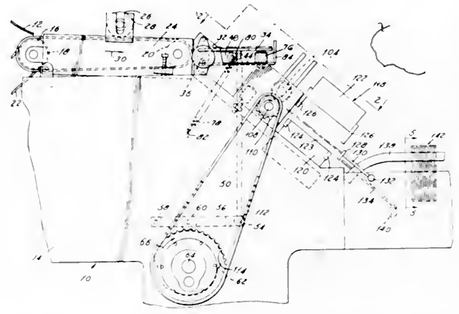
3,808,663

ALIGNING MECHANISM FOR BATTERY GRID CASTING MACHINE

Jack E. McLane, Port Huron, Mich., assignor to Wirtz Manufacturing Company, Inc., Port Huron, Mich.

Filed Sept. 11, 1972, Ser. No. 287,774
Int. Cl. H01m *35/18*
U.S. Cl. 29—204 **11 Claims**

A battery grid casting machine which includes a grid trimming die and means for properly aligning the grid with the die. The latter means includes a belt conveyor adapted to direct the cast grid onto a horizontally disposed pallet which in turn pivots downwardly so that the grid gravitates to a position



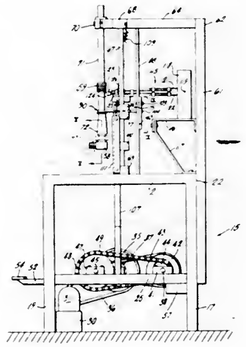
wherein lugs at the leading edge thereof engage a stop which properly aligns the grid before the stop is retracted to feed the grid into the trimming die.

3,808,664

O-RING MOUNTING MACHINE

Robert D. Jaquette, Charlotte, Mich., assignor to Air-Way Manufacturing Company, Olivet, Mich.

Division of Ser. No. 37,955, May 18, 1970, Pat. No. 3,665,578.
This application Mar. 15, 1972, Ser. No. 234,957
Int. Cl. B23p *11/02*
U.S. Cl. 29—235 **7 Claims**



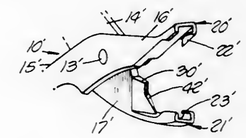
An apparatus is provided for mounting O-rings on male members such as pipe fittings, the apparatus comprising a substantially cylindrical mandrel of a diameter adapted to receive a supply of O-rings, and being flared at one end and having an axial chamber provided in said flared end adapted to receive the end of the male members. The mandrel is suitably mounted on a frame and is provided with a finger assembly which upon actuation receives an individual O-ring and moves it axially over the flared portion and causes it to be released therefrom and mounted onto the male member at a position provided therefor. In an improved embodiment means is provided for automatically feeding O-rings over the small end of the mandrel while the apparatus is in operation. In its broad sense the invention includes an apparatus for mounting an elastic annular member on a hub or wheel which is in part of greater diameter than that of the opening of the annular member, as for example mounting a buggy or automobile tire on the rim portion of a wheel.

3,808,665

SEAM OPERATING TOOL

Hans E. Bannies, Laguna Beach, Calif., assignor to Walter A. Plummer, Los Angeles, Calif.

Continuation of Ser. No. 189,253, Oct. 14, 1971, abandoned, which is a continuation-in-part of Ser. No. 57,911, July 24, 1970, abandoned, which is a continuation-in-part of Ser. No. 739,354, June 24, 1968, abandoned. This application Mar. 31, 1972, Ser. No. 239,956
Int. Cl. B25b *7/00*; **B23p** *19/02*
U.S. Cl. 29—243.5 **44 Claims**



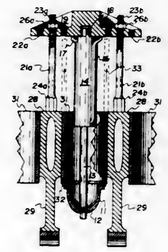
A seam operating tool for use in closing and opening interlocking elastomeric seam members of the type having a U-shaped seam member embracing a T-shaped seam member. The plier-like tool has similar channel-shaped jaws facing one another and held by stop means from closing beyond a predetermined spaced-apart operating position. A tang facing inwardly and supported from the bottom of at least one jaw operates to support the T-head for internesting assembly between the hooked end of the legs of the U-shaped seam member and can also be utilized to shift the T-head bodily toward its assembled position. The tool can be readily installed about or removed from a partially closed seam and is operable in either direction depending on whether the user wishes to close or to open the seam.

3,808,666

CYLINDER SLEEVE PULLER AND INSERTER

Russell C. Bales, Sr., 121 Broadway No. 23, San Diego, Calif.

Filed Mar. 29, 1972, Ser. No. 239,271
Int. Cl. B23p *19/02*
U.S. Cl. 29—252 **3 Claims**

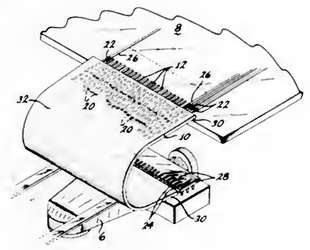


A cylinder sleeve puller and inserter in which a reversible dome fitting is coupled through a quick disconnect means to a hydraulic piston rod and placed in communication through an adaptor with one end of a cylinder sleeve, the piston rod being concentrically received by the cylinder; a structural bridging plate communicating through spacer legs to the top of an engine block in which the cylinder is located for coupling to the hydraulic cylinder receiving the hydraulic piston rod for exerting a force on the reversible dome fitting and forcing the cylinder sleeve out of the cylinder and surrounding the hydraulic cylinder. When inserting a cylinder, the reversible dome fitting is reversed attached to the hydraulic piston rod and the end of a cylinder sleeve which hydraulically forces the cylinder sleeve into the cylinder.

3,808,667
METHOD OF REPAIRING CRACKED IRON CHILLS
Egon Evertz, and Rolf Seybold, both of Solingen, Germany, assignors to Egon Evertz, Solingen, Germany
Continuation of Ser. No. 188,627, Oct. 12, 1971, abandoned. This application Aug. 17, 1973, Ser. No. 389,218
Claims priority, application Germany, Oct. 24, 1972, 2052327
Int. Cl. B23p *7/00*
U.S. Cl. 29—402 **9 Claims**

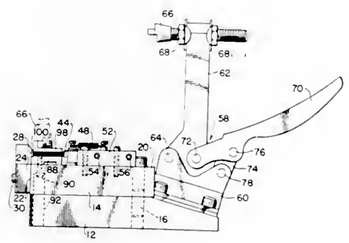
A process for repairing cracked iron chills used in steelmaking wherein a cover comprising several coils is wound round the iron chill to prevent extension of the crack.

3,808,668
METHOD OF EMPLOYING A SOLUBLE MATRIX TO MAINTAIN A PLURALITY OF OBJECTS IN A FIXED RELATIONSHIP
Kenneth Percy Connell, San Diego, Calif., assignor to The National Cash Register Company, Dayton, Ohio
Filed Mar. 9, 1972, Ser. No. 233,250
Int. Cl. B23q *7/00*
U.S. Cl. 29—423 **4 Claims**



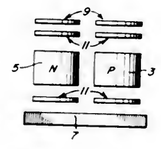
Soluble matrix technique whereby strands of wire are held in a fixed position of any desired configuration for soldering or other processing, following which the matrix is removed by the application of solvent.

3,808,669
METHOD FOR ASSEMBLING A PRINT HEAD
Joseph L. Mitchner, Wilmington, Ohio; Robert A. Keller, Seminole, and Clyde B. Graham, St. Petersburg, both of Fla., assignors to The National Cash Register Company, Dayton, Ohio
Division of Ser. No. 236,041, March 20, 1973, Pat. No. 3,774,899. This application Aug. 6, 1973, Ser. No. 386,105
Int. Cl. B23q *3/00*
U.S. Cl. 29—466 **2 Claims**



A method and jig for assembling a plurality of thermal print wafers to form a print head. The jig includes a fixture plate having accurate first and second planar surfaces perpendicular to each and joined in a common edge. An alignment bar having first and second control surfaces thereon is secured to said plate so that the control surfaces lie in a common plane which is perpendicular to the first planar surface and parallel to the common edge. The print wafers are sandwiched between clamps and positioned on the jig so that the operative ends of the wafers become aligned in a plane controlled by the control surfaces when spring-loaded levers on the jig are used to urge the operative ends against the control surfaces. A compressing lever on the jig is used to compress the wafers between the clamps prior to securing the clamps together to produce a completed print wafer module. The completed print wafer modules are then aligned on a support member while using an alignment fixture having a plurality of control surfaces lying in a common plane. The operative end of each print wafer module is urged into contact with an adjacent pair of control surfaces on the alignment fixture to align the module, and the module is then secured to the support member. The remaining modules are similarly aligned and secured to the support member to produce a completed print head.

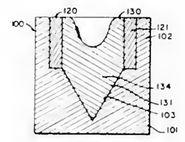
3,808,670
EXOTHERMIC BONDING OF THERMOELECTRIC COUPLES
Winston R. Seetoo; Roman K. Weide, both of Baltimore, Md., and Telesphore L. Charland, Fairfax, Va., assignors to Isotopes, Inc., Westwood, N.J.
Filed May 24, 1972, Ser. No. 256,510
Int. Cl. B23k *31/02*
U.S. Cl. 29—473.1 **30 Claims**



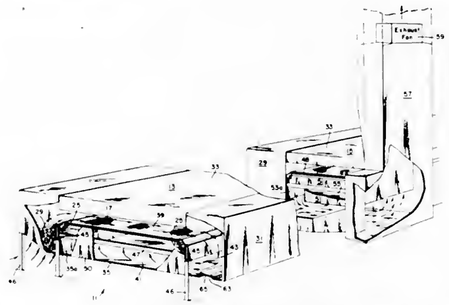
The present invention relates generally to metallurgical bonding methods for joining thermoelectric materials to themselves or to wrought metals and particularly to an exothermic bonding method wherein the bonding composition employed reacts to generate the thermal energy necessary to accomplish alloy bond formation. In one particular embodiment of the invention, elemental tin and tellurim are reacted "in situ" to form stoichiometric tin telluride or a nonstoichiometric tin telluride with an excess of tin, which composition acts under the exothermic conditions of the reaction to form bonds between the elements to be joined. Exothermic chemical reactions between any telluride-former, any selenide-former or any sulfide-former from Periods 4, 5 and 6 of the periodic table are applicable to bonding according to the present invention.

3,808,671
METHOD OF MAKING HOLLOW CAST ARTICLES FROM METAL ALLOYS HAVING LONG FREEZING RANGES
Richard H. Krock, Weston, and William J. Richmond, Reading, both of Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Filed Jan. 11, 1972, Ser. No. 217,014
Int. Cl. B22d *27/04*
U.S. Cl. 29—526.5 **6 Claims**

A technique for improving the physical properties of thin walled castings and reduction or avoidance of hot tearing in such castings involves casting in the inverted position, preferably using no core. The exterior of the casting is contoured to the shape of a metal mold which causes rapid solidification with resultant improved soundness and improved physical properties. Metal is then removed from the interior of the casting for example by machining to form the desired wall thickness.

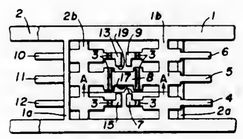


3,808,672
METHOD OF MATERIAL HOLDING AND SMOKE REMOVAL FOR A LASER CUTTER
Rodolfo Castro, 8092 Madia Cir., La Palma, Calif., and Esteban J. Toscano, 1202 No. Pacific Apt. 33A, Oceanside, Calif.
Division of Ser. No. 184,139, Sept. 27, 1971. This application July 10, 1973, Ser. No. 378,118
Int. Cl. B23q *7/00*
U.S. Cl. 29—559 **3 Claims**



To remove combustion by-products and to secure fabric being cut, the cutting area of a laser fabric cutter is enclosed in a hood through which air flows in a stream, first over and then under the enclosed air-permeable cutting surface on which the cloth is supported.

3,808,673
OPTO-ISOLATOR DEVICES AND METHOD FOR THE FABRICATION THEREOF
Michael Lucien Bottini, San Jose, Calif., assignor to Monsanto Company, St. Louis, Mo.
Division of Ser. No. 125,044, March 17, 1971, Pat. No. 3,727,064. This application Dec. 8, 1972, Ser. No. 313,307
Int. Cl. B01j *17/00*
U.S. Cl. 29—577 **2 Claims**



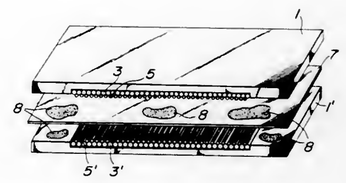
The disclosure herein relates to opto-isolators (emitter-detector coupled pairs) and to a method for the fabrication and packaging thereof into devices having a plural lead dual-in-line configuration. Disclosed herein are plastic-packaged devices for optical electronic coupling between light-emitters and light sensors (detectors) useful to effect a variety of electronic functions, and provide extremely high electrical isolation between input and output together with ultra-fast speed of response.

3,808,674
EPITAXIAL GROWTH OF THERMICALLY EXPANDABLE FILMS AND PARTICULARLY ANISOTROPIC FERRO-ELECTRIC FILMS
Maurice H. Francombe; Shu Y. Wu, and William J. Takei, all of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 10, 1972, Ser. No. 279,563
Int. Cl. B01j *17/00*
U.S. Cl. 29—590 **4 Claims**



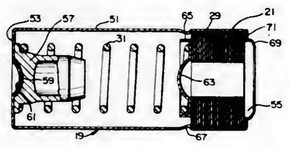
A coherent, preferably thick film is epitaxially grown on a substrate with a different coefficient of expansion from the film by straining the substrate by bending, epitaxially growing the film on the substrate, and cooling the substrate and film while relieving the strain from the substrate to compensate for stresses formed in the film by the differential in thermal expansion between the substrate and the film. The method is particularly useful where a coherent, epitaxial film with a large anisotropy in thermal expansion is desired. Further, by this method a thick, untwinned coherent film of (010) crystallographically oriented ferroelectric bismuth titanate is epitaxially grown on a (110) oriented spinel crystal substrate.

3,808,675
METHOD OF MAKING PIN ELECTRODES FOR ELECTROSTATIC RECORDING
Akihiro Iiyama, and Minoru Gomita, both of Tokyo, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan
Filed July 27, 1972, Ser. No. 275,824
Claims priority, application Japan, July 31, 1971, 46-57806
Int. Cl. G01d *15/08*; **H01s** *4/00*
U.S. Cl. 29—592 **18 Claims**



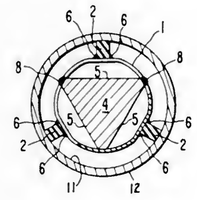
A method of making a pin electrode for electrostatic recording by forming two insulating support plates, each having insulating rod sections juxtaposed thereon in contact with each other and electric wires disposed in successive recessed portions between adjacent insulating rod sections. The two support plates are bonded together while causing the electric wires thereof to face each other with insulation between them.

3,808,676
PROCESS OF MANUFACTURING AN ARMATURE-PISTON SUB-ASSEMBLY
Martin Omer Schrock, Baltimore, and Robert Flohr Burkholder, Towson, both of Md., assignors to The Black and Decker Manufacturing Company, Towson, Md.
Filed Feb. 16, 1973, Ser. No. 333,018
Int. Cl. H02k *15/00*
U.S. Cl. 29—596 **5 Claims**



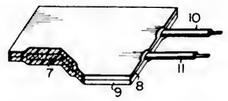
The method of manufacturing an armature-piston sub-assembly adapted to reciprocate within a cylinder of a linear, electric, air compressor or the like. The sub-assembly includes a steel cylindrical shell supported in a cylinder and having one closed end and armature laminations retained in the opposite end. A compression spring is caged between the laminations and the closed end of the shell. Stator laminations surround the sub-assembly and, when energized, move the sub-assembly longitudinally in the cylinder against the spring. The sub-assembly returns under spring force when the stator laminations are de-energized. The inventive method involves forming the cylindrical shell, and assembling the spring means and laminations thereto in a manner minimizing cost and expense and without sacrificing performance or reliability. In addition, the sub-assembly shell may undergo final sizing and finishing after the assembly process to further enhance output and overall performance.

3,808,677
METHOD OF FABRICATING A TRAVELING WAVE TUBE
Charles M. Eallonardo, Palos Verdes Peninsula, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Oct. 10, 1972, Ser. No. 296,494
Int. Cl. H01p *11/00*
U.S. Cl. 29—600 **6 Claims**



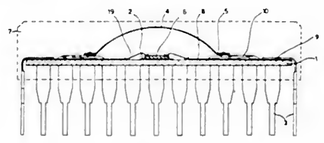
A hollow cylindrical slow wave circuit, such as a helix, is glued to its associated support structure, such as three longitudinally directed dielectric rods spaced at 120° intervals about its periphery. In addition, the slow wave circuit is glued to a mandrel inserted within the slow wave circuit and extending axially thereof. The mandrel is relieved in the peripheral regions juxtapositioned the support rods to allow inward deflection of the slow wave circuit and support structure. The glued sub assembly is then axially inserted within an elongated bore in the body portion of a traveling wave tube. The bore and the sub assembly are sized relative to each other to obtain a slidable interference fit. The relief in the mandrel permits slight inward deflections of the slow wave circuit such that the slow wave circuit and support structure are captured by means of the interference fit within the bore of the body of the tube.

3,808,678
METHOD OF MAKING PRESSURE-SENSITIVE RESISTOR ELEMENT
Shoichi Kubo, and Masakazu Komatsu, both of Kashihara, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 16, 1972, Ser. No. 281,028
Int. Cl. H01c *17/00*
U.S. Cl. 29—610 **9 Claims**



A method for producing a pressure-sensitive resistor element comprising the steps of mixing conductive particles with an elastic polymer resin, pulverizing said particles subsequent to heat-molding them to a semi-hardened state, effecting a renewed heat-molding operation of aggregated particles under pressure at a suitable temperature, and attaching electrodes to said heat-molded particles.

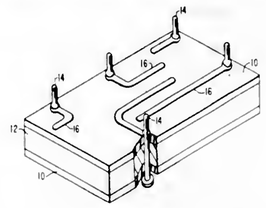
3,808,679
TERMINAL LEADS FOR INTEGRATED CIRCUIT PACKAGE AND METHOD FOR PRODUCING A FRAME OF SAID LEADS
Claudio Dalmasso, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Torino, Italy
Filed Feb. 14, 1972, Ser. No. 225,903
Claims priority, application Italy, Feb. 16, 1971, 67514/71
Int. Cl. C23f *1/02*; **H05k** *3/06*
U.S. Cl. 29—625 **4 Claims**



The invention utilizes specially prepared legs or feet which are attached to an integrated circuit package. The legs function as electrical communication paths for the internal circuits and also function to physically support the package. The legs include a relatively thin portion and a relatively thick portion; the thin portion is bonded to the package. Since this portion is very thin, it can be attached to the package by methods which do not require the use of special soldering additives. Not only does the invention concern the use of thinned-down legs but also the method by which these legs can be obtained. These disclosed methods include chemical etching limited to areas defined by masks and also chemical etching used in conjunction with electrolytic growing.

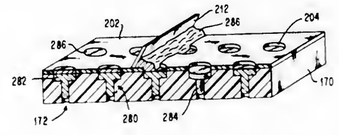
3,808,680
CONTINUOUS PROCESSING FOR SUBSTRATE MANUFACTURE
Pasco F. Lafrate, South Burlington, and Vincent L. Relyea, Jr., Essex Junction, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 30, 1972, Ser. No. 267,761
Int. Cl. H05k *3/20, 3/12*
U.S. Cl. 29—625 **3 Claims**

A continuous process for fabricating a substrate for mounting of an integrated circuit thereon, in which an array of conductive patterns is formed in a copper sheet on a flexible insulator by a rotogravure printing and subtractive copper etch process. The flexible insulator sheet is then cut into individual pieces and a rigid member is mounted to the opposite side of the flexible insulator from the array of conducting patterns by



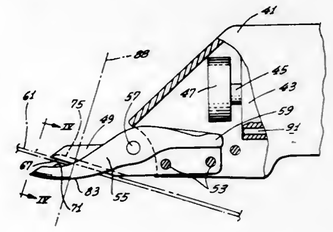
means of contact pins which fasten the rigid members to the flexible insulator and are electrically connected to the conducting patterns.

3,808,681
AUTOMATIC PIN INSERTION AND BONDING TO A METALLIZED PAD ON A SUBSTRATE SURFACE
John M. Law, 2880 NE 45 St., Lighthouse Point; Alfred A. Stricker, 963 SE 9th Ave., and Walter Von Kaenel, 510 SE 13th St., both of Pompano Beach, all of Fla.
Division of Ser. No. 176,575, Aug. 31, 1971, Pat. No. 3,736,651. This application Dec. 11, 1972, Ser. No. 315,689
Int. Cl. B23k *31/02*
U.S. Cl. 29—628 **5 Claims**



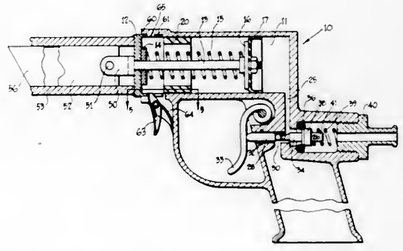
The invention is a method of automatically bonding elongated articles such as headed pins to metallized contact pads on a ceramic substrate. The elongated articles are automatically inserted into the carrier by (1) placing the carrier in a carrier support, (2) releasing elongate articles onto the carrier, (3) vibrating the support to vibrate the carrier and agitate the elongated articles, (4) applying a pressure differential between the tops and the bottoms of the holes to create air flow into the tops of the holes to suck the elongate articles into the holes, and (5) periodically reducing the pressure differential to allow the vibration to dislodge any jammed articles. The frequency and amplitude of the vibration and the duty cycle and period of the pressure differential are adjusted to dislodge jammed articles during the time the pressure differential is reduced, while retaining in the holes the elongate articles which have been inserted into the holes in a proper orientation. The bonding method comprises the steps of (1) inserting the elongate articles into holes in a carrier, (2) removing any excess articles, (3) masking the carrier to prevent bonding material adhering to the carrier, (4) applying bonding material to the ends of the elongate articles in accordance with the mask, (5) bringing the ends of the elongate articles into contact with the contact points on the substantially flat surface to which the articles are to be bonded, (6) applying pressure to each elongate article individually, (7) heating the contact points on the substrate surface and the elongate articles to form a permanent bond between them and (8) cooling the elongate articles and contact points to allow the bonding material to set.

3,808,682
PNEUMATICALLY DRIVEN SHEAR
Kunio A. Sumida, Los Angeles, Calif., assignor to Leonard V. Shapiro, St. Paul, Minn.
Filed Jan. 10, 1972, Ser. No. 216,387
Int. Cl. B26b *15/00*
U.S. Cl. 30—228 **18 Claims**



A three-bladed pneumatically driven shear in which the central, moving blade is provided with a transverse and longitudinal curved surface on its lower edge to reduce frictional contact between the blade and the material to be severed and to allow the cutter to make relatively small radius cuts in the material being severed. The transverse curvature on the bottom of the blade prevents it from biting into the material and inhibiting the turning of the cutter along a radius on the material being severed. The side, fixed blades are beveled on the lower surfaces in order to allow the operator to rotate the cutter about a vertical axis passing through the point of sharing without damaging the workpiece or the cutters while shearing along a curve. One of the side blades is positioned on the cutter so as to extend slightly below the bottom of the other side blade, thereby causing the center blade to commence cutting at one side of the cutter before the other. This facilitates the removal of the chip formed by the severed material by forcing it to curl off to one side away from the cutter. The central blade is formed so as to extend beyond the ends of the side blades in order to facilitate initial engagement with the material to be severed.

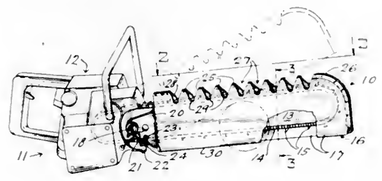
3,808,683
PNEUMATIC PRUNING SHEAR
Colin S. Hetherington, 18 Arthur St., Penola, Australia
Filed June 27, 1972, Ser. No. 266,535
Claims priority, application Australia, July 5, 1971, 5414/71
Int. Cl. B26b *15/00*
U.S. Cl. 30—228 **2 Claims**



The invention relates to a pneumatic pruning shear wherein a rectangular section blade is coupled to the piston rod of a piston and cylinder assembly and is guided for rectilinear movement within a blade guide, the cutting edge of the blade being its forward end and being inclined with respect to the direction of movement, and the blade guide having a recess

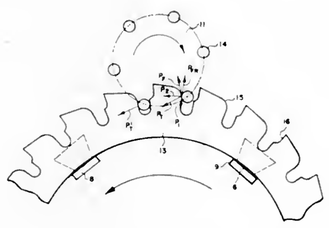
near its forward end which forms a hook, the cutting edge of the blade traversing the recess portion upon operation of the shear so as to sever any limb contained in the hook recess.

3,808,684
ATTACHMENT FOR A CHAIN SAW
Robert L. Ludwig, P.O. Box 26, Mt. Cory, Ohio
Filed Feb. 25, 1972, Ser. No. 229,309
Int. Cl. B27b *17/02*
U.S. Cl. 30—382 **2 Claims**



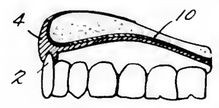
An attachment for a chain saw including a shield which overlaps opposite sides and an end of the chain saw bar. V-shaped notches in the shield are in serial relationship along a cutting edge of the chain saw. A V-base of each notch extends to a point below protruding cutting teeth on the saw chain. V-tops of the notches join, substantially above the cutting teeth, to form a row of stationary guide teeth for introducing small objects into the notches against the cutting teeth. A mechanism is provided for ready attachment and removal of the shield.

3,808,685
SPROCKET DRIVEN ANNULAR SAW
Ruggero Santilli, 74 Bakers Hill Rd., Weston, Mass.
Filed Aug. 16, 1972, Ser. No. 280,978
Int. Cl. B27b *5/14*
U.S. Cl. 30—389 **7 Claims**



The invention relates to a sprocket driven annular saw and, in particular, a sprocket that utilizes the saw teeth to rotate the annular saw blade. The sprocket contains rollers which are rotatable around their own axis to minimize or eliminate frictional forces. Clearance is also provided between the sprocket rollers and the saw blade to prevent loading of the saw blade by saw dust and chips. A specific saw tooth contour is provided to further minimize spurious forces.

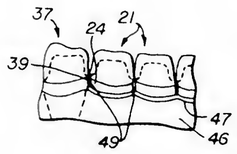
3,808,686
HYDROPHILIC COATING FOR DENTAL PROSTHESES
Harvey Tauman, Tappan; Isadore T. Sklover, Queens Village; Irving Tauman, Bronx, all of N.Y., and Charles K. Kliment, Princeton, N.J., assignors to Hydro-Dent Corporation, New York, N.Y.
Filed June 28, 1971, Ser. No. 157,579
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 **13 Claims**



Denture breath is eliminated from removable dental prostheses, e.g. dentures or orthodontic appliances by applying to the dental prostheses a solution of a water insoluble, organic solvent soluble hydrophilic polymer containing a flavoring agent; preferably the solution is applied as an aerosol. The polymers are preferably hydroxy lower alkyl acrylate or methacrylate polymers. Saccharin can be employed in the formulation to eliminate an initial burning sensation.

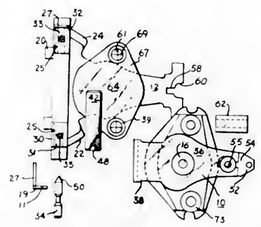
Dentures can be cleaned by applying to them a solution of the same type of polymer having a bacteriostatic agent or disinfectant in the formulation.

3,808,687
METHOD OF MAKING DENTAL RESTORATIONS AND PONTIC MEMBER THEREFOR
William G. Millet, 2031 Lone Oak Ave., Napa, Calif.
Filed Mar. 2, 1972, Ser. No. 231,138
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 **6 Claims**



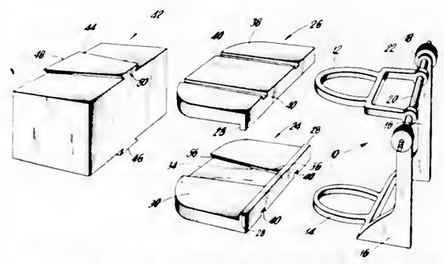
A pontic has a rigid core and a detachable flexible plastic cap of 1 to 2.5 mm wall thickness having the external contour of a tooth. The core extends laterally slightly above the gum line to either side and has an exposed, flat, vertical face which may be secured to a matching face of an adjacent pontic or to a similar face of an insert attached to a wax or plastic coping or a wax or plastic crown which is, in turn, attached to the abutment die. In use, the abutments in a die are waxed in crowns, or copings, as per ordinary practice except for the above-mentioned inserts fixed to the abutment coping or crowns. Carding wax is applied to the tissue area of the model, and the pontics with caps in place are stuck to the wax, forming an indentation, matrix or index. Articulation is checked. The faces of the lateral extensions of the pontic cores are cemented to the adjacent abutment inserts or crown or copings extensions. Caps are then removed. The cores and abutment inserts are then invested as per the lost wax technique and metal cast into the mould cavity of the investment, also as per lost wax technique. The metal is porcelainized as in ordinary practice.

3,808,688
CENTRIC RELATING DEVICE AND INSPECTION MEANS
Niles F. Gulchet, 320 Olympia Pl., Anaheim, Calif.
Continuation-in-part of Ser. No. 166,187, July 26, 1971, Pat. No. 3,750,289. This application July 24, 1972, Ser. No. 274,573
Int. Cl. A61c *11/00*
U.S. Cl. 32—32 **11 Claims**



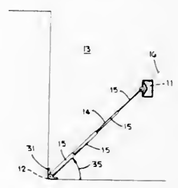
A device is described which can be used to orient dental casts in a precise centric occlusion. The device comprises upper and lower frames that have dental cast support means and that are hinged together in a joint along the condylar axis. The joint permits only pivotable movement of the members in a medial plane. One of the frames, preferably the lower, has centering pivot pins that seat in mating recesses in the joint component of the other frame. The centric relating device is maintained in a precise alignment by use of a centric inspection means. The centric inspection means comprises a pair of blocks, one of which bears at least one index mark with a calibrated field to observe any angular component of misalignment of the frames. The device is also provided with indicating means at either side of the blocks to indicate any vertical component of misalignment of the frames. The inspection means can also be used to check the alignment of a dental articulator. The centric relating device is used to mount dental casts to their support rings while using check bite means to orient the casts in the exact anatomical relationship.

3,808,689
DENTAL ARTICULATOR TRAYS
S. Charles Spinella, Mayberry Mansion Apt. C118, 5200 N.E. 24th Ter., Fort Lauderdale, Fla.
Filed Dec. 1, 1972, Ser. No. 311,104
Int. Cl. A61c *11/00*
U.S. Cl. 32—32 **15 Claims**



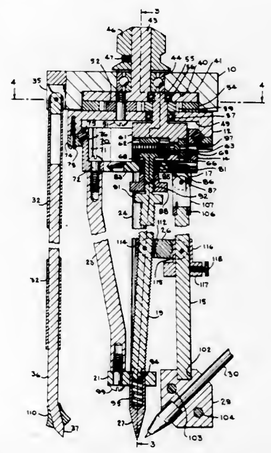
Improved dental articulators of either the pivotal or stem type are provided with a tray permanently attached to each of the two articulator platforms, and each tray has a keyway slot of dovetail cross section extending longitudinally along its inner or operating face as a coupling means for engaging a mounting base bearing a dental cast on one side and a corresponding dovetail key on the other side for engaging said slot. The key and keyway taper to a substantial extent in the horizontal plane as they approach a pivot or stem at the back of the articulator, and they taper at least slightly in the vertical plane in the same direction to provide a coupling system that can be easily and rapidly engaged or disengaged and yet locate the mounting base in any similarly equipped articulator with great precision. Also, a novel method of constructing this articulator involves assembling preformed trays with their keyways engaging keys of two opposite faces of a mounting jig to maintain exact alignment of the trays and their keyways while the other sides of the trays are being permanently cemented to the platforms of the articulator.

3,808,690
TELESCOPIC MEASUREMENT TRANSFER DEVICE
Norman J. Balder, 416 N. 14th St., Terre Haute, Ind.
Filed Jan. 5, 1973, Ser. No. 321,447
Int. Cl. G01b *3/00*
U.S. Cl. 33—1 CC **6 Claims**



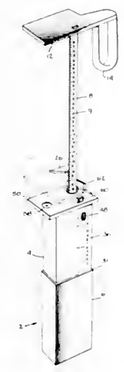
A telescopic device for locating a first area on one side of a wall and then a second area on the opposite side of the wall immediately adjacent and opposite the first area. A telescopic rod has a top end with a rectangular frame pivotally mounted about the longitudinal axis of the rod. The bottom end of the rod has a V-shaped frame pivotally mounted thereto. Means are provided to control the pivotal movement of the rectangular frame about a mounting axis perpendicular to the longitudinal axis of the rod. The V-shaped frame includes a pair of arms pivotally mounted together about a mounting axis with stop means provided to limit the maximum included angle between the arms to ninety degrees.

3,808,691
APPARATUS FOR DRAWING ELLIPSES
Russell C. Chase, 6626 Guhn Rd., Houston, Tex.
Filed Nov. 29, 1972, Ser. No. 310,464
Int. Cl. B43l *11/04*
U.S. Cl. 33—30 G **10 Claims**



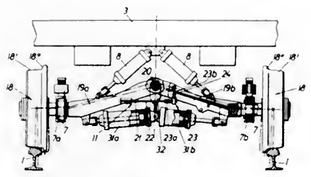
The invention presents apparatus for drawing ellipses. A center pivot leg and an inscribing leg are pivotally connected intermediate their lengths. The inscribing leg rotates as the instrument is rotated, to draw an ellipse. The upper end of the center pivot leg is rotated in planetary motion around the axis of the instrument as the inscribing leg is rotated, causing the lower end of the center pivot leg to pivotally move to alter the length of the radius vector of the ellipse as the ellipse is drawn. The angularity between the center leg and the inscribing leg is altered during rotation so that an ellipse is drawn.

3,808,692
TAPE MEASURE COUNTER
Morton Gartner, 60 E. 8th St., New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 214,922
Int. Cl. G06m 9/00; G01b 3/10, 5/06
U.S. Cl. 33—138 **16 Claims**



A device for counting identical items by measuring the thickness of a sample known quantity and relating such measurement to a larger unknown quantity under the same degree of pressure as the sample quantity.

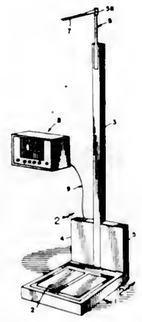
3,808,693
MOBILE TRACK GAGE SURVEYING APPARATUS
Franz Plasser, and Josef Theurer, both of Johannesgasse 3 A-1010, Vienna, Austria
Filed Sept. 28, 1972, Ser. No. 292,878
Claims priority, application Austria, Oct. 4, 1971, 8526/71
Int. Cl. G01b 7/04; B61k 9/00
U.S. Cl. 33—144 **17 Claims**



Two flanged wheels transversely pressed against the track rails survey the track gage as the spacing between the rail sensing wheels changes. A pivot connection is provided between pivotal carriers of the wheels, the pivot connection being positioned outside an imaginary straight line connecting the wheel axes and the pivot axis thereof being substantially parallel to a vertical plane defined by the track axis. A measuring device is actuatable by the relative movement of the wheels in respect of each other, the measuring device being connected to the pivotal carriers at a distance from the pivot axis.

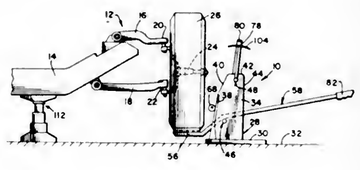
3,808,694
WEIGHING AND HEIGHT MEASURING DEVICE
William Y. Hutchinson, Chicago, and Walter P. Kushmuk, Niles, both of Ill., assignors to Continental Scale Corporation, Chicago, Ill.
Division of Ser. No. 83,924, Oct. 26, 1970, Pat. No. 3,667,561.
This application Dec. 13, 1971, Ser. No. 207,328
Int. Cl. G01b 7/00
U.S. Cl. 33—169 R **1 Claim**

A device for measuring weight and/or height especially adapted for use with a remote digital read-out system comprising a mechanical leverage weighing structure having a high degree of sensitivity and low friction and hysteresis coupled



with a compatible electronic measuring system and/or a height measuring means compatible with said system.

3,808,695
TESTING AND MEASURING APPARATUS FOR VEHICLE WHEEL FRONT END ASSEMBLY
Clarence E. LaMoreux, Winter Haven, Fla., assignor to Associated International Corporation, Winter Haven, Fla.
Continuation-in-part of Ser. No. 85,325, Oct. 30, 1970, Pat. No. 3,736,665. This application July 28, 1972, Ser. No. 276,176
Int. Cl. G01b 5/24, 3/22
U.S. Cl. 33—169 R **15 Claims**

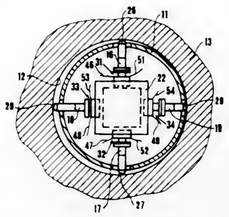


Axial and radial play of ball joints in front end wheel assemblies of vehicles, are measured by a testing device from which a pair of wheel engaging elements project. A handle connected to one of the wheel engaging elements is actuated to bring that element into engagement with the wheel while retracting the other wheel engaging element in order to select the measurement to be made. Movement of either wheel engaging element is registered by an indicator on an adjustably positioned dial.

3,808,696
MEASURING APPARATUS INCLUDING POSITION CORRECTING MEANS
Mario Possati, Bologna, Italy, assignor to Finke Italiana Marposs Soc., In Accomadita Semplice di Mario Possati & Co., Bentivoglio-S. Marino, Italy
Filed Dec. 27, 1971, Ser. No. 212,105
Claims priority, application Italy, Dec. 29, 1970, 3651/70
Int. Cl. G01b 5/12, 5/02
U.S. Cl. 33—178 E **7 Claims**

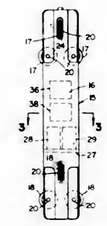
Measuring apparatus which corrects for errors in positioning relative to the part to be measured comprising first and second pairs of feelers equipped with transducers and electrical means coupled to the transducers. The electrical means

provides an output which has a main component corresponding to the sum of the transducer output signals of one pair and



a corrective component corresponding to the square of the difference between the transducer output signals of the other pair.

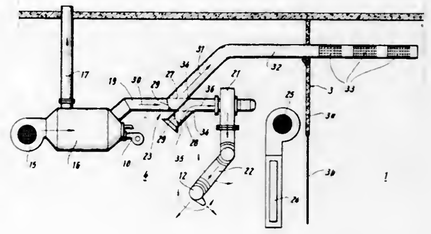
3,808,697
INCLINOMETER
Earl B. Hall, 163 Carte Ramon, Greenbrae, Calif.
Continuation-in-part of Ser. No. 729,869, April 22, 1968, abandoned, which is a continuation-in-part of Ser. No. 649,938, June 29, 1967, abandoned. This application Jan. 28, 1970, Ser. No. 6,515
Int. Cl. G01c 9/16; E21b 47/022
U.S. Cl. 33—312 **2 Claims**



An inclinometer moves along a path having an attitude orientater. Its housing has a follower such as wheels engaging the attitude orientater, as in grooves. A pair of linear servo-accelerometers are mounted horizontally and perpendicular to each other in the housing. A detector determines the amount of departure from horizontal of each accelerometer. In some forms there is a third accelerometer of the type indicating the amount of departure from vertical to the longitudinal axis of the inclinometer.

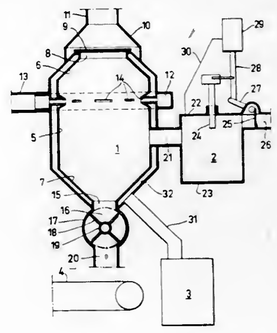
3,808,698
METHOD AND APPARATUS FOR DRYING WASHED MOTOR VEHICLES AND FOR HEATING THE WASHING AND DRYING STATIONS
Armin Peters, Solbad Melle, Germany, assignor to A Rohe, Offenbach am Main, Nordring, Germany
Filed Apr. 4, 1973, Ser. No. 347,654
Claims priority, application Germany, Apr. 10, 1972, 2217090
Int. Cl. F26b 3/12
U.S. Cl. 34—33 **14 Claims**

A washing station is divided from a drying station by a suspended barrier which provides for overhead clearance for the passage of motor vehicles on a moving endless conveyor from the washing station to the drying station. The washing station includes a suitable combination of rotatably mounted washing brushes. The motor vehicle is washed by the combination brushes in the washing station and passes beneath the suspended barrier on the endless conveyor to the drying station. An overhead swivelable nozzle and stationary side nozzles positioned in the drying station combine to discharge a stream of warm air downwardly upon the horizontal surfaces and laterally upon the vertical surfaces of the washed motor vehicle respectively to dry the vehicle as it passes through the drying station. A portion of the warm air discharged from the overhead nozzle passes from the drying station below the suspended barrier into the washing station and follows a circulating path therethrough to provide heat in the washing station during the washing operation. A low pressure fan positioned in the drying station draws the warm air circulating throughout the washing and drying station into an air heating device. Air



is heated in the air heating device and is directed through a conduit to a high pressure fan. The high pressure fan feeds heated air to the overhead nozzle from which the air is discharged for drying the motor vehicle in the drying station. A suction pipe fitting discharged into the drying station draws heated circulating air from the drying station to the high pressure fan. A reversing box provided in the first conduit selectively directs the flow of heated air to the overhead nozzle for drying or through a second conduit to the washing station for supplying warm air to heat the washing station. The reversing box is operable to provide simultaneous warm air heating in the washing station and warm air drying of washed motor vehicles in the drying station.

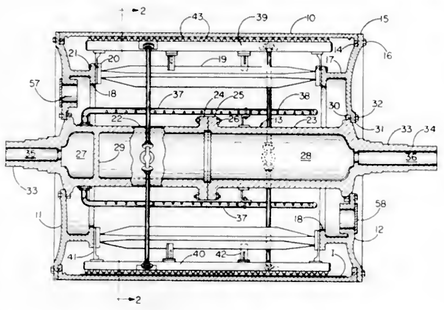
3,808,699
DRYING METHOD AND APPARATUS THEREFOR
Johan Holger Graffman, 9 Blomstervagen, Danderyd, Sweden
Filed Sept. 6, 1972, Ser. No. 286,544
Claims priority, application Sweden, Sept. 10, 1971, 11493/71
Int. Cl. F26b 5/04
U.S. Cl. 34—92 **6 Claims**



A drying apparatus for moist material comprising a drying chamber having material supply inlets, a material discharge

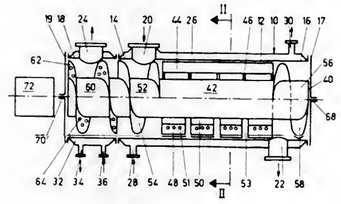
outlet and a pressure check valve outlet for exhausting gases, a combustion chamber having a stop valve inlet for combustibles, and an outlet in the form of a conduit interconnecting the combustion chamber with the drying chamber and means to ignite the combustibles in the combustion chamber.

3,808,700
ROTARY DRYING DRUM
James J. Kraus, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Dec. 26, 1972, Ser. No. 318,009
Int. Cl. F25d *11/02*
U.S. Cl. 34—124 **4 Claims**



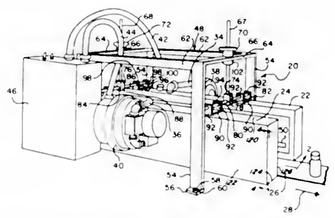
Rotary drying drum for high-speed drying of thin webs such as paper or the like comprising a hollow cylinder mounted for rotation and adapted to receive a condensable fluid and discharge condensate. Improved heat transfer is obtained by spoiler bars positioned around the inner drum circumference generally parallel to the drum axis. The invention includes dividing these bars into segments and attaching each segment; a single fixture may be used for each segment and end contact with adjacent bar segments prevents the segments from rotational movement around the fixture point. As a result, performance is improved due to the ability of the bar segments to expand and flex with the drum's surface without excessive stress on the attaching fixtures.

3,808,701
APPARATUS FOR DRYING FLUENT MATERIALS
Robert Theophil Bachmann, Oberengstringen, Switzerland, assignor to Luwa A.G., Zurich, Switzerland
Filed June 28, 1972, Ser. No. 267,225
Claims priority, application Switzerland, July 1, 1971, 9664/71
Int. Cl. F26b *19/00*
U.S. Cl. 34—179 **21 Claims**



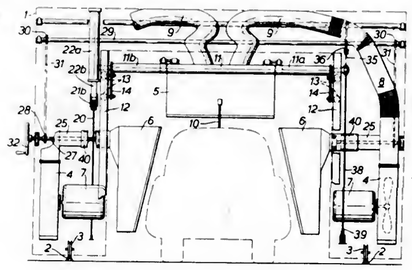
An apparatus for drying fluent materials with an approximately horizontally arranged cylindrical conduit as well as a rotor rotating internally of such conduit. The rotor supports vane-like elements operatively associated with the inner wall of the conduit. The rotor carries a number of such elements which are successively arranged in the direction of rotation thereof and serve for wiping, circulating, comminuting and scraping of the fluent material. One of the elements is constructed at least as a wiper element and a further element is constructed at least as a scraper element, the free edge of which travels closer to the inner wall of the conduit that the free edge of the wiper element. The scraper element has throughpassage openings for scraped-off material.

3,808,702
HEAT SHRINK TUNNEL FOR ENSURING UNIFORM SHRINKAGE OF HEAT SHRINKABLE BANDS ON ARTICLES OF VARIOUS SIZES
John Laessig, Newtown Square, Pa., assignor to Gilbreth Company, Philadelphia, Pa.
Filed Mar. 15, 1973, Ser. No. 341,412
Int. Cl. F26b *19/00*
U.S. Cl. 34—218- **16 Claims**



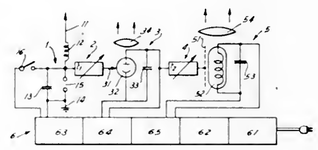
A heat shrink tunnel for shrinking heat shrinkable articles disposed on a conveyor including a pair of elongated bilateral heat ducts each of which is disposed on a respective side of said conveyor. Each duct includes a vent extending substantially the entire length thereof. Means are provided to force air into the ducts and through their associated vents to contact the articles on the conveyor as the articles move downstream. The ducts are supported by adjustable means and are oriented such that each extends upwards away and converges laterally towards the conveyor in the downstream direction.

3,808,703
VEHICLE DRYING APPARATUS
Nobuyoshi Kamiya, Takarazukashi, Japan, assignor to Toyo Enterprises Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 61,065, Aug. 5, 1970, abandoned.
This application Dec. 7, 1972, Ser. No. 313,103
Int. Cl. F26b *19/00*
U.S. Cl. 34—229 **4 Claims**



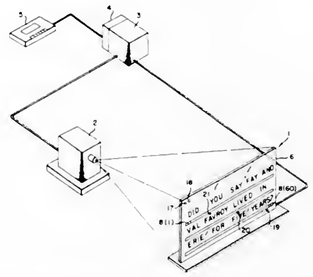
This invention provides a vehicle drying apparatus including an upper air-blowing nozzle and a pair of side air-blowing nozzles, the former being automatically adjusted, and the latters being previously adjusted by hand. in relation to a vehicle to be dried, so that the vehicle can be dried by air under pressure through these blowing nozzles with adequate distances therebetween.

3,808,704
ARRANGEMENT FOR SIMULATING ELECTRICALLY RADIATION AND LIGHT FROM NUCLEAR EXPLOSIONS
Frank Frungel, Herwigredder 105a, 2 Hamburg 56, Germany
Filed Nov. 19, 1971, Ser. No. 200,538
Claims priority, application Germany, Nov. 24, 1970, 2057735
Int. Cl. G09b *23/20*
U.S. Cl. 35—1 **9 Claims**



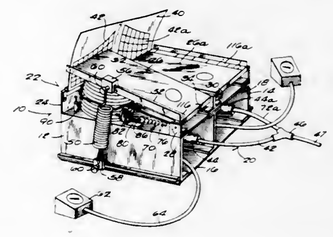
A portable arrangement for simulating the electromagnetic pulse and light of a nuclear explosion. An antenna circuit has an inductance and a charging capacitor. A spark gap is connected in parallel with the capacitor. To simulate the electromagnetic pulse, the capacitor is charged from a high voltage until breakdown occurs across the spark gap, thereby causing the EMP to be radiated from the antenna. An electronic timing circuit is connected to the capacitor and furnishes a signal igniting a flash a predetermined time interval after creation of the EMP. A second timing circuit initiates a second flash a predetermined time interval following the first flash. The EMP and first flash test the nuclear detection sensor, while the second tests the operation of a protective shutter associated with the sensor.

3,808,705
INSTRUCTIONAL APPARATUS FOR DISPLAYING A CHANGEABLE STILL SEQUENCE AND INCREMENTALLY ADVANCING A PATTERN THEREON
Arthur Robert Schmoyer, 11708 River Rd., Potomac, Md.
Filed Oct. 29, 1971, Ser. No. 193,938
Int. Cl. G09b *13/02*
U.S. Cl. 35—6 **10 Claims**



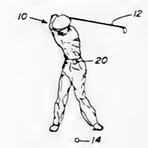
A method and apparatus for teaching a sequence of responses, such as typing, utilizes a device for displaying to a student a changeable still sequence comprising a multiplicity of characters sometimes divided into groups and subgroups, and for incrementally advancing a pattern thereon which serves to sequentially emphasize the characters. The emphasis of each character is retained until the end of a subgroup, group or sequence, at which time the emphasis is removed and when at the end of sequence, a new sequence of characters is displayed and the cycle repeated. The display device may be used in the production of "animated" motion pictures or video recordings.

3,808,706
PNEUMATIC LUNG ANALOG
Kenneth C. Mosley, Grand Rapids, and Clare E. Barkalow, Comstock Park, both of Mich., assignors to Michigan Instruments, Inc., Grand Rapids, Mich.
Filed Jan. 29, 1973, Ser. No. 327,503
Int. Cl. G09b *23/28*
U.S. Cl. 35—17 **38 Claims**



A vertically oriented bellows has a fixed plate at one end and a movable plate at the other end. As air flows into the bellows, the movable plate pivots relative to the fixed plate and the free end thereof is cooperative with a readout panel to indicate the volume of the bellows. The plates are interconnected by an adjustable spring urging the plates toward each other when the bellows are expanded to simulate lung compliance. Selected tubes having calibrated flow characteristics interconnect the bellows to a lung ventilator to simulate lung resistance. Preferably, a pair of bellows are arranged in mutual association together to simulate a pair of lungs in order to analyze their interdependency.

3,808,707
PHYSICAL TRAINING SYSTEM
Clyde H. Fink, 4804 Lindale Dr., Wichita Falls, Tex.
Filed Apr. 3, 1972, Ser. No. 240,694
Int. Cl. G09b *15/06*
U.S. Cl. 35—29 A **3 Claims**

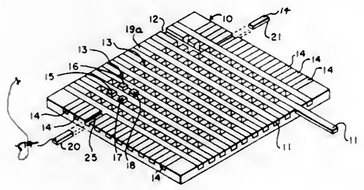


In a physical training system, an audible signal comprising an analog of a physical activity is generated while an individual practices the activity to assist the individual toward optimum performance of the activity. The audible signal is equal in duration to the physical activity and varies in frequency and intensity in accordance with the rate of muscular activity and with the level of muscular exertion which characterize optimum performance of the physical activity. In one embodiment of the invention the audible signal is reproduced from a recording as the physical activity is practiced. In another embodiment the audible signal is electronically generated.

the information for a single sweep is stored in those registers

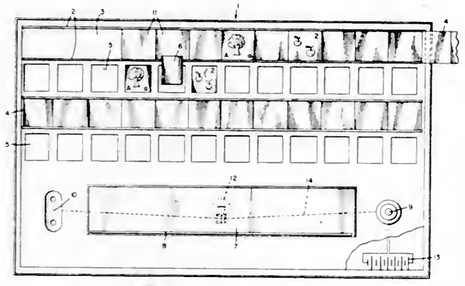
3,808,714

3,808,708
MATHEMATICAL INSTRUCTION GAME
Elizabeth J. Huskin, P.O. Box 186, Chadds Ford, Pa.
Filed Oct. 20, 1972, Ser. No. 299,421
Int. Cl. G09b *19/02*
U.S. Cl. 35—31 D 8 Claims



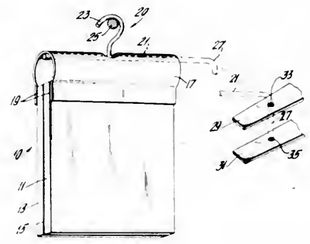
A playing board of wood or other appropriate material contains a number of parallel rows of cubicles. There are a plurality of cubes having on some faces problems in the multiplication or division tables and on opposed faces answers to those respective problems. The players may select a certain number of cubes and then try to arrange the problem and answer cubes of a particular number in their proper tabular positions in adjacent rows of cubicles. Sliding board pieces contain answers to the problems to enable the player to check his answers. Other sliding pieces contain indicia representative of fractions or elementary slide rule markings to teach its basic operation.

3,808,709
CHILD TEACHING BOARD GAME
Vincenzo Tozzi, Via del Casaletto 35, Roma, Italy
Filed Dec. 7, 1972, Ser. No. 312,873
Claims priority, application Italy, Dec. 7, 1971, 54607/71
Int. Cl. G09b *1/06*
U.S. Cl. 35—35 H 6 Claims



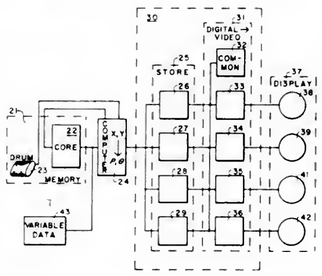
A child teaching board game in the form of a rectangular thin box having on its front surface guideways for the insertion of slides provided with a plurality of panels each containing a figure representing a thing or animal well known to children and in the upper corners the initial letter of said thing or animal, a series of pigeon-holes below said guideways for receiving cards representing the same things and animals, and a viewer in the lower portion of said front surface for receiving and viewing said cards in any desired order while they are being illuminated by a source of light arranged therebehind.

3,808,710
WALLPAPER DISPLAY APPARATUS
Don Ackerman, Scotch Plains, N.J., and Martin Grossman, Broomall, Pa., assignors to Economy Color Card Co. Inc., Roselle, N.J.
Filed May 31, 1973, Ser. No. 365,551
Int. Cl. G09f *5/04*
U.S. Cl. 35—55 4 Claims



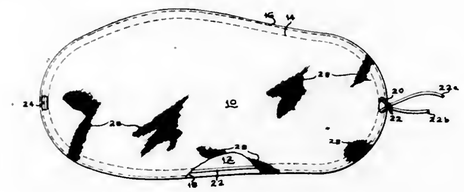
Wallpaper display apparatus includes two conforming wallpaper samples laminated via a flexible adhesive, curling of the specimens being inhibited by such lamination. The assembled samples are adhesively secured within a top-edge closure, having sample suspension apparatus secured thereto.

3,808,711
COLLISION AVOIDANCE RADAR SIMULATOR SYSTEM
Robert J. Membrino, Silver Spring, and Edward F. Magee, Crofton, both of Md., assignors to The Singer Company, Binghamton, N.Y.
Filed Apr. 13, 1972, Ser. No. 243,804
Int. Cl. G09b *9/00*
U.S. Cl. 35—10.4 16 Claims



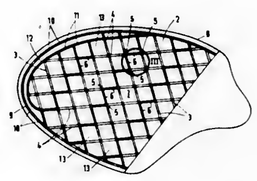
A training system for simulating marine radar includes a digital computer, standard radar display equipment, and interfaces connecting the two. This system is designed to utilize computer abilities and time better than earlier systems. In this system, a magnetic drum contains digital information representing all of the radar targets in the entire possible gaming area. At any time for any own ship, information representing the location of the ship is inserted into the computer which then locates the particular subset of information recorded on the drum for that location. The entire subset is transferred to core memory and utilized in the computer. The computer transforms the information from the rectangular coordinates in which it was stored on the drum into polar coordinates in which it will be displayed. The entire subset of information, in polar coordinates, is then stored in a separate memory, and the original subset in the original core memory is replaced by the subset for the next own ship. The polar coordinate information is applied to an interface where it is converted from digital information into video information. The interface contains separate registers for each of the own ship displays, and the information for a single sweep is stored in those registers for direct application to the display.

3,808,712
SHOE SOLE PROTECTOR
Robert L. Elliott, 2222 Alemany Bld., San Francisco, Calif.
Filed Apr. 2, 1973, Ser. No. 346,840
Int. Cl. A43b *1/10*
U.S. Cl. 36—7.3 4 Claims



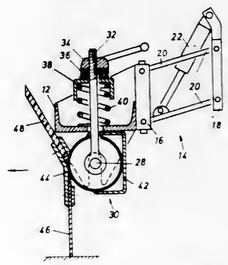
A protective cover for keeping the soles of sport shoes dry and clean when leaving the sports arena, comprising two coextensive, superposed plies of a flexible plastic sheet material of elongated ellipsoidal conformation stitched together along their periphery by two parallel, relatively spaced seams which form a peripheral sheath that is left open at the narrow ends of the ellipsoid for threading through it a cord of elastic material leaving both its ends protruding from one of said open areas. One of the external surfaces of the plies may be roughened.

3,808,713
RUNNING SOLE OF FLEXIBLE SYNTHETIC MATERIAL FOR SPORTS SHOES
Adolf Dassler, Am Bahnhof, D-8522 Herzogenaurach, Germany
Filed Apr. 6, 1973, Ser. No. 348,593
Claims priority, application Germany, Apr. 7, 1972, 2216872
Int. Cl. A43b *13/04*
U.S. Cl. 36—32 R 16 Claims



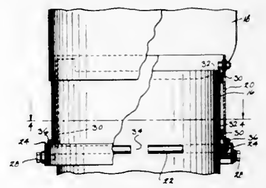
A running sole of flexible synthetic material for sports shoes, more particularly for athletic shoes, wherein, at least in the front portion of the sole, a plurality of integrally molded crossbars extend downwardly from the running surface of the sole and taper away therefrom. In order to impart an adequate grip on various surfaces, at least in some areas, roof-shaped projections extend downwardly beyond the cross bars, the projections having sharp edges extending substantially parallel to the running surface and also to the longitudinal direction of the crossbars, with the width of the bases of the projections corresponding substantially to the width of the crossbars. In a preferred construction the crossbars intersect one another and form therebetween honeycomb-like depressed areas, each individual roof-shaped projection being disposed between adjacent points of the intersection of the crossbars.

3,808,714
DOUBLE BLADED SNOWPLOW WITH OVERLOAD RELEASE
Gottfried Reissinger, Weilheimerstrasse 7, and Harro Reissinger, both of 8124 Seeshaupt, Germany, assignors to said Gottfried Reissinger, by said Harvo Reissinger
Filed June 3, 1970, Ser. No. 43,033
Claims priority, application Germany, June 9, 1969, 1929177
Int. Cl. E01h *5/06*; A01b *61/04*
U.S. Cl. 37—42 VL 9 Claims



The invention relates to a street clearing device having a first scraping blade, preferably constructed of steel, and a second scraping blade, constructed of rubber or plastic. The second scraper blade is adapted to be moved between an inoperative position and an operative position where it acts upon the street in place of the first scraping blade, and can be rotated about an axis substantially parallel to the operating edges of both scraping blades in the case of overloading when an obstacle is encountered.

3,808,715
SNOW THROWER WITH ROTATABLE SNOW SPOUT
Joseph Haban, Mound & Marquette Sts., Racine, Wis.
Filed Aug. 11, 1972, Ser. No. 279,924
Int. Cl. E01h *5/00*
U.S. Cl. 37—43 R 5 Claims



A snow auger rotates within a horizontal housing and has throwers which discharge snow out of an opening in the top of the housing. A cylindrical snow conduit is attached to the housing around the snow discharge opening and a snow-directing spout with a downwardly-projecting cylindrical collar is swivelingly attached around the snow conduit in overlapping relationship with the latter. A plurality of dimples are formed in the cylindrical collar in the area where it overlaps the snow conduit to space the two members sufficiently apart to prevent particles of foreign matter from lodging therebetween to interfere with swiveling. A spindle is rotatably attached to the housing and a cable has spaced portions wound around the spindle and extending in diverging relationship therefrom to pass around the cylindrical collar for causing swiveling of the latter. A member including a pair of spaced parallel arms is mounted for movement parallel to the axis of the spindle and engages the spaced cable portions to prevent improper winding of the cable around the spindle.

3,808,716

DREDGE CUTTER HEAD

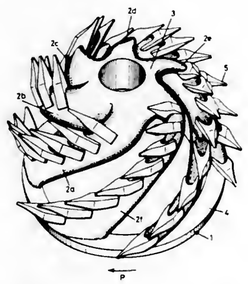
Adalbertus Raphael Maria Verbeek, Heemstede, Netherlands, assignor to Van Hattum en Blankevoort B.V., Beverwijk, Netherlands

Filed Feb. 11, 1972, Ser. No. 225,554

Claims priority, application Netherlands, Feb. 11, 1971, 7101833

Int. Cl. E02f *3/92*

U.S. Cl. 37—67 **7 Claims**



A cutter head construction for use in a cutter dredger, comprising a plurality of spiral-helical arms which on one end join together at a hub and on the other are connected by means of a supporting ring, to which arms are secured lateral ground working teeth each consisting towards their operative ends of a tooth crown extending from a tooth crown base, the representative tooth tips of which crowns, defined as the points halfway the tip or the middle of a cutting rib formed at the free end of the unworn tooth crown and the projection on the axis of the tooth crown of the centre of the wearing surface of the worn tooth crown, together define an imaginary enveloping plane in the form of a plane of revolution co-axial with said hub and said ring.

3,808,717

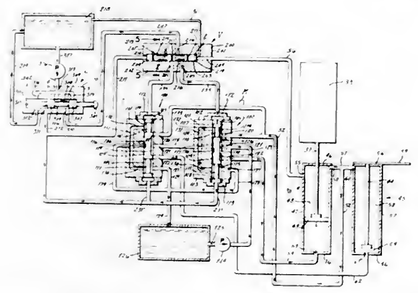
FLUID CONTROL SYSTEM FOR FLOOR AND EJECTOR GATES OF EARTH BOWEL SCRAPERS

Ronald K. Schantz, Morton, Ill., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa.

Division of Ser. No. 174,595, Aug. 25, 1971, Pat. No. 3,733,964. This application Feb. 15, 1973, Ser. No. 332,948

Int. Cl. F15b *11/16*; **E02f** *3/62*

U.S. Cl. 37—124 **6 Claims**



A fluid control system for an elevating scraper incorporating a master control valve for selectively directing fluid to a floor gate cylinder and an ejector gate cylinder, and a pilot sequence valve for sequentially operating said master control valve to assure that fluid will be initially directed to the floor gate cylinder and then subsequently to the ejector gate cylinder; there being a fluid line connecting the floor gate cylinder and the pilot sequence valve for passage of fluid to the latter after the floor gate has been fully extended.

3,808,718

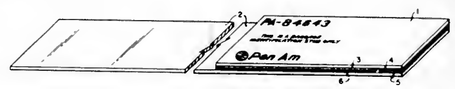
BAGGAGE TAG-AND-CHECK DEVICE FOR AIRLINES AND THE LIKE

James O. Christiansen, Massapequa Park, N.Y., assignor to Avery Products Corporation, San Marino, Calif.

Filed June 29, 1973, Ser. No. 375,109

Int. Cl. A44c *3/00*

U.S. Cl. 40—2 R **9 Claims**



A two-ply tag-and-check device for passenger's baggage delivered to an airline before boarding and to be claimed by the passenger on arrival at his destination, comprising a relatively long baggage-tag portion constituting one of the two plies thereof and a relatively short claim-check portion constituting the other ply thereof and covering and peelably adhered to an area of the baggage-tag portion at or near one end thereof by means of the below-mentioned two sets of juxtaposed adhesive and release coatings on facing and registering areas of the baggage-tag and claim-check, respectively. Such juxtaposed adhesive coatings and release coatings maintain the baggage-tag portion and the claim-check portion in assembled relation to each other prior to the ultimate use of the device. The major portion of the claim-check-covered area of the baggage-tag portion is coated with a pressure-sensitive adhesive and a minor portion of said area is coated with a release-coating, as for instance a silicone coating. The area of the claim-check juxtaposed to and covering the adhesive-coated area of the baggage-tag portion is coated with a release-coating, through which such area of the claim-check is peelably adhered to the adhesive-coated area of the baggage-tag. The area of the claim-check juxtaposed to and covering the release-coated area of the tag is coated with a pressure-sensitive adhesive through which such area of the claim-check is peelably adhered to the release-coated area of the baggage-tag. The outer face of the baggage-tag portion has imprinted thereon the name or symbol of the airline and the name or symbol of the destination of the baggage and the routing information (if not a through-flight) and a baggage-identifying number and the word "flight" with an adjoining delineated area for writing in the flight-number. The outer face of the claim-check portion has corresponding imprinting thereon. After the claim-check portion has been peeled from the baggage-tag portion it is adhered to the passenger's ticket-envelope or folder by means of the pressure-sensitive adhesive-coating on the minor portion of the face thereof opposite its imprinted face, and the baggage-tag portion is looped around the handle of the baggage with the imprinted side thereof facing outwardly and the two ends thereof are adhered to each other by the pressure-sensitive adhesive-coating covering the aforementioned end area thereof.

3,808,719

ESCAPEMENT MECHANISM

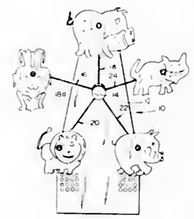
Albert Stubbmann, Franklin Lakes, N.J., assignor to Kohner Bros. Inc., East Paterson, N.J.

Division of Ser. No. 122,471, March 9, 1971, Pat. No. 3,698,252. This application July 3, 1972, Ser. No. 268,307. The portion of the term of this patent subsequent to Oct. 17, 1989, has been disclaimed.

Int. Cl. G09f *11/00*

U.S. Cl. 40—28 R **3 Claims**

A driven mobile having a plug secured to a first shaft with a plurality of arms radially extending from the plug. Objects of interest are secured to each arm and means is provided for allowing each object to oscillate about the arm to which it is attached as said first shaft is rotated. A spring motor is provided for supplying energy for rotating the first shaft. An escapement mechanism controls the rotation of the first shaft and includes a tube that is rotatable in conjunction with the first shaft. The tube is enclosed at its ends and has a pair of magnets therein. The magnets have their south poles facing each other with the north poles diametrically opposed to each other. The magnets can move within the tube. A lever is positioned adjacent the tube bottom when the tube is vertical, is rotatable about an axis to a vertical position and includes a stop. The stop prevents rotation of the tube when the lever is in the vertical position. A magnetic means biases the lever to the vertical position. If the tube is in a vertical position with



the magnets therein at the top of the tube, the lever will be in a vertical position as a result of the magnetic biasing means and the stop will prevent rotation of the tube. The magnets in the tube will descend to the bottom of the tube under the influence of gravity and the bottommost magnet overcomes the magnetic biasing means and any frictional forces and causes the lever to be moved out of its vertical position. Consequently, the tube and first shaft are free to rotate. After the tube is rotated a few degrees, the magnetic biasing means then moves the lever to a vertical position and the cycle is again repeated after the tube has come to a vertical position.

3,808,720

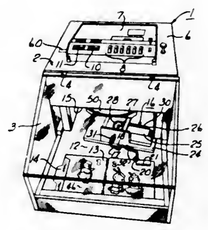
AUDIO-VISUAL DISPLAY APPARATUS

John Allen Smith, 1368 4th Ave., Coraopolis, Pa.

Filed Dec. 29, 1971, Ser. No. 213,251

Int. Cl. G09f *27/00*

U.S. Cl. 40—28.3 **11 Claims**



An audio-visual display apparatus principally adapted to visually display media in the form of pages in a book together with a page turning arm so that the observer can visually see the intelligence printed on the pages of a book and hear such intelligence as recorded on a recording medium. The motor drive means operating the page turning arm is responsive to signals on the recording medium through control circuit means to cause the arm to rotate through an arcuate path carrying an individual page, to turn the page over and to return to its original position ready to carry over the next page. The signals on the recording medium are placed at predetermined positions on the medium to coincide with the intelligence printed on the pages so that upon complete reproducing of sonant stored intelligence for any one page, the page is turned over by the page turning arm.

3,808,721

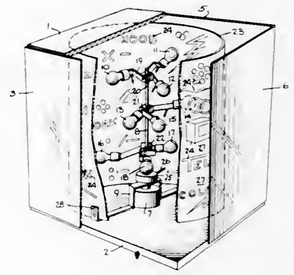
ANIMATED DISPLAY APPARATUS

William R. Gersch, Flocktown Rd., Long Valley, N.J.

Filed Nov. 17, 1972, Ser. No. 307,471

Int. Cl. G09f *11/02*

U.S. Cl. 40—106.52 **4 Claims**



Apparatus for producing moving light patterns of varying size and intensity in which a plurality of electric lamps are mounted in vertically spaced relation along a rotatable vertical shaft driven by a motor, the lamps being spaced at different distances from the axis of the shaft, and being surrounded by four translucent screens on which the patterns are projected. The screens are spaced from the lamps and intermediate the screens and the lamps and spaced therefrom is a cylindrical, tubular mask having its axis parallel to the shaft axis and having a plurality of light transmitting areas bordered by opaque areas, the light transmitting areas defining the light transmitted from the lamps to the screens.

3,808,722

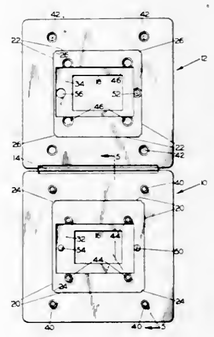
PUNCH-OUT FILM MOUNT

Donald W. Byers, Portland; Chester H. Petry, Jr.; Carl G. Nordstrom, both of Newberg, and James Carl Hensley, Portland, all of Oreg., assignors to Byers Photo Equipment Company, Portland, Oreg.

Filed July 13, 1973, Ser. No. 378,949

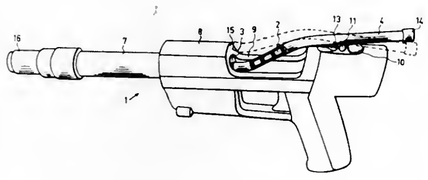
Int. Cl. G09f *1/12*

U.S. Cl. 40—152 **10 Claims**



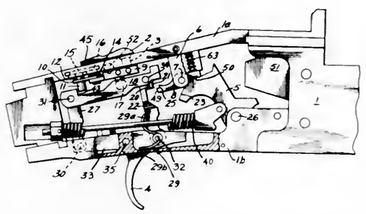
A film mount for mounting film in the production of projectible slides has a central punch-out section incorporating the film, thereby providing a slide assembly having at the election of the operator an enlarged mount dimensioned for use in a projector of a first class, or a mount of reduced dimensions sized for use in a projector of a second class.

3,808,723
CARTRIDGE MAGAZINE FOR POWER TOOLS
Karl Erich Samuel Erixon, Huskvarna, Sweden, assignor to Gunnebo Bruks Aktiebolag, Gunnebobruk, Sweden
Filed Dec. 29, 1972, Ser. No. 319,395
Claims priority, application Sweden, Apr. 4, 1972, 4292/72
Int. Cl. F41c *25/00*
U.S. Cl. 42—6 **11 Claims**



A cartridge magazine for power tools by virtue of which the loading of the tool with a cartridge is semi-automated and a great number of such cartridges are stored in this magazine in readiness for a rapid reloading of the tool. The cartridges are contained behind one another in a channel and the part constituting the channel is tiltable between two end positions, in one of which the channel communicates with a cartridge chamber in the inner end of the barrel of the tool.

3,808,724
FIRING MECHANISM FOR FIREARMS
John P. Linde, Ilion, N.Y., assignor to Remington Arms Company, Inc., Bridgeport, Conn.
Continuation-in-part of Ser. No. 148,825, June 1, 1971, abandoned. This application Feb. 2, 1973, Ser. No. 329,218
Int. Cl. F41c *19/00*
U.S. Cl. 42—42 R **10 Claims**



An automatically selective firing mechanism for use in a double-barrelled firearm of the type having a single trigger. The system contains a double sear, double hammer firing arrangement.

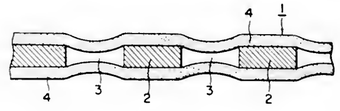
The firing mechanism automatically arms the unfired sear after the first sear has dropped. This secondary arming takes place by releasing the trigger. The mechanism is free of any tendency toward accidental double firing, often referred to as "doubling." This is accomplished without the use of separate mechanical restraining mechanisms or inertial weights.

This invention is so constructed that a sudden jarring shock, such as that experienced in the dropping of the firearm, will not tend to discharge the gun.

In addition, the sears and hammers are arranged to provide an extremely fast lock time.

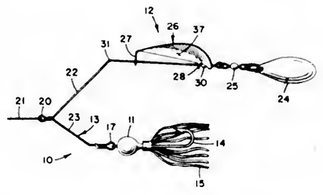
Selection of the barrel to be fired, and the release of the safety is accomplished in one easy flip of the selector lever. The lever is so positioned upon the top tang of the firearm to afford ease and comfort of barrel selection to both right and left-handed shooters.

3,808,725
FISHING NET HAVING A LARGE SPECIFIC GRAVITY
Akio Matsumoto, and Kenji Someno, both of Tokyo, Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Tokyo, Japan
Filed Aug. 2, 1972, Ser. No. 277,375
Claims priority, application Japan, Aug. 3, 1971, 46-57947
Int. Cl. A01k *73/00*
U.S. Cl. 43—7 **8 Claims**



A fishing net having a high specific gravity prepared by netting monofilaments of a hollow thermoplastic synthetic resin sheath containing spaced-apart fiber segments of a metal or a metal alloy. The segments have a high specific gravity, such as in lead or lead alloys, and are enclosed therein as the core, or twines of such monofilaments. Voids are located within the sheath between adjacent ends of the segments. The net may also comprise compound twines consisting of the foregoing monofilaments and monofilaments of natural or chemical fibers.

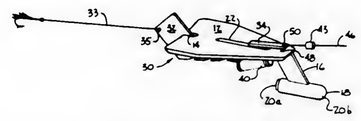
3,808,726
SPINNER LURE RIG
Lindley E. Flanagan, Jr., 5700 Rockhill Rd., Fort Worth, Tex.
Filed July 24, 1972, Ser. No. 274,431
Int. Cl. A01k *91/00*
U.S. Cl. 43—42.13 **6 Claims**



A spinner lure rig includes both a sub-surface lure portion and a hydrofoil structure which, in use, rides on the surface of the water in hydroplane fashion for supporting the rig in the water. A yoke is connected between the sub-surface lure and the hydrofoil structure for positioning the lure at a predetermined depth beneath the water surface when the hydrofoil structure is on the surface. Alternatively, the rig may be worked below the water surface. In a preferred embodiment, the hydrofoil structure is configured with dihedral, hydrofoil wing portions which enhance the stability of the hydrofoil during forward movement. The preferred embodiment of the rig is also configured with at least most of the area of the hydrofoil located to the rear of the center of gravity of the entire rig, whereby the rig is adopted to glide forwardly through the water when permitted to sink.

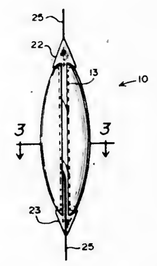
3,808,727
ADJUSTABLE SELF-REGULATING TROLLING DEVICE
Robert D. Flanders, Rt. 2, Box 666, No. 42, Wilsonville, Oreg.
Filed Aug. 21, 1972, Ser. No. 282,588
Int. Cl. A01k *95/00*
U.S. Cl. 43—43.13 **11 Claims**

An adjustable self-regulating trolling device for maintaining a fishing lure or bait at a constant predetermined depth with respect to the surface of a body of water being fished. The device comprises a flat, laterally extending plate having a variable, multi-positional weight assembly attached to the front of the plate. A fin, having a tow line retainer bar attached at its upper end and a rudder-like lower portion, is pivotally mounted within the plate and is spring-biased for limited arcuate movement in a vertical path with respect to the plate. By setting certain structural adjustments incorporated within the design of the mechanism, which include a slideable stop in abutting communication with the retainer bar and interchangeable springs of varying tension interconnectable



between the plate and any one of a number of slits formed on the fin, the desired proportional relationship between the angle and distance of descent of the device respectively can be achieved, and the depth to which the structure will dive before it reaches a constant planing position in the water can be predetermined. Additionally, the device is self-regulating and is therefore designed for automatic resetting to its predetermined constant planing position upon displacement therefrom.

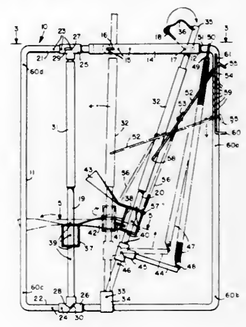
3,808,728
ATTACHMENTS FOR FISHING LINES
Wilfred L. Ratte, Jr., White Bear Lake, Minn., assignor to Water Gremlin Company, White Bear Lake, Minn.
Continuation-in-part of Ser. No. 282,260, Aug. 28, 1972, abandoned. This application Jan. 8, 1973, Ser. No. 321,865
Int. Cl. A01k *95/00*
U.S. Cl. 43—44.91 **16 Claims**



An attachment for a fishing line is provided which comprises a flexible elastic core for insertion into a fishing line body. The flexible core contains a slot located longitudinally therein for receiving a fishing line and a pair of ends which can be grasped in one's hand to twist the core around the line to firmly grasp the line as well as to cushion the line and prevent undue wear of the line. The core ends comprise converging sections which are large enough for grasping as well as small enough to make the body and core weedless.

3,808,729
ANIMAL TRAP
John W. Gilbaugh, 19396 Monte Vista Dr., Saratoga, Calif.
Filed Sept. 12, 1972, Ser. No. 288,422
Int. Cl. A01m *23/24*; **A61d** *3/00*
U.S. Cl. 43—88 **7 Claims**

An animal trap made in the form of a rigid frame equipped with two padded bars for capturing animals without injury by the neck. One padded bar is secured to the top and bottom of frame. An end of the other padded bar is hinged to the bottom member of the frame with the remaining end retained in an elongated opening at top of frame to keep it aligned with other padded bar as the trap is set and sprung. Near their lower extremities the padded bars are equipped with trigger mechanism parts which work in cooperation to hold trap in set position and to spring the set when trigger is activated. The

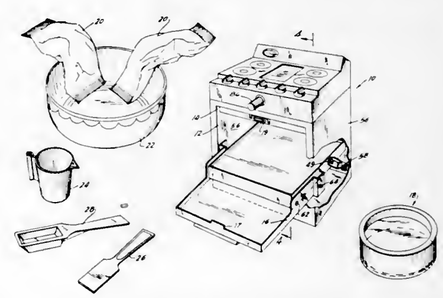


hinged, padded bar is equipped with a locking device to hold it firmly against neck of captured animal to prevent escape. An elongated guide opening is provided with means to adjust space between padded bars to control pressure of hinged bar against necks of animals of varying sizes.

ERRATUM

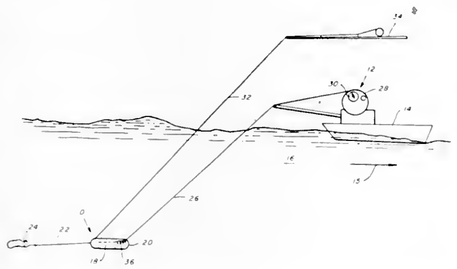
For Class 43—4 see:
Patent No. 3,808,731

3,808,730
TOY OVEN
Julius Cooper, New Hyde Park, and Harvey Berkin, Merrick, both of N.Y., assignors to Ideal Toy Corporation, Hollis, N.Y.
Filed Feb. 8, 1973, Ser. No. 330,527
Int. Cl. A63h *33/00*
U.S. Cl. 46—1 R **19 Claims**



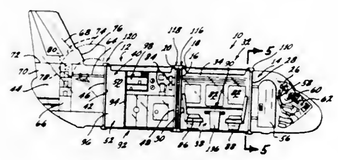
A toy oven and a telescopic food mold are provided for use in reconstituting a compressible food product thereby to simulate baking of a cake or the like. The toy oven has an oven cavity defined between a fixed upper wall and a lower wall which is adapted to be moved towards the upper wall upon closing of the oven door. The compressible telescopic mold is first filled with a compressible food product and then seated on the lower movable wall of the oven cavity. When the oven door is closed the telescopic mold is compressed between the upper and lower oven walls, thereby compressing the mold and thus compressing and reconstituting the food product contained therein.

3,808,731
AUTOMATIC DOWN RIGGER
Darrell J. Lowrance, Tulsa, Okla., assignor to Lowrance Electronics, Inc., Tulsa, Okla.
Filed Jan. 15, 1973, Ser. No. 323,450
Int. Cl. A01k *31/06*
U.S. Cl. 43—4 **6 Claims**



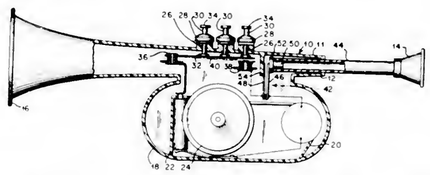
In trolling a lake for fish it is desirable to troll at a depth where the temperature is ideal for the species of fish being sought. This abstract describes an apparatus in which a temperature sensor is carried in a probe attached to a cable depending from a motor driven reel carried by the trolling boat. The temperature sensor is a thermo-resistive element which is connected to a servo amplifier which controls the direction of rotation of the reel, so that the probe cable can be lengthened to permit the probe to go to a greater depth or can be shortened to bring the probe to a shallower depth, so as to adjust the position of the probe to water of the desired temperature.

3,808,732
PORTABLE DISPLAY TOY
Derek J. Gay, Palos Verdes Peninsula; William H. Smedley, Bel Aire; Aaron G. Cohen, Los Angeles; Darryl R. Dworkin, Torrance; Michael W. Nuttall, South Pasadena, and Nicol S. Wilson, Redondo Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Mar. 5, 1973, Ser. No. 337,962
Int. Cl. A63h *33/06*
U.S. Cl. 46—12 **7 Claims**



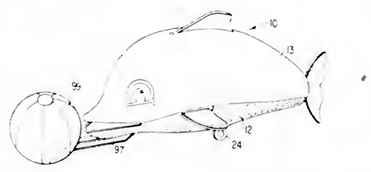
Two box-like portions hinged together to simulate a flight bag and having (1) simulated airplane seats, table and galley secured to the inner face of each portion, (2) a two-dimensional, simulated airplane tail hinged to one portion and (3) a two-dimensional airplane nose hinged to the other portion, whereby the simulated flight bag may be spread open to represent a complete airplane in longitudinal cross-section so that a child-user may place dolls and other toys in the simulated galley and in positions at the table. For storage, the simulated airplane tail and nose are folded into the inside of the box-like portions which may then be folded together, closed with suitable fasteners and carried by a handle, just as a flight bag is carried.

3,808,733
TOY WIND INSTRUMENT HAVING SIMULATED VALVE CONTROLS FORMING SWITCH BUTTONS
William J. Pipa, New Hyde Park, N.Y., assignor to Dicker International, Inc., New York, N.Y.
Filed Aug. 11, 1972, Ser. No. 280,050
Int. Cl. A63h *5/00*
U.S. Cl. 46—44 **6 Claims**



A toy simulating a musical wind instrument of the type having a multiplicity of finger operated pitch valve control means, in the body of which a battery-operated toy phonograph is housed. The circuit of the toy phonograph includes a normally open switch which is closed by any one of the multiplicty of finger operated simulated pich valve control means.

3,808,734
TOY DOLPHIN
Haruo Suzuki, Chiba, Japan, assignor to Toytown Corporation, Tokyo, Japan
Filed June 26, 1973, Ser. No. 373,794
Int. Cl. A63h *23/00*
U.S. Cl. 46—91 **5 Claims**

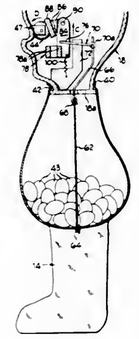


A toy dolphin provided with a buoyant body for floating in water, a motor and a source of energy for same located within the body, a flipper operatively mounted for movement at the rearward end of the body, a buoyant member operatively mounted to the forward end of the body of the dolphin for rotation between a first position wherein the buoyant member is generally aligned with the buoyant body of the dolphin and a second position wherein the buoyant member is spaced downwardly from the dolphin body, a sound producing mechanism within the body, a gear train connecting the motor and the propelling means for running same continuously, a gear train operatively connecting the motor, the buoyant member and the sound producing mechanism for operating same intermittently during the continuous operation of the flipper such that as the buoyant member rotates to its second position, the forward end of the buoyant body of the dolphin is raised upwardly from the water while the rearward end thereof is further submerged at which time the sound producing mechanism operates.

3,808,735
MOVABLE FIGURE TOY
Howard J. Morrison, Deerfield, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.
Filed Nov. 6, 1972, Ser. No. 304,062
Int. Cl. A63h *11/00*
U.S. Cl. 46—135 R **11 Claims**

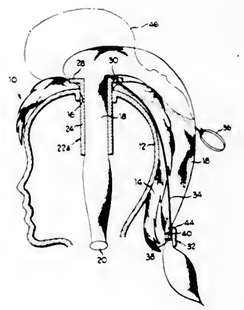
A doll or figure toy which changes facial expressions as it is moved between a seated position and an erect position, by

means of gravity operation from the weight of the torso portion of the doll which shifts longitudinally in response to changing of the doll's positions. The doll's torso is operatively



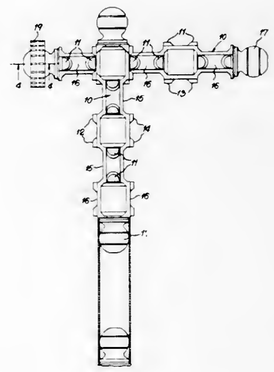
connected to facial expression components movably mounted on the doll's head for movement in response to shifting of the torso.

3,808,736
HAIR STYLING FIGURE AND ACCESSORIES
Rouben T. Terzian; Marvin I. Glass, both of Chicago, and Robert S. McKay, Morton Grove, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Jan. 15, 1973, Ser. No. 323,703
Int. Cl. A63h *11/00*
U.S. Cl. 46—135 **14 Claims**



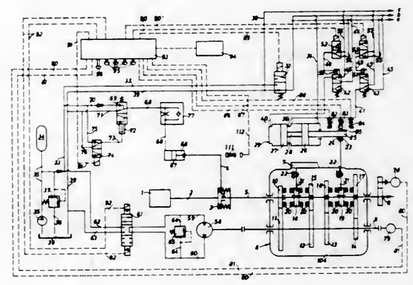
A hair styling figure, and accessories therefor, which includes a simulated head having a skull portion with hair imbedded therein or fixed thereto. The skull portion has a generally centrally located aperture in the top thereof through which a tuft of simulated hair protrudes and within which one of a plurality of interchangeable accessory pieces may be removably received. The accessory pieces when received in the skull aperture have outwardly protruding portions which facilitate styling the hair for curling, braiding or other styling arrangements. Once the hair is set by utilizing one of the hair styling accessory pieces, the particular accessory piece may be removed, if desired, and the hair combed out or otherwise arranged.

3,808,737
RING ACCESSORY FOR AN EDUCATIONAL DEVICE
Andrew M. Abrams, Scarborough, N.Y., assignor to Union Camp Corporation, Wayne, N.J.
Filed Sept. 1, 1972, Ser. No. 285,586
Int. Cl. A63h *17/26*
U.S. Cl. 46—221 **1 Claim**



An accessory for an educational device in the form of logs which can be stacked and formed into various configurations allowing students to learn to interpret and solve mechanical problems as well as improve muscle control and coordination. The accessory is in the form of a ring and is adapted to interconnect with or support the logs to permit movement of the stacked logs and also to serve as an ornament for certain configurations of logs, all of which expands the scope of activity of the device. Such accessory can also serve as a support to permit movement of other structures.

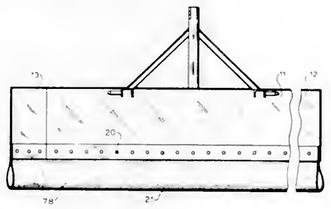
3,808,738
MEANS FOR PERFORMING GEAR CHANGES IN MULTI-RATIO CHANGE-SPEED GEAR BOXES
Gunter Siebers, Dahlmannstr. 32, 85 Nurnberg; Karl Prenzel, Chemnitzerstr. 27a, 8541 Neu-Katzwang, and Hans Barthel, Bothmerstr. 16, 85 Nurnberg, all of Germany
Filed June 15, 1970, Ser. No. 46,555
Claims priority, application Germany, June 13, 1970, 1930046
Int. Cl. F16h *3/20*
U.S. Cl. 74—339 **2 Claims**



A hydraulic gear-changing apparatus having a gear-box having driven members, driving members and members to be

moved to selectively engage a driven member and a driving member is provided with a hydraulic assembly for changing the speed of the driving member prior to engagement with the member to be moved, the hydraulic system comprising a pump, an electromagnetically operated three position four-way valve and means for fluid connection of the pump to the four-way valve, a fluid source and a fluid return sump including a by-pass between the fluid source and fluid return sump, the hydaulic assembly braking the driving member, driving the driving member or operating without effect on the speed of the driving member depending upon the position of the four-way valve.

3,808,739
GOLF COURSE WATER COLLECTOR APPARATUS
Jack S. Newgent, 701 Roberts St., Kissimmee, Fla.
Filed May 3, 1973, Ser. No. 356,790
Int. Cl. A01c *23/00*; **A46b** *15/00*
U.S. Cl. 47—1.5 **6 Claims**



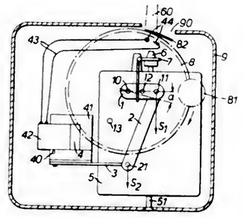
An apparatus for collecting standing water on a golf course and spreading the water over a larger area of the golf course thereby allowing the use of the course following heavy rains. An elongated frame has a three-point hitch for connection to a golf course tractor and has a rolled rubber flap water collector for pulling across the turf which collects the water in the front of the frame and flap and distributes it over the golf course.

3,808,740
COATED SEEDS AND METHODS
Frederic E. Porter, Minneapolis, and Howard E. Kaerwer, Jr., Eden Prairie, both of Minn., assignors to Northrup, King & Co., Minneapolis, Minn.
Filed Jan. 8, 1973, Ser. No. 321,679
Int. Cl. A01c *1/06*
U.S. Cl. 47—58 **16 Claims**

Plant seeds, preferably leguminous, are coated with 0.1–5 parts by weight, per 100 parts by weight of seed, of a film forming material and further coated with at least 10 parts by weight (same basis) of solid particles of an agent such as calcium carbonate while the first coat is semi-solid and tacky. The film-forming material preferably comprises a prepolymer curable with water and/or an amine to a water insensitive but permeable solid. One particularly suitable agricultural use for the resulting coated seeds is in the growing of crops in acid soils.

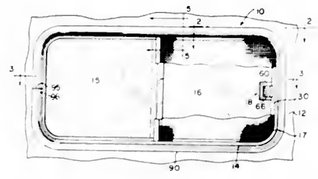
3,808,741
OPERATING MEANS FOR ELECTRO-MECHANICALLY IGNITED LIGHTERS
Claus Christian Cobarg, Steinbach, and Hans Schindler, Egelsbach, both of Germany, assignors to Braun Aktiengesellschaft, Frankfurt/Main, Germany
Filed Feb. 6, 1973, Ser. No. 330,049
Int. Cl. F23q *2/28*
U.S. Cl. 431—256 **8 Claims**

Operating means of an electro-mechanically ignited lighter, particularly a gas lighter, comprises a mechanical energy store connected to the ignition mechanism and to a manually operated crank mechanism. The crank mechanism includes a rotatable element, such as a disc, and turning of the rotatable



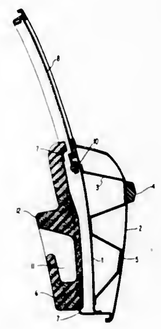
element results in the transmission of energy to the energy store until the energy stored up therein is sufficient to operate the ignition mechanism.

3,808,742
WINDOW
Yale W. Ehret, and Russell O. Anderson, both of Elkhart, Ind., assignors to The Adams & Westlake Company, Elkhart, Ind.
Filed Sept. 20, 1972, Ser. No. 290,707
Int. Cl. E05d *15/06*
U.S. Cl. 49—413 **12 Claims**



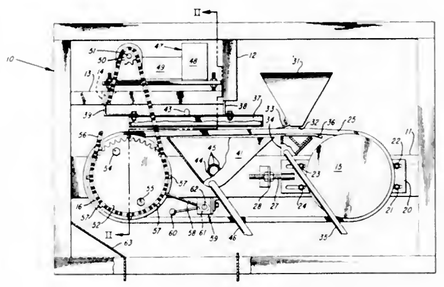
A window construction which is adapted to be mounted in an opening in a wall of a recreational vehicle or the like, and which comprises, in the form shown in the drawings, a generally oblong frame of extruded metal with parallel glazing channels for receiving a fixed glass panel member and a co-operating sliding glass panel member together with a sliding screen member for the opening when the sliding glass panel member is moved to an open position. The frame has a peripheral flange for securing to the outside face of the wall, with a fastener concealing strip, and an inside trim member is provided which adapts the frame for mounting in different thickness walls. The screen member which rides in an inner channel in the frame is held in its channel and readily removable. The sliding glass panel member which rides in the outermost channel in the frame is readily removable by first removing a section of a guide track in the channel in which it is normally seated. The fixed glass panel member has three of its marginal edges normally held in an intermediate channel by a removable wedge-type glazing strip. When the arrangement comprises a fixed glass panel member flanked by sliding panel members on each side thereof the fixed panel member will have two of its marginal edges held in an intermediate channel by a removable wedge-type glazing strip.

3,808,743
VEHICLE DOOR, ESPECIALLY FOR PASSENGER MOTOR VEHICLES
Hermann Renner, Magstadt, and Bruno Sacco, Sindelfingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Continuation of Ser. No. 810,504, March 26, 1969, abandoned. This application May 30, 1972, Ser. No. 257,963
Claims priority, application Germany, Apr. 30, 1969, 810504
Int. Cl. B60j *5/04, 1/16*; **E05f** *11/38*
U.S. Cl. 49—502 **14 Claims**



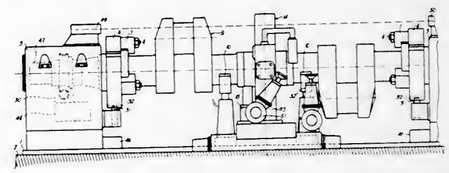
A vehicle door, especially for passenger motor vehicles in which reinforcing profiles are provided between the inner and outer sheet metal panels of the door while the lowerable window including its guide and actuating means are arranged within the space formed between the inner sheet metal panel of the door and a cover panel covering the inner sheet metal panel.

3,808,744
METHOD AND APPARATUS FOR MANUFACTURE OF SOLID ABRASIVE CHIPS
Gunther W. Balz, Kalamazoo, and Forrest P. Leipold, Portage, both of Mich., assignors to Roto-Finish Company, Kalamazoo, Mich.
Filed Sept. 13, 1971, Ser. No. 179,816
Int. Cl. B24b *7/00, 9/00, 31/00*
U.S. Cl. 51—3 **4 Claims**



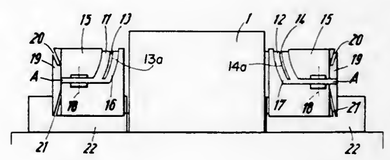
Solid abrasive chips are continuously manufactured by providing an endless belt with indentations therein in the form of a desired chip, filling the indentations with a fluid abrasive admixture, contacting the filled indentations with a cooling fluid so as to solidify the admixture, and thereafter removing the solidified chip. A machine for the foregoing manufacture comprises an endless belt with indentations stretched over two rotatable drums one of which is driven, a dispenser means situated above the belt and adapted to fill the indentations with a fluid abrasive admixture, and chilling means adapted to solidify the admixture within the indentations.

3,808,745
MACHINE TOOL FOR HEAVY COUNTER-BALANCED CRANKSHAFTS
Bohuslav Belohoubek, and Josef Linda, both of Praha, Czechoslovakia, assignors to Tos Hostivar, Narodni Podnik, Praha-Hostivar, Czechoslovakia
Filed Jan. 3, 1972, Ser. No. 214,561
Claims priority, application Czechoslovakia, Jan. 4, 1971, 28-71
Int. Cl. B24b *25/00, 27/00, 7/00*
U.S. Cl. 51—3 **3 Claims**



A machine tool for heavy counter-balanced crankshafts having a rear bed and front bed with two rotating working headstocks for stationarily supporting a worked counter-balanced crankshaft. The headstocks are located at opposite sides of the rear bed. At least one supporting grinder rest is placed between the working headstocks. The front bed is adjacent to the rear bed and longitudinally movable bed slides are located on both sides. A carrying saddle is placed upon the slides and a guiding circular body is mounted on the carrying saddle. A rotary carrying body is pivotally mounted within the guiding circular body, and is provided with its own drive means for circular movement within said guiding circular body. An adjustable machining means is provided on the carrying body and in the guiding circular body and rotary carrying body are provided with openings positioned on the side to the worked crankshafts. The openings enable, when coincidently set on both the bodies, a working member consisting of guiding circular body and rotary carrying with working tool to be placed on the worked heavy counter-balanced crankshaft.

3,808,746
APPARATUS FOR GRINDING OF KNIVES IN PARTICULAR OF A HAND-KNIFE AND CUTTER-KNIFE
Fritz Knecht, Vogt/Heissen, Germany, assignor to Tecmed A.G., St. Margrethen, Switzerland
Filed Sept. 14, 1971, Ser. No. 180,306
Claims priority, application Germany, Aug. 13, 1971, 2140596
Int. Cl. B24b *3/54*
U.S. Cl. 51—128 **4 Claims**



An apparatus for grinding of knives, particularly of hand-knives and cutter-knives, which comprises rotatable grinding

discs having side faces adapted to have the cutting edge of knives press against the side faces. A non-rotatable protection housing includes a central drive member, and the grinding discs are disposed opposite each other from said central drive member. The protection housing has insertion slots for a knife blade, which slots form cuts of the protection housing. The cuts are disposed in a plane extending obliquely to the axis of the grinding discs, the oblique position determining the grinding angle.

3,808,747

MECHANICAL FINISHING AND MEDIA THEREFOR

William L. Kenagy, Huntingdon Valley, Pa., assignor to The Wheelabrator Corporation, Mishawaka, Ind.

Continuation of Ser. No. 44,475, June 8, 1970. This application May 24, 1972, Ser. No. 256,598

Int. Cl. B24b *31/14*

U.S. Cl. 51—164.5 **2 Claims**



This invention is addressed to mechanical finishing and media therefor wherein the finishing media are formed of geometric shapes of bauxite particles which have been sintered at a temperature within the range of 2,900°–3,100° F.

3,808,748

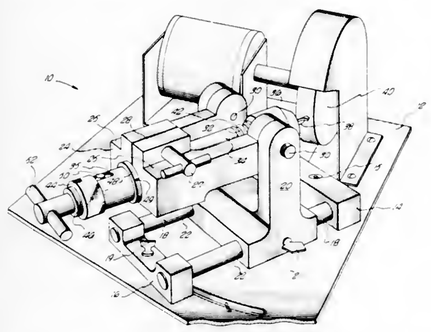
ADJUSTABLE MOUNTING BRACKET FOR WORKPIECE

Carl L. Gunnerson, Buena Park, Calif., assignor to The Zealot Corporation, Las Vegas, Nev.

Filed May 8, 1972, Ser. No. 251,460

Int. Cl. B24b *3/30*

U.S. Cl. 51—219 R **6 Claims**



A mounting bracket assembly that is capable of being pivotally mounted to a base plate adjacent a machining operation such as a grinding wheel. A pair of guide bars permit a relative positioning of a vertical support member which carries the workpiece. A U shape bracket member is pivotally mounted on the vertical support with the pivot point being positioned above the axis of the workpiece in the vertical support thereby permitting the workpiece to be moved into the grinding wheel by rotation about the pivot point. A spring biased shaft carries at one end a collet for holding the workpiece and at the other end an indexing means for permitting a selective rotation of the workpiece for progressive machining operations. A sleeve surrounds the shaft and is fixedly positioned by the U shape bracket to serve as an adjustable mounting seat for the spring. The spring serves the function of biasing the indexing operation while also permitting both a fine adjustment and a safety factor to prevent the workpiece from jamming during the machining operation.

3,808,749

SAFETY GUARDS FOR GRINDING WHEELS

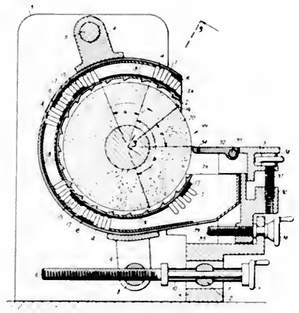
Frantisek Rosberg; Josef Linda; Ondrej Buzga; Miloslav Dusek, all of Praha, and Jiri Cvetler, Sazavou, all of Czechoslovakia, assignors to Tos Hostivar, narodni podnik, Praha, Czechoslovakia

Filed July 5, 1972, Ser. No. 269,018

Claims priority, application Czechoslovakia, July 6, 1971, 4951-71; June 5, 1972, 3866-72

Int. Cl. B24b *55/04*

U.S. Cl. 51—269 **9 Claims**



A safety guard for grinding wheels comprising a solid outer shield provided upon its inner periphery with resiliently deformable segments and an inner shield adapted to close over the grinding wheel provided upon its outer periphery also with resiliently deformable segments. The inner closing shield is rotatably seated within the solid outer shield and the deformable segments and are arranged alternatively, one by one, in pairs to provide slidable supports for maintaining the shields in radial spaced relationship.

3,808,750

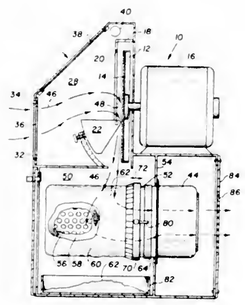
DENTAL MODEL TRIMMER

Douglas M. Mann, 245 E. 63rd St., New York, N.Y.

Filed Oct. 10, 1972, Ser. No. 296,030

Int. Cl. B24b *55/06*

U.S. Cl. 51—273 **1 Claim**



A trimmer for dental models made of plaster or similar material, said trimmer being a self-contained, portable unit having a vacuum system to remove the dust of the trimmed material, said vacuum system including a filter, in bag form, supported within a scraping ring such that there is a comparatively large usable filtering surface. This surface is also readily scraped and thereby maintained effective. For both these and other reasons, the within trimmer requires minimum maintenance during prolonged intervals of use.

3,808,751

METHOD OF MAKING A SANDBLAST MASK

Setsuo Usui, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 18, 1972, Ser. No. 227,444

Claims priority, application Japan, Feb. 20, 1971, 46-8230

Int. Cl. E06b *7/20*

U.S. Cl. 51—312 **8 Claims**

A method of making a sandblast mask from a photopolymer layer including the step of forming a colored filter layer between the photopolymer layer and the workpiece to prevent light reflected from the workpiece from exposing the photopolymer layer.

3,808,752

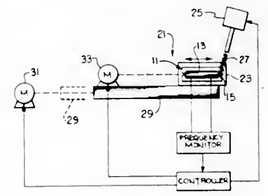
METHOD OF AUTOMATICALLY ADJUSTING THE FREQUENCY OF CRYSTAL RESONATORS

William D. Beaver, Mission Viejo, and Herbert O. Lewis, Westminster, both of Calif., assignors to Comtec Economation, Santa Ana, Calif.

Filed July 10, 1972, Ser. No. 270,051

Int. Cl. B24f *1/00*

U.S. Cl. 51—319 **13 Claims**



A method of tuning a mechanical resonator comprising reducing a dimension of the resonator to thereby change its resonant frequency, measuring the resonant frequency of the resonator while said dimension is being reduced, and controlling the dimension reduction in accordance with the frequency measurement to thereby provide the resonator with the desired resonant frequency.

3,808,753

ROTARY ABRASIVE TOOL AND COATED ABRASIVE DISC AND BACKING ASSEMBLY THEREFOR

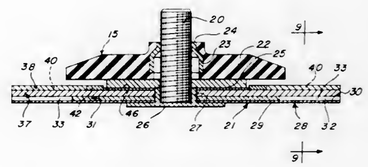
Armand C. Maran, 1745 Lisa Marie Ct., Deerfield, Ill.

Filed Nov. 16, 1972, Ser. No. 307,009

Int. Cl. B24d *17/00*

U.S. Cl. 51—358 **10 Claims**

A rotary abrasive tool and a flexible coated adhesive disc and backing assembly therefor. The flexible coated abrasive disc is mounted in the assembly outwardly of a slotted flexible backing disc or pad member which is provided with radially arranged circumferentially spaced slots which extend only partially through the body of the slotted flexible backing disc in the outer peripheral or marginal portion thereof. The slotted, flexible backing disc or pad member is adhesively attached to a second solid or unslotted backing disc or pad member. In one form of the invention, a second slotted backing disc or pad member, similar to the first slotted backing disc or pad member, is attached to the solid unslotted backing disc at the rear thereof, and the radially arranged slots in the two flexible slotted backing discs or pad members are staggered circumferentially relative to each other. In another form of the invention only a single slotted flexible backing disc is provided between the flexible coated abrasive disc and the solid unslotted backing disc and holes are provided in the solid unslotted backing disc within and in registry with the slotted areas of the slotted flexible backing disc so that air will circulate through the radially arranged flexible slotted disc or pad member and the holes in the solid, unslotted backing disc as the coated abrasive disc and backing assembly therefor are rotated.



3,808,754

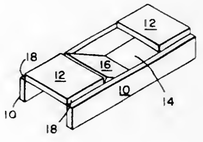
FOLDING CONTOURED WALL

Richard E. Bottjer, Orinda; Delp W. Johnson, San Carlos; William F. Poole, Ross, and James P. Storm, Menlo Park, all of Calif., assignors to Delp W. Johnson, Poole & Storm, Architects, San Francisco, Calif.

Filed Aug. 24, 1972, Ser. No. 283,600

Int. Cl. E04b *2/82, 1/344*

U.S. Cl. 52—70 **9 Claims**



A contoured or modeled wall section cast in the flat in the form of a plurality of concrete panels hinged to one another and suitably arranged so that when selected panels are lifted simultaneously, other panels fold down to a predetermined position where they are secured by bolts or other devices to adjacent panels. Typically, the wall section may be formed by two parallel, spaced-apart perpendicularly-directed inner or spandrel panels. One or more minor panels may be disposed in the central aperture thus formed, hinged to the inner panels. When the inner panels are lifted, the outer and minor panels fold downwardly and are bolted in place to form a contoured wall section. The outer panel members form columns or fins, the inner panels form spandrels and the minor panels provide bracing and may function as canopies or sun shades, window sills or other modeling.

3,808,755

INDUSTRIALISED BUILDING STRUCTURE

Frank Bouckley Bott, Oakengates, England, assignor to British Steel Corporation, London, England

Filed Mar. 29, 1972, Ser. No. 239,276

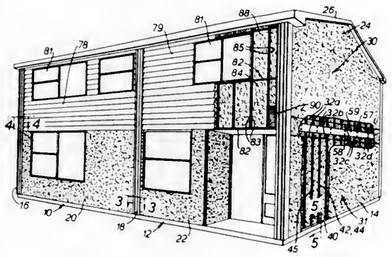
Claims priority, application Great Britain, Sept. 7, 1971, 41759/71

Int. Cl. E04b *7/04*; **E04h** *5/02*

U.S. Cl. 52—92 **12 Claims**

A building structure includes a wall comprising upper and lower wall sections (30,31) disposed edge-to-edge and parallel

one above the other; and a floor panel (49) connected to the wall adjacent the neighbouring edges of the wall sections by



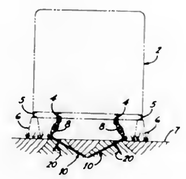
connector means (57,58) which pass at least partially through both the upper and lower wall sections thereby also securing the upper and lower wall sections together.

3,808,756

GROUND ANCHOR FOR MOBILE HOMES

Robert J. Cooper, 4906 W. Amelia, and Homer A. Dozier, 5519 W. Glenrosa, both of Phoenix, Ariz.

Filed Jan. 17, 1972, Ser. No. 218,306
Int. Cl. E02d *5/80*
U.S. Cl. 52—156 **2 Claims**



A ground anchor for securing mobile homes includes a planar portion and a U-shaped member interlocking the planar portion of the ground anchor to prevent movement thereof.

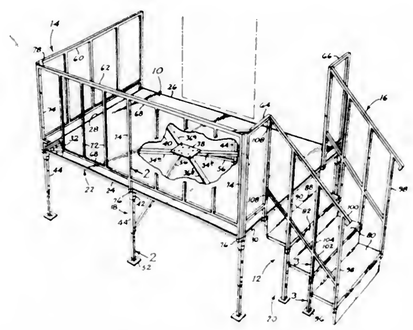
3,808,757

DISMANTLEABLE PORCH INSTALLATION

Gordon N. Greenwood, P.O. Box 1392, Pendleton, Oreg.

Filed Aug. 4, 1972, Ser. No. 278,004
Int. Cl. E04f *11/04*; **E04b** *1/343*
U.S. Cl. 52—184 **7 Claims**

A dismantleable porch installation including an elevated deck assembly and a step assembly leading from the ground to the deck assembly. The deck assembly includes a deck border frame made up of rigid frame elements set end-to-end in a course which extends about the perimeter of the deck assembly, and deck paneling seated on said border frame. Stake pockets secured to the border frame at points distributed about the perimeter of the deck assembly seat bottom ends of stake elements forming part of upstanding railing sections which bound the deck assembly in the porch installation. Legs support the deck paneling in an elevated position, which extend downwardly from the border frame and have upper ends seated in sockets presented on the under side of the border frame. The step assembly includes vertically disposed foot board frame sections interspersed with and joined to horizontally disposed tread frame sections. Sockets on forward margins of the tread frame sections receive upper extremities of legs supporting the step assembly. Stake pockets secured to



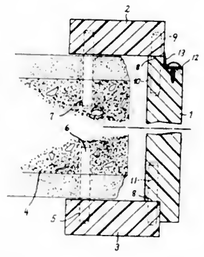
the foot board frame sections receive the bottom ends of stake elements forming part of side railing sections which bound the sides of the porch assembly.

3,808,758

FRAME FOR COVERING A WALL BREAK-THROUGH INTENDED TO RECEIVE A DOOR OR THE LIKE

August Burgers, am Bildchen 37, 5141 Gerderath, Germany

Filed Apr. 19, 1972, Ser. No. 245,515
Int. Cl. E06b *1/08*
U.S. Cl. 52—212 **4 Claims**



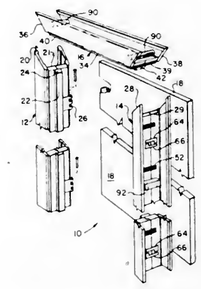
A frame for covering a wall break-through intended to receive a door or the like, which includes lining means and two facing members arranged substantially at a right angle to and at the two end faces of said lining means, and in which the two facing members are provided with dowel-shaped wall connecting members extending perpendicularly with regard to the plane of said facing members and connectable to those inner sides of the facing members which are not visible from the outside of the frame. The wall connecting members are adopted to be plugged into corresponding fitting wall recesses, at least one of the two facing members and the lining means having those surfaces thereof which face and contact each other provided with plug means including dowel-shaped connecting members and corresponding recesses for receiving said last mentioned members.

3,808,759

DOOR FRAME ASSEMBLY AND DOOR FRAME SECTION THEREOF

Eldon W. Carmichael, San Mateo, Calif., assignor to Doorcraft Inc., Burlingame, Calif.

Filed Aug. 14, 1972, Ser. No. 280,487
Int. Cl. E06b *1/04*
U.S. Cl. 52—212 **18 Claims**



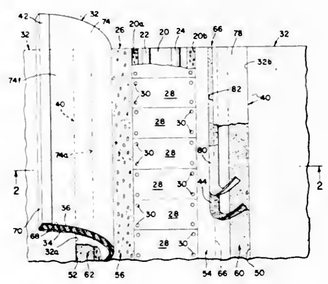
A prefabricatd door jamb assembly adapted for installation in a rough door opening, said assembly including a top or head frame arrangement and two side frame arrangements which are connected at corresponding ends to opposite ends of the top frame arrangement by fastenerless miter joints, the latter comprising cooperating groove and spline means. Each of the frame arrangements includes a pair of elongated sections which have L-shaped cross-sections and which have cooperating longitudinal edges adapted to engage against one another so that together the pair of elongated sections displays a U-shaped cross-section. The two sections of each frame arrangement are connected together for movement between a first position such that the aforestated longitudinal edges engage one another and a second position such that the longitudinal edges are spaced-apart and parallel. Novel shims or frame anchors are provided to act as a stabilizer between the door opening and the frame arrangements.

3,808,760

SURFACE COVERING INSTALLATION WITH MEANS TO REACH COVERED ACCESS SYSTEMS

Robert C. Ward, Bay Shore, N.Y., assignor to Commercial Affiliates, Inc., New York, N.Y.

Filed Mar. 20, 1973, Ser. No. 342,958
Int. Cl. E04b *5/48*; **E04f** *19/08*
U.S. Cl. 52—221 **16 Claims**



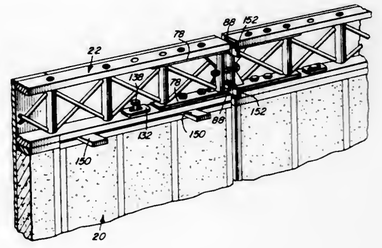
A surface covering installation such as a wall to wall floor covering of carpeting installed by means of the usual cementing operation and comprising a flap held in place by releasable pressure sensitive adhesive to provide access to covered access systems within the floor.

3,808,761

MODULAR BUILDING CONSTRUCTION

Peter L. Green; Gordon A. Lenfesty, both of Vancouver, British Columbia; Edmund H. Talbot, West Vancouver, British Columbia; Allen Joslin, and Vukasin Kovacevic, both of Vancouver, British Columbia, all of Canada, assignors to Imperial Modular Systems, Ltd., Vancouver, British Columbia, Canada

Filed Sept. 9, 1971, Ser. No. 179,050
Int. Cl. E04b *7/02*; **E04h** *12/00*
U.S. Cl. 52—300 **7 Claims**



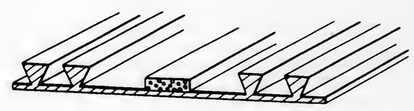
Modular construction utilizing prefabricated modular wall defining support panels in conjunction with overlying modular truss-like support beams which interconnect and allow a selective removal or reshuffling of the supporting panels while maintaining the structural integrity of the over-all construction.

3,808,762

WATERSTOPS

John Hurst, London, England, assignor to W. R. Grace & Co., Cambridge, Mass.

Division of Ser. No. 217,676, Jan. 13, 1972, Pat. No. 3,758,650, Continuation of Ser. No. 4,379, Jan. 20, 1970. This application Feb. 1, 1973, Ser. No. 328,994
Int. Cl. E04b *1/16*; **E04f** *15/14*
U.S. Cl. 52—403 **3 Claims**

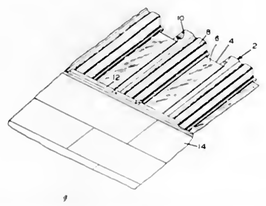


Novel external waterstops for use in sealing concrete joints which comprise a deformable section which forms a grout-tight seal with stop-end shuttering is positioned against the waterstop.

3,808,763
DIRECT ATTACHMENT OF ACOUSTICAL SUSPENSION RUNNERS TO METAL DECK ROOF

James C. Ollinger, and Kenneth L. Wasson, both of Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Nov. 8, 1972, Ser. No. 304,756
Int. Cl. E04b 5/52
U.S. Cl. 52—481 5 Claims

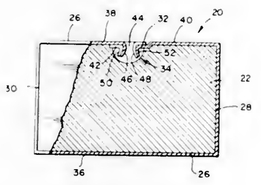


A conventional corrugated deck material is used with many roof structures. A hook structure is provided on a conventional suspension runner for a suspended ceiling system. This hook structure engages the flutes of the corrugated roof deck to hold the suspension runner in position. The suspended ceiling system is then fastened to the suspension runners.

3,808,764
REFRACTORY BRICK HAVING A METAL CASING

Clarence G. Norris, Parkville, and Woodrow W. Merrick, Upperco, both of Md., assignors to General Refractories Company, Philadelphia, Pa.

Division of Ser. No. 51,223, June 30, 1970, abandoned. This application July 3, 1972, Ser. No. 268,634
Int. Cl. E04c 1/12; F27d 1/06
U.S. Cl. 52—575 4 Claims

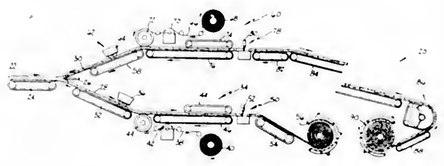


A furnace block comprising a refractory brick having a metal casing is provided. In the construction of the furnace block, overlapping ends of the metal plate are secured together at an elongated groove formed along one surface of the brick to provide a metal casing for the brick. One end of the metal plate has an offset which is received in the elongated groove. The overlapping ends of the metal plate are connected by puncturing or welding to lock the overlapping ends together and to secure the metal plate to the brick. A method of applying a metal plate to a refractory brick is also provided. In this method, the brick is positioned on one surface of the metal plate at a position intermediate between the ends of the metal plate, and the ends of the plate are bent into contact with the sides of the brick by using the brick as a male die. During the bending, the metal plate is held firmly against the bottom surface of the brick. Then the portions of the metal plate which extend above the top surface of the brick are bent into contact with the top surface to overlap the ends of the metal plate while holding the previously bent portions of the metal plate firmly against the sides of the brick. Finally, the overlapping ends of the metal plate are secured together to provide a metal casing for the brick. An apparatus for producing the metal encased bricks is also provided.

3,808,765
INVERTING AND REVERSING CONVEYOR

James Ludwig Wahlers, Littleton, Colo.; Rupert Douglas Terry, Toledo, Ohio; William Scott, Jr., Littleton, Colo., and Charles Donald Simmers, Bowling Green, Ohio, assignors to Johns-Manville Corporation, Greenwood Village, Colo.

Filed Feb. 27, 1973, Ser. No. 336,281
Int. Cl. B65b 63/04
U.S. Cl. 53—21 FW 7 Claims

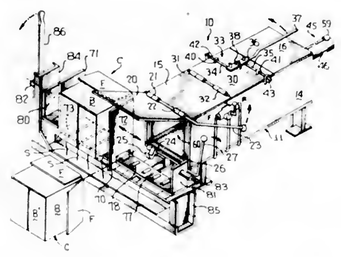


In a production line where strips of material are traveling in the same direction at two different levels, a packaging station is provided which has a common packing area for the strips of material on both levels. The strips of material on the lower level are conveyed directly into the packing station. The strips of material on the upper level are conveyed past the packing station. Once past the packing station, the strips of material on the upper level are guided through an arcuate or semi-circular path which both reverses the direction of travel of the strips and inverts the strips. After their reversal and inversion the strips are introduced into the packing station at a common level with the strips introduced into the packing station from the lower level.

3,808,766
MACHINE FOR COMPACTING AND PACKAGING WASTE MATERIAL

Royal Edward Hutchinson, 40 McKay Rd., and George Brebber Bruce, c/o Angus Toulin, Box 11, R.R. No. 4, both of Dundas, Ontario, England

Filed Oct. 6, 1972, Ser. No. 295,714
Int. Cl. B65b 1/24
U.S. Cl. 53—24 14 Claims

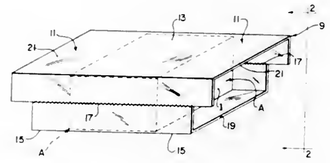


This disclosure relates to a machine for compacting and packaging waste material including a compaction chamber internally of a housing adapted to receive a container into which the waste material is to be compacted, a compacting ram, means for reciprocating the compacting ram in a first direction to compact the waste material and also discharge the container and in an opposite direction to condition the housing for the receipt of another charge of waste material, support means externally of a door of the housing upon which the discharged container is deposited for further processing, and means for moving the support means to displace the container for further processing while another container is charged in the compacting machine.

3,808,767
METHODS OF AND APPARATUS FOR SHRINK PACKAGING

Laurie M. Reid, Birmingham, Ala., assignor to Master Packaging Equipment, Inc., Trussville, Ala.

Continuation-in-part of Ser. No. 105,318, Jan. 11, 1971, abandoned. This application Aug. 16, 1972, Ser. No. 281,153
Int. Cl. B65b 51/20, 53/06
U.S. Cl. 53—30 44 Claims

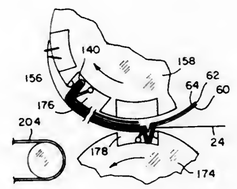


Methods of and apparatus for shrink packaging articles in a heat-sealable, heat-shrinkable plastic film wrapper, in which the wrapper is heated for heat-sealing and heat-shrinking purposes, and portions of the wrapper are folded as well as being heat-sealed by blowing heated air thereon.

3,808,768
METHOD AND APPARATUS FOR MANUFACTURING STUFFED AND SEALED MAILING PACKAGES

Wallace C. Dobbs, 33 W. 7th Ave., Runnemede, N.J.

Filed July 12, 1972, Ser. No. 270,919
Int. Cl. B65b 11/50
U.S. Cl. 53—31 24 Claims



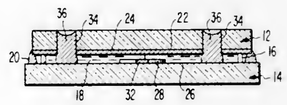
A method and apparatus is herein described for manufacturing stuffed and sealed mailing envelopes wherein a printed continuous web is slit into continuous ribbons. A first ribbon is cut, trimmed, glued and folded to form a mailing envelope, a second ribbon may be cut, trimmed, glued and folded to form a return envelope and one or more additional ribbons may be cut, trimmed and folded to form the insertable sheets. The return envelope and inserts feed through the apparatus in synchronism and are folded, cut, trimmed and are otherwise treated in unison for marriage to the mailing envelope ribbon, in a partially folded condition. The combined package of return envelope, inserts and mailing envelope ribbon then feed together to cutter and tucker cylinders wherein the mailing envelope ribbon is cut and folded once and wherein a second fold is applied to all of the insertable material. The mailing envelope is then trimmed and the final fold is applied for envelope closing purposes.

The envelope may be of the window envelope variety or may be a plain envelope for use in conjunction with an automatic addressing machine which is employed to label each package automatically following manufacture within the apparatus.

3,808,769
LIQUID CRYSTAL DEVICE CLOSURE METHOD

Arthur Noel Gardiner, and Herman Abraham Stern, both of Somerville, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Sept. 5, 1972, Ser. No. 286,250
Int. Cl. B65b 7/28; B67b 1/04, 5/02
U.S. Cl. 53—43 10 Claims

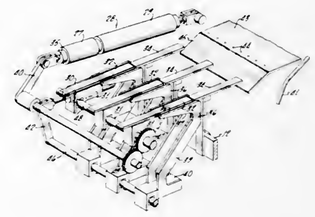


A method of closing a liquid crystal device after filling its substrate interspace with the liquid crystal material through a hole in one of the substrates, comprising introducing a particle of malleable, non-reactive material into the hole and then shaping the particle to conform with the peripheral surface of the hole. The particle may be made of a soft metal such as lead and shaped by forcing a swage thereagainst. The resultant plug hermetically seals the hole without increasing the thickness of the device.

3,808,770
CASING MACHINE AND METHOD

Joseph C. Berney, 15164 Goldenwest Cir., Westminster, Calif.

Filed June 29, 1972, Ser. No. 267,700
Int. Cl. B65b 7/20
U.S. Cl. 53—47 22 Claims



A device for folding the front and rear bottom flaps of a conventional carton after the open-ended carton has been placed around the contents. The direct support for the contents of the carton is transferred from the main platform to the front and rear bottom flaps without disturbing or dropping the orderly arrangement of the contents.

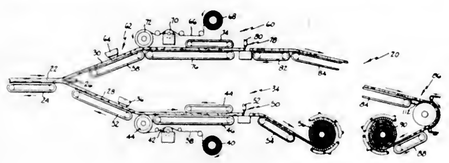
3,808,771
INVERTING AND REVERSING CONVEYOR

Charles L. Drella, Littleton; Carlo Fineo, Englewood; Lloyd W. Jenssen, and William Scott, Jr., both of Littleton, all of Colo., assignors to Johns-Manville Corporation, Greenwood Village, Colo.

Filed Feb. 27, 1973, Ser. No. 336,282
Int. Cl. B65b 63/04
U.S. Cl. 53—118 2 Claims

In a production line where strips of material are traveling in the same direction at two different levels, a packaging station is provided which has a common packing area for the strips of material on both levels. The strips of material on the lower level are conveyed directly into the packing station. The strips of material on the upper level are conveyed past the packing station. Once past the packing station, the strips of material on

the upper level are gripped between a drum and hugger belt and are guided through an arcuate or semi-circular path which both reverses the direction of travel of the strips and inverts

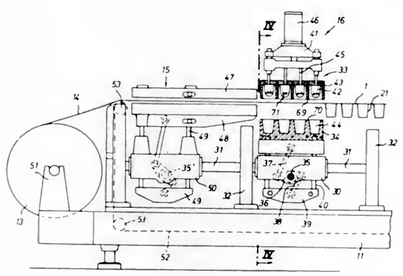


the strips. After their reversal and inversion the strips are introduced into the packing station at a common level with the strips introduced into the packing station from the lower level.

3,808,772
APPARATUS FOR FORMING AND FILLING CONTAINERS

Alfons Turtschan, Schwalbisch Hall, Germany, assignor to Ganzhorn U. Stirn Kommanditgesellschaft, Schwabisch Hall, Germany

Filed Oct. 26, 1971, Ser. No. 192,216
Claims priority, application Germany, Oct. 27, 1970, 2052551
Int. Cl. B65b *47/02*
U.S. Cl. 53—141 **18 Claims**



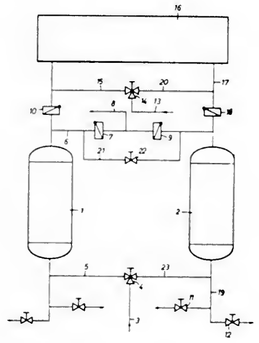
A combined container making and filling machine, and associated process. Operating on a continuously moving web of thermoplastic material, the machine includes stations which heat the web, mold the web into connected containers, fill the connected containers, cover and seal the filled containers, and separate the containers, successively. The web is grasped at its edges and conveyed from a roll. Synchronizing drive means cyclically move the heating, container molding, and severing apparatus in the direction of web conveyance, and into engagement with the web. The filling nozzles move with the newly formed containers while filling.

3,808,773
PROCESS AND APPARATUS FOR THE ADSORPTIVE PURIFICATION OF GASES

Jorg Reyhing, and Wilhelm Rohde, both of Munich, Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed Dec. 28, 1971, Ser. No. 213,051
Claims priority, application Germany, Dec. 28, 1970, 2064137
Int. Cl. B01d *53/02*
U.S. Cl. 55—31 **13 Claims**

A method for the adsorptive purification of gases containing water and one or more secondary components which comprises passing the gas through a molecular sieve bed, thereby charging the molecular sieve with adsorbable components, terminating charging of the molecular sieve upon the breakthrough of the least easily adsorbable secondary adsorbate component prior to the breakthrough of water vapor therefrom, and regenerating the molecular sieve at a temperature of 100° – 200° C., preferably 100° –150° C., and especially about 100° C., by passing a heated purge gas through the molecular sieve bed in a direction opposite to the adsorption direction. Partial dehydration is obtained which is sufficient to lower the water dew point of a gas subsequently adsorbed on the regenerated molecular sieve to −70° C. or lower, thereby



enabling the thusly treated gas to be subjected to low temperature fractionation. The use of these relatively low temperatures for molecular sieve regeneration results in substantial energy savings without impairing the effectiveness of the molecular sieve in gas adsorption.

An apparatus suitable for use in the above process permits continuous gas adsorption and molecular sieve regeneration includes alternatingly reversible adsorption reactors having a purge gas heating unit disposed therebetween which reduces full cycle times to from 1 to 2 hours.

3,808,774
ABATEMENT OF ACID GAS EMISSIONS

Aaron J. Teller, Great Neck, N.Y., assignor to Teller Environmental Systems, Inc., Worcester, Mass.

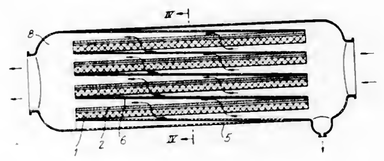
Continuation-in-part of Ser. No. 102,561, Dec. 29, 1970, Pat. No. 3,721,066. This application Oct. 18, 1971, Ser. No. 190,389. The portion of the term of the patent subsequent to Mar. 30, 1990, has been disclaimed.
Int. Cl. B01d *53/04*
U.S. Cl. 55—68 **23 Claims**

The application discloses that a high efficiency of abatement of acid gas emissions in an effluent gas of an industrial or commercial manufacturing or treatment process can be achieved by passing the effluent through a particulate chromatographic mass of nepheline syenite, a naturally occurring ore, on which a certain amount of water is adsorbed. The wetting of, and the consequent adsorption of water by, the ore may be effected by passing a stream of humid air through the mass of particles either prior to or concurrently with the arrival of the acid gas-laden effluent thereat, or alternatively by passing the effluent through a humidifying zone prior to its coming in contact with the ore. An additional advantage found is that particulate emissions, if present, are also abated. In lieu of nepheline syenite, pot line alumina or activated alumina, in either case pretreated with an aqueous solution of sodium hydroxide or sodium carbonate, may be used as the adsorbent medium. This abstract is not to be taken as a complete exposition or as a limitation of the present invention, however, the full nature and extent of the invention being discernible only by reference to and from the entire disclosure.

3,808,775
APPARATUS FOR DRYING AND SUPERHEATING STEAM

Laszlo Heller; Laszlo Szucs, and Zoltan Szabo, all of Budapest, Hungary, assignors to Energiagazdalkodsi Intezet, Budapest, Hungary

Filed Sept. 20, 1971, Ser. No. 181,918
Claims priority, application Hungary, Sept. 21, 1970, OE 573
Int. Cl. B01d *46/12*
U.S. Cl. 55—269 **8 Claims**

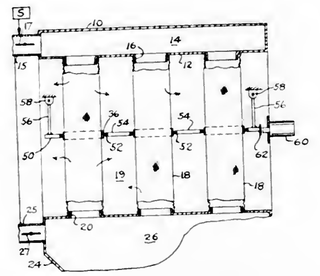


An apparatus for drying and superheating steam. The apparatus includes a moisture-separator through which steam is initially directed to remove moisture therefrom, this separator having a relatively large discharge end through which the dried steam flows upon leaving the moisture-separator. Connected to this latter discharge end of the moisture-separator is a heat-exchanger for superheating the dried steam, this heat-exchanger having a receiving end fixed to the discharge end of the moisture-separator and this receiving end of the heat-exchanger is approximately of the same area as the discharge end of the moisture-separator.

3,808,776
DUST COLLECTOR

William J. Jesernig, Timonium, Md., and Arunas A. Arstikaitis, Dearborn Heights, Mich., assignors to American Standard Inc., New York, N.Y.

Filed Dec. 9, 1971, Ser. No. 206,377
Int. Cl. B01d *46/04*
U.S. Cl. 55—300 **3 Claims**

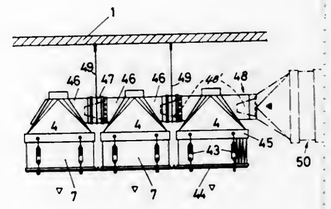


A dust collector comprising vertical fabric filter tubes having upper and lower mouth openings connected to separate dusty gas manifolds so that dusty gas simultaneously flows downwardly through each upper mouth opening and upwardly through each lower mouth opening. Improved shaker mechanism is arranged intermediate the tube mouth openings.

3,808,777
OVERHEAD AIR FILTER

Gerhard Max Neumann, and Hans-Joachim Wittemeier, both of Berlin, Germany, assignors to Delbag-Luftfilter Gesellschaft mit beschrankter Haftung, Berlin, Germany, by said Neumann

Division of Ser. No. 31,674, April 24, 1970, Pat. No. 3,760,568. This application Nov. 14, 1972, Ser. No. 306,312
Claims priority, application Germany, Apr. 29, 1969, 1922268
Int. Cl. B01d *31/00*
U.S. Cl. 35—473 **5 Claims**

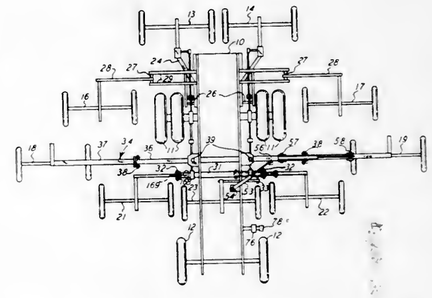


Incoming filtered air is discharged as a uniform downcurrent into a room from an array of horizontal filter units of generally pyramidal shape with a filter cell across the larger end, these units being either fitted individually into or out apertures in a false ceiling by connecting pieces at their apex, or connected side-by-side as a common duct by connecting pieces on their sloping sides.

3,808,778
LAWN MOWERS ARTICULARLY SUPPORTED ON A TRACTOR

Knud H. Hoffmeyer, Racine; Donald G. Haffner, Greendale, and Frank A. Ecker, Racine, all of Wis., assignors to Jacobsen Manufacturing Company, Racine, Wis.

Filed Jan. 8, 1973, Ser. No. 321,681
Int. Cl. A01d *75/30*
U.S. Cl. 56—7 **16 Claims**



Lawn mowers articularly supported on a tractor, and there being nine mowers in all. Each of the mowers is connected to the tractor through a pivot joint which is under the influence of a hydraulic cylinder assembly for raising and lowering each mower for positioning the mowers for mowing and for transport. The hydraulic cylinder assemblies are connected with a pump and with hydraulic valves which control the action of the hydraulic cylinders. The two mowers which are laterally farthest from the tractor are supported on an arm which has two pivot joints under the influence of two cylinder assemblies. Hydraulic check valves are in the hydraulic circuit for sequencing the action of the two cylinder assemblies active on

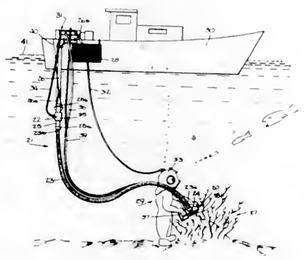
the arm, so that the mower on the outer end of the arm can be positioned in a compact transport position with the tractor. Also, lost motion mechanism is included in the support of the mowers so that they can assume the elevation of the ground being mowed.

3,808,779

SEA HARVESTING APPARATUS AND METHOD

Alan C. Randall, Little Compton, R.I., assignor to Sea Harvest, Inc., New York, N.Y.

Filed Feb. 17, 1972, Ser. No. 227,034
Int. Cl. A01d *45/08*
U.S. Cl. 56—9 **28 Claims**



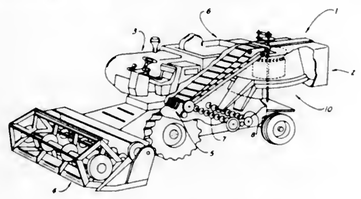
Diver from boat working along ocean bottom cuts Irish Moss, agar weed, or similar marine vegetation growing at depth of up to about 100', using a manually maneuvered sickle bar cutting unit which carries and is powered by a light weight air motor. Cutting unit further includes a collecting hood to which a flexible suction hose is attached for hydraulic delivery of the cut plants via an airlift, by which the suction is induced, to the surface and into a collecting strainer in or alongside the boat. Airlift is positioned just below the water surface and is spaced by the flexible suction hose a considerable distance away from the diver. Cutting unit air motor receives driving air, and diver receives breathing air from air compressor aboard the boat. Airlift receives driving air preferably from said air compressor, and cutting unit air motor preferably exhausts to atmospheric pressure, but said motor exhaust air could be utilized to drive airlift. Cutting unit oriented for side-to-side sweeping movement in cutting of plant stalks, and several hood configurations are described. Cutting blade has relatively short length, and air motor is relatively small. Airlift delivery tube receives driving air via a relatively large number of small diameter air apertures therethrough, the apertures being angled 20° upwardly, and the sum of their areas being 50 percent larger than the interior diameter of the delivery tube.

3,808,780

SEPARATOR MEANS FOR COMBINES

Kenneth D. Wood, 1826 Greenfield, Wichita, Kans.

Filed Nov. 15, 1972, Ser. No. 306,514
Int. Cl. A01d *45/02*
U.S. Cl. 56—14.6 **9 Claims**



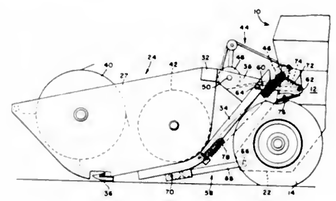
A separator for combines has a reel and header, thresher cylinder, conveyor for moving threshed cereal grass, powering means and a housing comprising the combine structure thereof. The separator is comprised of an independently rotatable outer cylinder member having a duct therein and mounted within and powered by the combine. It has an inner cylinder with an air mover also powered by the combine in operation to recirculate air within the separator. In operation the outer cylinder while rotating receives threshed material from the conveyor, disposes same through a distributor to the stalk-grain separator and receives air from the air mover directing same through the duct to the central portion of the member against the outward motion of the grain, separating the grain from its stalk. Air is recirculated within the separator passing from the air mover through the duct, being discharged toward the central portion of the separator, passing through the inner cylinder member and into the air mover. The separator preferably has a dehumidifier having heat transfer coils within the duct and on the outside of the structure. The separator uses rotation and centrifugal force and opposed recirculating airflow to separate threshed cereal grass stalks and grain.

3,808,781

HARVESTING PLATFORM SUSPENSION SYSTEM

Merlyn Duane Bass, and Sidney Joseph Boushek, Jr., both of Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Dec. 8, 1972, Ser. No. 313,577
Int. Cl. A01d *35/14*
U.S. Cl. 56—15.9 **8 Claims**



A self-propelled windrower has a traction unit and a forward transversely elongated harvesting platform, which cuts a standing crop, converges it, and delivers it rearwardly through a central crop discharge opening. The platform is mounted for vertical adjustment on the traction unit by a pair of four-bar linkages at opposite sides of the traction unit, each linkage including a fore-and-aft upper link and a fore-and-aft lower link, which is formed by a hydraulic cylinder. A pair of downwardly and forwardly inclined tension springs extend between the traction unit and the platform and counterbalance most of the weight of the platform when the machine is operating with the platform riding on the ground. The platform is raised to transport position by extending the cylinders, which affects the geometry of the linkages so that the springs raise the platform, and after the platform raises a predetermined amount, the upper links engage stops, so that the linkages function as a hinge-type suspension with the platform raising about the pivot connections between the upper links and the platform.

3,808,782

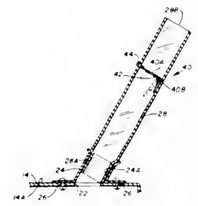
SHREDDER ADAPTOR

Larry L. McWilliams, Tulsa, Okla., assignor to S &M Enterprises Inc., Tulsa, Okla.

Filed May 21, 1973, Ser. No. 362,438
Int. Cl. A01d *35/26*
U.S. Cl. 56—16.9 **5 Claims**

Apparatus for utilizing a rotary type lawn mower for shredding leaves, twigs, grass cuttings and so forth, the lawn mower housing horizontal portion having an opening therein, an adapter attachment affixed to the upper surface of the

housing surrounding the opening, an upwardly extending chute detachably secured to the adapter attachment means whereby leaves, grass cuttings, etc. inserted into the chute



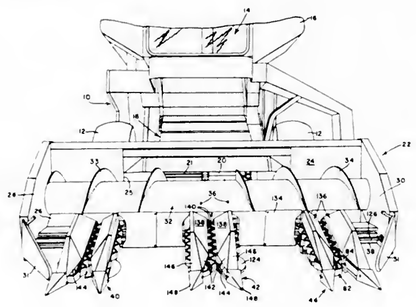
passes downwardly and into the mower below the housing and a lid for closing the adapter attachment means when the chute is not attached permitting the lawn mower to be used in the normal fashion.

3,808,783

SOYBEAN HARVESTING HEADER

Gail Russell Sutherland; Ronald Keith Leonard, and Joe Henry Hoeksema, all of Des Moines, Iowa, assignors to Deere & Company, Moline, Ill.

Filed June 7, 1972, Ser. No. 260,503
Int. Cl. A01d *45/02*
U.S. Cl. 56—106 **27 Claims**



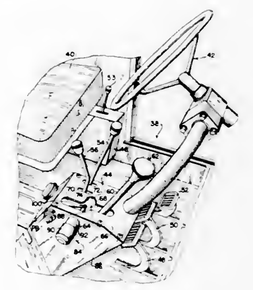
A conventional self-propelled combine has a forwardly extending feederhouse with a forward intake end and a crop feeding conveyor for moving crops from the intake end to the separating mechanism in the combine. A row crop header is mounted on the front of the feeder housing and includes a transversely extending platform with a plurality of harvesting units extending forwardly therefrom at transversely spaced intervals. Each harvesting unit includes a pair of belt-like gathering elements respectively disposed on the opposite sides of a passageway, the gathering elements having cooperative, loop-like, flexible portions, which mesh with each other to grasp the soybean plants and move them rearwardly along the passageway after the stalks have been severed by a rotary knife disposed below the forward ends of the gathering elements. The gathering elements move the severed plants rearwardly to a transverse auger on the platform, which converges the crop and delivers it to the intake end of the feeder housing. The individual row units are laterally adjustable to accommodate different row spacings, and independently float on the ground so that the respective knives are maintained close to the ground.

3,808,784

REVERSE LOCKOUT

Frank H. Gardner, Grundy Center, Iowa; Norman G. Stroup, Orion, and Eugene J. Krukow, Cordova, both of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Mar. 16, 1973, Ser. No. 342,125
Int. Cl. A01d *67/00*
U.S. Cl. 56—208 **10 Claims**



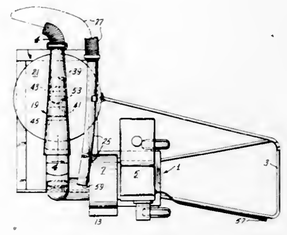
A reverse drive lockout mechanism for a combine harvester having a crop-gathering platform which is provided with ground-engaging control fingers, the lockout mechanism preventing the harvester from inadvertently being driven in reverse when such control fingers are in ground proximity. A normally de-energized solenoid, mounted on the speed lever console, maintains its plunger projected and in the path of movement of the speed lever, thus preventing entry of the lever into the reverse speed range. A switch assembly becomes effective when the platform is raised a predetermined distance from the ground to establish an electrical circuit through the solenoid winding, thus retracting the plunger and allowing the speed lever to be moved in the reverse speed range.

3,808,785

NUT HARVESTING DEVICE

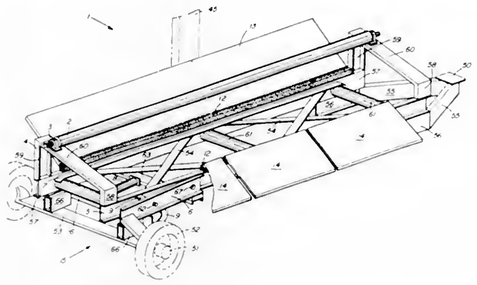
Rhett R. Petcher, Rt. 8, Box 387, Roanoke, Va.

Filed May 23, 1973, Ser. No. 362,882
Int. Cl. A01d *51/00*
U.S. Cl. 56—328 **12 Claims**



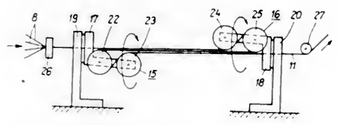
Nuts are sucked up from the ground and collected in a receptacle after being separated from leaves and other debris. As the nuts and debris pass through a tapered separator located on top of the receptacle cover, they strike baffles within the separator and fall into the receptacle through passageways in the cover.

3,808,786
FRUIT HARVESTING APPARATUS
Alfred Beckens, Fish Farm Rd., Sodus, N.Y.
Filed Apr. 13, 1973, Ser. No. 350,770
Int. Cl. A01g *19/00*
U.S. Cl. 56—329 **18 Claims**



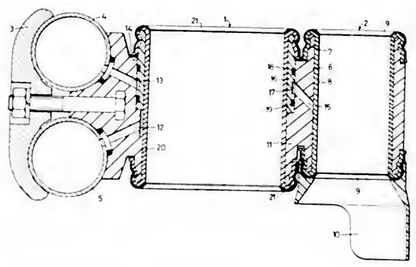
A novel fruit harvesting apparatus is described. The apparatus includes an elongated framework, a shaker, a conveyor, a deflector, a conveyor elevator and a flexible drape which can be extended on the ground under the tree to be harvested. After fruit is shaken from the tree and deposited on the extended drape, the drape is rolled onto a roller supported on the elongated framework. As the drape is rolled onto the roller, fruit disposed therein is discharged onto a deflector and thereafter onto the conveyor. The deflector "breaks" the fall of the fruit thereby reducing the possibility of bruising, and the conveyor transports the fruit to a receptacle. The discharge end of the conveyor is elevatable so that the receptacle can be placed thereunder. By placing the receptacle in close proximity to the discharge end of the conveyor, the possibility of fruit bruising is further reduced. Specific inventive details and advantages are described hereafter.

3,808,787
ROTATING INTERMEDIATE STORER FOR THE TWISTING OF STRAND ELEMENTS FOR ELECTRICAL CABLES
Dieter Vogelsberg, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munchen, Germany
Filed Mar. 17, 1972, Ser. No. 235,672
Claims priority, application Germany, Mar. 31, 1971, 2116607
Int. Cl. D07b *3/00;* **D01h** *7/02*
U.S. Cl. 57—34 AT **14 Claims**



A rotating type intermediate storer is provided for SZ-type twisting of strand elements of electrical cables. The rotating intermediate storer comprises two sets of sheaves or rollers disposed at a distance from each other. The sheaves of these sets of sheaves are arranged eccentrically with regard to the axis of rotation of the intermediate storer. For the transition from one set of sheaves to the other, the strand elements are led so that they extend in immediate proximity with the axis of rotation.

3,808,788
GRASPING DEVICE FOR DOFFING FULL BOBBINS AND RELOADING EMPTY TUBES IN A SPINNING FRAME
Giovanni Viglione, Genova, Italy, assignor to Nuova San Giorgio S.p.A., Genova, Italy
Filed Mar. 8, 1973, Ser. No. 339,051
Claims priority, application Italy, Nov. 16, 1972, 021308/72
Int. Cl. D01h *9/02*
U.S. Cl. 57—52 **1 Claim**

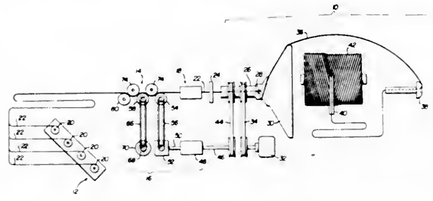


A grasping device for doffing full bobbins and reloading empty tubes in a spinning frame is disclosed, wherein two grippers provided with expansible chambers are united together and independently actuated. According to the invention, a first gripper comprises a stiff outer sleeve, an inner resiliently yielding sleeve having the ends curled over and fastened to the outside of said stiff sleeve and a couple of comparatively stiff collars snappingly engaged onto said curled ends of the resiliently yielding sleeve so as to lock them in a sealtight manner against the outer wall of said stiff sleeve. The second gripper comprises a first stiff sleeve integral with the stiff sleeve of the first gripper and equipped with a first hole for communication between a first feeding duct for a pressurized fluid and the inner cavity of said first sleeve, with a second hole for communication between a second pressurized fluid feeding duct and a widened annular portion formed in the inner cavity of said first sleeve, and with a third hole which passes also through the stiff sleeve of the first gripper, for establishing a communication between said annular widened portion and the expansible chamber defined between the two sleeves of the first gripper, the second gripper comprises also a second stiff sleeve inserted into said widened annular portion of the inner cavity of the first gripper and equipped with an annular groove for affording a communication between said second and said third hole of the first sleeve, a resiliently yielding sleeve inserted in the interior of said first and said second sleeve and equipped with ends which are curled over and fastened to the outside of said first and said second sleeve and a couple of comparatively stiff collars snappingly engaged onto said curled over ends so as to lock them in a sealtight manner against the outer wall of said stiff sleeves.

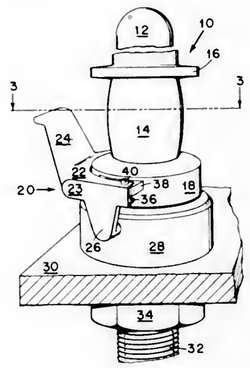
3,808,789
APPARATUS FOR COLLECTION OF LINEAR MATERIAL
Raymond E. Hurley, Heath, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Filed Jan. 26, 1973, Ser. No. 326,739
Int. Cl. D01h *7/90*
U.S. Cl. 57—58.7 **4 Claims**

In a system for twisting together several ends of heavy treated glass yarns, an improved means for feeding the ends and maintaining constant tension thereon, comprising multiple power driven feed rolls whose speed is continuously varied in response to the tension in the strand between the feed rolls and the twister, to maintain the strand tension at a desired level. Strand tension is sensed by a pivotally mounted member which is biased into strand-deflecting contact with the strands,

and whose angular position is thus responsive to strand tension. The position of the sensing member controls a potentiometer which varies the current supplied to the feed roll drive, thereby controlling the feed rate and providing a feedback signal to maintain constant strand tension.



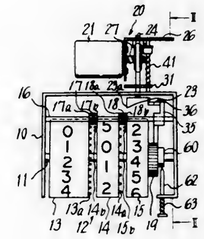
3,808,790
SPINDLE BRAKE WITH ARTICULATED AND DETACHABLE BRAKE SHOES
Frederick A. Preston, Pendleton; Philip B. Tarbox, and Gordon C. Anderson, both of Clemson, all of S.C., assignors to Saco-Lowell Corporation, Easley, S.C.
Filed July 23, 1973, Ser. No. 381,638
Int. Cl. D01h *7/22*
U.S. Cl. 57—88 **8 Claims**



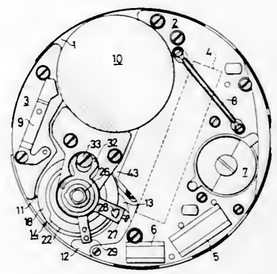
A manually actuable brake for rotatable spindles of textile yarn processing machines is disclosed wherein the bifurcate branches of the elastically deformable brake have at their leading separated ends joined or articulated brake shoes which are pivotable and detachable at their pivot joints from said branches for, respectively, application of full braking surfaces to the spindle upon initial contact and ready replacement of the shoes when they become worn and no longer functional.

3,808,791
ELECTRIC CLOCK
Hideo Hara, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Feb. 20, 1973, Ser. No. 333,875
Claims priority, application Japan, Feb. 26, 1972, 47-23729
Int. Cl. G04c *3/00;* **C04b** *19/24*
U.S. Cl. 58—23 A **12 Claims**

An electric clock having a time display device and a driving source for intermittently driving the time display device, the driving source including a DC motor provided with a self-contained electric power source such as a dry cell, a switch inserted between the emitter-collector electrodes of a motor driver transistor and adapted to be closed or opened by a permanent magnet which is moved toward and away from the switch in response to the rotation of the DC motor drive shaft, and a cam driven by the motor to rotate one or more drums of the time display device by a predetermined angle so as to change the time display.



3,808,792
DRIVE MECHANISM OF AN ELECTRIC TIMEPIECE
Akira Nikaido, Tokyo; Mitsuo Onda, Oomiya; Takayasu Machida, Iruma; Fumio Nakajima, Tokyo; Takashi Toida, Tokyo, and Yoshihiko Yanagawa, Tokyo, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan
Filed Jan. 11, 1972, Ser. No. 216,968
Claims priority, application Japan, Feb. 1, 1971, 46-3707
Int. Cl. G04c *3/04*
U.S. Cl. 58—28 A **2 Claims**

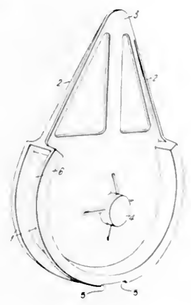


In an electrical timepiece a pair of drive coils are formed in an elliptical configuration with the major axes thereof disposed substantially tangentially to the circumference of the drive wheel at diametrically opposed positions. The drive magnets each have a rectangular configuration and the major axis of each magnet is disposed parallel to a respective tangent to the circumference of the drive wheel. The impulse pin on the drive wheel which imparts movement to the star wheel is angularly offset relative to the center line between the drive wheel and the star wheel.

3,808,793
ROCKING PENDULUM

Ronald William Ebdon, Gosport, England, assignor to E. S. Perry Limited, Gosport, England

Filed Apr. 6, 1972, Ser. No. 241,540
Claims priority, application Great Britain, Apr. 13, 1971, 9238/71
Int. Cl. G04f *11/02*
U.S. Cl. 58—130 R **11 Claims**

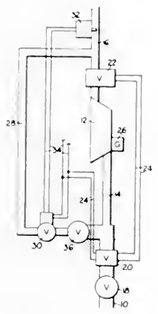


A device capable of providing audible oscillatory movement of a body about a position of stable equilibrium is disclosed. The body normally rests on two edges, but when displaced therefrom will oscillate about the position making an audible "click" as it steps from one edge to the other.

3,808,794
METHOD AND APPARATUS FOR HARNESSING PRESSURE OF OIL AND GASWELLS FOR GENERATING ELECTRICITY

Wilburn W. Wood, 2714 N.E. 119th St., Vancouver, Wash.

Filed May 30, 1972, Ser. No. 257,704
Int. Cl. F01k *27/00*
U.S. Cl. 60—1 **7 Claims**

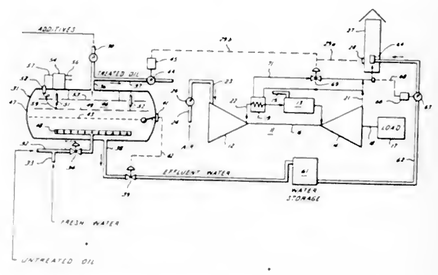


A method and apparatus associated with oil and gas wells for supplying pressure from such wells for driving a turbine. The apparatus utilizes a balancing pressure control system comprisng a valve in a bypass line around the turbine and controlled by a pressure regulator valve on the output side of the turbine. The balancing pressure control system allows pressure through the bypass line selectively to maintain a uniform pressure in the output of the turbine when the demands on the turbine fluctuate. The system includes manual shut-off valves and overload regulator valves. An embodiment of the invention includes a control system on the well side of the turbine for supplying uniform pressure to the turbine.

3,808,795
POLLUTION-FREE GAS TURBINE SYSTEM

Roy N. Lucas, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Dec. 7, 1972, Ser. No. 313,015
Int. Cl. F02c *7/30*
U.S. Cl. 60—39.5 **9 Claims**



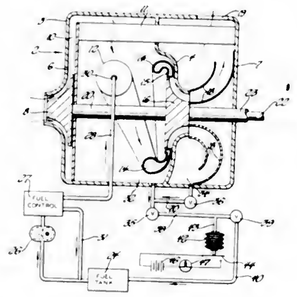
This specification discloses:

A pollution-free system for operating a gas turbine from a liquid untreated oil containing an alkali metal salt. Fresh water is dispersed within the untreated oil and passed into a vessel containing an electric field for forming a treated oil phase and a salt-laden effluent water phase. The treated oil is a high quality combustible fuel which is intermixed with compressed air, and subjected to combustion for operating the gas turbine with the resultant discharge of high-temperature combustion product gases which are released through an exhaust vent to the atmosphere at temperatures of about 1,000° F. The effluent water is passed through an injector means for dispersion into the exhaust vent so that the combustion product gases vaporize the effluent water forming a total gas solution without visible components and at temperatures where sodium ion materials are relatively non-corrosive to the ferrous metal conduits forming the exhaust vent.

3,808,796
FUEL DRAIN SYSTEM

Esten W. Spears, Jr., Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 20, 1972, Ser. No. 299,604
Int. Cl. F23n *5/24*; **F02c** *9/00*
U.S. Cl. 60—39.09 F **5 Claims**

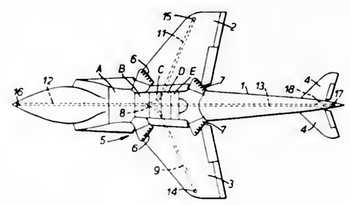


A fuel drain system for a gas turbine engine includes a first drain for fuel which may gather in a sump downstream of the turbine, with a valve in the drain which closes when there is a slight pressure differential toward the turbine exhaust. This drain joins a second drain from a sump to which fuel may drain from the combustion apparatus of the engine. The combined drain goes through a second valve which remains open until pressure within the space ahead of the turbine becomes slightly greater than the pressure threshold of the first valve. Fuel which drains through the second valve passes to a catch basin and from this through a third valve to the engine fuel tank. The third valve closes at a pressure slightly above the setting of the second valve in the direction toward the fuel tank. A pressure responsive device lights an indicator light if there is substantial pressure downstream of the second valve indicating that it has failed to close. Fuel which may accumulate in the engine upon an aborted start, flameout, or shutdown of the engine is discharged to the tank upon restart of the engine.

3,808,797
FUEL SYSTEMS FOR AIRCRAFT GAS TURBINE ENGINES

Keith Robinson, Churchdown, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

Filed Feb. 29, 1972, Ser. No. 230,499
Int. Cl. F02c *9/08*
U.S. Cl. 60—39.28 R **11 Claims**



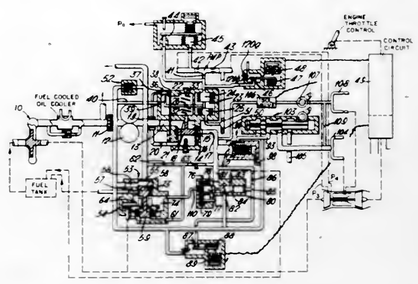
A fuel system for a gas-turbine engine including a source of fuel at pressure, a flyweight device driven at a speed proportional to engine speed, a first-adjustable fuel flow means adjusted by centrifugal movement of the flyweight device, manually adjustable spring means acting on the flyweight device to oppose centrifugal movement at least over a substantial upper range of engine speeds, a second-adjustable fuel flow means, a single-manually operable means jointly controlling the spring means and the second fuel flow means such that at low altitudes for the lower range of engine speeds, the centrifugal force developed by the flyweight device is unable to overcome the load of the spring whereby the fuel flow to the engine from said source is determined by the second fuel flow means and such that for the higher range of engine speeds centrifugal force developed by the flyweight device is able to overcome the loading on the adjustable spring means whereby the first fuel flow means is operable to determine fuel flow from said source to the engine.

3,808,798
FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINE

John Sassons Taylor, 113 Ferndown Rd., Solihull, Warwickshire, England

Filed Dec. 28, 1971, Ser. No. 213,074
Claims priority, application Great Britain, Jan. 6, 1971, 560/71
Int. Cl. F02c *9/10*
U.S. Cl. 60—39.28 R **5 Claims**

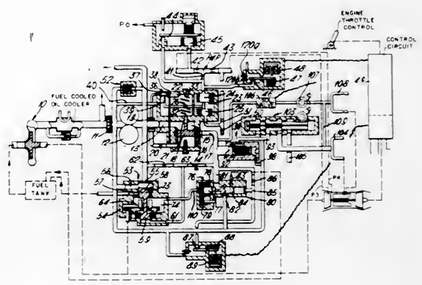
A fuel control system for a gas turbine engine has a boost pump, a main pump, a metering arrangement, downstream of the main pump and a pressurising valve downstream of the metering arrangement. The pressurising valve is responsive to pressure at the metering arrangement outlet to open the valve, and to pressure at the main pump intake to shut the valve. This latter pressure increases during low fuel flows, causing the pressurising valve to maintain the pressure at the metering arrangement outlet.



3,808,799
FUEL METERING VALVE

John Sassons Taylor, 113 Ferndown Rd., Solihull, Warwickshire, England

Filed Dec. 28, 1971, Ser. No. 213,063
Claims priority, application Great Britain, Jan. 6, 1971, 557/71
Int. Cl. F02c *9/10*
U.S. Cl. 60—39.28 R **8 Claims**



A fuel metering valve for a gas turbine engine includes a pair of chambers within a body, one of the chambers containing devices sensitive to pressure signals derived from the engine compressor. A control element is connected to the pressure sensitive devices and sealingly extends into the second chamber to control the magnitude of a servo pressure signal which is used to control a variable metering orifice between an inlet and an outlet for the valve. A restricted orifice interconnects the first and second chambers.

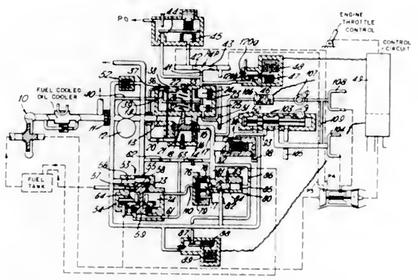
3,808,800
FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINE

John Sassons Taylor, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Dec. 28, 1971, Ser. No. 213,108
Claims priority, application Great Britain, Jan. 6, 1971, 558/71
Int. Cl. F02c *9/10*
U.S. Cl. 60—39.28 R **12 Claims**

A fuel control system for a gas turbine engine comprises a pump, a metering valve downstream of the pump and a spill valve connected across the pump, said spill valve being

responsive to the pressure drop across the metering valve and to the engine speed to spill fuel, in a first condition to the upstream side of the pump and in a second condition both to the upstream side of the pump and to a fuel tank.



3,808,801

FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINE

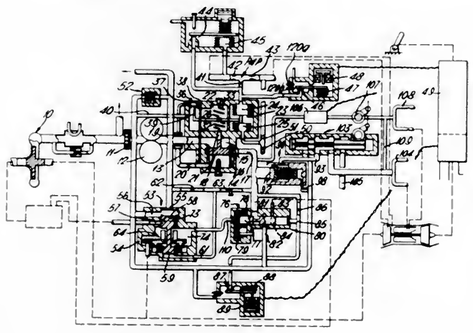
John Sassons Taylor, 113 Ferndown Rd., Solihull, Warwickshire, England

Filed Dec. 28, 1971, Ser. No. 213,125

Claims priority, application Great Britain, Jan. 6, 1971, 559/71

Int. Cl. F02c *9/10*

U.S. Cl. 60—39.28 R **20 Claims**



A fuel control system for a gas turbine engine comprises a main pump, an auxiliary pump supplying fuel from a reservoir to the main pump, a metering valve responsive to air pressure signals from the engine compressor, a pilot valve controlling at least one of the air pressure signals in responsive to electrical control signals, a first spill valve connected across the main pump and responsive to the pressure drop across the metering valve and to engine speed, a second spill valve operable in response to further electrical signals in the event of malfunction of the pilot valve to control fuel flow to the engine by spilling fuel from the metering valve outlet, the second spill valve also being responsive to an engine speed signal, and a pressurising valve responsive to an increase in pressure upstream of the main pump to increase the pressure at the metering valve outlet.

3,808,802

VORTEX COMBUSTOR

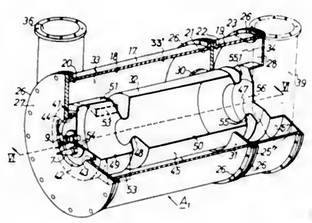
Yasusi Tanasawa, Nagoya, Japan, assignor to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Japan

Filed Apr. 3, 1972, Ser. No. 240,699

Claims priority, application Japan, Apr. 1, 1971, 46-20623

Int. Cl. F02g *7/04*

U.S. Cl. 60—39.65 **20 Claims**



A vortex combustor of high efficiency, intensity and stability comprises a first cylindrical combustion chamber having an inlet means, a fuel supplying device and an igniting device, a second cylindrical combustion chamber having a throttled open part, and a connecting part having a throttled opening to connect the first combustion chamber and second combustion chamber, thereby to form respectively a forced vortex zone in the central region and a natural vortex zone in the outer region surrounding said central region of each of the first and second cylindrical combustion chambers with swirling air introduced through said inlet means, and to burn the mixture of air and fuel in the forced vortex zone of the first cylindrical combustion chamber and in the natural vortex zone of the second cylindrical combustion chamber.

3,808,803

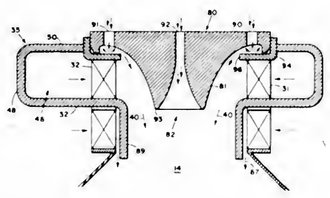
ANTICARBON DEVICE FOR THE SCROLL FUEL CARBURETOR

Enrico Salvi, Salem, Mass., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 15, 1973, Ser. No. 341,440

Int. Cl. F02c *7/22*

U.S. Cl. 60—39.74 R **8 Claims**



An anticarbon device for a scroll-type carburetor consists of a frustro-conical plug mounted on the upstream wall of the spin chamber at a location along the axis of the core outlet and the primary vortex. A plurality of passageways formed therethrough permit air to be introduced into the scroll and directed against those wall locations where carbon deposits usually form because of the reverse high temperature gas flow. The plug also retains the high air/fuel velocities through the swirl vanes for flashback prevention.

3,808,804

MARINE PROPULSION

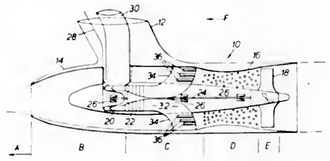
John Lanfear Scott-Scott, Bulkington, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed Feb. 5, 1973, Ser. No. 329,334

Claims priority, application Great Britain, Feb. 11, 1972, 6475/72

Int. Cl. B63h *11/08, 11/02*

U.S. Cl. 60—221 **8 Claims**



A marine propulsion unit comprises a duct having in flow series, a divergent portion, an intermediate and mixing portion in which a centre body is located and a nozzle portion having a convergent-divergent nozzle, the centrebody having in flow series, combustion means and turbine means and being adapted to receive a supply of fuel and compressed air from sources located remotely of the centrebody, the turbine means being arranged to drive an impulse rotor located at the outlet of the nozzle portion and the exhaust from the turbine means being arranged to flow into the mixing portion of the duct.

The source of compressed air, which is preferably located in the hull of the vessel can be a single or twin spool gas generator, a gas turbine engine having a tapping from a suitably sized compressor or a gas generator with a power turbine arranged to drive a compressor.

3,808,805

PROCESS FOR THE CONVERSION OF EXHAUST GASES OF THE INTERNAL COMBUSTION ENGINES INTO HARMLESS PRODUCTS

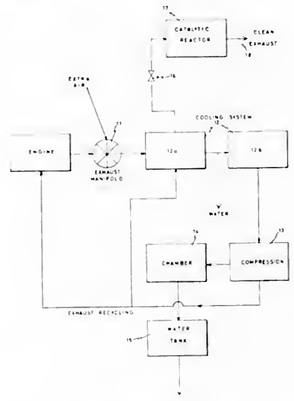
Luis E. Miramontes C., El Greco No. 39-204-B, Mexico City, Mexico

Filed June 21, 1972, Ser. No. 264,999

Claims priority, application Mexico, Sept. 28, 1971, 130421

Int. Cl. F02b *75/10;* **F01n** *3/02, 3/14*

U.S. Cl. 60—274 **4 Claims**



A process involving the conversion of the exhaust gases of the internal combustion engines into harmless products by contacting said gases with an additional amount of air, circulating the resulting mixture through a dual cooler system having a heat exchanger and pipe with a plurality of fins, such cooled gaseous mixture is compressed in a pressure chamber, wherein the water vapor in the gases is condensed and discarded whereas the remaining gaseous portion is either fed back to the engine for recycling, or to a catalytic reactor so as to effect an exhaustive combustion of the waste gases, which therefore evolve as harmless products.

3,808,806

EXHAUST GAS PURIFYING DEVICE

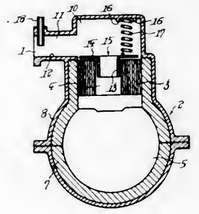
Hirokazu Nakamura, and Tadahiko Ito, both of Kyoto, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 28, 1972, Ser. No. 248,756

Claims priority, application Japan, May 11, 1971, 46-36966

Int. Cl. F01n *3/14*

U.S. Cl. 60—288 **2 Claims**



An exhaust gas purifying device for use in an internal combustion engine, which has an inlet for introducing exhaust gas exhausted from each cylinder of the engine, a thermal reaction chamber for reburning the exhaust gas, and a catalytic chamber provided immediately upstream of said thermal reaction chamber, said inlet and catalytic and reaction chambers forming or acting as a manifold for the exhaust gas. Thus, detrimental components contained in the exhaust gas may be effectively reduced with the compact device.

3,808,807

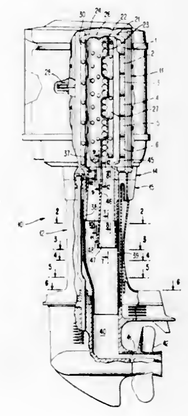
TUNING ARRANGEMENT FOR OUTBOARD MOTOR

Richard A. Lanpheer, Oshkosh, Wis., assignor to Brunswick Corporation, Chicago, Ill.

Filed Aug. 27, 1971, Ser. No. 175,651

Int. Cl. F02b *27/04*

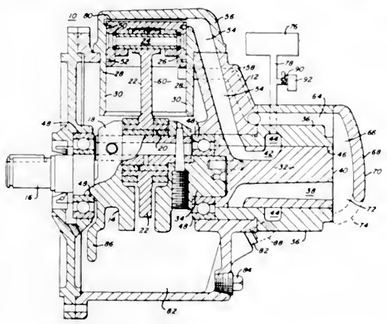
U.S. Cl. 60—313 **5 Claims**



An improvement in the exhaust system for a two-cycle engine comprising one or more sets of three cylinders connected

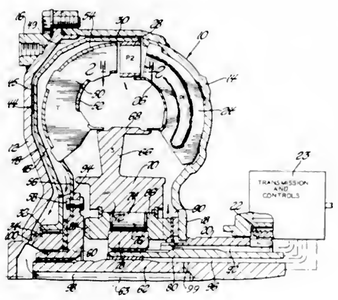
to the crank shaft 120° apart, the exhaust ports of which communicate with a common exhaust chamber formed in association with the cylinder block. A diverging passage leading from the common exhaust chamber to a spacious exhaust tube enclosed within the drive shaft housing produces a negative pressure from a cylinders positive exhaust pulse, which negative pressure aids in scavenging the cylinder. The geometry of the diverging passage and the exhaust tube are such that a positive pulse is created by the exit of the negative pulse from said diverging passage and propagates back through the diverging passages arriving at the exhaust ports of the cylinder simultaneously with a positive pulse from a subsequently fired cylinder to aid in supercharging.

3,808,808
WET OR DRY SUMP MOTOR
George A. Hibbard, River Rd., Claremont, N.H.
Continuation of Ser. No. 195,233, Nov. 3, 1971, abandoned. This application Jan. 24, 1973, Ser. No. 326,350
Int. Cl. F15b *11/06*
U.S. Cl. 60—327 **10 Claims**



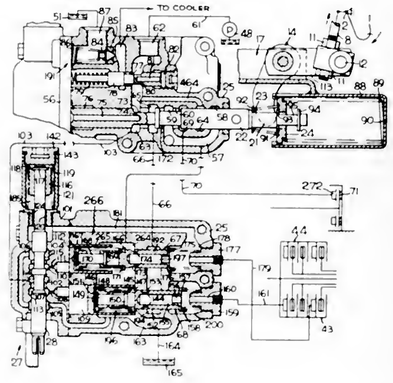
A compressed air motor having an interchangeable rotary valve cap to enable the motor to be operated selectively with a wet or dry sump depending on whether the usage is required on a horizontal axis or an axis deviating from the horizontal.

3,808,809
FLUID UNIT WITH AUXILIARY ROTOR
Ernest W. Upton, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 29, 1972, Ser. No. 310,663
Int. Cl. F16h *41/06*
U.S. Cl. 60—347 **5 Claims**



A torque converter having an auxiliary rotor which can be selectively connected to the input for pumping transmission fluid. The blades of this auxiliary rotor have a negative or backward bend with respect to direction of rotor rotation to modify the flow directed toward the bladed turbine by a bladed primary pump to reduce the capacity of the unit and provide for increased input speed and output torque.

3,808,810
HYDRAULIC MODULATING VALVE
Robert E. Schott, and Donald W. Longshore, both of New Berlin, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Continuation-in-part of Ser. No. 317,644, Dec. 22, 1972, Pat. No. 3,780,762. This application Aug. 27, 1973, Ser. No. 392,029
Int. Cl. F15b *1/02, 11/16*
U.S. Cl. 60—416 **10 Claims**

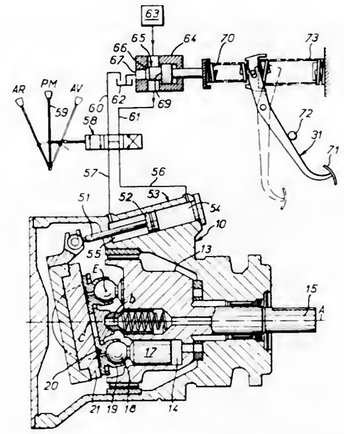


A plurality of hydraulic pressure modulating valves with a directional valve to selectively operate the modulator valves. The directional valve is mechanically and hydraulically operated responsive to the modulated pressure of one of the modulating valves.

3,808,811
HYDROSTATIC UNIT WITH VARIABLE CYLINDER-CAPACITY AND TRANSMISSION INCORPORATING SAID UNIT
Pierre Andre Georges Lepelletier, Chatou, France, assignor to Societe Anonyme Francaise Du Ferodo, Paris, France
Filed July 31, 1972, Ser. No. 276,459
Claims priority, application France, Aug. 19, 1971, 71.030191; June 6, 1972, 72.20233
Int. Cl. F16h *39/46*
U.S. Cl. 60—444 **19 Claims**

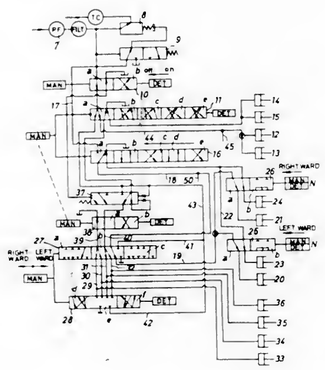
The invention relates to hydrostatic units with variable cylinder-capacity comprising a shaft and a barrel coupled for rotation, a plurality of cylinders formed in said barrel and a like plurality of pistons slidably-mounted in said cylinders so as to define chambers of variable volumes adapted to co-operate with a plate centered at a pre-determined point on the axis of said shaft, one of said members (barrel and plate) being continuously coaxial with said shaft while the other member is pivotally mounted about an axis perpendicular to the axis of said shaft, so as to take-up a large number of positions more or less inclined with respect to the axis of the shaft for the purpose of forming a cylinder-capacity regulating device, said positions including a position in axial alignment with the shaft axis and corresponding to the minimum cylinder-capacity, and a control system acting on said regulating device, the pivotal axis of said device meeting the axis of said shaft at a point on the latter axis which is substantially displaced with respect to said pre-determined point, said regulating device being

pivotally mounted and floating and being subjected to two oppositely-acting torques, one of which is servo-controlled by the control systems and moves the regulating device away from its position of minimum cylinder-capacity, while the



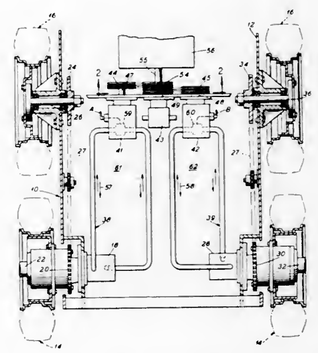
other is a restoring torque resulting from the axial displacement of said two points and moving the regulating device towards its position of minimum cylinder-capacity; the units may be incorporated in the transmission systems of fork-lift trucks or automobile vehicles.

3,808,812
HYDRAULIC CONTROL SYSTEM IN A POWER SHIFT TRANSMISSION OF A CRAWLER TYPE TRACTOR
Eiji Kawamura, and Hiroyuki Taki, both of Osaka, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Filed Mar. 3, 1972, Ser. No. 231,512
Claims priority, application Japan, Mar. 3, 1971, 46-10579
Int. Cl. F15b *11/16;* **B62d** *11/00*
U.S. Cl. 60—484 **5 Claims**



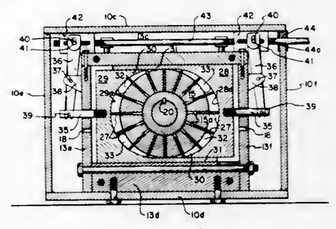
A hydraulic control system in a power shift transmission of a crawler type tractor which has a change-over valve connected to a first branched fluid passage branched from the fluid passage connecting a first speed valve to low speed clutches and also connected to a second branched fluid passage branched from the fluid passage connecting a second speed valve to a first turning valve, and a pressure-reducing valve connected to at least one of the branched fluid passages for reducing the hydraulic pressure of the fluid passage. Thus, abnormal heat generation taking place upon engagement of the clutches in the transmission may be effectively prevented.

3,808,813
HYDRAULIC DRIVE APPARATUS
Chester I. Spinks, 777 Brighton, Zanesville, Ohio
Filed Mar. 23, 1972, Ser. No. 237,469
Int. Cl. F15b *18/00;* **F16h** *39/02*
U.S. Cl. 60—486 **1 Claim**



A plurality of hydraulic flow sources feed a plurality of hydraulic motors. A single source of mechanical power transmits power to the several hydraulic flow sources by a V-belt arrangement cooperating with the sources in such a manner that variation of length of the belt can be controlled by moving all of the hydraulic flow sources simultaneously and not with respect to each other.

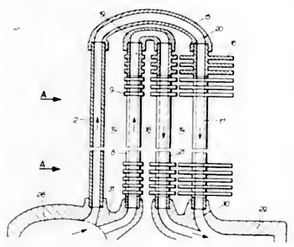
3,808,814
FLUID TRANSMISSION
Robert W. Macy, II, 802 Second Ave., Rock Springs, Wyo.
Filed Mar. 20, 1972, Ser. No. 235,910
Int. Cl. F16h *39/46*
U.S. Cl. 60—487 **6 Claims**



A fluid transmission comprising a variable delivery, rotary pump and a fixed volume hydraulic motor. The rotary pump is operated to supply fluid to turn the hydraulic motor, and as the rotary pump fluid volumetric output is changed the speed of rotation of the hydraulic motor varies. Fluid output variations are accomplished by changing the chamber volume within which the rotor of the rotary pump turns. The chamber volume is varied by moving a pair of housing components having arcuate faces defining opposing chamber walls within which the pump rotor rotates. The pump rotor has a plurality of spaced sliding vanes radiating therefrom and as the rotor turns the vanes are forced outward to be in constant sealing

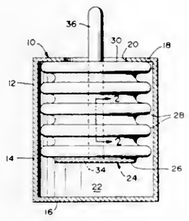
engagement with the opposing arcuate chamber faces. In addition to controlling power output from the hydraulic motor, by directing a greater volume of fluid to the hydraulic motor than it is receiving from the rotary pump the hydraulic motor can be made to act as an opposing pump, to provide a braking action within the fluid transmission.

3,808,815
HEATERS FOR HOT-GAS ENGINES
Andreas Zacharias Friedemann, Augsburg, Germany, assignor to Motoren-Werke Mannheim AG Vorm, Benz ABT. Stationarer Motorenbau, Mannheim, Germany
Filed Nov. 6, 1972, Ser. No. 304,274
Claims priority, application Germany, Nov. 4, 1971, 2154714
Int. Cl. F02g *1/04*
U.S. Cl. 60—517 **12 Claims**



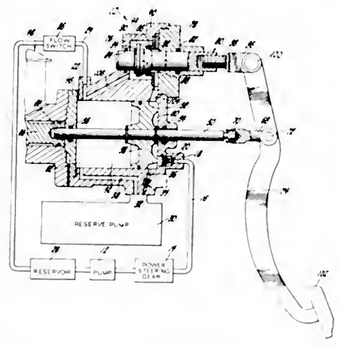
A heater of a hot-gas engine comprises substantially U-form tubular devices each connected between a hot chamber and a regeneration chamber of the engine. The two limbs of each device are formed by two tubes positioned one downstream of the other with respect to the flow of primary fluid medium. The limbs of the devices are transverse to this flow and are arranged side-by-side in at least two rows to form at least two grids which are face-to-face with each other. The rows of limbs also extend transversely of the flow of primary medium.

3,808,816
TEMPERATURE RESPONSIVE DEVICE
William P. Lucas, Stratford, Conn., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Aug. 15, 1972, Ser. No. 280,935
Int. Cl. F28d *15/00*; **F03g** *7/06*
U.S. Cl. 60—530 **9 Claims**



A temperature responsive device includes a bellows sealingly mounted in a casing to define a sealed chamber therebetween with a thermally responsive fluid filling the chamber; a plastic coating on the bellows impedes heat transfer thereto and retains the heat in the fluid causing acceleration of its volumetric change.

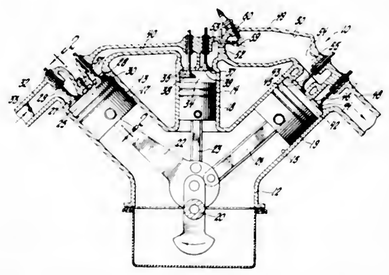
3,808,817
PRESSURE BALANCED HYDRAULIC BRAKE BOOSTER
Ronald W. Bennett, Miamisburg, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Jan. 16, 1973, Ser. No. 324,207
Int. Cl. F15b *7/00, 13/10*
U.S. Cl. 60—548 **3 Claims**



A hydraulic brake booster is shown which can withstand hydraulic supply system back pressure without affecting its output or brake pedal reaction. The booster control valve is of the open center type and is installed in its own valve chamber. The pedal pivot reaction force is utilized to operate the control valve.

The booster reaction system includes the control valve and its valve seat. The amount of brake reaction force transmitted to the brake pedal for any particular brake apply force generated by the booster may be varied by changing the effective valve seat diameter. In addition, initial brake pedal effort, and therefore line support pressure, may be modified by providing a reaction spring. The booster is compatible with a reserve pump system as well as with other brake system control units.

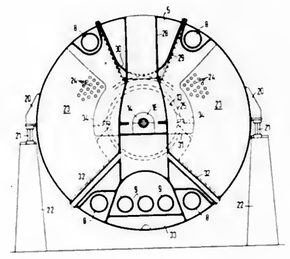
3,808,818
DUAL COMBUSTION ENGINE AND CYCLE
Roy S. Cataldo, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 4, 1972, Ser. No. 278,044
Int. Cl. F02b *41/02, 53/08*
U.S. Cl. 60—15 **9 Claims**



A dual combustion engine and cycle involving sequential modes of constant volume and constant pressure combustion.

A preferred embodiment includes combustion, satellite and expansion cylinders with a constant volume combustion chamber located intermediate the satellite and expansion cylinders. Compression and constant volume combustion take place in the combustion cylinders followed by partial expansion in the satellite cylinders, further combustion at constant volume in the combustion chamber and final expansion in the expansion cylinders. In an alternative embodiment, the satellite cylinders are eliminated and the engine operates at a lower pressure ratio with complete expansion taking place in the expansion cylinders.

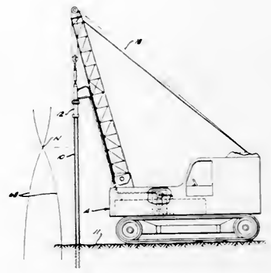
3,808,819
STEAM TURBINE INSTALLATION
Wilhelm Engelke, and Gerhard Purr, both of Mulheim, Ruhr, Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mulheim, Ruhr, Germany
Filed Sept. 12, 1972, Ser. No. 288,300
Claims priority, application Germany, Sept. 23, 1971, 2147444
Int. Cl. F01k *9/00*
U.S. Cl. 60—690 **8 Claims**



In a steam turbine installation, a condenser is disposed on both sides of a low-pressure turbine and the condenser along with the low pressure turbine are enclosed within a pressure-tight cylindrical housing. The housing supports both the low-pressure turbine and condenser on an external foundation. The housing also includes a removable V-shaped segment extending along the entire longitudinal length, of the housing and disposed at an elevation above the turbine shaft. The V-shaped segment is of such width that the inside casings and rotors of the low-pressure turbine can be removed through the opening remaining after the V-shaped segment is removed.

3,808,820
PILE DRIVING UTILIZING STANDING WAVE VIBRATIONS
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif.
Filed Sept. 29, 1972, Ser. No. 293,479
Int. Cl. E02d *7/18*
U.S. Cl. 61—53.5 **3 Claims**

A pile is driven into the earth by means of vibrational energy which is applied to the pile near one end thereof, at a frequency such as to set up resonant standing wave vibration in the pile. Means are provided to assure that the standing wave pattern has a velocity node shifted toward the driving end thereof and a velocity antinode near the driven end thereof. This end result is achieved by first driving the pile into the ground a short distance with a limited amount of vibrational force and with limited bias force being applied by the pile against the earth. When the pile has penetrated to a depth where lateral vibrations thereof are damped by the earthen



material, the vibrational drive power is increased to cause the standing wave vibration with velocity nodes and antinodes as mentioned above.

3,808,821
SELF-POWERED CASING FOR FORMING CAST-IN-PLACE PILES
Kenneth W. Philo, 7 Palm Ave., San Rafael, Calif.
Filed Sept. 15, 1972, Ser. No. 289,705
Int. Cl. E02d *5/38*
U.S. Cl. 61—53.64 **11 Claims**

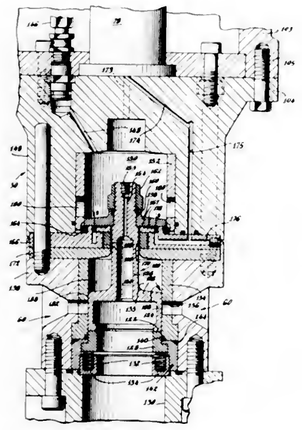


A self-powered casing for forming cast-in-place piles in the earth surface. A casing formed of a central cylindric tube and an outer segment casing. The outer segmented casing is tangential of the tube so that the casing can be placed by drilling. Actuators for longitudinally driving the individual segments of the outer casing with respect to the central tube. A casing capable of forming piles of virtually any cross-sectional shape.

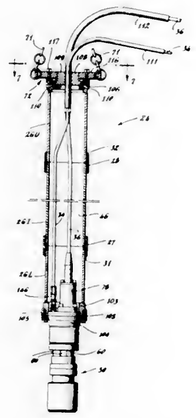
3,808,822
PROCESS AND SYSTEM FOR INCREASING LOAD-BEARING CAPACITY OF SOIL
Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.
Division of Ser. No. 131,919, April 7, 1971, Pat. No. 3,707,848. This application Aug. 14, 1972, Ser. No. 280,087
Int. Cl. E02d *3/10*; **G10k** *11/00*; **F15b** *15/22*
U.S. Cl. 61—63 **8 Claims**

Improved air gun energy source adapted to be submersible in water, sand, gravel, soil, marshland, concrete slurry or

the like for repeatedly suddenly discharging pressurized air into the surrounding material including means providing a flushing venting of pressurized air from the operating cylinder into the release cylinder during the time when the operating piston is unseated from its stop to prevent the entry of grit into the release cylinder when the discharge port is opened by the release piston. The flushing venting air flow is shown passing around the release piston.

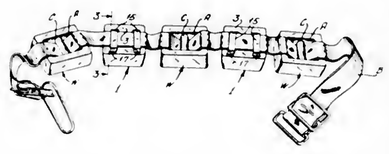


3,808,823
PROCESS AND SYSTEM FOR INCREASING LOAD-BEARING CAPACITY OF SOIL
Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.
Division of Ser. No. 131,919, April 7, 1971, Pat. No. 3,707,848. This application Aug. 14, 1972, Ser. No. 280,088
Int. Cl. E02d 3/10
U.S. Cl. 61—63 **3 Claims**



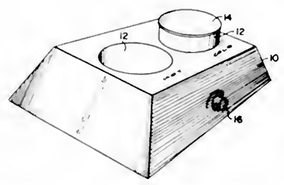
An elongated support assembly for supporting a pressurized air releasing gun is disclsed including at least three hollow pipe sections, an upper, a lower, and an intermediate section, releasably coupled together by pipe couplings. The lower pipe section includes mounting means joined to its end on which the air gun is mounted, and the upper pipe section includes a split retainer with a high pressure line extending through the retainer and support assembly to the air gun.

3,808,824
DETACHABLE DIVER'S WEIGHT
Billy Ray Johnston, 1221 W. Franklin, and William O. Schescke, Rt. 4, both of Salem, Mo.
Filed Jan. 15, 1973, Ser. No. 323,830
Int. Cl. B63c 11/30
U.S. Cl. 61—70 **7 Claims**



A diver's weight is formed with a belt-gripping spring clip for easy attachment to and detachment from a weight belt without loosening or removing the belt from the diver's body.

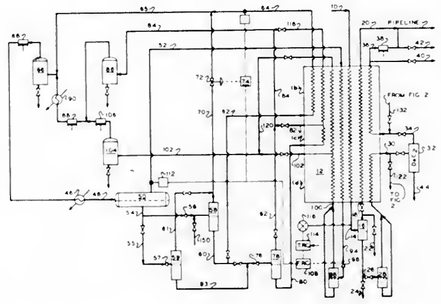
3,808,825
COMBINATION CUP COOLER AND WARMER
Serban Ciurea, Woodside, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed May 30, 1973, Ser. No. 365,341
Int. Cl. F25b 21/02
U.S. Cl. 62—3 **2 Claims**



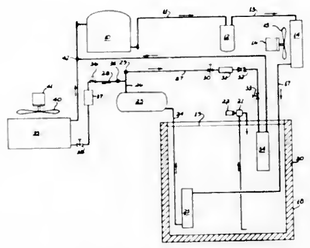
A device which may be utilized to warm one cup of liquid and simultaneously cool a second cup of liquid, with the device employing thermoelectric means to effect the heat transfer.

3,808,826
REFRIGERATION PROCESS
Ernest A. Harper, and Dunn M. Bailey, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Sept. 28, 1970, Ser. No. 75,992
Int. Cl. F25j 1/00, 1/02, 3/02
U.S. Cl. 62—9 **20 Claims**

A refrigeration process employing a single- or plural-stage flashing of a refrigerant liquid to obtain high and/or intermediate temperature cooling, and condensation of refrigerant vapor and subsequent flashing thereof to obtain low temperature cooling, of a heat exchange zone so as to remove heat from said zone. In one embodiment, a gas is passed through said heat exchange zone in heat exchange relationship with said refrigerants and at least partially liquefied.

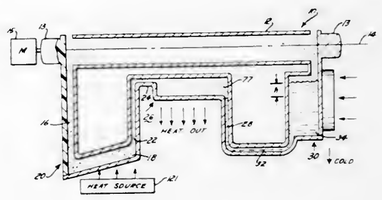


3,808,827
REFRIGERATION UNIT
Eric Joseph Avon, 108 16th Ave., City of Two Mountains, Quebec, and Jack Jacob Rabow, 11 Briardale Ave., Hampstead, Quebec, both of Canada
Filed Mar. 7, 1973, Ser. No. 338,955
Claims priority, application Canada, Mar. 9, 1972, 136745
Int. Cl. F25d 3/00
U.S. Cl. 62—59 **9 Claims**



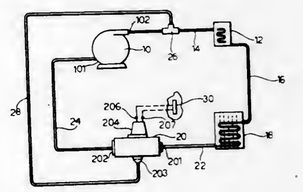
A system is disclosed for maintaining a predetermined temperature range in an enclosed location when the outside of the enclosed location is subjected to variations of temperature. The system includes a compressor, a first condenser located externally of the enclosed location, a cooling liquid tank, a second condenser located within the cooling liquid tank, a first evaporator located within the cooling liquid tank, a second evaporator located within the enclosed location and a control means to direct a flow of coolant to the first and/or the second evaporator in response to the temperature requirements in the enclosed location. There is also disclosed a method of maintaining the temperature in an enclosed location within a predetermined range when the outside of the enclosed location is subjected to periods of high temperature. This method includes compressing the coolant vapour in a refrigeration cycle, condensing the vapour to a liquid and feeding the liquid to evaporate in an enclosed location to cool that location and also feeding the liquid to evaporate in a cooling liquid tank to cool the cooling liquid tank. The temperature inside the enclosed location is sensed and a control system automatically controls the flows of liquid to the enclosed location and the cooling liquid tank in response to a variation of temperature inside the enclosed location.

3,808,828
ROTARY THERMODYNAMIC APPARATUS
Frederick W. Kantor, 523 W. 112th St., New York, N.Y.
Continuation-in-part of Ser. No. 608,323, Jan. 10, 1967, Pat. No. 3,470,704. This application Oct. 6, 1969, Ser. No. 864,112
Int. Cl. F25b 3/00
U.S. Cl. 62—116 **4 Claims**



A working fluid such as a liquifiable gas is rotated in a rotor having a thermodynamic compressor, a condenser chamber and an evaporation chamber. The high pressure zone in the condenser chamber is separated from the low pressure zone of the evaporator by a column of liquid. In several embodiments, a forepump is actuated by the thermodynamic compressor in order to vary the thermodynamic operating points of the device.

3,808,829
DELIVERY LIMITING VALVE UNIT FOR REFRIGERATION CIRCUITS
Marco Peruglia, Turin, Italy, assignor to Fiat Societe per Azioni, Turin, Italy
Filed Apr. 4, 1973, Ser. No. 347,766
Claims priority, application Italy, Apr. 19, 1972, 68222/72
Int. Cl. F25b 41/04
U.S. Cl. 62—217 **1 Claim**



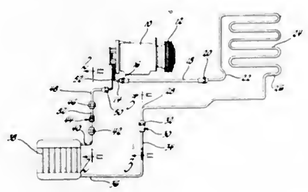
A delivery limiting valve for the control of a refrigeration circuit of the type comprising a continuously driven compressor, a condenser, and an evaporator, the valve being located in the pipe between the evaporator and the compressor and including two passages communicating between the inlet and outlet ports of the valve. A first passageway, which makes permanent communication allows only a very restricted flow therethrough, and a second passageway, which is closeable by a valve shutter, allows full free flow therethrough. The valve

includes a solenoid operated valve shutter which controls a bypass route from the inlet port to the outlet port, which includes the chamber within which the shutter for the second passageway is located. When the solenoid is energized the bypass route is open causing a lowering of pressure in the valve shutter chamber with respect to the pressure in the second passageway thereby keeping the valve shutter open. Switches and/or thermostats located at various parts of the refrigerator circuit control the energization of the solenoid and thus the opening and closing of the second passageway by the shutter.

3,808,830
THERMALLY ACTUATED SUCTION THROTTLING VALVE

Ward J. Atkinson, Northville, and Richard C. Kozinski, Warren, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 16, 1973, Ser. No. 351,769
Int. Cl. F25b *41/04*
U.S. Cl. 62—217 **3 Claims**

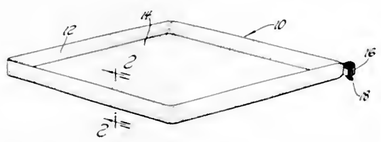


A freeze actuated suction throttling valve for use in an automobile air conditioning system between the evaporator and the compressor to maintain refrigerant temperature within the evaporator above a temperature which will cause the evaporator to accumulate frost on its exterior surfaces. The throttling valve includes a valve member upstream from a valve seat which is movable toward a closed position by an actuator also upstream from the valve seat. The actuator includes a rigid cup-shaped member filled with water and having a flexible diaphragm covering its one end. When the water freezes, the resulting expansion distorts the flexible diaphragm and moves the valve member toward a closed position.

3,808,831
ICE RINK

James A. Landry, 1200 Pilgrim, Birmingham, Mich.

Filed Jan. 22, 1973, Ser. No. 325,471
Int. Cl. A63c *19/10*
U.S. Cl. 62—235 **9 Claims**

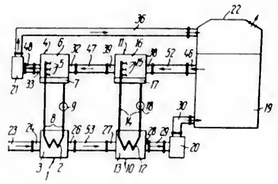


A water impervious sheet is connected at its perimeter with an inflatable tube to provide an ice skating rink. In use, the inflatable tube is filled with water which, when frozen, provides a solid perimeter wall for the ice rink. A skating surface is formed over the water impervious sheet by covering that sheet with a layer of water and freezing the water.

3,808,832
AIR CONDITIONING INSTALLATION

Lev Markovich Zusmanovich, ulitsa Dmitria Ulyanova, 4/34, korpus B, kv. 284, Moscow, U.S.S.R.

Division of Ser. No. 131,928, April 7, 1971. This application Oct. 16, 1972, Ser. No. 297,904
Int. Cl. F25d *17/04*
U.S. Cl. 62—309 **1 Claim**

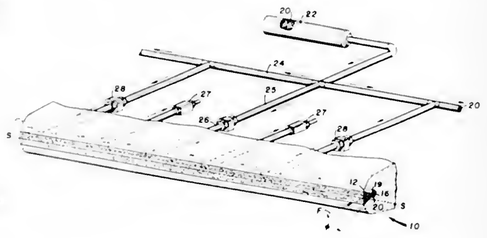


An installation for conditioning air in an associated space, comprising at least two pairs of heat exchangers, each such pair including a surface heat exchangers and a mixing one, the second (in the direction of the flow of the air being treated through the apparatus) pair of heat exchangers communicating through the surface heat exchanger of the first pair with the conduit through which ambient air to be treated by the apparatus is supplied, for this air, after its having been cooled in the last-mentioned heat exchanger, to be directed for still deeper cooling into the surface heat exchanger and the mixing heat exchanger of the second pair.

3,808,833
COMPACT TRANSPIRATION COOLING SYSTEM

Redfield W. Allen, Silver Spring, and Louis B. Weckesser, College Park, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 3, 1973, Ser. No. 347,731
Int. Cl. F25b
U.S. Cl. 62—467 **10 Claims**

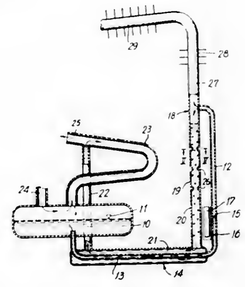


A transpiration cooling system for dissipating heat loads in sharp edges of flight vehicle structures moving at hypersonic velocities and sharp leading edges of gas turbine blades operation in high temperature environments, the invention comprises a compact plenum formed by a longitudinal coolant passage having a longitudinal porous segment in its wall, the compact plenum passage fitting within the leading edge structure and extending along the leading edge in a direction transverse to the external hot gas flow. Pressurized gaseous coolant, supplied by a remote reservoir or engine compressor thus flows within the compact plenum inside the leading edge structure and also transpires in a forward direction from the compact plenum through the porous segment and into the critically heated forward stagnation line region of the sharp leading edge structure.

3,808,834
ABSORPTION REFRIGERATION APPARATUS

Nicolas Eber, Zurich, Switzerland, assignor to Aktiengesellschaft electrolux, Stockholm, Sweden

Filed June 2, 1971, Ser. No. 149,209
Int. Cl. F25b *15/10*
U.S. Cl. 62—490 **1 Claim**



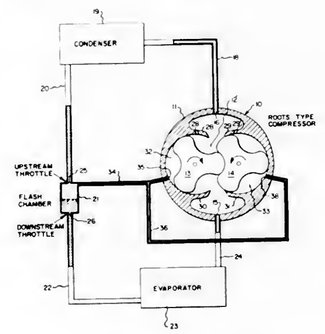
A single vertically disposed conduit of abosrption refrigeration apparatus has a lower part serving as a generator or heat receiving section and an upper part serving as a rectifier. The single conduit defines an upright space for holding a body of absorption solution. Adsorption solution flows to an upper region of the upright space and is withdrawn from a lower region thereof, the solution flowing downward in the space in counterflow to upwardly flowing vapor expelled from solution by heating in the heat receiving section.

The single conduit is constructed and formed to provide a series of vertically spaced sharply reduced zones only in the upper part thereof which serves as the rectifier. The sharply reduced zones define constrictions through which upwardly flowing vapor can only pass in the form of small vapor bubbles and also offer material resistance to downward flow of absorption solution in the vertical space to build up and maintain a liquid column above each constriction. The sharply reduced zones are vertically spaced from one another to separate from the upwardly flowing vapor bubbles the relatively small quantity of liquid tending to be carried upward with the vapor.

3,808,835
REFRIGERANT HANDLING APPARATUS EMPLOYING ROOTS TYPE COMPRESSOR

Roger C. Weatherston, Williamsville, N.Y., assignor to Calspan Corporation, Buffalo, N.Y.

Filed Nov. 3, 1972, Ser. No. 303,463
Int. Cl. F25b *1/10*
U.S. Cl. 62—510 **1 Claim**

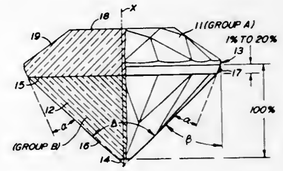


In an air-conditioning or refrigeration system, the expansive energy of the refrigerant itself is utilized to force some of the vapor formed in the throttling process into a closed volume chamber or well pocket of a Roots type compressor, one of the components of the system, facilitating a reduction in the required inlet volume and power of the compressor for a given cooling effect.

3,808,836
DOUBLET GEM CONSTRUCTION

Harry S. Jones, 50 Naresink Dr., Monmouth Beach, N.J.

Filed Nov. 30, 1972, Ser. No. 311,024
Int. Cl. A44c *17/00*
U.S. Cl. 63—32 **9 Claims**

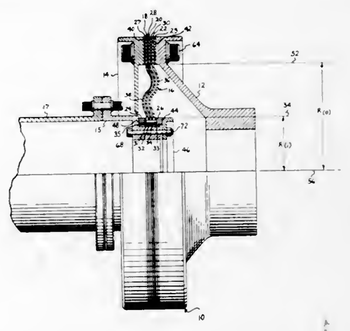


A doublet gem stone having a crown member of relatively high hardness and a pavilion member of lesser hardness but of higher optical dispersion and refractivity, and wherein the interface of the crown member and pavilion member is below the girdle of the gem stone. The crown member has a pavilion shoulder between the girdle and the interface which shoulder is more nearly parallel to the axis of symmetry of the gem stone than are the sides of the pavilion member and forms a projected angle of between 3° and 40° with said sides. The pavilion shoulder may be either partly or wholly on said crown member.

3,808,837
FLEXIBLE DISC COUPLING FOR TANDEM COUPLING ASSEMBLY

Norman J. Anderson, Fairview; John L. Decker, and Jon R. Manucso, both of Erie, all of Pa., assignors to Zurn Industries, Inc., Erie, Pa.

Filed Sept. 6, 1972, Ser. No. 286,734
Int. Cl. F16d *3/78*
U.S. Cl. 64—13 **16 Claims**



A flexible disc-type coupling for use in a tandem coupling assembly transmits torque through a plurality of flexible discs. Each of these discs has a flexing area which includes at least one, but not more than about four, circumferentially extending convolutions. The discs are held apart by incompressible spacers and the area between the convolutions is free from all solids so that contact between flexure points, and thus surface damage, is avoided.

3,808,838

JOINT STRUCTURES IN OR FOR ROTARY SHAFTS

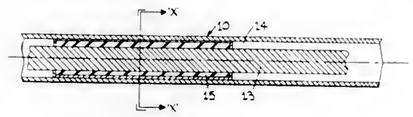
Edward Valentine Bowen, Birmingham, and Derek Simkins, Burton-on-Trent, both of England, assignors to GKN Transmissions Limited, Erdington, Birmingham, England

Filed July 28, 1972, Ser. No. 276,223

Claims priority, application Great Britain, July 30, 1971, 35852/71

Int. Cl. F16d *3/14*

U.S. Cl. 64—27 NM **5 Claims**



A rotary torque-transmitting shaft having a joint structure which includes a tubular outer component, an inner component disposed within the outer component, and an intermediate component of resilient material disposed in an interspace between the inner and outer components. The intermediate component is slidable axially relative to one of the other components and is in torque-transmitting relation to both of them. The inner and outer components are both of rectangular shape in cross-section so that relative angular movement is limited to a predetermined range even in the event of failure of the intermediate component. The joint structure may be used in a steering column shaft of a motor road vehicle.

3,808,839

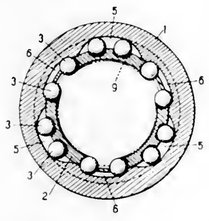
ENDLESS SLIDING BALL SPLINE SHAFT BEARING

Hiroshi Teramachi, 8-34-2 Higashi-Tamagawa, Setagaya-ku, Tokyo, Japan

Filed Sept. 8, 1972, Ser. No. 287,219

Int. Cl. F16d *3/06*

U.S. Cl. 64—23.7 **4 Claims**



The bearing comprises a cylindrical tube, a spline shaft extending coaxially through the tube, a cylindrical ball retainer interposed between the tube and the shaft, and a plurality of balls constrained by the retainer. The inner surface of the tube is formed with axially extending first and second torque transmitting ball guide grooves having a U-shaped cross-section, the first and second grooves being arranged in alternation circumferentially of the tube and the first groove having a radial depth greater than that of the second grooves. The first grooves serve to guide non-loaded balls and the second grooves serve to guide loaded balls. At axially opposite ends, the inner surface of the tube is formed with circumferential grooves having a radial depth equal to that of the first guide grooves. The ball retainer has a uniform outer diameter and circumferentially alternating thick-wall and thin-wall portions. Each thick-wall portion is formed with a pair of angularly spaced axially extending third guide grooves, with each pair radially aligned with a respective first guide groove in the tube, and each thin-wall portion is formed with a pair of angularly spaced axially extending narrow slots having a width less than the diameter of the balls, and each pair of slots is radially aligned with a respective second guide groove in the tube. The outer surface of the retainer is formed with semi-circular ducts at its axially opposite ends each connecting a respective third guide groove to the circumferentially adjacent narrow slot. The shaft is formed with axially extending splines having a trapezoidal cross section, and each radially aligned centrally with the respective thin-wall portion of the retainer. The balls fill all of the grooves and slots.

3,808,840

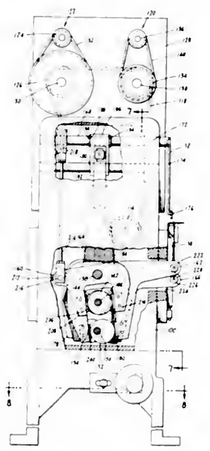
THREE-STRAND YARN KNITTING MACHINE AND METHOD OF KNITTING

Robert C. Blezard, Woonsocket, and William E. Millard, North Providence, both of R.I., assignors to Smithfield Fibers, Inc., Providence, R.I.

Division of Ser. No. 96,059, Dec. 8, 1970, Pat. No. 3,738,125. This application Apr. 16, 1973, Ser. No. 351,576

Int. Cl. D04b *23/02*

U.S. Cl. 66—87 **19 Claims**



A method and machine for knitting three strands of yarn in two interlocking chains, wherein stitches in first and second strands of said yarn are formed about one reciprocating latch needle of said machine and stitches in said second strand and a third strand are formed about a second parallel reciprocating latch needle of said machine. Each needle pulls a newly formed stitch through a preceding stitch and casts-off the preceding stitch.

3,808,841

KNITTING METHOD

Max William Betts, Coventry, and Fran Robinson, Breaston, both of England, assignors to Courtaulds Limited, London, England

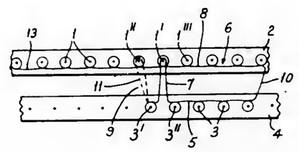
Filed Mar. 14, 1973, Ser. No. 341,051

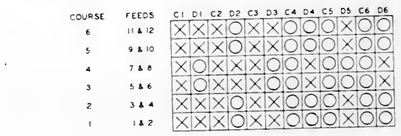
Claims priority, application Great Britain, Mar. 15, 1972, 11968/72

Int. Cl. D04b *9/46*

U.S. Cl. 66—172 R **2 Claims**

The invention discloses a method of forming a margin for a piece of plain knitted fabric formed on a knitting machine having two opposed needle beds, a part of the margin being formed on each bed with loops knitted between the beds at locations spaced from the outer edge of the fabric, the loops losing otherwise U-shaped knitted courses.





3,808,842

MANUFACTURE OF LADY'S PANTY HOSE

Max Fisher, Pennside, and Paul S. Gardner, Temple, both of Pa., assignors to Old Colony Hosiery Mills, Inc., Reading, Pa.

Filed Mar. 15, 1972, Ser. No. 234,724

Int. Cl. A41b *9/02, 9/04, 9/10*

U.S. Cl. 66—177 **9 Claims**

The panty hose comprises two similar knit blanks secured together to form a tubular body encircling portion and two tubular limb encircling portions depending therefrom. The body encircling portions of the blanks are composed of courses made with at least two stretch yarns, each of such courses being composed of conventional knit stitches and a selected number of run-guard stitches that form in the inner side of the blank a vertical panel. The two panels are medially slit downwardly to a point short of the lower ends thereof. The slit edges formed from each panel are connected either to one side of a crotch or panel portion or to the slit edges of the other panel, and in such manner that the unslit bottom portions of such panels are intermediate the ends of the crotch or panel portion, or the seam connecting such slit edges together. The vertical panel in each blank is at its top integral with a transverse band made of run-guard stitches and encircling the upper edge of the blank.

3,808,843

DOUBLE KNIT FABRIC

James H. Blore, Greenville, and Bobby L. Balcombe, Fountain Inn, both of S.C., assignors to Phillip Fibers Corporation, Greenville, S.C.

Filed May 1, 1972, Ser. No. 248,850

Int. Cl. D04b *7/04, 11/04*

U.S. Cl. 66—196 **10 Claims**

A double knit fabric and method of making same. Said fabric has cylinder-needle stitches of essentially constant length in one side (face) thereof and dial-needle stitches of varying length in the other side (reverse) thereof. When employing yarns of different colors, said reverse side has an ombre appearance.

3,808,844

APPARATUS FOR CONTROLLING THE AMOUNT OF ELASTIC STRETCH IN STRETCH WOOLENS

Howard P. Oldfield, Smithfield, R.I., assignor to Worcester Textile Company, Centerdale, R.I.

Filed Aug. 19, 1972, Ser. No. 263,795

Int. Cl. D06c *1/08*

U.S. Cl. 68—5 D **5 Claims**

Apparatus for controlling the amount of elastic stretch in stretch woolens having a cylindrical drum rotatably mounted on a stand. A drive roll is supported by arms pivotally mounted on vertical members which extend upwardly from the stand and there is a piston mechanism for moving the drive roll into rolling contact with the cylindrical surface of the drum. A drag roll is also supported by arms mounted on vertical members which extend upwardly from the stand and the drag roll is positioned adjacent the drive roll with their axes of rotation being parallel to each other. A drive mechanism connected to the drive roll causes the cylindrical drum to rotate and results in the fabric being passed therearound and between the drum and the drive roll. The rotational speed of the drag roll is maintained slower than that of the driving roll to produce a stretch in the warp yarns of the fabric. The amount of stretch applied to these warp yarns is varied by mechanically controlling the rotational speed of the drag roll. Primary steam conduit structure is partially mounted within the cylindrical drum with the section within said drum having a plurality of apertures in its outer wall that allows the steam to be released within said drum. This steam in turn escapes from the drum through a multitude of apertures in its cylindrical surface and then passes through the fabric which is travelling around the drum. A secondary steam conduit structure is also partially mounted within the cylindrical drum with its internal portion being in the form of a helical coil which acts to prevent condensation in the drum of the steam released therein by the primary steam conduit structure. An auxiliary bath is mounted on the stand in a position to receive the fabric after it has passed around the drive roll. Squeeze rolls are supported on the stand in a position to receive the fabric after it has been passed through the bath. By varying the amount of

drag by the drag roll, the amount of permanent elastic stretch to be imparted into the woolen fabric passing through the apparatus can be varied as the permanent set is produced by the action of the steam passing through the chemically impregnated fabric.

3,808,845

SEALING ARRANGEMENT FOR PRESSURIZED GAS OR VAPOUR CONTAINERS FOR MATERIAL WEBS WHICH ARE TO BE CONTINUOUSLY TREATED

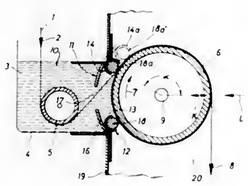
Karl Peter Lopata, Krefeld, Germany, assignor to Fa.Kleinewefers Industrie Companie GmbH, Krefeld, Germany

Filed July 3, 1972, Ser. No. 268,818

Claims priority, application Germany, Aug. 27, 1971, 2142926

Int. Cl. B05c *11/115*

U.S. Cl. 68—5 E **17 Claims**



A sealing means which includes a main roller having a portion of its cylindrical area positioned adjacent to an aperture in a tank which holds a fluid (either liquid or vapor) which is to be applied to a web of material as it passes through the tank and over the main roller. An endless elastic sealing strip is positioned on the main roller and surrounds the aperture, providing a fluid seal. The sealing strip is held in position by a cylindrical channel which is secured to the tank. Additional rollers may be used to enter the material into the tank and reverse its direction.

3,808,846

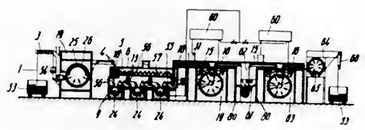
APPARATUS FOR THE CONTINUOUS TREATMENT OF NATURAL AND SYNTHETIC FIBERS WITH A SOLVENT

Heinz Fleissner, Egelsbach bei Frankfurt, Germany, assignor to Vepa AG, Basel Schweiz, Germany

Division of Ser. No. 835,529, June 23, 1969, abandoned. This application Dec. 10, 1970, Ser. No. 97,012

Int. Cl. B05c *3/138*

U.S. Cl. 68—19.1 **25 Claims**



The present disclosure is directed to an apparatus for the treatment of textile materials which comprises a wet-treatment device containing in its first portion a trough-shaped tank which contains a solvent, inlet means for introducing the materials to be treated to the wet-treatment device and into the solvent in a folded state, a sieve drum means subjected to a suction draft rotatably disposed in the second portion of the wet-treatment device, roller means for conveying the material being treated from the trough-shaped tank to the sieve drum means, press means disposed behind the sieve drum means for at least partially removing the solvent from the material being treated, dryer means disposed behind the press means, said dryer means comprising at least one sieve drum means subjected to a suction draft rotatably disposed in a treatment chamber, exhaust means provided at the outlet side of the treatment chamber, said recycle means also communicating with the solvent recovery device for recycling the substantially solvent free treatment medium back to the treatment chamber and outlet means for removing the material being treated from the dryer means.

3,808,847

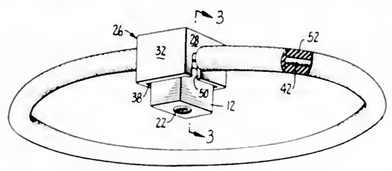
BICYCLE LOCK

Dwayne G. Vesely, 625 Shelter Creek Ln., San Bruno, Calif.

Filed Dec. 21, 1972, Ser. No. 317,221

Int. Cl. E05b *73/00*

U.S. Cl. 70—18 **7 Claims**



A lock for bicycles and like portable articles. The lock employs a conventional padlock and includes a casing that encloses the shackle of the padlock to render the shackle inaccessible to hacksaws and/or bolt cutters. A stranded cable having one end permanently attached to the casing and the other end removably attached thereto. Detachment of the latter end is effected by unlocking the padlock so that the body can move relative the casing. A thermally insulative sheath for encasing the cable.

3,808,848

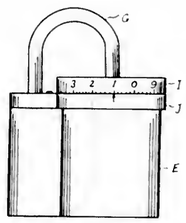
SAFETY LOCK

Yin-Lung Yang, 21-9 Chih-Yuan Village, Kangshan, China /Taiwan

Continuation-in-part of Ser. No. 654,764, July 20, 1967, Pat. No. 3,546,906. This application May 25, 1970, Ser. No. 40,188

Int. Cl. E05b *37/00, 67/22*

U.S. Cl. 70—21 **17 Claims**



A padlock which embodies both a variable key-operated device and a variable permutation-operated device independently within a lock. The lock can be locked either by one of the devices or by both of the devices. The lock can be unlocked by a coded key alone only when the variable permutation-operated device is in its unlocked position. Likewise the lock can be unlocked by the combination alone only when the key-operated device is in its unlocked position. When the devices are both in the locked position, the lock can be unlocked only when those who know the combination of the permutation-operated device as well as having possession of a coded key. Means are provided for varying either one or both

of the devices by the owner of the lock, thus rendering the original coded key and/or the combination inoperative, hence a new coded key or a new combination or both of them are necessary.

3,808,849

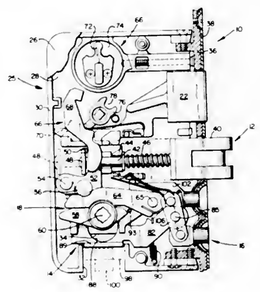
MORTISE LOCK HAVING FREELY MOVABLE EXTERNAL MANIPULATOR

Gordon A. Alexander, Newington, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

Filed Apr. 2, 1973, Ser. No. 347,338

Int. Cl. E05b *55/10*

U.S. Cl. 70—149 **21 Claims**



A mortise lock for use on an entrance door or the like has a latch operated by a thumbpiece from the outside except when the thumbpiece is released by a locking or disabling mechanism. In the released position, the thumbpiece and an associated operating lever contained within the lock casing are freely movable relative to other parts of a latchbolt retracting mechanism. The latchbolt may be retracted by a manual manipulator from the inside at all times. Various means compatible with parts of a conventional mortise lock are provided for effecting locking release of the thumbpiece.

3,808,850

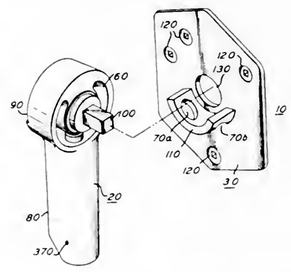
LOCKING HANDLE ASSEMBLY

Russell W. Walters, Whitehall, Pa., assignor to BMR Security Products Corp, Reading, Pa.

Filed Mar. 2, 1972, Ser. No. 231,329

Int. Cl. E05b *13/10;* **E05c** *19/10*

U.S. Cl. 70—215 **20 Claims**



A locking handle assembly which includes a tubular mechanism within a longitudinal through passage of a handle. A locking plate having at least one opening is contained within a cavity of the handle and in a predetermined position of the handle, the locking plate opening is aligned with the through passage. The lock mechanism is insertable within the handle for removably securing the handle to the locking plate when the lock mechanism is inserted into the opening of the locking plate.

3,808,851

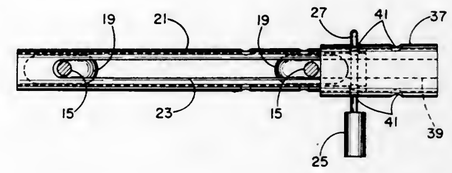
OUTBOARD MOTOR LOCK

Eugene H. Kargus, 747 London St., and Joseph F. Zolkoske, Jr., 928 Third St., both of Menasha, Wis.

Filed Apr. 10, 1972, Ser. No. 242,584

Int. Cl. F16b *41/00*

U.S. Cl. 70—232 **1 Claim**



The invention relates to an improved locking device for preventing the theft, and/or the accidental dislodgment during use, of outboard motors. The device consists of a one piece, slotted tubular member which is adapted to slide over and to engage and lock against movement the heads of the clamp screws for the motor supporting bracket. This tubular member is provided with a series of aligned holes adapted to receive the shackle of a padlock or equivalent locking means, in such manner that removal of the tubular member from locking engagement with the heads of the clamping screws is effectively prevented.

3,808,852

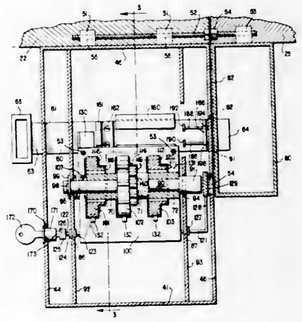
PUSH BUTTON COMBINATION LOCK

John P. Mohrhauser, 804 Prospect St., Maplewood, and Richard W. Strazza, 3 Turner Ct., Princeton, both of N.J.

Filed June 30, 1972, Ser. No. 268,011

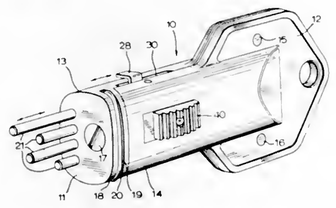
Int. Cl. E05b *37/02*

U.S. Cl. 70—285 **12 Claims**



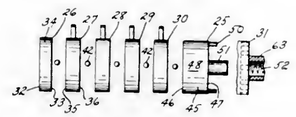
A push button combination lock having wheels containing the combination mounted completely within a container and wherein buttons are provided for manipulating the wheels through the container wall. Depressing each button will rotate each wheel and when all of the wheels are aligned in the correct combination, the lock can be opened.

3,808,853
ADJUSTABLE KEY FOR CYLINDER LOCKS
Kalju Helenurm, Willowdale, Canada, assignor to Jonathan Lock Limited, Toronto, Ontario, Canada
Filed Apr. 23, 1973, Ser. No. 353,406
Int. Cl. E05b *19/18*
U.S. Cl. 70—411 **10 Claims**



An adjustable key for cylinder locks has a set of lock-engaging pins which may be manually set to a selected configuration and which are spring-biassed toward a neutral configuration. Locking means are provided to lock the pins in the selected configuration, and manually operable release means are provided to disengage the locking means from the pins so as to return the pins automatically to the neutral configuration.

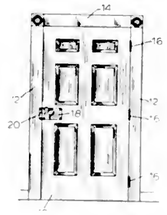
3,808,854
PILFER-RESISTANT LOCK CONSTRUCTION, HAVING SEGMENTED CYLINDER
Leonard Mercurio, 34 Beaument Dr., Plainview, N.Y.
Filed Dec. 13, 1972, Ser. No. 314,608
Int. Cl. E05b *63/00*
U.S. Cl. 70—419 **4 Claims**



A pilfer resistant lock construction characterized in the provision of a longitudinally segmented cylinder, each segment supporting a laterally shiftable tumbler. Each segment is separated from the other segments by a small ball seated in a pair of opposed corresponding detents. The balls remain in position under normal keyed operation. However, if an attempt is made to pick the lock, one tumbler at a time, the segments rotate axially with respect to each other, causing the balls to rotate out of the respective detents, resulting in longitudinal expansion of the space between the segments against the action of a longitudinally arranged spring. This expansion causes a locking action between the cylinder and a member which is non-rotatably fixed with respect to the lock housing, and prevents rotation of the cylinder within the lock. The forwardmost cylinder segment is devoid of a tumbler, and is free turning, to discourage attempts to drill out the cylinder, by rotating with the drill bit.

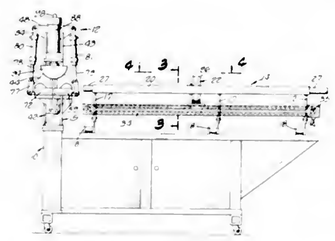
3,808,855
RIM LOCK CONVERSION SET
George B. Plunkett; Patricia M. Plunkett, R.D. No. 1, Glen Rock, Pa.; Loren H. Kroh, and Elizabeth H. Kroh, both of R.D. No. 1, Brodbecks, Pa.
Filed Feb. 26, 1973, Ser. No. 335,685
Int. Cl. E05b *9/00, 15/02*
U.S. Cl. 70—448 **9 Claims**

A set of enclosing conversion members adapted to be mounted over a conventional rim lock and keeper for a door to cause the same to have an appearance of an expensive rim lock and keeper set of larger size than the conventional lock and keeper. To provide greater aesthetic value, the enclosing



conversion members may be formed from a more attractive material than conventional iron and the like from which conventional rim locks and keepers are formed.

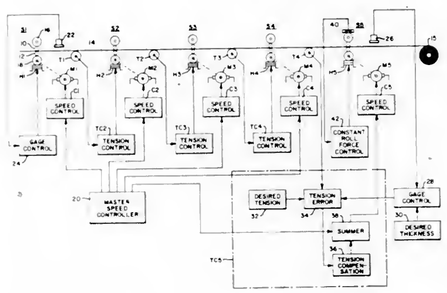
3,808,856
TUBE BENDING APPARATUS
Bruce J. Lance, 1460 Chase Dr., Corona, Calif.
Continuation-in-part of Ser. No. 60,328, Aug. 3, 1970, which is a continuation-in-part of Ser. No. 740,809, May 31, 1968. This application July 3, 1972, Ser. No. 268,775
Int. Cl. B21d *7/12*
U.S. Cl. 72—7 **24 Claims**



Tube bending apparatus includes mechanism for advancing a tube to selected longitudinal positions between a ram die, a stationary wing die and a rotatable wing die; rotating the tube to selected orientations; and bending the tube to selected depths of bend by advancing the ram die towards the wing dies and against the tube to stretch and thereby bend the tube therearound. Hydraulic mechanism is included to balance the clamping pressures applied by the dies during the bending operation. The set of dies is designed to be removable. Thereby, the apparatus may be set up to handle different diameter tubes and to make bends along different radii by changing dies. One embodiment of apparatus is arranged to feed tubing to either of two die sets. One die set is designed for bending right-handed bent tubes while the other is designed for making left-handed bent tubes.

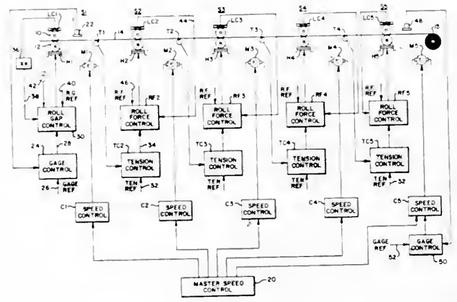
3,808,857
GAGE CONTROL METHOD AND SYSTEM FOR TANDEM ROLLING MILLS
John J. Connors, 5060 Elmcroft Ct., Clarence, N.Y.
Filed Sept. 29, 1972, Ser. No. 293,619
Int. Cl. B21b *37/02*
U.S. Cl. 72—8 **7 Claims**

Gage control method and system for tandem rolling mills of the type wherein final output gage is controlled by comparing actual output gage with desired output gage to develop an error signal for controlling the speed of the last stand and, hence, tension in the strip material being rolled between the last two stands. The invention is characterized in that the roll



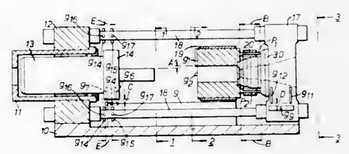
force exerted on the strip by the last stand is maintained constant for all variations in last stand speed, thereby enabling a greater range of strip gage change via the last stand in the tandem mill.

3,808,858
GAGE CONTROL SYSTEM AND METHOD FOR TANDEM ROLLING MILLS
John J. Connors, 5060 Elmcroft Ct., Clarence, N.Y.; Thomas J. Dolphin, 451 Old Greenbriar Rd., and John W. Cook, 84 Pin Oak Dr., both of Willamsville, N.Y.
Filed Sept. 29, 1972, Ser. No. 294,728
Int. Cl. B21b *37/02*
U.S. Cl. 72—8 **11 Claims**



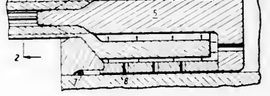
Gage control system and method for tandem rolling mills wherein the roll force or roll gap on all stands in the mill is maintained constant. In the preferred embodiment of the invention, constant roll gap is maintained in the first stand while constant roll force is maintained in all succeeding stands except, possibly, the last stand where measured final output gage is the controlling parameter.

3,808,859
HYDRAULIC PRESSES
Ian Lewis Cameron, Blandford, England, assignor to Ceflac Compagnie du Filage des Metaux et des Joints Curty, Paris, France
Filed July 31, 1972, Ser. No. 276,447
Claims priority, application Great Britain, May 8, 1971, 36865/71
Int. Cl. B21c *51/00*
U.S. Cl. 72—31 **22 Claims**



A method and apparatus for detecting relative displacement of hydraulic press components such as stem, container die and mandrel. Measurements are taken using suitable detectors such as wide-gap air gauges.

3,808,860
METHOD AND APPARATUS FOR MANUFACTURING TUBES OR TUBULAR BODIES WITH INNER WALLS HAVING CROSS SECTIONS OF IRREGULAR SHAPES
Yoshihiro Yamaguchi, Ashiya; Tomiharu Matsushita, Nishinomiya; Masataka Noguchi, Kobe; Junichi Nakagawa, Hatano, and Hakumi Hasegawa, Akashi, all of Japan, assignors to Kobe Steel Ltd., Kobe, Japan
Filed Aug. 16, 1972, Ser. No. 281,041
Claims priority, application Japan, Aug. 18, 1971, 46-63129
Int. Cl. B21c *25/04*
U.S. Cl. 72—60 **3 Claims**

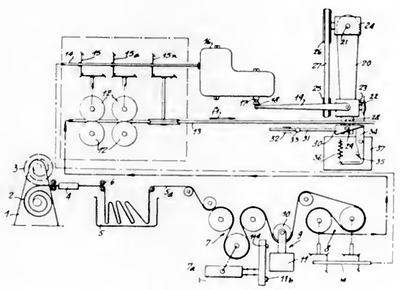


There are disclosed herein a method and an apparatus for manufacturing tubes or tubular bodies by means of hydrostatic extrusion, which tubes or tubular bodies have axially running holes therethrough having cross-sections of irregular shapes. The method and apparatus utilize a mandrel of novel construction which comprises a conical tip portion having a smooth peripheral surface, a cut or grooved intermediate portion with a sloped groove starting at a peripheral edge and a body portion formed with a flange and adapted to move longitudinally of a pressure chamber, as necessary. The conical tip portion is specifically intended to seal against the conical end of a metallic billet. Unless there is such a provision, there would be leakage of a fluid through the grooved portion because of direct contact of the grooved edge with the inner end surface of the billet. Thus, this method and the apparatus for performing the method enables one-step extrusion of tubes or tubular bodies having inner fins or inner walls having irregularly shaped cross-sections, with the accompanying advantages of providing complete sealing among the die, the billet and the mandrel, particularly in the inital stage of the extrusion.

3,808,861
APPARATUS FOR CONTINUOUSLY FORMING A TUBE AND CONTINUALLY CUTTING THE TUBE INTO SUBSTANTIALLY UNIFORM LENGTHS

Alain Edouard Plegat, Asnieres, France, assignor to Societe Anonyme Des Usines Chausson, Asnieres, France

Filed July 5, 1972, Ser. No. 269,243
Claims priority, application France, July 7, 1971, 71.24825
Int. Cl. B21j *11/00*
U.S. Cl. 72—132 7 Claims

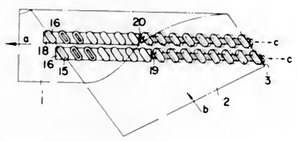


Apparatus for continuously forming a tube and continually cutting a tube into substantially uniform lengths comprises first and second strip drive mechanism with strip tensioning means therebetween for supplying an elongated strip at substantially constant speed to shaping wheels for forming the strip continuously into a tube and driven at the same constant speed, in combination with reciprocal cutting means driven at the same constant speed of said shaping means and means actuating the cutting means to effect cutting the tube into selected lengths.

3,808,862
APPARATUS FOR FORMING SPIRAL STEEL PIPE

Yasuhiko Tanaka; Yasumi Shimazaki, and Kenji Hagiwara, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed June 29, 1972, Ser. No. 267,459
Claims priority, application Japan, June 30, 1971, 46-56783
Int. Cl. B21f *3/02*
U.S. Cl. 72—135 4 Claims

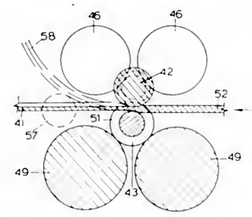


An apparatus for forming spiral steel pipe by separate type forming rolls which is characterized by stands carrying rolls for forming the inner and outer surfaces of the steel pipe, the stands being each split into two portions in a direction perpendicular to the axis of the steel pipe to be formed, one of the two portions being a fixed stand formed with a smaller length than the width of material plate for the intended steel pipe and the other portion being a stand movable in the axial direction of the steel pipe to be formed.

3,808,863
FORMING OF ARTICLES BY ROLLING

Jacob Marcovitch, 25 Melle St., Johannesburg, South Africa

Continuation of Ser. No. 889,627, Dec. 31, 1969, abandoned.
This application Sept. 30, 1971, Ser. No. 185,333
Claims priority, application South Africa, June 18, 1969, 69/4340; Feb. 14, 1966, 66/804
Int. Cl. B21b *1/08*
U.S. Cl. 72—199 2 Claims

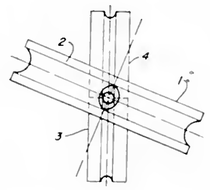


This invention relates to rolling elongated bars between a backed-up forming roller and die means. The die means is preferably formed by a pair of rollers which most conveniently roll T-section bar. The die means may alternatively be a long die. Containment means is provided to prevent the die means bursting outwardly during rolling.

3,808,864
METHOD AND APPARATUS FOR COLD DRAWING OR ROLLING OF METAL WIRE ROD

Tom Joachim Bennet, Smedjebacken, Sweden, assignor to Morgardshammar Aktiebolag, Smedjebacken, Sweden

Filed Sept. 8, 1972, Ser. No. 287,354
Claims priority, application Sweden, Sept. 10, 1971, 11494/71
Int. Cl. B21b *13/12*
U.S. Cl. 72—235 9 Claims



A method and apparatus for wire drawing using the oval-round series in which the round groove rolls are prestressed in opposite directions and the oval wire rod is then introduced into the round groove at an inclination such that the oval wire rod cooperates with the prestressed round groove rolls to produce wire rod having a desired round configuration.

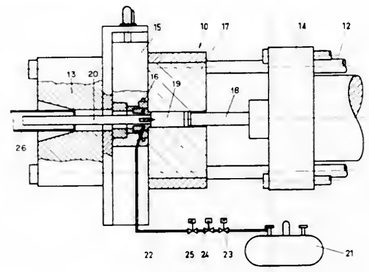
3,808,865
METHOD AND APPARATUS FOR EXTRUSION OF WORKPIECES

Alfred Wagner, Steisslingen, and Juergen Hesse, Dusseldorf, both of Germany, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Mar. 15, 1972, Ser. No. 234,703
Claims priority, application Switzerland, Mar. 18, 1971, 4014/71
Int. Cl. B21d *37/16*
U.S. Cl. 72—269 2 Claims

The invention relates to a method and apparatus for extrusion of workpieces. Especially the invention is concerned with a method and apparatus for extruding workpieces whereby a

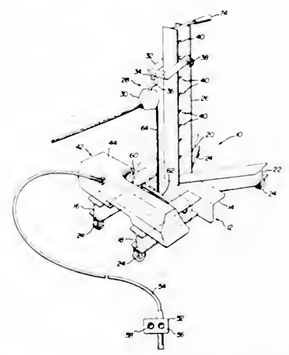
cooling medium is applied to transfer excessive heat from the apparatus in order to increase extrucion speed. The cooling medium applied in a gaseous state is further used to create a protective atmosphere at the downstream end of the apparatus to eliminate the oxidizing effects of normal air.



3,808,866
AUTO FRAME PULLING APPARATUS

Omer E. Brabant, 1641 N. Andrews Ext., Fort Lauderdale, Fla.

Filed July 12, 1972, Ser. No. 271,073
Int. Cl. B21d *11/12*
U.S. Cl. 72—309 6 Claims



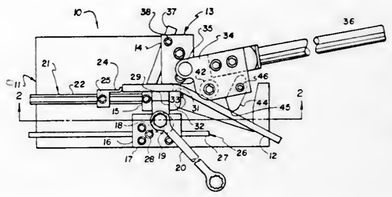
Apparatus for pulling an auto frame to straighten the same including an electrical winch having a drum with a line wound on it, a reversible electrical motor for rotating the drum to wind and unwind the line, and electrical control means having forward and reverse controls for operating the motor in forward and reverse directions. The electrical winch is mounted on a base, and a post extends generally upward from the base for retaining the line. The line passes through a pulley mounted on the post for guiding the line to an auto frame to be pulled for straightening purposes. The pulley is adjustable vertically up and down the post.

3,808,867
PORTABLE ROD OR TRUE BENDER

Bernhard Becker, 69 W. Saddle River Rd., Saddle River, N.J.

Filed May 25, 1971, Ser. No. 146,727
Int. Cl. B21d *11/04*; B21c *51/00*
U.S. Cl. 72—321 8 Claims

A portable rod bending machine for vise mounted operation with capacity for producing closely spaced mutiple bends in heavy rod stock having a rod clamping section with a fixed jaw, a movable jaw, and a quick acting cam lock. A force application member provides a rotatable bending die to reduce friction against the rod stock. Positional and angle indexing members provide accurate reproduction of bends. Two auxiliary brace members provide additional leverage for the heavy rod stock. A high ratio of bending torque to total weight is achieved by the invention.



3,808,868
PILOT CONSTRUCTION FOR NECKING DIE ASSEMBLY

Wayne F. Wolfe, Belmont, Calif., assignor to United Can Company, Haywood, Calif.

Filed Jan. 4, 1973, Ser. No. 320,895
Int. Cl. B21d *41/04*
U.S. Cl. 72—353 6 Claims

An annular die member and internal pilot for forming a reduced-diameter cylindrical neck on the end of a cylindrical can body having a side lap, wherein no orientation of the lap relative to the die assembly is required. The pilot is longitudinally segmented and the segments are each resiliently biased outwardly so that the segment or segments adjacent the lap may yield inwardly to accommodate the lap while the other segments provide a full circumferential support to the can body end. The pilot is axially movable relative to the annular die member as a can body end is inserted into the die assembly so that there is no relative movement between the pilot segments and can body as would otherwise cause scratching of the interior of the can body.

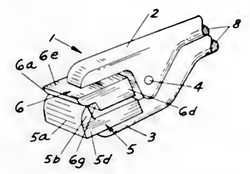
3,808,869
FLANGING DEVICE

Edwin Stanley Raymond, 111 Garfield St., Longview, Tex.

Filed May 16, 1972, Ser. No. 253,899
Int. Cl. B21d *37/12*
U.S. Cl. 72—409 6 Claims

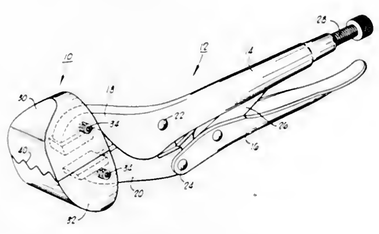
A flanging device for selectively bending the edges of quarter panels and other sheet metal parts in the manufacture and repair of automobile bodies which includes pliers adapted to receive a pair of flanging dies, one of which is attached to

the upper jaw of the pliers and the other of which is attached to the lower jaw. The flanging dies are adapted to register with



each other to cause a piece of sheet metal being clamped between the dies to be flanged at a selectively desired angle and depth.

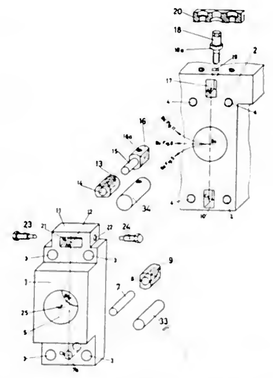
3,808,870
PIPE CRIMPING ATTACHMENT
Thomas B. Blancett, 1416 N.W. 106 St., Oklahoma City, Okla.
Filed June 1, 1972, Ser. No. 258,656
Int. Cl. B21d *37/12*
U.S. Cl. 72—413 **3 Claims**



An attachment device for affixure on standard vise grip pliers to form a sheet metal crimping tool. The device consists of a pair of identical jaw lugs each having similar longitudinal land and groove configurations formed therein. The jaw lugs are secured to each of the upper and lower jaw of the vise grip plier in alignment such that the land and groove formations close in mating engagement to effect longitudinal, corrugated crimping of a sheet metal object upon application of pressure.

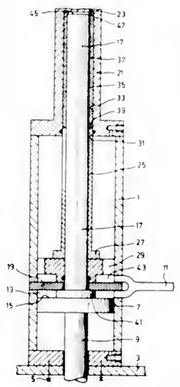
3,808,871
DEVICE FOR THE LATERAL ADJUSTMENT AND ADJUSTMENT IN HEIGHT OF THE RAM BEARER ON PRESSES FOR NONCUTTING METAL SHAPING
Hans Richner, Basel, Switzerland, assignor to F. B. Hatebur AG, Basel, Switzerland
Filed Nov. 3, 1971, Ser. No. 195,137
Claims priority, application Germany, Nov. 3, 1970, 2053930
Int. Cl. B21j *13/02*
U.S. Cl. 72—447 **16 Claims**

Apparatus is disclosed for positioning a ram bearer in relation to a press slide. A first guide means is located on a first terminal section of a ram bearer and a second guide means is located on a second terminal section opposite the first terminal section of the ram bearer. The first guide means is pivotally connected at one end thereof to the ram bearer and slidably connected at the other end thereof to the press slide. The second guide means is pivotally connected at one end thereof to the ram bearer and slidably connected at the other end thereof to the press slide. The slidably connected end of the first guide means is shiftable in a direction transverse to the axial direction of the ram. First adjusting means is provided for laterally fixing the pivotally connected end of the second guide means with respect to the ram bearer about the pivot connection of the first guide means. The slidably connected end of the second guide means is shiftable in a



direction transverse to the axial direction of the ram. Second adjusting means are provided for locating the slidable connections of the first and second guide means in a predetermined disposition on the press slide.

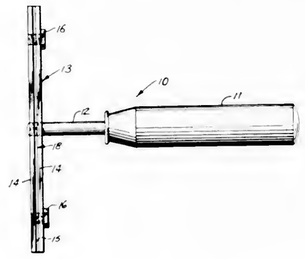
3,808,872
DEVICE IN PARTICULAR FOR DRAWING SHEET-METAL
Johann Martin, Freiherr vom Steinstrasse 9, 6331 Oberbiel, Germany
Filed Nov. 20, 1972, Ser. No. 307,999
Claims priority, application Germany, Dec. 29, 1971, 2165252
Int. Cl. B21j *9/12*
U.S. Cl. 72—453 **6 Claims**



A device, in particular for drawing sheet metal, having a drawing die which is movable in a cylinder by means of a piston and which can be moved towards the workpiece by the action of a pressure medium on a face of the piston, in which the face of the piston which is influenced by the pressure medium in the supply direction comprises a pressure rod which is connected to the piston and on which a further piston having a shell which encloses the pressure rod in a sealing manner is axially movable, in which the shell guides the pressure rod at a distance above the piston in a sleeve which has a

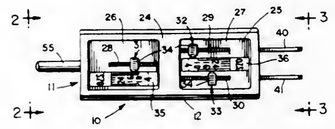
smaller diameter than the cylinder and is closed at its end, the space in said sleeve being filled with a hydraulic liquid, the end of the shell having a smaller diameter exerting a hydraulically intensified pressure on the upper end of the pressure rod.

3,808,873
SIDING, JOINT AND END HAND BREAK
Edward J. Santhony, 2069 E. Tatham Rd., Saginaw, Mich.
Filed Nov. 27, 1972, Ser. No. 309,897
Int. Cl. B21j *13/02*
U.S. Cl. 72—479 **2 Claims**



A tool for manually bending material. This device consists primarily of a handle with a threaded shank portion being terminated by a pair of spaced bars, the bars serving as bending brake means for sheet metal.

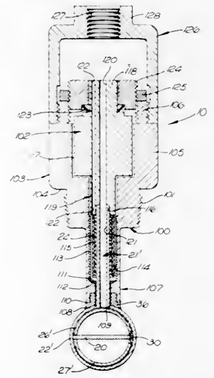
3,808,874
CONTACT TESTER
Tony Trevithick, Gurnee, Ill., assignor to Daniel Woodhead Inc., Northbrook, Ill.
Filed Oct. 26, 1972, Ser. No. 300,920
Int. Cl. G01n *19/02*
U.S. Cl. 73—9 **10 Claims**



Contact tester for determining frictional resistance against withdrawal from female contact members of electrical connectors or receptacles by male blades or pins of plugs embodying a housing having one or two, independently spring-biased blades projecting from one end of its housing, a spring-biased pin projecting from the other end, and indicia scale means on the housing with a pointer moved by extension of each respective blade and the pin for reading frictional resistance by the receptacle's female contacts against withdrawal of the blade or blades or the pin from the receptacle.

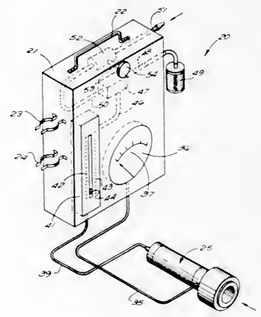
3,808,875
DENSITOMETER AND PROBE THEREFOR
Charles Eveleigh Miller, Boulder, Colo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Nov. 24, 1972, Ser. No. 309,168
Int. Cl. G01n *9/00*
U.S. Cl. 73—32 **10 Claims**

A vibration densitometer comprising an electromechanical oscillator including a probe having a thin vane that is vibrated while submerged in a fluid by a magnetostrictive driver. A piezoelectric crystal mounted on the vane puts out an A.C. signal of a frequency equal to the resonant frequency of the vane, the oscillator feedback loop including an amplifier which feeds the driver coil with a signal having an A.C. component of a frequency $Af/2$ where A is one of the numbers 1 and 2. The loop provides an output signal of a frequency directly proportional to f which is fed to a linearization circuit that produces an output signal directly proportional to the density of the fluid. The linearization circuit output signal is



then impressed upon an indicator which, if desired, may be calibrated to read in density, which density is directly proportional to the magnitude of the linearization circuit output signal. The driver includes a magnetostrictive tube that is held in compression to vibrate the vane. The tube is held in compression by a Belleville spring. The spring provides at least four outstanding advantages. It decreases start-up time. It increases accuracy. It provides temperature compensation. It makes possible the use of a more durable housing metal.

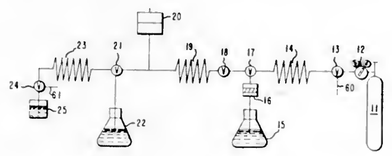
3,808,876
AIR PERMEABILITY TESTER
Thomas N. Kershaw, Aunt Park Lane, Newtown, Conn.
Filed Oct. 2, 1972, Ser. No. 294,199
Int. Cl. G01m *3/26*
U.S. Cl. 73—38 **12 Claims**



A portable air permeability testing device to directly register the permeability of a surface. The device includes a hollow probe with a passageway therethrough and one open end of the probe adapted to be placed proximal to a surface to be tested. A flow meter is connected to and is in fluid communi-

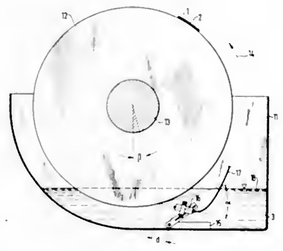
cation with the other open end of the probe. A static pressure probe is in communication with the interior of the hollow probe and is connected to a pressure gauge to measure the static pressure at a predetermined point in the interior of the hollow probe. Air flow control means are utilized to pass air through the surface to be tested, the hollow probe and the flow meter a predetermined rate to provide a desired static pressure within the hollow probe. In this manner, indicator means on the flow meter directly registers the permeability of the surface.

3,808,877
CAPILLARY VISCOMETER
David E. Blair, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Sept. 18, 1972, Ser. No. 290,069
Int. Cl. G01n *11/08*
U.S. Cl. 73—55 **22 Claims**



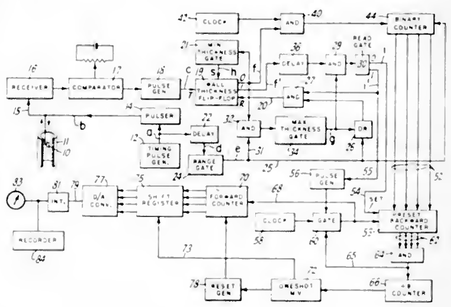
A method for measuring the viscosity of a liquid comprising the steps of filling a capillary tube with the liquid through the capillary tube using a constant flow rate source of a solvent for the liquid as the motive force, and measuring the pressure drop across the capillary tube as the liquid flows through it. In the preferred embodiment, the liquid is a solute in solution with the solvent and the relative viscosity of the solute is measured by measuring the pressure drop across the capillary tube as the solution flows through it and as a solvent flows through it or a similar capillary.

3,808,878
METHOD FOR SENSING THE DEPTH OF CELLULAR PITS FORMED IN A MATERIAL LAYER
Mamiliano Dini, Munich, Germany, assignor to European Rotogravure Association, Munich, Germany
Filed Jan. 24, 1972, Ser. No. 219,991
Claims priority, application Germany, Mar. 19, 1971 2113351
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.8 S **10 Claims**



A method is presented for sensing the depth of cells formed in a material layer preferably during the preparation of rotogravure cylinders by etching. The cells are formed in at least two regions of the surface of said material layer, and the cells have one of their sidewalls or a portion of one of their sidewalls extending at the same angle relative to the surface of said material layer. Each of the sidewalls or sidewall portions extending parallel to each other, all cells of any region having identical depths, and the cells of adjacent regions having different depths. The method of this invention includes scanning individually and successively said regions with a bundle of ultrasonic beams projected at an angle onto the surface of said material layer. The intensity of the partial bundle reflected parallel to the incident beam from the bottom and from the wall or wall portions of each cell of each respectively scanned region is measured. The measured intensities of said partial bundle reflected from the cells of said regions are then compared with the beams reflected from all other flat surfaces being ignored to measure the depth of the cells in each region.

3,808,879
ULTRASONIC WALL THICKNESS MEASUREMENT
Philip A. Rogers, Houston, Tex., assignor to AMF Incorporated, White Plains, N.Y.
Filed Aug. 3, 1972, Ser. No. 277,732
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.9 **13 Claims**

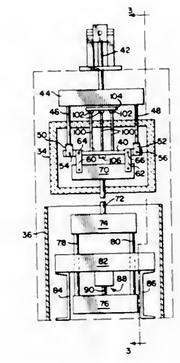


Method and apparatus for ultrasonic measurement of average wall thickness. Only true and accurate wall thickness measurements are averaged, and average thickness of wall is indicated in continuous, accurate manner. Invention is particularly useful where there is continuous relative motion with respect to measured wall, and where surface of wall is irregular.

3,808,880
APPARATUS FOR TESTING DIMENSIONAL VARIATIONS IN A TEST SPECIMEN
Irwin Berman, Upper Montclair; Robert Henschel, Lake Hiawatha; David H. Pai, Livingston; Charles F. Nash, Roseland; Anthony M. Mack, and Bernardino M. Alfano, both of Somerville, all of N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.
Filed Aug. 3, 1972, Ser. No. 277,850
Int. Cl. G01n *3/18*
U.S. Cl. 73—90 **8 Claims**

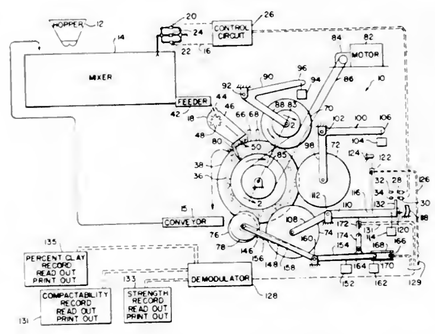
An apparatus for testing for dimensional variations in a test specimen wherein two equally and oppositely directed loads

are applied to the test specimen by a fulcrum lever, with any unbalances in the loads as a result of dimensional variations of



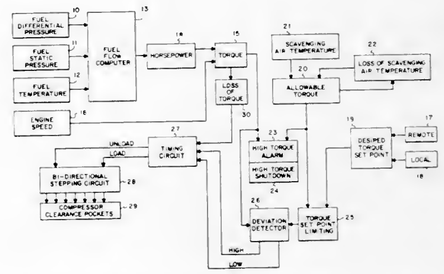
the specimen caused by the application of the loads being continuously corrected.

3,808,881
APPARATUS FOR AND METHOD OF GRANULAR MATERIAL TESTING
Harry W. Dietert, Kerrville, Tex., assignor to Harry W. Dietert Co., Detroit, Mich.
Filed June 8, 1972, Ser. No. 260,985
Int. Cl. G01n *33/24*
U.S. Cl. 73—93 **19 Claims**



Apparatus for and method of determining the compactibility, strength and effective clay content of granular material such as foundry sand. Both rotary and linear apparatus modifications for continuously determining the compactibility, strength and effective clay content of the foundry sand is specifically disclosed along with novel sample feed structure, foundry sand strength determining structure, and structure for determining the effective clay content of foundry sand from compactibility and strength information, including cam discs constructed in accordance with the relation between the compactibility and the effective clay content of the granular material and in accordance with the relation between the strength of the granular material and the effective clay content thereof. Apparatus for and method of conditioning foundry sand and for directing conditioned foundry sand into automatic molding machines in accordance with one of the determined compactibility, strength and effective clay content is also disclosed.

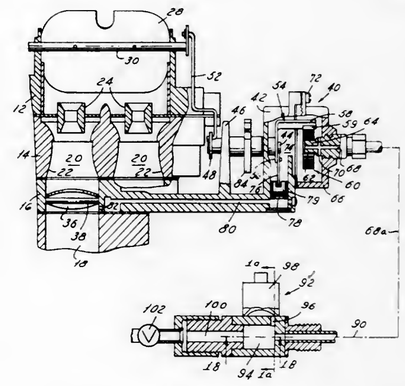
3,808,882
ENGINE TORQUE CONTROL SYSTEM
Charles F. Nick, and Morris J. Davidson, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed July 21, 1971, Ser. No. 164,555
Int. Cl. G01m *15/00*
U.S. Cl. 73—117.3 **9 Claims**



The engine horsepower is computed as a function of the engine fuel flow rate and the engine torque is derived by the division of the horsepower signal by a signal functionally related to the engine speed. The actual torque of the engine is compared to a torque set point and upon a given deviation from the set point, corrective signals are actuated to return the actual torque to its set point. Upon too great a deviation, an alarm is actuated and the engine is completely unloaded. When used with ambient up-rated engines, a temperature signal representing engine capability is used to limit the torque set point to its maximum allowable setting. Upon loss of the signal representing engine capability, the allowable torque is reduced as though there were no up-rating of the engine.

The fuel flow computer utilizes signals from the differential pressure of the fuel, the static pressure of the fuel and the temperature of the fuel to produce a signal indicative of the square root of the product of the two pressure parameters divided by a signal functionally related to the fuel temperature.

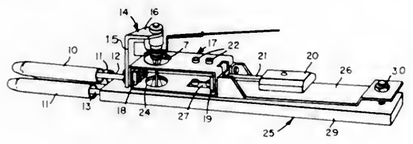
3,808,883
AUTOMATIC CHOKE TESTING METHOD
James R. Hughes, Windsor, Ontario, Canada, and John H. St. John, Birmingham, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Nov. 3, 1972, Ser. No. 303,557
Int. Cl. G01m *15/00*
U.S. Cl. 73—118 **7 Claims**



A vortex generator is connected to the automatic choke thermostatic spring housing in place of the usual exhaust

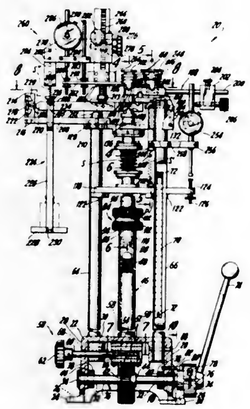
manifold heat riser tube, which is disconnected for the first portion of the test. The generator supplies very cold air to the choke housing to immediately simulate cold weather operation and rotate the choke and cooperating operating mechanism to a closed position. The cold source of air is then disconnected and either the hot source of air from the vortex generator then applied to open the choke, at which time the operation can be checked, or the choke is permitted to warm under the prevailing ambient temperature conditions. The simulated cold weather warm-up operation permits an accurate check of operation of all the choke components, that is, the fast idle cam, dechoke and piston pulldown mechanisms, and correlation of choke opening with winding and unwinding of the thermostatic choke coil.

3,808,884
MECHANICAL TRANSDUCER
Erwin W. Graham, and Wayne B. Graham, both of 1210 Camden Ave., both of Campbell, Calif.
Filed Mar. 22, 1973, Ser. No. 343,828
Int. Cl. G01l *5/06*
U.S. Cl. 73—144 **16 Claims**



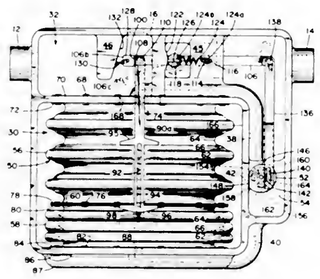
This invention relates to a device for translating small scale linear motion into discernible rotary motion by untwisting a pair of relatively inelastic twisted bands and, more particularly, relates to a mechanical transducer useful, for example, in a device for measuring the tension in a thin strip of material such as a continuous moving strip of magnetic tape.

3,808,885
SPRING TESTER
Harold C. R. Carlson, 611B Lake Point Dr., Lakewood, N.J.
Filed July 19, 1972, Ser. No. 273,116
Int. Cl. G01l *1/04*
U.S. Cl. 73—161 **28 Claims**



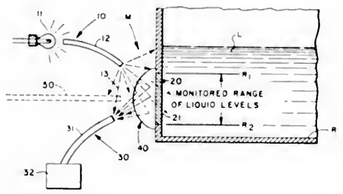
A multi-function spring tester is provided for testing the compression and extension loads, deflections and rates of springs. A balance beam system is used for test purposes and permits production testing of both light (1 gram to 1,000 grams) and heavy (up to 200 pounds) loads. Position locks and production stops are provided for rapid testing purposes of both light and heavy springs.

3,808,886
VOLUMETRIC FLOW METER
Fred L. Goldsberry, Dallas, Tex., assignor to Lone Star Gas Company, Dallas, Tex.
Filed Sept. 25, 1972, Ser. No. 292,111
Int. Cl. G01f *3/20*
U.S. Cl. 73—264 **15 Claims**



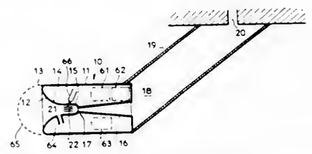
A volumetric flow meter for measuring volumetric flow of fluids such as natural gas is provided which includes a bellows assembly having a pair of axially aligned reciprocally cooperating bellows members which alternately receive and exhaust fluid flow passing through the meter in a manner such that the expanding or inlet bellows receiving the gas flow causes positive displacement and contraction of the outlet bellows to exhaust gas therefrom; and a valve assembly is provided for reversing the function of the inlet and outlet bellows after the inlet bellows has fully extended. The meter is provided with a digital counter which records each complete expansion and contraction cycle of the bellows assembly. The valve in the valve assembly is actuated by a snap switch mechanism having a positive no-jam configuration.

3,808,887
LIQUID LEVEL MONITOR
Albert T. Buttriss, Westlake, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
Filed Feb. 29, 1972, Ser. No. 230,276
Int. Cl. G01f *23/00*
U.S. Cl. 73—293 **20 Claims**



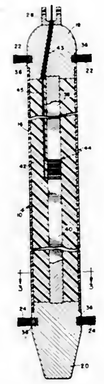
A liquid level monitor for monitoring the level of liquids in a remote or shielded container and providing a signal proportional to any one of an infinite number of levels within a given range. The monitor has a sheet sealingly engaging an aperture in the container which extends vertically over the range of levels to be monitored. An external light source provides light which shines upon the light transmitting material. An external lens may be used to direct any light reflected by the light transmitting material, the intensity of which will be inversely proportional to liquid level, to a light receiving station. The light received at the receiving station is then conducted, preferably by means of fiber optics, to a remote monitoring station. The monitoring station may be a visual display or may convert the light received into a signal, proportional to intensity, for use by an indicating or controlling device. The level of liquid in the container and changes thereto may also be used to monitor the stability of the device to which the container is mounted.

3,808,888
HYGROMETER
Michel Jean Chatanier, 105 Rue Ledru-Rollin, 94-Saint-Maur; Jacky Robert Leynaert, 11 Avenue du President-Kennedy, 91-Igny, and Alain Roger Thiriot, 6 Allee Jean-Mermoz, 92-Chatenay-Malabry, all of France
Filed Oct. 4, 1971, Ser. No. 188,684
Int. Cl. G01n *25/56*
U.S. Cl. 73—336.5 **8 Claims**



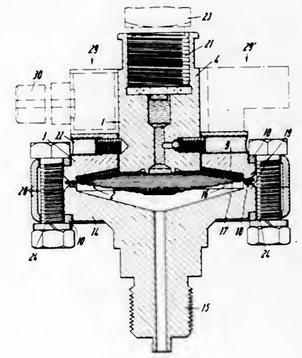
An apparatus for measuring the degree of humidity of a gas which comprises a channel with a sonic neck or throat for the circulation of a stream of gas. An electrical condenser with condenser plates is located in the gas stream in the vicinity of the neck and an electrical measuring device is connected to the condenser to derive therefrom the degree of humidity of the flowing gas bathing the condenser plates.

3,808,889
HEAT FLOW TRANSDUCER FOR THERMAL SURVEYS
Donald E. Rawson, RFD 147; Norman D. Greene, RFD 148, both of Del Mar, Calif., and H. Wayne Hoylman, 2234 Loma Vista St., Pasadena, all of Calif.
Filed Oct. 5, 1972, Ser. No. 295,368
Int. Cl. E21b *49/00*
U.S. Cl. 73—154 **10 Claims**



Heat flow transducer for use in measuring the geothermal heat flow in the earth. The transducer utilizes copper alloy flexible wire bundles at opposite ends of an elongated body to conduct heat from the strata surrounding a bore hole, into the body of the transducer, and through thermally conductive elements, into contact with a solid state thermopile. The thermopile includes a plurality of semi-conductor elements, electrically in series and thermally in parallel, to produce a usable electrical output at very low heat flows. Multiple modules of semi-conductor elements are employed. The modules are separated by a heat conductive, but electrically insulated layer between modules.

3,808,890
PRESSURE TRANSMITTING DEVICE
Gerhard Neugebauer, Trennfurth, Germany, assignor to Alexander Wiegand Armaturen- und Manometerfabrik, Main, Germany
Filed Oct. 12, 1972, Ser. No. 296,830
Claims priority, application Germany, Oct. 14, 1971, 2151226; Sept. 9, 1972, 2244292
Int. Cl. G01l *7/08*
U.S. Cl. 73—406 **10 Claims**

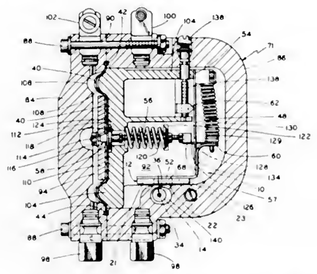


A pressure transmitting device is disclosed having a member which defines a passage for the transmission of fluid pressure and a diaphragm associated with the passage defining member. There is also provided an annular securing member for securing said passage-defining member directly or indirectly to an apparatus containing fluid whose pressure is to be measured in such manner that the pressure of said fluid is applied to said diaphragm. The diaphragm is sealingly secured directly to the passage-defining member, and the securing member is detachably engageable over the said passage-defining member to secure the latter to fluid-containing apparatus.

3,808,891
APPARATUS FOR OPERATING A PRESSURE GAUGE OR THE LIKE
Peter D. Dieterich, 267 Cedarbrook Rd., Boulder, Colo.; William H. Elszner, Jr., Holland, Mich., and John P. Locke, Michigan City, Ind., assignors to said Dieterich, by said Locke und Elszner
Filed June 6, 1972, Ser. No. 260,187
Int. Cl. G01l *7/08*
U.S. Cl. 73—407 R **38 Claims**

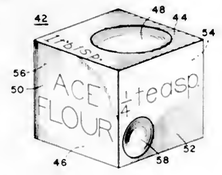
A mechanism for operating an instrument such as, for example, a gauge primarily for measuring pressure having a diaphragm the opposite faces of which are subject to a pressure differential so that the center moves in response to such differential. The diaphragm movement is transmitted to an array of bar magnets that moves in a substantially rectilinear translative movement in response to diaphragm movement. A rotary magnet spaced from the path of movement of the array of bar magnets and within the composite magnetic field produced by the array rotates as the array is translated, the angular rotation being a predetermined mathematical or empirical function of the amount of translation and built into the array. The mathematical function is achieved by proper choice of magnet dimensions and placement thereof relative to one

another. Rotation of the rotor is used to drive a pointer indicator over a scale to indicate pressure. The invention resides



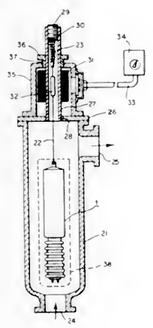
primarily in the transductive mechanism and the novel transmission of the movement to a rotor for driving the said pointer indicator.

3,808,892
MEASURING DEVICE
Garfield G. Litton, 1360 Ocean Parkway, Brooklyn, N.Y.
Filed Dec. 3, 1971, Ser. No. 204,563
Int. Cl. G01f *19/00*
U.S. Cl. 73—427 **3 Claims**



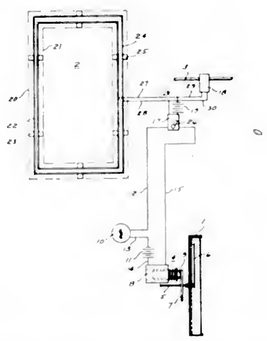
A measuring device having flat connected sides with depressions formed therein. Each depression corresponds to a different measuring volume such as a tablespoon or a teaspoon, and the measuring device can be provided in either solid or hollow form.

3,808,893
DENSIMETER
Sigeru Jinno, Otsu, and Mitsuo Uchida, Osaka, both of Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Filed July 27, 1972, Ser. No. 275,748
Claims priority, application Japan, July 30, 1971, 46-56793
Int. Cl. G01n *9/10*
U.S. Cl. 73—452 **8 Claims**



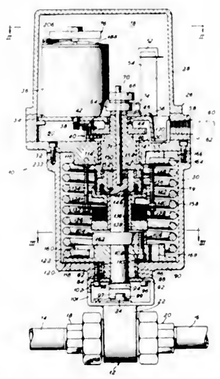
A float type densimeter having a float which has a chamber filled with standard fluid. The coefficients of cubical expansion of the float and the sample fluid are the same. The buoyancy of the float in the sample fluid is detected.

3,808,894
SPEEDOMETER LOCKING DEVICE
Len Saucier, New Westminster, British Columbia, Canada, assignor to Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Jan. 10, 1973, Ser. No. 322,533
Int. Cl. G01p *3/00, 1/10*
U.S. Cl. 73—491 **3 Claims**



A speedometer locking device for locking the speedometer of a vehicle on impact comprises a position locking device for locking the speedometer in position. An actuating device connected to the position locking device operates the position locking device to lock the speedometer in position upon impact of the vehicle on extraordinary application of brake pressure.

3,808,895
ELECTRIC FAIL-SAFE ACTUATOR
John Herman Fitzwater, Warwick, R.I.
Filed Feb. 9, 1973, Ser. No. 331,191
Int. Cl. G05g *17/00*
U.S. Cl. 74—2 **31 Claims**

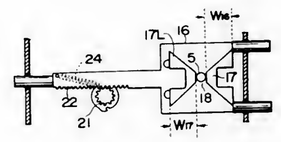


An electrically operated fail-safe valve actuator employs a spring which is wound to store energy during operation of the electric drive motor, an electric clutch operable to disengage the drive motor from the actuator output shaft in response to loss of power from the electrical supply whereby the spring drives the valve in the opposite direction.

ERRATUM

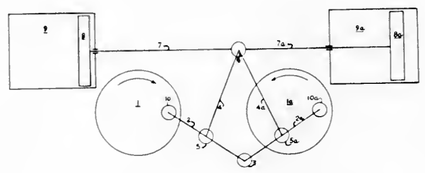
For Class 74—339 see:
Patent No. 3,808,738

3,808,896
PRESET DEVICE OF UHF TUNER
Shoji Ogasaware, and Teruzo Tamate, both of Tokyo, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Filed Sept. 1, 1971, Ser. No. 177,080
Claims priority, application Japan, Sept. 7, 1970, 45-78629; Sept. 8, 1970, 45-89713
Int. Cl. F16h *35/18*; **H03j** *1/06*
U.S. Cl. 74—10.6 **2 Claims**



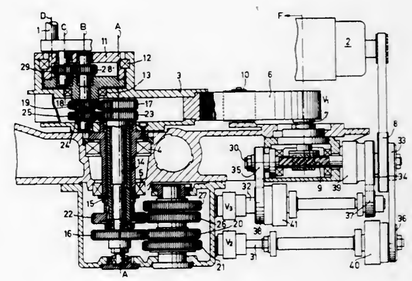
A preset device of a UHF tuner having a plurality of fine adjusting screws mounted on a fine adjusting shaft at the outer periphery of a rotary drum mounted on a channel switching main shaft to be turned selectively in communication with the adjusting shaft in operation, has a plurality of memory slugs screwed to the fine adjusting screws and movable in axial direction along fine adjusting shaft upon the rotation of the fine adjusting screws. A slider disposed on the moving surface of the memory slugs moves fine adjusting elements such as variable condensers when moved by the memory slugs cammed to the fine adjusting position by the operation of the channel switching main shaft. The slider comprises two angular cams facing at their respective top centers a memory slug fixed therebetween and inserted into a slit formed on the slider to control its disposition for moving the slider in contact with the memory slugs.

3,808,897
CRANK SYSTEM
John Raymond Ohma, 116 Curry St., Merewether, N.S.W., Australia (2291)
Filed Nov. 10, 1972, Ser. No. 305,528
Claims priority, application Australia, Nov. 17, 1971, 7067/71
Int. Cl. F16h *21/22*
U.S. Cl. 74—44 **3 Claims**



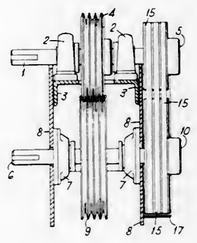
A crank system comprising two parallel, interconnected and inwardly contra-rotatable crankshafts, the arrangement being such that rotation of the crankshafts reciprocates the piston rods in a straight line at right angles to the plane of the axis of rotation of the crankshaft.

3,808,898
MECHANICAL MOVING STRUCTURE FOR AN X-RAY APPARATUS
Serge Rouge, 33, Villa de la Republique, 92 Montrouge (Hauts de Seine), and Jacques Lebra, 29, Rue Lazare Carnot, 92 Colombes (Hauts de Seine), both of France
Filed July 18, 1972, Ser. No. 272,782
Claims priority, application France, July 29, 1971, 7127804
Int. Cl. F16h *35/16*
U.S. Cl. 74—86 **5 Claims**



A mechanical moving device for displacement of an X-ray tube and a carrier for X-rays sensitive material in opposite directions along adjustable paths about a support, arranged between the X-ray tube and the carrier by means of a driving member which is rotatable, via a tripartite arm, about a stationary shaft, the individual parts thereof being arranged to the rotatable by means of connection shafts, the driving of the rotatable parts being controlled by the actuation or switching off of coupling members.

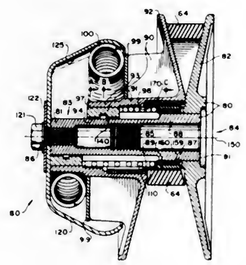
3,808,899
TRANSMISSION UNIT
Edward Frank Cooper, 2 Penning Rd., Milford, Auckland, New Zealand
Filed Sept. 13, 1972, Ser. No. 288,710
Claims priority, application New Zealand, Sept. 17, 1971, 164897
Int. Cl. F16h *15/00*
U.S. Cl. 74—203 **3 Claims**

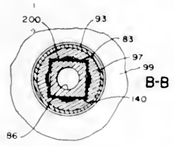


This invention relates to a transmission unit comprising at least two substantially parallel shafts at least one of which is adjustably mounted so as to enable the spacing between the shafts to be varied, at least one continuous belt being provided

and being operable about pulleys attached to the shafts; each of the shafts mounted at least one drive wheel, movable guard members being positioned substantially laterally of the belt, at least one of the parallel shafts being a driving shaft and being adapted to have power imparted thereto from a prime mover, at least one other shaft being a driven shaft, the unit being characterized in that the belt and pulleys provide a forward drive from the driving shaft to the driven shaft, a lessening of the spacing between the shafts causing the drive wheels to contact and to thus provide a reverse drive, at least the adjustably mounted shaft enabling a neutral condition in which the shafts are disconnected one from the other, the guard members being provided around the periphery of the drive belt so that the belt may be restrained or held free during the use of reverse or neutral drive.

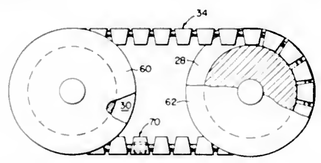
3,808,900
DRIVE SHEAVE
Leo Vadeboncoeur, and Alain Tremblay, both of Quebec, Canada, assignors to Jarry Precision Limited, Laval, Quebec, Canada
Filed Jan. 8, 1973, Ser. No. 321,658
Claims priority, application Canada, Nov. 9, 1972, 156,247
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.17 E **6 Claims**





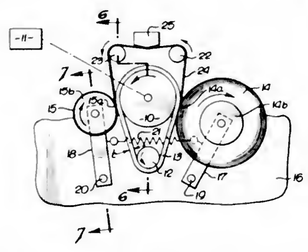
In a drive sheave an improved sliding connection between the fixed assembly which is secured to the driving shaft and the slidable assembly supported to the free end of the hub portion of the fixed assembly. The region of the free end portion of the fixed hub is made of square cross-section while the hub portion of the slidable assembly is provided with an opening corresponding to the cross section of the fixed hub but of slightly larger dimensions. An anti-friction and wear resistant insert is disposed between the corresponding sliding surfaces of the two hubs and is secured to the slidable assembly so as to move therewith along the free end portion of the fixed hub. For better supporting the slidable assembly onto the fixed assembly, a ring member is provided on the hub of the fixed assembly adjacent the fixed flange for slidably engaging a correspondingly shaped bore in the center of the hub portion of the slidable assembly.

3,808,901
TRANSMISSION BELT
Winfred M. Berg, 89 Grant Ave., East Rockaway, N.Y.
Filed Aug. 2, 1972, Ser. No. 277,166
Claims priority, application Great Britain, Aug. 17, 1971, 38463/71
Int. Cl. F16g *1/28, 5/10*
U.S. Cl. 74—231 C **24 Claims**



A flexible transmission belt usable with V-belt pulleys comprising at least one plastic covered cable on which a series of V-blocks are positioned. The V-blocks may have a wing-like cross section as well as lateral connecting struts, and the material of the cable cover and the blocks may be integral.

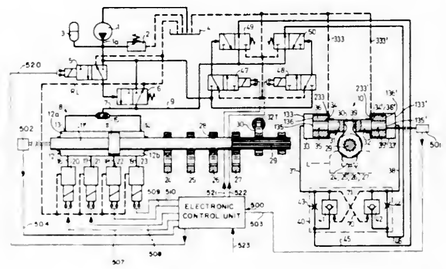
3,808,902
RADIAL DIFFERENTIAL TAPE DRIVE
Frederic F. Grant, 14505 Eastbrook, Bellflower, Calif.
Filed Oct. 27, 1972, Ser. No. 301,527
Int. Cl. F16h *7/00*
U.S. Cl. 74—227 **10 Claims**



In a tape transport assembly, the combination comprising
a. a pair of carriers for tape to be transported from a supply roll on one carrier to a take-up roll on the other carrier,
b. belt means located to pressurally engage the tape rolls as the respective carriers for effecting rotation of the rolls on the carriers in order to accomplish said transport, and
c. rotary drive means to drive the belt means at velocities proximate the loci of engagement with the tape rolls characterized in that the tape extent undergoing transportation between the supply roll and the take-up roll is maintained in tension, the drive means located to receive application of compressive forces transmitted through the thickness dimensions of the belt means from the tape rolls.

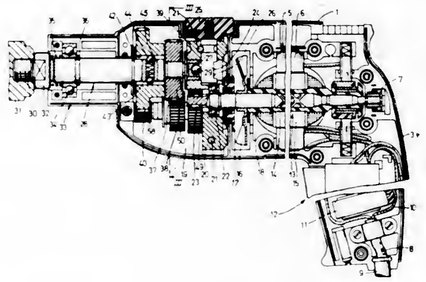
3,808,903
GEAR SHIFTING ASSEMBLY FOR CHANGE SPEED TRANSMISSIONS
Joseph Sauer, Schwieberdingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Sept. 8, 1972, Ser. No. 287,429
Claims priority, application Germany, Sept. 13, 1971, 21456677
Int. Cl. F16h *5/06*; **F01b** *9/00*
U.S. Cl. 74—335 **10 Claims**

A gear shifting assembly for changing the speed positions of a transmission in an automotive vehicle has a hydraulic gear selector motor whose piston rod is normal to the piston rod of a hydraulic gear shifting motor. The cylinder of the gear shifting motor has two chambers one of which receives pressurized fluid to engage a selected gear and the other of which receives pressurized fluid to disengage a gear. The flow of fluid to and from the two chambers is controlled by a twin check valve



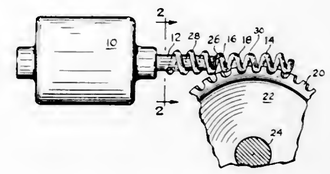
which has two discrete one-way valves, one for each chamber and two flow restrictors each connected in parallel with a different one-way valve. When the pressure of fluid in one of the chambers rises to a preselected value, the corresponding one-way valve opens the other one-way valve to allow for practically unimpeded flow of fluid from the other chamber.

3,808,904
PORTABLE ELECTRIC IMPACT TOOL
Dieter Gotsch, Plattenhardt; Reinhard Hahner, Stuttgart; Manfred Kirn, Stuttgart, and Hans Lederer, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 1, 1972, Ser. No. 302,751
Claims priority, application Germany, Nov. 2, 1971, 7141263
Int. Cl. F16h *3/32*
U.S. Cl. 74—343 **5 Claims**



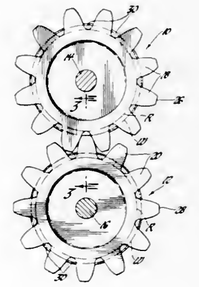
A portable electric impact drill, wrench or an analogous power tool wherein the motor shaft drives the intermediate shaft of a two-speed transmission which rotates the tool spindle. The transmission has a first gear rigid with the intermediate shaft and meshing with a second gear which is rotatable on the tool spindle but can drive the spindle by way of an overrunning clutch when the spindle is to rotate at the lower of two speeds. A third gear which is rigid with the spindle meshes with a fourth gear which is rotatable and axially movable on the intermediate shaft. The latter has a transverse bore for two balls which are biased apart by a helical spring to bear against the internal surface of the fourth gear. This fourth gear has an axial bore including a larger-diameter portion which receives portions of the balls in one axial position of the fourth gear whereby the intermediate shaft can rotate relative to the fourth gear to drive the spindle by way of the first and second gears and the overrunning clutch. A smaller-diameter portion of the axial bore in the fourth gear communicates with two axially parallel grooves which receive portions of the balls in a second axial position of the fourth gear whereby the latter drives the spindle by way of the third gear. The overrunning clutch then enables the spindle to rotate relative to the second gear.

3,808,905
WORM DRIVE FOR ELECTRICALLY WOUND CLOCK
Leonard L. Metzinger, Delavan, Wis., assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Sept. 29, 1972, Ser. No. 293,319
Int. Cl. F16h *1/16*
U.S. Cl. 74—425 **5 Claims**



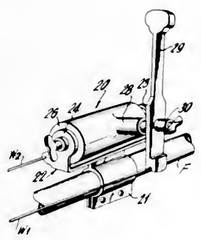
For an electrically wound clock, a worm and worm gear drive, wherein the worm is a space-wound helical wire spring, frictionally fitted on a motor shaft, extending beyond the end of the shaft, and unsupported at its outboard end. Engagement with the worm gear takes place at a point beyond the end of the shaft.

3,808,906
GEARING WITH VIBRATION DAMPING MEANS
George L. Bowers, Mooresville, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 21, 1972, Ser. No. 246,163
Int. Cl. F16h *55/14*
U.S. Cl. 74—443 **2 Claims**



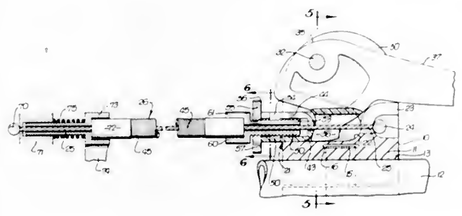
Meshing gears are provided with elastomeric inserts secured in the roots of the gear teeth. The inserts are serially contacted and deflected by the tips of the gear teeth as the gears rotate to damp gear vibrations resulting from gearing impulses that occur at a base frequency proportional to the number of gear teeth and the gear speed.

3,808,907
SHIFT LEVER DEVICE FOR SPEED CHANGE GEAR TRANSMISSION TRAIN OF A BICYCLE
Eikichi Yamaguchi, 3-14-2 Nakamegun, Meguro-ku, Tokyo, Japan
Filed June 9, 1972, Ser. No. 261,296
Int. Cl. G05g *9/02*
U.S. Cl. 74—471 XY **4 Claims**



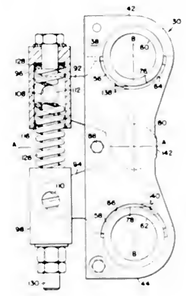
A shift lever is mounted on the bicycle frame for pivoting about a first axis and for angular displacement about a second axis perpendicular to the first axis. A first speed changing cable connects the shift lever to the first train, and a second speed changing cable is connected to a member displaceable by angular displacement of the shift lever. The first cable is connected to an end of the shift lever so that it is displaced linearly upon pivoting of the shift lever about the first axis. Angular displacement of the shift lever effects rotation of a drum or gear which, in turn, effects linear displacement of the second cable. Conjoint pivoting of the shift lever and angular displacement thereof effects simultaneous linear displacement of both speed changing cables.

3,808,908
CONTROL LEVER ASSEMBLY
Herbert Guerr, 2128 W. 23rd St., Torrance, Calif.
Filed Mar. 30, 1973, Ser. No. 346,611
Int. Cl. G05g *11/00*
U.S. Cl. 74—489 **2 Claims**



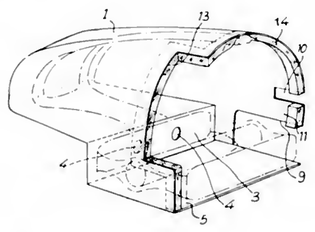
A control lever unit is removably mounted on the handle bars of a motorcycle, bicycle or the like. The frame of the unit is provided with a slideway in which a slide is longitudinally movable by a bifurcate spur depending from a lever pivoted in the frame. The wire of a Bowden cable assembly passes through a central opening in the slide and between the bifurcations of the lever spur to an anchorage in the frame, while the slide itself engages the tube of the Bowden cable assembly to effect movement of it and thus move the remote device to be controlled, such as the clutch or brake of the vehicle.

3,808,909
COLLAPSIBLE LINK FOR A TREE SHEAR
Earl Clinton Johnson, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Apr. 4, 1973, Ser. No. 347,838
Int. Cl. G05g *1/00*
U.S. Cl. 74—585 **10 Claims**



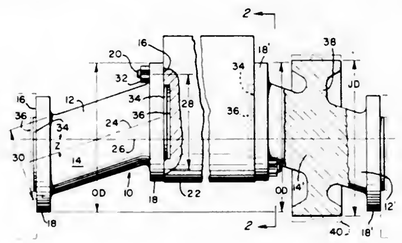
A tree shear includes a pair of cutting blades which are respectively carried by a pair of blade support arms that are mounted for pivotal movement towards and away from each other about an axis which extends horizontally when the tree shear is level. Mounted for movement about respective axes which extend parallel to the axis of movement of the blade support arms are a pair of crankshafts that are located above and spaced equidistant from the pivotal axis of the blade support arms. A pair of force-transmitting links are respectively pivotally interconnected between the pair of crankshafts and the pair of blade support arms and a hydraulic actuator is located between and is pivotally interconnected with the pair of crankshafts and is selectively extensible and retractable to move the crankshafts about their respective pivot axes. The force-transmitting links are collapsible and are designed to transmit a cutting force to the cutting blades as long as the compressive forces therein are below a predetermined amount. If the forces rise above this predetermined amount, the link will collapse and permit the hydraulic actuator to finish its stroke without further transmittal of force to that blade associated with the link which collapsed.

3,808,910
FOOT SHIELD FOR CYCLISTS
Roger J. Desbois, 108 rue Chevreul, Nanterre, France
Filed Nov. 24, 1972, Ser. No. 309,595
Claims priority, application France, Dec. 17, 1971, 71.45434; Oct. 23, 1972, 72.37440
Int. Cl. B62m *3/08*
U.S. Cl. 74—594.6 **9 Claims**



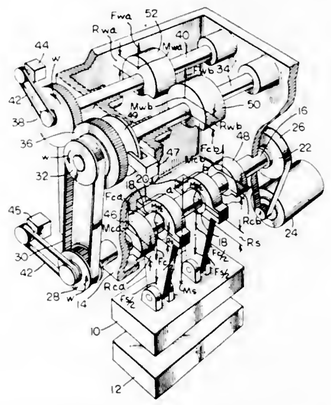
For use with bicycle pedals provided with apertures on end faces for fastening toe-clips thereto, a foot shield comprising a casing for covering the top of the toe of the foot when disposed on the pedal, and having beneath the bottom face of the shield a wall perpendicular to said face and of dimensions substantially equal to those of the pedal end face, the wall having apertures corresponding with the toe-clips fastening apertures in the pedal end face.

3,808,911
COUPLING MEANS
Arthur L. Black, Corning, N.Y., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.
Filed Aug. 1, 1973, Ser. No. 384,448
Int. Cl. F16c *3/12*
U.S. Cl. 74—597 **9 Claims**



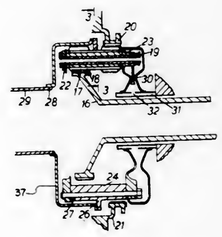
The means comprises a shaft having parallel mounting faces at opposite ends thereof for coupling eccentrically-rotatable elements for rotation about a common axis, wherein the body of the shaft has a longitudinal centerline which lies oblique to the common axis. The shaft has mounting flanges at each end which have rotatable element mounting bolt holes formed therein defining a bolt hole circle of a diameter which is between one-fourth and one-third larger than the nominal diameter of the shaft body.

3,808,912
ARRANGEMENT FOR DYNAMIC BALANCING OF A MECHANICAL PRESS, ESPECIALLY A HIGH SPEED MECHANICAL PRESS
John E. Voorhees, Sidney, and Robert L. Schockman, St. Henry, both of Ohio, assignors to The Minster Machine Corporation Company, Minster, Ohio
Filed Nov. 21, 1972, Ser. No. 308,531
Int. Cl. F16f *15/22*
U.S. Cl. 74—604 **13 Claims**



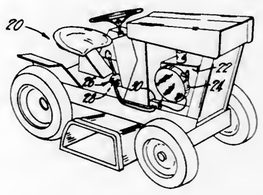
A high speed mechanical press having a crankshaft, or two crankshafts, with a reciprocating slide driven thereby, and with off center masses in the press movable in unison with the press slide for counterbalancing the inertia forces developed by the reciprocating components of the press and the centrifugal forces developed on the crankshaft, or crankshafts, by off center masses acting thereon at the throw portions thereof.

3,808,913
EPICYCLIC GEAR TRAIN
Ronald Albert Gilbert, Allestree; James Alexander Petrie, Littleover, and Kenneth Edward George Bracey, Findern, all of England, assignors to Rolls-Royce (1971) Limited, London, England
Filed Aug. 4, 1972, Ser. No. 278,027
Claims priority, application Great Britain, Aug. 11, 1971, 37687/71
Int. Cl. F16h *1/28*
U.S. Cl. 74—801 **7 Claims**



An epicyclic gear train comprising a sun gear, a plurality of planet gears meshing with the sun gear and carried from a carrier rotatable about the sun gear axis, and an annulus gear conical with the sun gear and meshing with the planet gears, each of the gears having single helical teeth and the sun and annulus gears being axially displaced to reduce the tipping couple on the planet gears, drive being taken from or to the planet carrier solely on a plane or planes perpendicular to the rotational axis of the carrier and lying between the engagements between the planet gears and the sun gear, and the planet gears.

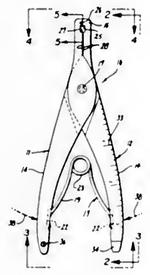
3,808,914
ENGINE AND TRANSMISSION WITH SAFETY SYSTEM
Hans Hauser, Fredericktown, Ohio, assignor to The J. B. Foote Foundry Co., Fredericktown, Ohio
Division of Ser. No. 136,510, April 22, 1971, Pat. No. 3,747,437. This application Feb. 5, 1973, Ser. No. 329,435
Int. Cl. B60k *27/08*; **F02n** *17/00*
U.S. Cl. 74—850 **5 Claims**



This invention relates to an engine and a transmission with a safety system to prevent operation of the engine if the transmission is in gear. The system is designed so that a switch operated by shift means of the transmission is closed when the transmission is in neutral and open when it is in gear. The engine is prevented from starting whenever the switch is in the open position. The switch is preferably mounted in the transmission housing so as to be precisely located with respect to

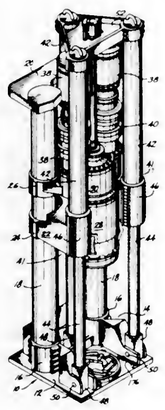
the shift mechanism and thereby assure that the position of the switch is reliably coordinated with the shift mechanism and the position of the transmission. By mounting the switch within the transmission housing, it is also protected from dirt and physical damage and does not interfere with the operator.

3,808,915
CLAMPING DEVICE
Arthur John Bonnel, Sr., Reno, Nev., assignor to Digitec, Inc., Reno, Nev.
Filed Sept. 8, 1972, Ser. No. 287,496
Int. Cl. B25b *7/00, 7/02*
U.S. Cl. 81—5.1 R **3 Claims**



A spring clamp hand tool is formed from a pair of pivotal members each having a handle end and a clamping end. When together the clamping ends form an elongate narrow, rectangular body having a recess disposed transversely therethrough to receive a protruding portion of a workpiece. Planar clamping faces forward of the recess are equipped with channels extending obliquely and longitudinally of the tool. A spring biases the clamping faces into clamping contact.

3,808,916
EARTH DRILLING MACHINE
Wilson B. Porter, Seattle, and Harold T. Klein, Bellevue, both of Wash., assignors to James S. Robbins and Associates, Inc., by said Porter and The Robbins Company, both of Seattle, Wash., by said Klein
Division of Ser. No. 75,020, Sept. 24, 1970. This application Mar. 30, 1972, Ser. No. 239,620
Int. Cl. B25b *17/00, 13/50*
U.S. Cl. 81—57.19 **10 Claims**



A travelling support frame is mounted for up and down travel by two parallel guide columns secured at their lower ends to a base frame. A portion of the traveling frame projects laterally of the drive columns and supports two drive motors, two reducing gearing assemblies, a collector gearing assembly and drive head means. The traveling frame and equipment carried thereby are moved up and down by triangularly arranged thrust ram means, each comprising a downwardly opening, upwardly projecting, piston chamber having a lower mounting portion originally secured to the traveling frame and a downwardly directed piston having a lower mounting portion secured to the base frame.

The drive head includes a breakout wrench having a plurality of laterally swinging wrench jaws moved in and out by linear fluid motors. The wrench jaws have radially inwardly directed wrench portions which are like spanner wrenches. The free end of each wrench jaw makes abutting contact with a shank portion of the adjacent wrench jaw, so that in use the wrench jaws brace each other and form a compression ring surrounding the engaged drill pipe.

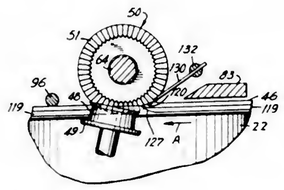
The drill head includes a tool joint component which is movable axially a limited amount relative to the traveling cross frame. A connector rod connects this tool joint component to the piston of a linear fluid motor supported axially above the drill head. Fluid is introduced into the motor below the piston for the purpose of counterbalancing the weight of the drill head and any drill pipe connected thereto.

A holding wrench is located below the turning wrench. It comprises a plurality of wrench jaws pivotally mounted for lateral swinging movement, a surrounding control ring, and individual links interconnected between each wrench jaw and the control ring. The control ring is rotated by linear fluid motors. Rotation in one direction causes the links to move the wrench jaws radially inwardly into a position of engagement with holding wrench receiving portions on drill pipe, and movement in the opposite direction causes the links to move the wrench jaws radially outwardly in space relationship from the drill pipe.

ERRATUM

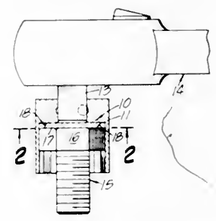
For Class 82—9 see:
Patent No. 3,808,653

3,808,917
ELECTRIC CAN OPENER
Vincent H. McLaren, Jr., Cumberland, and Navnit Panchal, Riverside, both of R.I., assignors to Imperial Knife Associated Companies, Inc., New York, N.Y.
Division of Ser. No. 192,400, Oct. 26, 1971. This application Dec. 29, 1972, Ser. No. 319,302
Int. Cl. B67b *7/38*; **B23b** *1/00*
U.S. Cl. 82—47 **1 Claim**



An electric can opener having a rotatable cutter which cuts through and around a seaming (outer) wall of a double seam (chime) by which a can is secured to a can body. The rotatable cutter and a tractor wheel turn about axes which are substantially perpendicular to each other. The tractor wheel can be axially shifted by manual movement of an operating lever. The tractor wheel has a conical surface disposed to engage a chuck (inner) wall of a chime and a cylindrical surface disposed to engage the top of a chime. Associated with the cutter is a shoulder wheel that rides on the outside of a can below the chime so that the can opener will hold a can after a seaming wall is cut entirely around a can and until a can is deliberately released by axially shifting the tractor wheel out of engagement with a chime. A first abutment above a chime and ahead of the tractor wheel (the direction of rotation of a can being the reference) extends forward from a can opener housing. Asecond forwardly extending abutment above a chime is located behind the tractor wheel.

3,808,918
MAGNETIC KEEPER ACCESSORY FOR WRENCH SOCKETS
Harry A. Carr, 2934 El Caminito, La Crescenta, Calif.
Filed Sept. 4, 1973, Ser. No. 394,348
Int. Cl. B25b *13/02*
U.S. Cl. 81—125 **13 Claims**

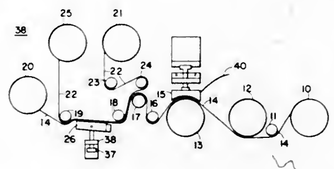


A keeper accessory designed to have an interference fit with the interior of a wrench socket and effective to hold a fastener part captive in the socket while being maneuvered into and out of assembled position. The keeper is blanked from magnetized, elastomeric stock with at least a portion of its perimeter bevelled to better accommodate an interference press fit with the interior sidewall of closely related sizes of wrench sockets.

ERRATUM

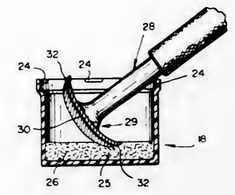
For Class 82—47 see:
Patent No. 3,808,917

3,808,919
SLITTING OF AN ELECTRICALLY CHARGED TAPE
William Pryce, and Eric Foster, both of London, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Oct. 20, 1972, Ser. No. 299,637
Int. Cl. B26d *3/08*
U.S. Cl. 83—7 **1 Claim**



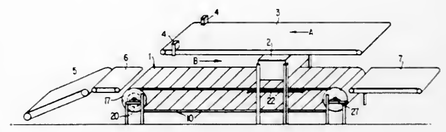
An electrically charged tape is slit by first backing the charged tape with a metallized tape, the charged tape in contact with the non-metallic surface of the metallized tape. The combined tapes are then passed over one or more cutters. The charged tape is completely cut through but the backing tape is only cut partially through. Clean cut edges and minimal distortion is obtained, even for very thin tapes.

3,808,920
SHAVING SYSTEM FOR EXTENDED BLADE LIFE
Arthur I. Fisher, Herod Pt. Rd., Box 228, Wading River, N.Y.
Division of Ser. No. 161,832, July 12, 1971, Pat. No. 3,763,998. This application Sept. 28, 1973, Ser. No. 401,875
Int. Cl. A45d *27/00*
U.S. Cl. 83—22 **2 Claims**



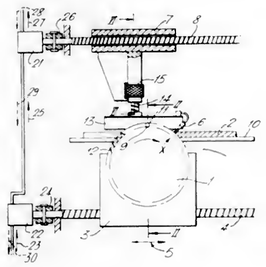
A shaving outfit includes a compartmentalized package carrying a whisker softening and/or face conditioning agent and an applicator pad for lubricating the cutting edge of a conventional shaving blade. The applicator pad is constructed of synthetic foam and secured to the underside of an overcap of an aerosol bomb carrying shaving cream. The cutting lubricant is silicone based and impregnated in the pad so that a lubricating coating will be applied to the cutting edge of a razor blade when the razor is inserted into an inverted overcap and pressed against the pad. The user prepares the area to be shaved in the normal manner, applying the conditioning and softening agent, e.g. shaving cream, thereto and then shaves by cutting the hairs with the blade edge while sliding the lubricated edge over the skin.

3,808,921
CUTTING MACHINE FOR CUTTING FLAT MATERIALS
Wilfried Baumann, Bredenweg 134a, 4801 Hoberge-Uerentrup, Germany
Filed Apr. 17, 1972, Ser. No. 244,386
Claims priority, application Germany, Apr. 15, 1971, 2118162
Int. Cl. B26d *7/06, 7/20*
U.S. Cl. 83—155 **11 Claims**



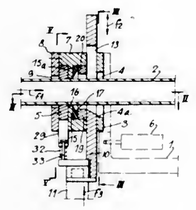
Cutting machine for cutting flat materials and comprising a punch and a feed conveyor. The conveyer consists of a plurality of plate members pivotally connected to each other by hinges. The hinges having bolts the prolongated ends of which are guided in guiding means at least during their travel through the punch. A pair of disks are provided on each end of the conveyer. The hinge bolts engage recesses on the peripherie of the disks during return travel of the conveyer. Driving means are arraged on the feed end of the conveyer to provide thrust action thereon. A magnetic brake is arranged on the output end of the conveyer to counteract the thrust action. At least to centering cones are positioned on one end surface of each plate member to engage corresponding recesses on the other end surfaces of the plate members for securing exact alignment of the plate members during their travel in the strands of the conveyer.

3,808,922
CIRCULAR SAW MACHINES
Hans-Jurgen Ohlhoff, Ulm (Danube), Germany, assignor to Wieland-Werke AG, Ulm (Danube) Postfach, Germany
Filed Apr. 13, 1973, Ser. No. 351,069
Claims priority, application Germany, Aug. 19, 1972, 2240938
Int. Cl. B26d *7/08*
U.S. Cl. 83—168 **6 Claims**



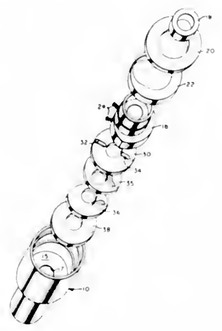
A circular saw machine in which the circular saw blade is mounted on a carriage and moved towards the work piece to be cut and a nozzle or nozzles are moved along with the saw blade for spraying, lubricating and cooling liquid onto the saw blade.

3,808,923
APPARATUS FOR CUTTING CONTINUOUSLY ADVANCING TUBES
Alain Edouard Plegat, Asnieres, France, assignor to Societe Anonyme Des Usines Chausson, Hauts de Seine, France
Filed Oct. 27, 1971, Ser. No. 193,003
Claims priority, application France, Nov. 27, 1970, 70.42727
Int. Cl. B23d *21/00, 25/04*
U.S. Cl. 83—196 **6 Claims**



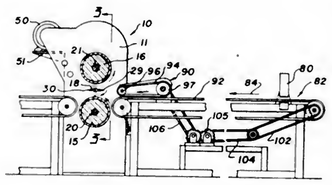
The apparatus comprises a shearing device including a single plate with a substantially rectangular opening surrounded by a sharpened edge, said plate being positioned perpendicularly to the longitudinal axis of a continuously moving tube to be cut. The tube, which may have a substantially rectangular shape, passes through the opening which is angularly disposed relative to the tube. Advancing mechanism moves the plate with and at the same speed as that of the tube and means subject the plate to reciprocation transverse the axis of the tube, thereby severing the tube by the sharpened edge surrounding the rectangular opening.

3,808,924
TUBULAR ASSEMBLY FOR CUTTING PNEUMATICALLY PROPELLED FILAMENTS
Billy George Ferguson, Hermitage, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 17, 1973, Ser. No. 351,817
Int. Cl. B23d *17/02*
U.S. Cl. 83—199 **4 Claims**



A tubular assembly for cutting pneumatically propelled filaments and disposing them for efficient takeup by a portable pneumatic sucker gun, includes a fixed hollow tubular outer housing and a radially movable spring tensioned hollow tubular inner member positioned within the outer housing. The inner member has a downwardly extending trigger pin in operational engagement with a pivotally mounted inner pair of flat horizontal contiguous coacting cutting discs. Each disc has a circular hole therein which forms a cutting edge and the discs are movable in scissor like fashion in response to radial movement of the trigger pin. Centering and severing of filaments passing through the assembly and simultaneous termination of air flow through the assembly is effected by movement of the assembly from open to closed position the movement being effected by inward radial movement of said inner member and consequent radial movement of said vertical trigger pin causing said discs bearing their respective cutting edges to pivotally slide toward each other centering and severing the filaments within the holes in the discs and effectively closing said throat.

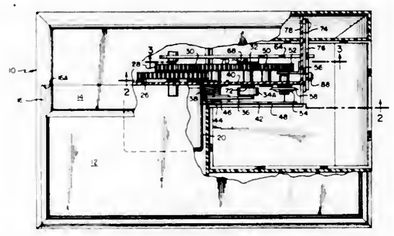
3,808,925
ROTARY VENEER CLIPPER
John E. Hards, Delta, British Columbia, Canada, assignor to Durand Machine Company Ltd., New Westminster, British Columbia, Canada
Filed Mar. 12, 1973, Ser. No. 339,746
Int. Cl. B23d *25/02*
U.S. Cl. 83—346 **8 Claims**



A rotary clipper for veneer and the like having a thin blad which cuts through veneer while moving in the same directio as the veneer while the latter moves over a supporting drum

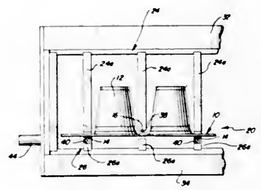
The blade has an edge opposite its cutting edge which bears against a bracing drum while the blade cuts through the veneer. The drum and the blade are synchronized and rotated so that the cutting edge of the blade moves over the face of the drum at the same speed as the veneer moves over that drum.

3,808,926
AUTOMATIC LETTER OPENER
James M. Osland, Wayne, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 19, 1972, Ser. No. 254,913
Int. Cl. B26d *9/00*
U.S. Cl. 83—356.1 **2 Claims**



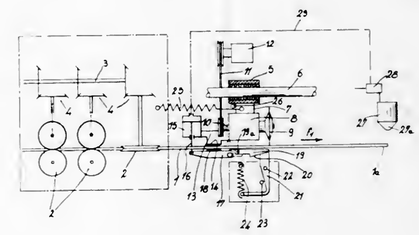
A device for automatically opening an envelope by cutting a strip off one edge of the envelope is described. The cut scrap strip is then chopped into segments approximately one inch long and diverted toward a scrap drawer in the base of the device.

3,808,927
TRANSPORTING AND TRIMMER APPARATUS FOR PLASTIC FILM HAVING THERMOFORMED ARTICLES THEREIN
Peter C. Neil, Fullerton, Calif., assignor to Standard Oil Company (Indiana), Chicago, Ill.
Division of Ser. No. 280,518, Aug. 14, 1972, which is a division of Ser. No. 133,125, April 12, 1971. This application June 12, 1973, Ser. No. 369,259
Int. Cl. B26d *7/16*
U.S. Cl. 83—228 **2 Claims**



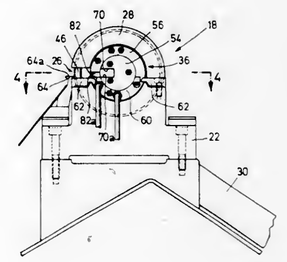
Disclosed is an apparatus for transporting a thin film of plastic having integral therewith a thermoformed article of manufacture and protrusions which facilitate guiding and advancing the film through the apparatus. The apparatus includes first and second guides spaced apart to provide a pathway. At least some of the guides include grooves which receive the protrusions. The guides also include slots which expose some of the protrusions, permitting a moving indexing finger to extend through the slots and engage the exposed protrusions. A trimmer is provided which includes a punch and die, and a film locator which engages at least one of the protrusions and brings the article of manufacture into proper alignment in the punch and die. The block carrying the punch is spring-loaded and biased to counter gravity. This provides a free-floating assembly which facilitates alignment of the punch and die.

3,808,928
APPARATUS FOR CUTTING A CONTINUOUSLY ADVANCING TUBE INTO SECTIONS OF EQUAL LENGTH
Alain Edouard Plegat, Asnieres, France, assignor to Societe Anonyme Des Usines Chausson, Asnieres, France
Filed July 3, 1972, Ser. No. 268,616
Claims priority, application France, July 6, 1971, 71.24618
Int. Cl. B23d *45/02, 45/20*
U.S. Cl. 83—289 **7 Claims**



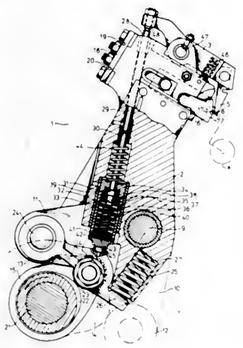
The present apparatus comprises a sliding carriage placed on a guide extending in parallel with a tube to be cut, said carriage supporting a cutting device and a means making the same fixed with the tube under a control order applied thereto through a detector detecting the distance of which the tube has been advanced.

3,808,929
GRANULATOR FOR GRANULATING PLASTIC STRANDS
Rudolf Paul Fritsch, Goslarer Strasse 58, 7 Stuttgart 31, Germany
Filed Apr. 17, 1973, Ser. No. 351,967
Claims priority, application Germany, Apr. 22, 1972, 2219785
Int. Cl. B23d *25/00*
U.S. Cl. 83—356.3 **4 Claims**



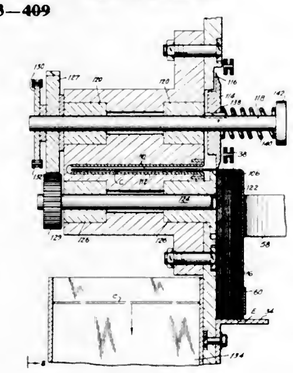
The granulator has a hollow knife cylinder with knife edges extending from end to end. The plastics strands are fed in transversely to the longitudinal axis of the cylinder while the cylinder and strands are moved relative to one another longitudinally of the cylinder. The bearing system of at least one end of the cylinder is disposed within the cylinder. At this end, the cylinder is provided with an inclined surface projecting beyond the cylinder in the axial direction; the imaginary elongation of this surface meets or intersects the end of the path of the knife edges.

3,808,930
SHEARING DEVICE IN BOLT, BALL OR ROLLER PRESSES FOR SHEARING OFF WIRE SECTIONS
Karl Heinrich Sieben, and Wilhelm Pieper, both of Wuppertal, Germany, assignors to Gebr. Hilgeland, Im Rehslepen, Wuppertal-Ronsdorf, Germany
Filed Mar. 6, 1973, Ser. No. 338,506
Claims priority, application Germany, Mar. 9, 1972, 2211261
Int. Cl. B26d *5/42, 7/02*
U.S. Cl. 83—379 **9 Claims**



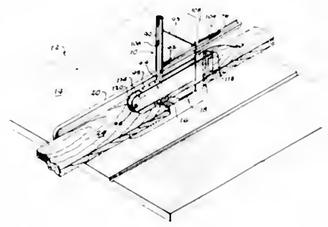
A device for shearing wire having a tiltable shearing arm with a shearing blade having a notch to receive a wire to be sheared. A clamp lever pivoted on the shearing lever has a nose to engage a wire in the notch. Cams are provided for tilting the shearing lever and for actuating the clamp lever. A pushrod is interposed between the clamping lever and the actuating cam therefor and has two degrees of a longitudinal resilience, with the lower degree of longitudinal resilience determining the clamp pressure and the other degree of longitudinal resilience determining the force required to dislodge a wire from the notch when it is clamped therein.

3,808,931
APPARATUS FOR STRIPPING COVERS FROM PAPERBACK BOOKS AND THE LIKE
Vincent N. Vulcano, New York, N.Y., assignor to Compu-Sort Systems, Inc., Brooklyn, N.Y.
Continuation-in-part of Ser. No. 92,350, Nov. 24, 1970, Pat. No. 3,722,342. This application Mar. 27, 1972, Ser. No. 238,190
Int. Cl. B26d *7/06*
U.S. Cl. 83—~~409~~ **9 Claims**



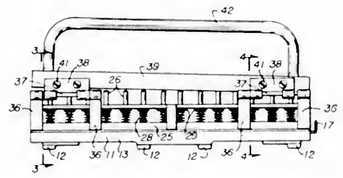
An apparatus for stripping covers from paperback books and the like comprising means for supplying paperback books to a loading station, suction means at said loading station for partially rotating the cover of a paperback book away from the remainder of the book, means for conveying the paperback books serially from the station along a path, a cover deflector for maintaining the cover in a displaced condition, cutting means stationed along the path for severing each cover from the remainder of its book adjacent to the book's binding, and sorting means for depositing the covers in one location and coverless books in another location.

3,808,932
SAW GUARD
Ben C. Russell, Albermarle, N.C., assignor to Stanley Fixture Manufacturing Company, Incorporated, Norwood, N.C.
Filed Feb. 23, 1973, Ser. No. 335,143
Int. Cl. B27g *19/02*; **B23d** *59/00*
U.S. Cl. 83—478 **10 Claims**



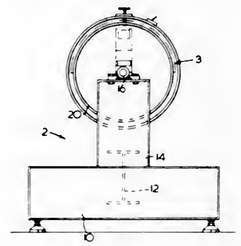
A guard for table mounted circular saws or the like including a saw guard bracket assembly supported for selective vertical and horizontal movements relative to the saw and for conjunctive tilting movements with the saw relative to the table.

3,808,933
HAND OPERATED MULTIPLE DIE PUNCH
Danilo P. Buan, Pleasanton, Calif., assignor to Velo-Bind, Inc., Sunnyvale, Calif.
Filed Apr. 16, 1973, Ser. No. 351,363
Int. Cl. B26f *1/02*
U.S. Cl. 83—588 **4 Claims**



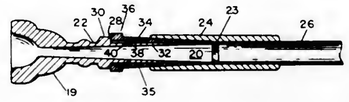
The bar which actuates the movable dies of a multiple hole punch is held in hinges at an angle so that when the punch handle is swung to operative position the bar slopes and engages the dies serially rather than simultaneously. Thus the effort required to swing the punch handle is reduced since only a portion of the holes are punched at any given instant.

3,808,934
DIE SAWING MACHINE
Jacques De Lanauze, 6421 Goncourt Ave., Villa D'Anjou, Quebec, Canada
Filed Jan. 22, 1973, Ser. No. 325,835
Claims priority, application Canada, Dec. 11, 1972, 158561
Int. Cl. B23d *49/08*; **B27b** *19/02*
U.S. Cl. 83—747 **4 Claims**



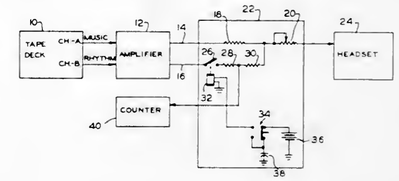
A machine for sawing curved die boards includes a sawing fixture for supporting a curved die board and a saw mounted coaxially with the longitudinal axis of the curved die board and adapted to saw radial slots in the board from the inside thereof.

3,808,935
CUP-MOUTHPIECE WITH DIVISIBLE SHANK
Robert Sims Reeves, 711 N. Ridgewood, Hollywood, Calif.
Filed July 9, 1971, Ser. No. 161,241
Int. Cl. G10d *9/02*
U.S. Cl. 84—399 **8 Claims**



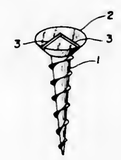
The shank surrounding the backbore of the mouthpiece of a cup-mouthpiece wind instrument is made divisible into an outer shank sleeve and an inner shank core. Without necessitating modification of the main mouthpiece body, the shank sleeve may be exteriorly tapered to fit any particular instrument in which the mouthpiece assembly is to be used. Also, fine adjustments may be made conveniently in the mouthpiece-to-leaderpipe gap, which in turn permit fine adjustments of both the low-range and the high-range response of the instrument.

3,808,936
METHOD AND APPARATUS FOR IMPROVING MUSICAL ABILITY
David L. Shrader, 11810 N.E. 141st St., Kirkland, Wash.
Continuation of Ser. No. 53,081, July 8, 1970, abandoned. This application Oct. 3, 1972, Ser. No. 294,525
Int. Cl. G09b *15/02*
U.S. Cl. 84—471 **9 Claims**



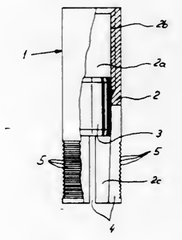
A pair of recordings are synchronously reproduced, wherein one such recording suitably comprises a musical selection with which a student may correlate a response, while the second recording represents an ideal or correct response. The student hears the first recording continuously, but the second recording becomes audible to him only at the instance of his response coinciding with the information on the second recording. The student is thus given an immediate indication of the correctness of his response for the purpose of reinforcing the student's performance. Also, an overall indication or summary is provided of the student's ability.

3,808,937
SCREW HEAD
John A. Roehrig, 125 St. Andrews, McKeesport, Pa.
Filed Apr. 19, 1972, Ser. No. 245,404
Int. Cl. F16b *23/00*
U.S. Cl. 85—45 **2 Claims**



A screw head having a V shaped kerf whose intersecting legs are off-center to provide a reliable coupling with a similarly flanged screw driver.

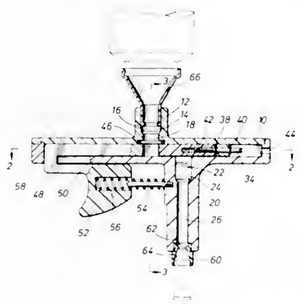
3,808,938
EXPANSION DOWEL CONSTRUCTION
Franz Chromy, Feldkirch-Levis, Austria, assignor to Palar (Curcao) N.V., Curacao, Netherlands Antilles
Continuation-in-part of Ser. No. 59,123, July 29, 1970, abandoned. This application June 1, 1972, Ser. No. 258,862
Claims priority, application Germany, Aug. 4, 1969, 6930827[U]
Int. Cl. F16b *13/04*
U.S. Cl. 85—83 **1 Claim**



An expansion dowel is formed of a sleeve which defines a through bore. For securing the dowel into a hard fastening material, such as concrete, an expansion body is driven into the through bore from its rear end toward its forward end. At its forward end the sleeve is slotted for a portion of its length at circumferentially spaced positions. At its rear end the sleeve has a female thread. To increasing the holding action of

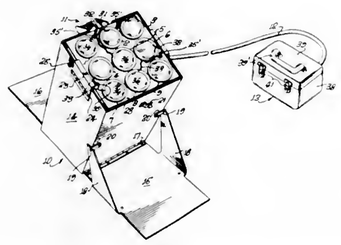
the sleeve in the fastening material a plurality of closely spaced, radially extending thin fin-like elements are formed on the exterior surface of the sleeve from its forward end for the entire expansion range of the dowel. For a dowel with an outside diameter of 20 mm, the elements have a pitch of about 0.5 mm.

3,808,939
POWDER MEASURING AND DISPENSING DEVICE
Clifford L. Ashbrook, 3740 Colony Dr., San Antonio, Tex.
Filed Nov. 6, 1972, Ser. No. 304,063
Int. Cl. F42b *33/00*
U.S. Cl. 86—28 **8 Claims**



A powder measure and dispensing device includes a hollow casing in which a slidable block moves to position a measure chamber therein first opposite an upward projecting inlet and then opposite a downward projecting outlet. A washer, preferably an O-ring washer, surrounds the inlet opening at the surface of the block where the opening enters the hollow casing to ensure precision of powder measures in the measure chamber during the charging operation.

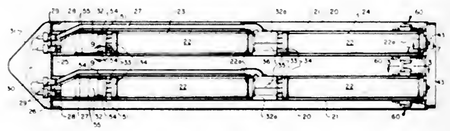
3,808,940
PORTABLE DECOY LAUNCHER SYSTEM AND ROUNDS THEREFOR
George H. Schillreff; Lawrence E. Grayson, and William M. Carter, all of Glendora, Calif., assignors to General Dynamics Corporation, Pomona, Calif.
Filed Dec. 24, 1964, Ser. No. 421,754
Int. Cl. F41f *3/00*
U.S. Cl. 89—1 R **13 Claims**



1. A portable launcher system comprising: a portable support base, said portable support base including extendable-retractable brace members to provide additional support therefor, a portable multi-round container unit removably mounted in said base, said portable multi-round container unit comprising a housing, a plurality of tubes fixedly secured in said housing, said tubes functioning for storage of associated rounds and as the launch base for firing of associated rounds, and electrical wiring operatively secured to said housing and adapted for connection with associated rounds, said support base being provided with means for retaining said container unit therein, a control apparatus for said power supply, said power supply and said control apparatus being positioned within a portable container and remotely located from said portable support base and said portable multi-round container unit, and means for interconnecting the electrical wiring of said container unit with said control apparatus whereby associated rounds may be launched therefrom individually, sequentially or in salvo

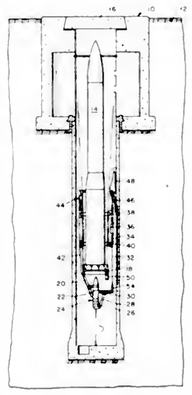
---

3,808,941
DISPENSER FOR FLARES AND THE LIKE
Eugene S. Biggs, Salt Lake City, Utah, assignor to Dynapac Inc., Salt Lake City, Utah
Filed Feb. 9, 1972, Ser. No. 224,886
Int. Cl. B64d *1/04*
U.S. Cl. 89—1.5 R **6 Claims**



A dispenser providing for selective single or plural flare, or other drop package, release from aircraft. The dispenser comprises a housing containing one or more flare tubes in which flares are aligned, a trip-type arming device in the outlet end of each flare tube and an arming cap on each flare arranged to engage the arming device and to pull loose from the flare, thereby pulling arming and safety pins on the flare as it is discharged from the flare tube. Explosive devices are used to provide the thrust necessary to drive the flares from the flare tube and gas ports in the housing direct the expanding gases to expansion chambers in the flare tubes at the rear of the flares.

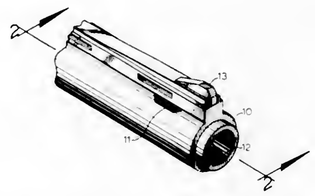
3,808,942
MISSILE REPOSITIONING SYSTEM
Harish K. Bhutani, Downey; Albert Y. Oda, San Fernando, and Ronald A. Hughes, La Crescenta, all of Calif., assignors to Menasco Manufacturing Company, Burbank, Calif.
Filed Feb. 10, 1972, Ser. No. 225,223
Int. Cl. F41f *3/04*
U.S. Cl. 89—1.8 **2 Claims**



In combination with a missile supporting system wherein the missile is supported in at least three in number of supporting

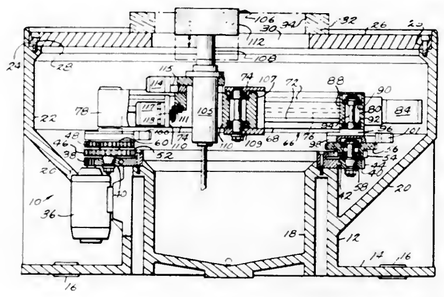
points, a missile repositioning system wherein a sensor determines the angle of inclination of the missile, and if such angle exceeds an allowable range, effects actuation of a realignment means to realign the missile supporting system so that the angle of inclination is moved within the allowable range.

3,808,943
GUN-LEVELING DEVICE
Larry Kelly, 34341 Groesbeck Hwy., East Detroit, Mich.
Filed Apr. 27, 1972, Ser. No. 247,956
Int. Cl. F41f *17/12*; **F41c** *21/18*
U.S. Cl. 89—14 C **10 Claims**



A handgun and rifle barrel device; said barrel comprising a cylinder with a bore with trapezoidal slots in predetermined positions and of predetermined proportions so that a torque reaction is induced at the discharge end of a gun barrel to prevent 'muzzle jump,' together with an induced anti-recoil action and reduction of noise and blowback of hot gases.

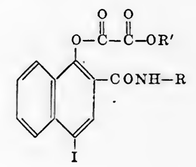
3,808,944
MECHANICAL GEOMETRIC GENERATOR FOR TROCHOIDS EMPLOYING A BI-LINEAR RADIAL CO-ORDINATE SYSTEM
Paul A. Braginetz, 214 Oak Ridge Cir., Staunton, Va.
Filed Mar. 30, 1973, Ser. No. 346,244
Int. Cl. B23c *3/02*; **B24b** *5/00*
U.S. Cl. 90—15 A **9 Claims**



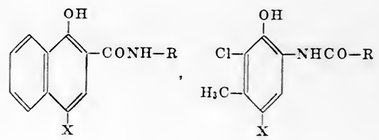
The disclosure embraces a grinding apparatus for forming or finishing the surface of a workpiece where the forming tool is adjustably mounted on a carriage assembly which moves the forming tool while the workpiece remains stationary; the carriage assembly consists of a carriage arm which is pivotably and adjustably connected at its extremities to planetary gears which in turn are drivingly connected to a sun gear; the connections of the carriage arm to the planetary gears is rendered adjustable so that when the planetary gears are moved about the sun gear in an orbital path the trace of the forming tool will follow that of a bi-lobed trochoid in the plane in which the surface of the workpiece is situated. Adjustment means are provided so that the size of the major and minor axes of the trochoidal path of the forming tool can be varied over a wide range.

3,808,945
LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC EMULSION
Shunji Matsuo; Shui Sato; Takaya Endo; Keiji Kasai, and Izaburo Inoue, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Filed Mar. 21, 1972, Ser. No. 236,655
Claims priority, application Japan, Mar. 29, 1971, 46-17949
Int. Cl. G03c *1/40*
U.S. Cl. 96—100 **4 Claims**

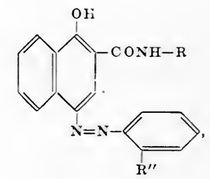
An alkoxal-oxy type coupler of the formula:



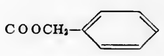
and at least one coupler of the formulas:



or



wherein R is substituted aryl, substituted aralkyl or a saturated or unsaturated aliphatic group having 1–22 carbon atoms; R′ is an aliphatic group having 1–6 carbon atoms; R″ is $COCH_3$, $COOC_2H_5$ or

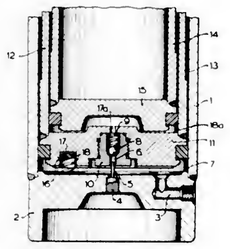


and X is hydrogen or a group which will split off during the dye forming reaction and will not substantially color the coupler, is incorporated into a photographic material containing a light-sensitive gelatino silver halide photographic emulsion. The resultant material exhibits improved graininess and control of photographic gamma, without exhibiting desensitization.

ERRATUM

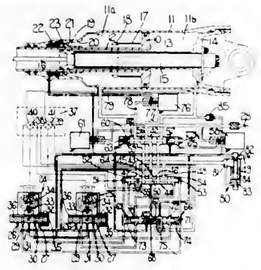
For Class 91—308 see:
Patent No. 3,808,620

3,808,946
HYDRAULIC DOUBLE TELESCOPING MINE PROP
Gunter Bell, Horneburg, and Werner Gehrmann, Altlunen, both of Germany, assignors to Klockner-Werke AG, Duisburg, Germany
Division of Ser. No. 106,731, Jan. 15, 1971, abandoned. This application Feb. 22, 1973, Ser. No. 334,561
Int. Cl. F15b *11/18*
U.S. Cl. 91—168 **3 Claims**



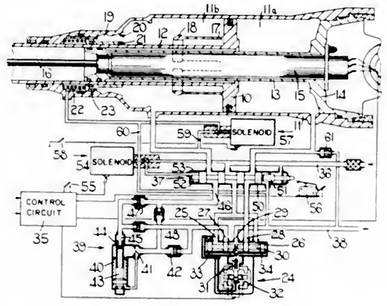
A hydraulic double telescoping mine prop in which the pressure spaces between the inner prop and the middle prop are hydraulically connected. A back-pressure valve in such connection is controlled by the pressure present in the pressure space of the middle prop. Such valve is unseated mechanically at the end of the inward movement of the middle prop. A spring is interposed between the middle and outer props and acts as a buffer to check movement and prevent unseating of the valve by the weight of the parts alone.

3,808,947
ELECTRO-HYDRAULIC ACTUATOR ARRANGEMENT
John Richard Simmons, Wolverhampton, and Roy Westbury, Bridgenorth, both of England, assignors to Lucas Aerospace Limited, Birmingham, England
Filed Oct. 4, 1972, Ser. No. 294,859
Claims priority, application Great Britain, Oct. 5, 1971, 46215/71
Int. Cl. F15b *9/03, 9/09*
U.S. Cl. 91—363 A **21 Claims**



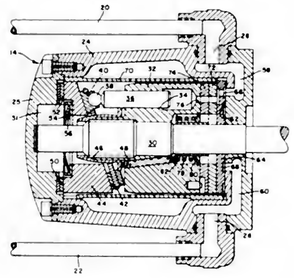
An electro-hydraulic actuating arrangement as two servo control valves responsive to respective, nominally identical signals to provide output pressures, a further servo valve responsive to the output pressures of either, or both, servo control valves to provide operating pressures to selected sides of a piston actuator, an secondary actuator responsive to a difference between said output pressures to modify said electrical control signals in a way to reduce said difference, and lock valve responsive to a failure of a supply pressure, a failure of said electrical signals, or an increase in said pressure difference beyond a predetermined amount, to isolate both sides of said piston, and thereby prevent operation of the arrangement.

3,808,948
ELECTRO HYDRAULIC ACTUATOR ARRANGEMENT
Stanley George Glaze, Kingswinford, England, assignor to Lucas Aerospace Limited, Birmingham, England
Filed Nov. 13, 1972, Ser. No. 306,333
Claims priority, application Great Britain, Nov. 13, 1971, 52818/71
Int. Cl. F15b *9/03, 9/09*
U.S. Cl. 91—363 A **12 Claims**



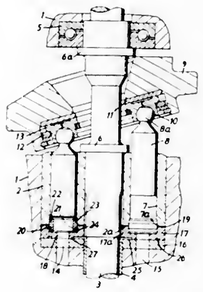
An electro-hydraulic actuator arrangement includes a fluid pressure operated actuator, an electrically operated servo valve to supply fluid pressures to the actuator and a lock valve operable to isolate the actuator and thereby to "lock" the latter. A comparator compares two nominally identical control signals and provides a signal to operate the lock valve when the difference between the control signals exceeds a predetermined value.

3,808,949
AXIAL PISTON HYDRAULIC MOTOR
Ludwig Muncke, Odenwald; Josef Buchmuller, and Konrad Stieler, both of Mannheim, all of Germany, assignors to Deere & Company, Moline, Ill.
Filed June 30, 1971, Ser. No. 158,261
Int. Cl. F04b *49/00, 3/00*
U.S. Cl. 91—473 **9 Claims**



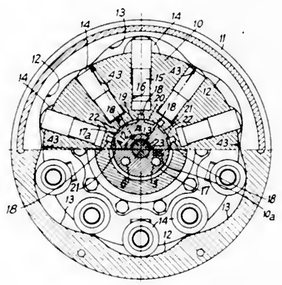
An axial piston hydraulic motor has a housing, a shaft journaled in the housing, and a cylinder barrel with a plurality of axially extending cylinders and pistons connected to the drive shaft. The outer end of each piston rides on a swash plate, which is shiftable to a limited degree in an axial direction between a condition, wherein it is freely rotatable relative to the housing so that it rotates with the cylinder barrel, and a locked condition, wherein it is locked to the housing, so that the cylinder barrel rotates when the pistons reciprocate. The swash plate is automatically shifted to its locked condition in response to the fluid pressure supplied to the cylinders.

3,808,950
FLOW-CONTROL ARRANGEMENTS IN AXIAL-CYLINDER PUMPS
Anthony Roger Davies, Swindon, England, assignor to Plessey Handel Und Investments A.G., Zurich, Switzerland
Filed Nov. 10, 1972, Ser. No. 305,408
Claims priority, application Great Britain, Nov. 13, 1971, 52842/71
Int. Cl. F01b *13/04*
U.S. Cl. 91—487 **3 Claims**



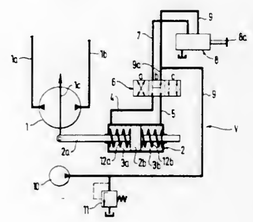
A fluid-tight seal between each cylinder bore in the barrel of a swash-plate pump and the corresponding port bore in a port plate rotating with the barrel is established by a sleeve, which is accommodated in aligned counterbores of the two bores, provided at the mutually adjacent end faces of the barrel and port plate, and which is sealed in each of these counter bores by a separate compressed O-ring seal, common rotation of the port plate with the barrel being ensured by means independent of the sleeves. The sleeve has sufficient play in the counter bores to allow for slight angular displacement between the respective end faces of the cylinder barrel and the stationary valve face of, for example, a valve plate. Preferably the O-rings are accommodated in annular recesses at each of the two ends of the sleeve and are compressed axially between washers resting respectively against the bottom shoulders of the two counter bores so that the resilience of the O-rings provides an axial thrust force urging the port plate into contact with the valve plate.

3,808,951
HYDRAULIC MOTORS
Louis E. Martin, Residence Brichebay, Senlis, France
Filed Feb. 28, 1972, Ser. No. 230,013
Claims priority, application France, Mar. 2, 1971, 71.07153
Int. Cl. F01b *1/06*
U.S. Cl. 91—492 **2 Claims**



This invention relates to a hydraulic motor constituted by a cylinder block mounted to rotate in a support, by two groups of cams integral with said support, by rollers integral in translation with pistons contained in the cylinders of the cylinder block and in abutment on said cams, and by a valve coaxial with the axis of the cylinder block and provided with a slide for selecting the running conditions of the motor, with three positions, each cylinder comprises a pipe connecting it successively to a plurality of orifices disposed in two groups, which each correspond to a group of cams, and the orifices of the same group are regularly distributed on the valve, whilst the orifices of the group of orifices corresponding to the first group of cams comprise first and second orifices, which are alternately placed in communication, the first orifices with a first conduit connected to a source of pressurised fluid, or a discharge tank, the second orifices, which follow the first orifices, with a second conduit connected to the discharge tank or the source of pressurised fluid, respectively, and the orifices of the group of orifices corresponding to the second group of cams comprise third and fourth orifices, which are alternately placed in communication, respectively and selectively, by means of the selection slide, the third orifices with the first conduit, or with the second conduit, or with the fourth orifices, which follow said third orifices, and the fourth orifices with the second conduit, or with the first conduit, or with said third orifices.

3,808,952
REGULATING APPARATUS FOR A HYDRAULIC MACHINE
Hans Knaak, Rheydt, Germany, assignor to G. L. Reproth GmbH, Lohr/Main, Germany
Filed Apr. 20, 1972, Ser. No. 245,743
Claims priority, application Germany, Apr. 30, 1971, 2121267
Int. Cl. F04b *1/26*
U.S. Cl. 91—505 **7 Claims**

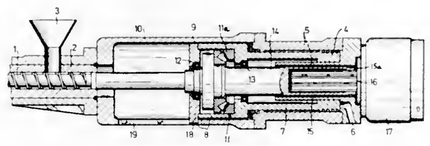


A regulating apparatus for a hydraulic machine, such as an axial piston pump with a regulator for adjusting the position of the swash plate for varying the displaced fluid volume, is provided with hydraulic setting means including a piston forming first and second chambers in a cylinder, and being connected with a regulator for operating it. A spring is located at least in the first chamber, acting on the piston. A auxiliary pump supplies pressure fluid to the second chamber at a predetermined pressure, and a regulating valve reduces the pressure of the fluid and supplies fluid at a reduced pressure to the first chamber so that the piston is balanced in a new position determined by the increasing counter force of the spring, and depending on adjustment of the pressure reducing regulating valve. In a modified embodiment, the working pressure of an axial piston pump is used for adjusting the regulating valve.

3,808,953
MEANS FOR MOVING THE SCREWS OF INJECTION UNITS IN INJECTION MOLDING MACHINES

Richard Herbst, Munich, Germany, assignor to Krauss-Maffei Aktiengesellschaft, Munich, Germany

Filed Aug. 9, 1972, Ser. No. 279,167
Claims priority, application Germany, Sept. 15, 1971, 7135155
Int. Cl. F01b 21/04
U.S. Cl. 92—2 9 Claims

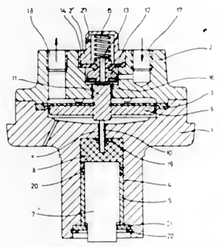


An injection molding machine wherein the plasticizing screw of the injection unit is rotatable and movable axially by a shaft which is rotated by the output element of a rotor. The shaft is movable axially forwardly by a piston which is reciprocable in a hydraulic cylinder. In order to reduce the wear on the piston, the latter is held against rotation and is provided with an enclosure for a set of antifriction bearings which surround the shaft and include an axial bearing located between two radial bearings.

3,808,954
FORCE TRANSMITTING DEVICE OF A WEIGHING VALVE FOR A VEHICLE

Gert Artur Persson, Oxie, and Lars Mattis Severinsson, Malmo, both of Sweden, assignors to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Mar. 24, 1972, Ser. No. 237,764
Claims priority, application Great Britain, Apr. 7, 1971, 9004/71; Dec. 4, 1971, 56416/71
Int. Cl. F01b 7/10
U.S. Cl. 92—65 7 Claims

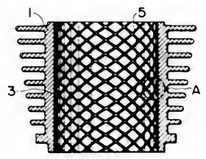


A weighing valve mounted on a vehicle to produce a fluid having a pressure proportional to the load of the vehicle is activated by a force translating device which produces a proportionate force to the valve to thereby generate fluid flow changes of pressure signalling the loading on the vehicle. The force translating device has a differential piston with a plunger of smaller diameter for actuating the valve communicating with a plunger of larger diameter responsive to the load. The plunger and piston are interconnected through a deformable, incompressible medium such as silicone rubber into which both the end and sides of the smaller diameter plunger are extended thereby dampening vibrations.

3,808,955
CYLINDERS OF INTERNAL-COMBUSTION ENGINES

Yoshitugu Hamada; Yasunori Nakamoto, and Seizo Jinno, all of Nagahama, Japan, assignors to Yanmar Diesel Engine Co., Ltd., Osaka, Japan

Filed Oct. 12, 1972, Ser. No. 297,092
Int. Cl. F01b 11/02; F02f 1/20
U.S. Cl. 92—169 5 Claims

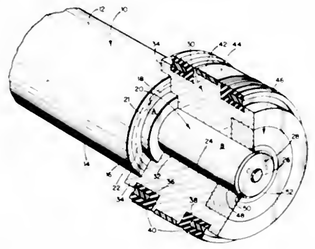


Cylinders of internal-combustion engines, reciprocating-piston or rotary-piston type, made of hypereutectoid aluminum-silicon alloy and formed with a labyrinth of grooves, in checkered or spiral pattern for example, in at least the area of the inner surface along which gastight seal members of the piston slide, said grooves being packed with a dystectic material, such as a ferric alloy, molybdenum, metallic carbide, or ceramic, or a mixture thereof, flush with the rest of the inner surface formed of an aluminum-silicon alloy.

3,808,956
PISTON ASSEMBLY

Peter A. Knapp, 17 Albany St., Wollaston, Mass.

Filed Nov. 29, 1972, Ser. No. 310,478
Int. Cl. F16j 1/12
U.S. Cl. 92—172 9 Claims



A piston assembly for use in a hydraulic or pneumatic cylinder which has a piston mounted on a piston rod. The piston rod has a stud at its end, and the piston is axially bored and has a countersunk socket. The piston is assembled under heavy pressure onto the piston rod stud and over the end of the piston rod with a force fit. The piston has a second countersunk socket at its head end, and an apertured disc is assembled into this socket and onto the piston rod stud with a force fit. The disc is also welded to the stud.

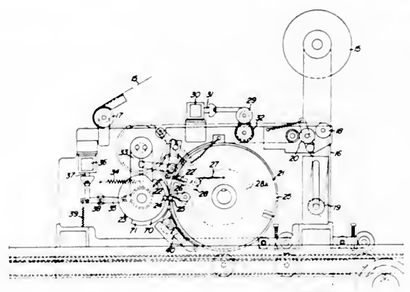
ERRATUM

For Class 93—84 see:
Patent No. 3,809,199

3,808,957
APPARATUS FOR ATTACHING HANGERS TO PAPER BOXES

Minoru Hosoya, Tokyo; Tatsuharu Hama, Yokohama, and Hisayuki Arafune, Kawasaki, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Aug. 3, 1972, Ser. No. 277,656
Int. Cl. B31b 1/86
U.S. Cl. 93—36.7 6 Claims

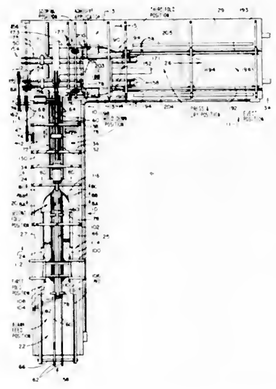


A substantially Z-shaped hanger is formed and attached to a container by feeding a tape around a pressing roller having a notch therein and simultaneously contacting the tape with a wheel having a projection for entering into the notch to form a fold in the tape. The wheel also carries a cutting blade for cutting a selected length of tape. A pressing member is disposed adjacent the notch for flattening the fold formed in the tape.

3,808,958
REEL FORMING APPARATUS

Arthur Keener; Larry David Bradford, both of Irving; Laverne E. Gray, Dallas; John W. McLeod, Dallas, and Billy W. Carter, Dallas, all of Tex., assignors to Lone Star Container Corporation, Dallas, Tex.

Filed Aug. 3, 1971, Ser. No. 168,562
Int. Cl. B31b 1/26
U.S. Cl. 93—49 R 12 Claims

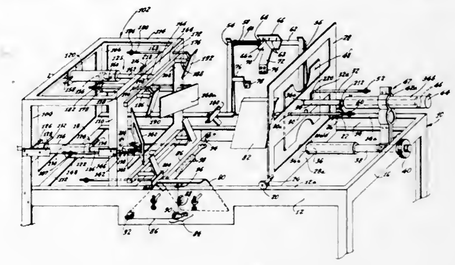


An apparatus for automatically converting blanks of various lengths of sheet material into parallelepiped shaped cloth reels of various lengths having a longitudinally extending strengthening web means and integrally formed end flaps upon which information can be printed.

3,808,959
CARTON ASSEMBLING APPARATUS

Lawrence Perry, 423 W. Park Ave., Santa Maria, Calif.

Continuation of Ser. No. 192,237, Oct. 26, 1971, abandoned. This application Jan. 5, 1973, Ser. No. 321,147
Int. Cl. B31b 15/00
U.S. Cl. 93—53 AC 5 Claims

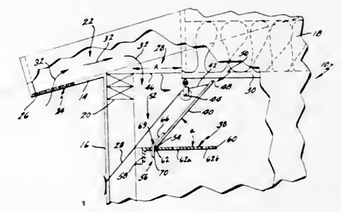


Apparatus for setting up a rectangular cardboard carton for filling through its top side from a flattened blank - preferably one with pressure sensitive adhesively coated flaps, which apparatus comprises a frame including a pair of parallel horizontally disposed base support members upon which are releaseably cantilevered a pair of support plates over which the carton blank is passed as it is introduced above one parallel member and moved toward the other. Unfolding of the carton blank occurs after the blank is moved over the plates to the opposite side of the apparatus from which it is introduced. The opened blank is then held by a spring mounted gripping claw. A back-up plate is passed through the opening formed by the opened sides of the carton and held in a plane normal to those sides. Pairs of plates are then moved from the opposite direction first to bring one opposed pair of flaps into position against the back-up plate and then withdrawn, following which withdrawal a second pair of plates brings the other opposed pair of flaps into abutment with the first opposed pair of flaps and applies pressure to cause adherence thereto by the contacting pressure sensitive adhesive surfaces. Thereupon all plates are withdrawn and the cantilevered support members are released to permit the thus-bottomed box to pass between the horizontally disposed based support members. The several steps are sequenced by a series of switches each of which is actuated as the previous step occurs.

3,808,960
ADJUSTABLE AIR INLET

Robert L. Van Huis, Zeeland, Mich., assignor to U.S. Industries, Inc., New York, N.Y.

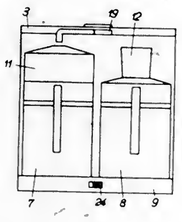
Filed Nov. 22, 1972, Ser. No. 308,692
Int. Cl. F24f 13/08
U.S. Cl. 98—41 R 9 Claims



A louver is positioned in front of the air inlet opening by one or more support brackets and held upright at various deflect-

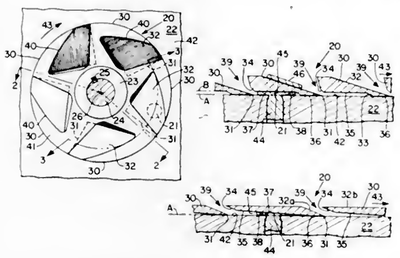
ing angles of inclination to the opening by a cable-pulley arrangement. The lower margin of the louver is selectively positioned in one of a plurality of laterally spaced openings in the bracket to vary the size of the down-wash opening while the lateral flow opening and the deflection angle of the louver is selected by the cable-pulley arrangement.

3,808,961
MACHINE FOR THE PREPARATION OF DRINKS
Ernst Grossenbacher, Oststrasse 25,, 9006 St. Gallen, Switzerland
Filed Aug. 16, 1972, Ser. No. 281,277
Int. Cl. A23f *1/08*
U.S. Cl. 99—281 **8 Claims**



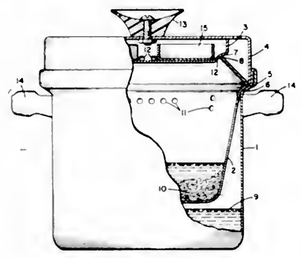
A machine for making coffee, tea or the like is provided having a platform for supporting two adjacent containers. A vertically standing housing having two chambers therein is positioned adjacent the platform. A first upper chamber in the housing contains a volume of water equal to the volume of each of the containers. Control means and heating means are located in a second, lower chamber of the housing. Passageway means provide fluid communication between the first chamber and the control means, the heating means and a liquid discharge tube that is located at an elevation at least as high as the highest level of water in the upper chamber.

3,808,962
METHOD OF AND APPARATUS FOR MAKING SUBSTANTIALLY UNIFORMLY SHAPED FLAKES
Alexander L. Liepa, Cincinnati, Ohio, assignor to The Proctor & Gamble Company, Cincinnati, Ohio
Filed Oct. 1, 1971, Ser. No. 185,607
Int. Cl. A21c *5/08, 9/08;* **A23p** *1/00;* **B29b** *5/06*
U.S. Cl. 99—323.4 **2 Claims**



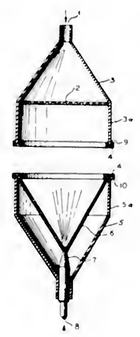
A method of and apparatus for making substantially uniformly shaped flakes of extrusible material as it issues from an extruder. The material is extruded directly into an unsealed flake-shaping void until a flake-shaped mass thereof accumulates in the void. After a flake-shaped mass has accumulated in the void, the void is physically de-formed and the flake-shaped mass is separated whereupon it becomes a discrete flake. The void is defined as the space between an external area of the extruder contiguous to its discharge port and a first surface of a movable element when the first surface faces the discharge port and is spaced the thickness of the void therefrom. The void is alternately formed and de-formed by moving the element having the first surface relative to the discharge port. The void is periodically de-formed to enable separating accumulated flake-shaped masses from the apparatus as by scraping the nose of the extruder with a knife blade. Mass formation and removal are facilitated by: combining the element having the first surface with a knife blade to form an integrated component; and revolving the component in the proximity of the discharge port so that the first surface and the blade alternately perform their respective functions.

3,808,963
STEAM COOKER
Octaviano Roa Ludena, No. 95-K-F, Kamias, Quezon City, Philippines
Filed Sept. 21, 1972, Ser. No. 290,811
Int. Cl. A47j *27/10*
U.S. Cl. 99—417 **8 Claims**



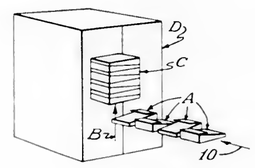
A handled food cooker comprising an outer container, a smaller perforated container fitting within the outer container and defining a water space therebetween, a perforated steam plate positioned on the smaller container, at least one further container positionable on the steam plate and a lid covering the outer container and thereby enclosing said smaller perforated container, said steam plate and said further container.

3,808,964
PNEUMATIC APPARATUS FOR BLANCHING HEATED OR ROASTED PEANUTS
Phillip C. Barnes, Jr., Bronwood, and Charles E. Holaday, Albany, Ga., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.
Filed Mar. 17, 1972, Ser. No. 235,694
Int. Cl. A23l *1/18*
U.S. Cl. 99—518 **1 Claim**



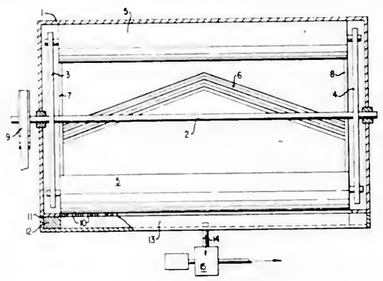
New apparatus and concept for removing skins from peanuts is disclosed. Peanuts in a batch operation are continuously forced into the air stream by the design of an internal retainer screen and a baffle formed by a second screen. The stripping action of the air and the rubbing of the kernels along the wall surfaces of an upper and a lower retainer screens efficiently separate the skins from the meats, and the skins removed from the batch by vacuum.

3,808,965
STRAPPING APPARATUS
Herbert G. Tull, III, Albemarle, Va., assignor to Hoerner Waldorf Corporation, Ramsey, Minn.
Division of Ser. No. 73,967, Sept. 21, 1970, Pat. No. 3,701,314. This application Oct. 12, 1972, Ser. No. 296,971
Int. Cl. B65b *13/20*
U.S. Cl. 100—7 **10 Claims**



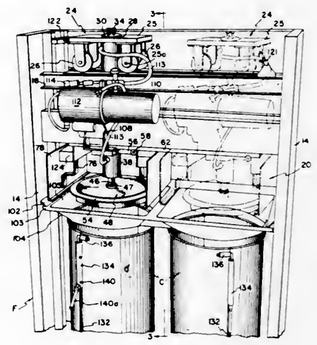
The hopper is provided which is filled with a stack of paper bags or other material to be baled. The bags are transferred to a compression area where the stack is compressed. Straps are drawn about the stack and secured. The strapped bale is then discharged.

3,808,966
MACHINE FOR SQUEEZE DRYING WASHED INK ROLLERS
Gerhard Busch, Heidenkampsweg 48, 2000 Hamburg 1, Germany
Filed May 12, 1971, Ser. No. 142,529
Int. Cl. B41f *35/04*
U.S. Cl. 100—106 **8 Claims**



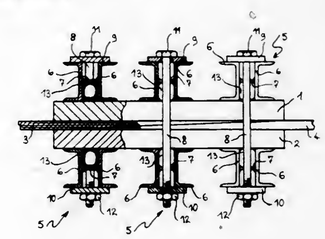
A machine for squeeze drying absorbent liners of ink rollers that have been washed previously, said rollers being used in printing presses; where the ink rollers are mounted in multiples on bearing spiders inside a drum having on its interior cylindrical surface spiral drain grooves. The two bearing spiders are rotated and have means to press the ink rollers against the inside of the drum, squeezing the excess washing fluid out of the ink rollers. The excess washing fluid drains into a lower drain area and is then drawn out of the drum by a vacuum suction pump.

3,808,967
TRASH COMPACTOR
John Fair, Portage, and James L. Griswold, Highway M-60, Union City, both of Mich., assignors to said Griswold, by said Fair
Filed Aug. 7, 1972, Ser. No. 278,424
Int. Cl. B30b *15/16*
U.S. Cl. 100—221 **8 Claims**



A two-station trash compactor including a frame supported carriage movable in a longitudinal path of travel between a pair of longitudinally spaced, trash compacting stations, homing apparatus for guiding the carriage to the trash compacting station, a compacting ram vertically movable on the carriage between a raised position and a lowered trash compacting position for selectively compacting trash in either of a pair of longitudinally spaced, partible trash containers at the trash compacting stations, and ram driving apparatus on the carriage for moving the compacting ram in a to-and-fro vertical path of travel to compact the trash a predetermined amount and then automatically returning the compacting ram to a removed position.

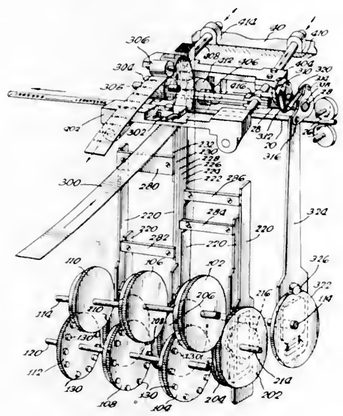
3,808,968
PRESS-DEVICES
Claude Jacques Notin, Saint Chamond, France, assignor to "Etablissements Minet", Saint Chamond, France
Filed Jan. 16, 1973, Ser. No. 324,082
Claims priority, application France, Feb. 17, 1972, 72.05998
Int. Cl. B30b *1/38*
U.S. Cl. 100—264 **5 Claims**



A press device, as for instance for the binding of the bevelled ends of a conveyor belt by means of an adhesive, comprises two platens, cross-members of U-shaped cross-section on the outer side of each platen, with the U of each cross-member opening towards the corresponding platen, means to connect the protruding ends of the cross-members of one platen with the protruding ends of the cross-members of the

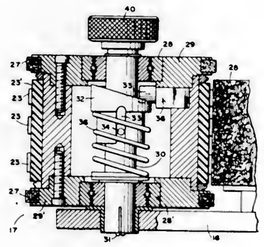
other platen, and inflatable hoses disposed in the U's of the cross-members to urge the platens towards each other. The hoses are preferably of the type comprising reinforcing plies of fabric.

3,808,969
REPLICATING APPARATUS WITH LOCKING MEANS
Larry Neil Pearce, Oak Park, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Sept. 11, 1972, Ser. No. 288,172
Int. Cl. B41j *45/00; G06c 25/00*
U.S. Cl. 101—72 **13 Claims**



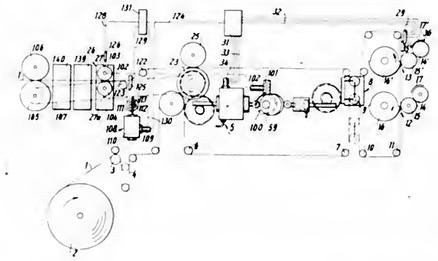
An apparatus is disclosed which functions in a manner to pass by intermittent drive a member through a printing station for replicating at spaced locations a desired plurality of like imprint presentations. The printing components at the printing station are arranged in cooperation with an index mechanism for indexing the components after each plurality of replications to the next following sequence. The index mechanism comprises a train of geneva-type gears having a plurality of inputs thereto whereby additional replication may be accomplished.

3,808,970
BIASED RETURN CODING DRUM
Patrick Delligatti, 883 E. 39th St., Brooklyn, N.Y.
Filed Nov. 25, 1968, Ser. No. 778,697. The portion of the term of this patent subsequent to May 7, 1990, has been disclaimed.
Int. Cl. B41f *17/26*
U.S. Cl. 101—35 **5 Claims**



A printing drum is rotatably mounted on a shaft so that it will roll on the surface of a parcel to imprint data thereon. The shaft carries a face cam capable only of sliding movement therealong, the cam having a high point from which at each side there is a gradual decline to a low point where there is a slight depression; a follower carried by the drum to move therewith, normally rests in said depression when the drum is not rotating, the drum being held stationary by compression coil spring about the stationary shaft which biases the cam to maintain contact with the follower, and also biasing the drum to normal rest position when it has been rotated by a parcel and subsequently the contact between drum surface and parcel has been terminated.

3,808,971
WEB REGISTRATION IN AN INTERMITTANTLY FED ROTARY PRINTING PRESS
Otto Staamann, Berlin, Germany, assignor to Automatic Druckmaschinenfabrik, Berlin, Germany
Filed Oct. 24, 1972, Ser. No. 300,372
Claims priority, application Germany, Nov. 5, 1971, 2155711; Dec. 23, 1971, 2165288
Int. Cl. B41f *13/04*
U.S. Cl. 101—181 **16 Claims**



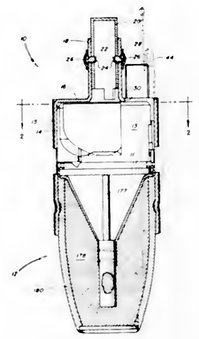
The forms are particularly endless forms having transversely extending lines of perforations. The press includes printing mechanisms having plate cylinders carrying plates extending through part of their circumferential peripheries, an equalizing carriage adapting web-shaped printing material, fed intermittently from a supply loop thereof, to the peripheral speed of the plate cylinders and executing a return movement during the printing interval, rolls carried by the equalizing carriage and looped by the printing material, and a main traction device, adjustable to the form length, with a main traction roll driven intermittently in the direction of traction and cooperable with pressure rolls. Printing means are provided either on the printing plates or on relatively adjustable rings on the plate cylinders to print adjusting marks on the printing material at the leading and trailing ends of each form length. Preferably the two marks on each form length are at respective different distances from an edge of the form, and are linear marks aligned with the respective form length ends to be perforated.

ERRATUM

For Class 102—28 see:
Patent No. 3,809,964

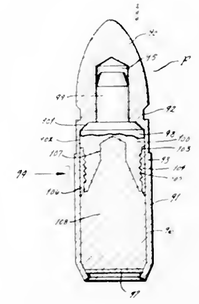
3,808,972
DUAL FUNCTION BOMB
Thomas A. Cammack, Beltsville; William J. Donahue, Takoma Park, and Peter D. Gratton, Simpsonville, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Nov. 25, 1969, Ser. No. 880,459
Int. Cl. F42b *25/16*
U.S. Cl. 102—7.2 **10 Claims**

A dual function bomb combining anti-personnel and armor piercing capabilities in a single bomb and capable of discriminating between targets. A frangible member in the bomb nose shears upon impact with a hard target, such as armor, and drives a firing pin into a detonator in an arming rotor to cause instantaneous initiation of an armor piercing shaped charge. Impact with soft targets, such as earth, will not shear



the frangible member but causes an inertia firing pin to initiate a propellant charge and a pyrotechnic delay. The propellant charge ejects the warhead upward three to ten feet at which time the pyrotechnic delay initiates the shaped charge for optimum effect against unprotected personnel in the vicinity.

3,808,973
SELF-PROPELLING PROJECTILE FOR FIREARMS
Giovanni Galluzzi, Lecco, Italy, assignor to Giulo Flocchi S.p. A., Lecco, Como, Italy
Filed Dec. 17, 1971, Ser. No. 209,032
Claims priority, application Italy, May 31, 1971, 25246/71; Nov. 30, 1971, 31868/71
Int. Cl. F42b *5/26*
U.S. Cl. 102—38 **6 Claims**



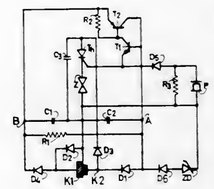
A self-propelling projectile comprising a projectile body at the normally forward end of said projectile, a propellent charge at the normally rearward end of said projectile, and a primer element located between the ends of said projectile for ignition by side firing or percussion; there being means for maintaining said components in integrated relationship and with communication between said primer element and said propellent charge whereby upon explosion of said propellent charge the force of the latter will be directed against the base of the projectile body.

3,808,974
ALL PLASTIC SHOTSHELL CASE WITH TRANSVERSELY ORIENTED UNDULATIONS ON OUTER CYLINDRICAL SURFACE
George L. Herter, Waseca, Minn., assignor to Herter's Inc., Waseca, Minn.
Filed Nov. 8, 1971, Ser. No. 196,627
Int. Cl. F42b *7/06*
U.S. Cl. 102—43 P **3 Claims**



An all plastic shotshell case molded with the transverse base wall and cylindrical sidewall integral of and in one piece with each other, and the outer surface of the cylindrical sidewall having undulations all along the length thereof and oriented transversely of the longitudinal orientation of the cylindrical sidewall, said transverse undulations forming rings extending circumferentially around the cylindrical sidewall, or said undulations being in the pattern of circles, dots, squares, knurls or other shapes.

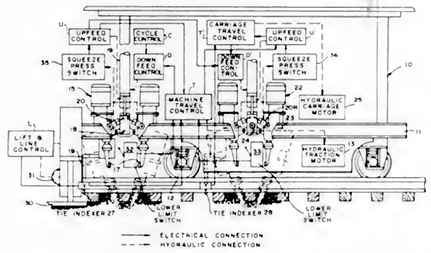
3,808,975
IGNITION CIRCUIT FOR PROJECTILE FUSES
Dietmar Stutzle, Nurnberg-Langwasser, and Peter F. Weidner, Nurnberg, both of Germany, assignors to Diehl, Nurnberg, Germany
Filed Aug. 24, 1972, Ser. No. 283,354
Claims priority, application Germany, Aug. 28, 1971, 2143119
Int. Cl. F42c *11/06, 11/00, 13/00*
U.S. Cl. 102—70.2 GA **5 Claims**



A projectile with an electrically ignitable fuse is provided with a control circuit in which piezo electric cells are provided which develop a potential upon acceleration of the projectile and then develop a reverse potential upon relaxing of the acceleration on the projectile when it emerges from the firing weapon. The piezo electric cells are serially arranged and connected thereacross is a pair of condensors, the juncture of which is fastened to the juncture of the cells with one capaci-

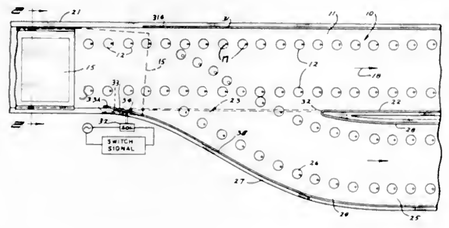
tor charging during the acceleration period of the projectile and the other charging during the relaxing period. A resistor connected across the capacitors provides for reversing of the charge on the one capacitor and which reversing triggers a control circuit. The control circuit releases the charge from a third capacitor which is charged by one of the cells during the relaxing period thereby to ignite the fuse. An impact control source of voltage is also provided for igniting the fuse upon impact of the projectile.

3,808,976
MULTI-HEADED TAMPER STAGGERED OPERATION
John Kenneth Stewart, Columbia, S.C., assignor to Canron, Inc., Phillipsburg, N.J.
Filed Sept. 27, 1972, Ser. No. 292,716
Int. Cl. E01b *33/02, 27/17*
U.S. Cl. 104—12 **6 Claims**



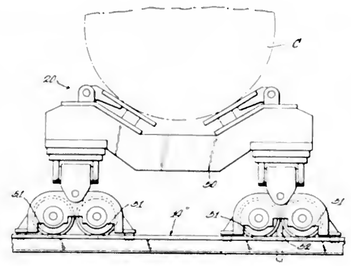
The invention relates to method and apparatus for tamping railway track ballast with a tamping machine having a fixed tamping head and a second tamping head movable along the machine chassis, the tamping heads being operated in a sequence such that whilst the first tamping head is conducting its tamping cycle the second tamping head is moving on the chassis and whilst the second tamping head is conducting its tamping cycle, the fixed tamping head is moving along the track, the tamping cycles of the heads overlapping each other with a substantially 180° phase difference.

3,808,977
SWITCH FOR VEHICLE GUIDEWAY
Charles H. Smoot, Wayzata; Lowell A. Kleven, Bloomington, and Gary J. Wirth, St. Paul, all of Minn., assignors to Uniflo Systems Company, Edina, Minn.
Filed Jan. 18, 1971, Ser. No. 107,199
Int. Cl. B61b *13/08*
U.S. Cl. 104—130 **16 Claims**



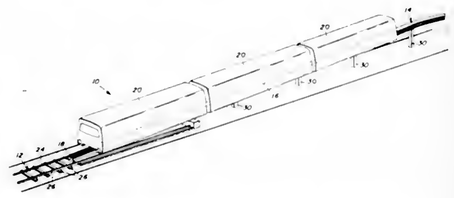
A positive action switch for air levitated vehicles operating on guideways whereby the vehicle can be switched from the main guideway to a spur or side guideway in response to predetermined signals.

3,808,978
COIL CAR TRACK SYSTEM
Frederick A. Ward, Poland, Ohio, assignor to Wean United Inc., Youngstown, Ohio
Filed Apr. 26, 1972, Ser. No. 247,519
Int. Cl. H02g *11/00*
U.S. Cl. 104—130 **11 Claims**



A track system for cars which carry heavy coils of steel between two or more stations where coils are processed. A single main track extends between such stations and switching means are provided at each station so that the coil car may be moved to one or the other of a pair of track sections at each station. The coil car is propelled by an electric motor and power rails are located in a pit below the car tracks. The coil car has a mast which extends downwardly into the pit and the mast carries shoes which slidably engage the power rails for the purpose of transmitting power to the coil car motor. The power rails are so arranged that an unbroken supply of power is transmitted to the coil car motor as the car proceeds to and from a track section and the main track.

3,808,979
RAPID TRANSIT SYSTEM
Francis L. Brown, 9200 W. Chester Pike, New York, N.Y.
Filed July 12, 1972, Ser. No. 271,176
Int. Cl. E01b *25/10*
U.S. Cl. 104—131 **7 Claims**

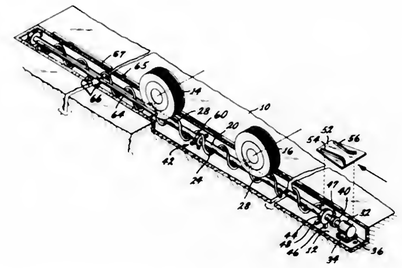


A car and track arrangement wherein said tracks have certain monorail sections above ground and certain standard track sections on the ground (and below ground) and said cars incorporate bogie constructions adaptable for engagement with one or each of said sections for smooth transition from one to the other.

3,808,980
CONVEYOR MECHANISM FOR WHEELED VEHICLE
Conrad M. Winiarski, 10851 Wellworth Ave., Los Angeles, Calif.
Filed July 3, 1972, Ser. No. 268,510
Int. Cl. B61b *13/12*
U.S. Cl. 104—167 **8 Claims**

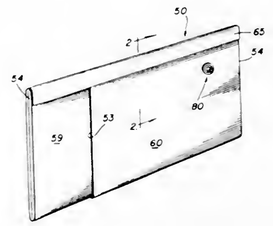
The invention is a conveyor or transfer means for wheeled vehicles. A helical member or worm is provided in a trough or channel extending in the direction that the vehicle is to be

transferred or moved. One or more wheels of the vehicle directly engage a convolution of the helix or worm which is



power driven to rotate about its axis so that the convolution of the helix exerts a driving thrust directly against the vehicle wheel to move or convey the vehicle.

3,808,981
DISPOSABLE INFLATABLE DUNNAGE
Russell E. Shaw, Park Forest, Ill., assignor to Interlake, Inc., Chicago, Ill.
Filed Mar. 2, 1973, Ser. No. 337,545
Int. Cl. B61d *45/00*
U.S. Cl. 105—369 BA **14 Claims**

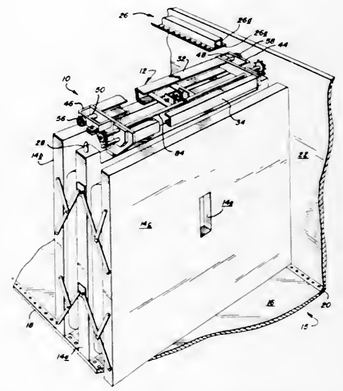


A device for use with a dunnage bag, the device including a valve mounted in the bag adapted to be connected to a source of high pressure air and an air regulator associated with the valve and positioned inside the bag to control the direction and the pressure of the air entering the bag from the source of high pressure air.

3,808,982
CARRIAGE ASSEMBLY FOR BULKHEADS
Leroy W. Bertram, Wheaton; Russell M. Loomis, Palos Heights, and Michael D. Galkowski, Chicago, all of Ill., assignors to Unarco Industries, Inc., Chicago, Ill.
Filed Feb. 28, 1973, Ser. No. 336,773
Int. Cl. B61d *17/00*
U.S. Cl. 105—376 **9 Claims**

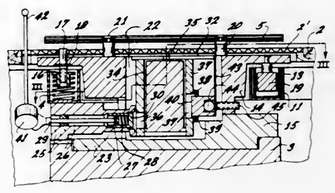
An improved bulkhead carriage for supporting and moving lading-engaging bulkhead panels along overhead tracks is disclosed and includes a force multiplier by which an operator who is pulling a chain fall applies an increased force to gear-drive means mounted to said carriage and which cooperate with said tracks. The force multiplier permits easy and accurate movement of the more recently developed heavier and sophisticated bulkhead assemblies.

Horizontally disposed alignment rollers are mounted on each side of the carriage for engagement with side walls of the



track on which the carriage moves, to permit easy movement of the bulkhead in the event the carriage drifts laterally with respect to the track.

3,808,983
VIBRATION SUPPRESSING TABLE
Simon Pielkenrood, Parklaan, Netherlands, assignor to Pielkenrood-Vinitex, Assendelft, Netherlands
Filed Apr. 14, 1972, Ser. No. 243,968
Claims priority, application Netherlands, Apr. 19, 1971, 7105264
Int. Cl. A47b *9/02*
U.S. Cl. 108—136 **14 Claims**

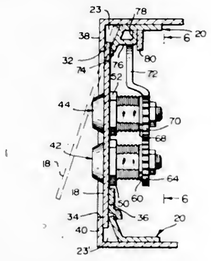


Vibration suppressing table, comprising a stationary base, a resiliently supported heavy mass provided with a supporting plate, a number of coil springs arranged in the corners of a polygon, the height of the bearing end of these springs being adjustable, the elastic center of these springs substantially with the center of gravity of the mass.

3,808,984
SECURITY DEVICE
Walter Teleky, 6050 Boulevard East, West New York, N.J.
Continuation-in-part of Ser. No. 154,362, June 18, 1971, Pat. No. 3,715,998. This application June 9, 1972, Ser. No. 261,307. The portion of the term of this patent subsequent to Feb. 13, 1990, has been disclaimed.
Int. Cl. E06b *5/10*
U.S. Cl. 109—59 **6 Claims**

A pair of interrelated lock cylinders mounted in spaced parallel relationship preferably through separate cylinder apertures in a removable closure or door. The door is adapted

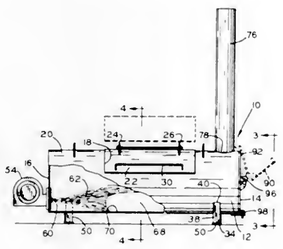
for accommodation within an access opening of a security box or other enclosure which has marginal recessed portions for receiving the peripheral edges of the door. Each of the lock cylinders is provided, on one side of the door, with a mating gear adapted for meshed engagement to effectuate interdependent cylinder operation. The insertion of a key into a key slot in each of the respective cylinders and the simultaneous turning of both keys is required in order to rotationally displace a tongue latch, integral with one of the mating gears, into selective locking engagement behind a latch keeper, whereby the door is secured in the access opening. Additionally, a tongue latch guard prevents the latch from being deformed by an external force, or otherwise misaligned, and thereby protects against unauthorized disengagement of the latch. An alternate arrangement of the lock mechanism is adapted for incorporation in a rim or mortise type lock.



ERRATUM

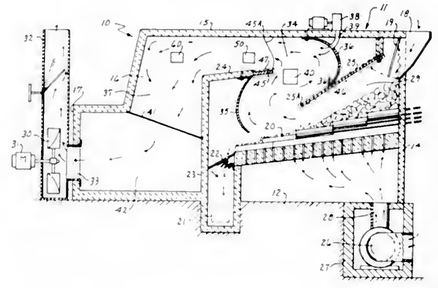
For Class 110—8 see:
Patent No. 3,808,619

3,808,985
INCINERATOR
John Wayne Raber, Rt. No. 4 Huntington Rd., Huntington, Ind.
Filed May 7, 1973, Ser. No. 357,686
Int. Cl. F23g *1/00*
U.S. Cl. 110—3 **3 Claims**



An incinerator consists of a cylindrical housing and a forced air oil-fuelled burner at one end of the housing which projects a flame substantially throughout the length of the incinerator. At the ends of the incinerator is a discharge opening normally covered by a hinged door, and a stack is mounted vertically on the housing at one end of the housing removed from the burner. The hinged discharge door is swung back to remove the ash after burning. The incinerator is particularly usable for disposing of organic product such as dead pig fetuses.

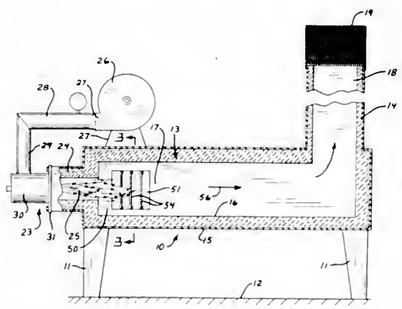
3,808,986
INCINERATOR FOR REFUSE MATERIAL
Charles Logdon, 680 Thiele Rd., Bricktown, N.J.
Filed Sept. 11, 1972, Ser. No. 287,636
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 R **9 Claims**



An incinerator apparatus having a feed opening at one end for receiving waste products to be incinerated and having a suction means at the other end to create a negative pressure within the incinerator; that is, a pressure slightly lower than the existing outside atmospheric pressure, and to insure a desired and constant flow of the products of combustion from a primary combustion chamber, through a secondary combustion chamber, through an expansion chamber, through a settling chamber and into the atmosphere through an exit stack.

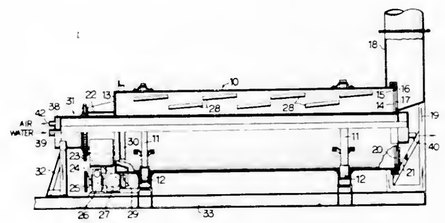
The primary combustion chamber has the means to increase the normal combustion temperature by thermal radiation and heat reflection so as to appreciably incinerate all combustibles and appreciably reduce in volume the non-combustible matter present and the secondary combustion chamber has the means to utilize thermal radiation and heat reflection to incinerate the unburned volatile and volant combustibles from the first combustion chamber as they pass through the chamber.

3,808,987
AFTERBURNER CONSTRUCTION
Merlin W. Ehrlichmann, Minnetonka, Minn., assignor to West Creek Co., Inc., Minnetonka, Minn.
Filed Oct. 10, 1972, Ser. No. 296,099
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 A **8 Claims**



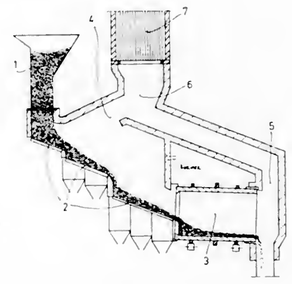
An afterburner construction including the outer housing and chamber construction, and the construction of the burner itself which together provide a highly efficient afterburner for use with incinerators and furnaces.

3,808,988
APPARATUS FOR SUPPLYING AIR INTO COMBUSTION CHAMBER OF ROTARY KILN INCINERATOR
Kumakichi Sugano, 34-6, 3-chome, Asakusabashi, Daito-ku, and Masanao Sugano, 22-5, 1-chome, Ojima Koto-ku, both of Tokyo, Japan
Filed Oct. 20, 1972, Ser. No. 299,331
Int. Cl. F23g *5/06*
U.S. Cl. 110—10 **6 Claims**



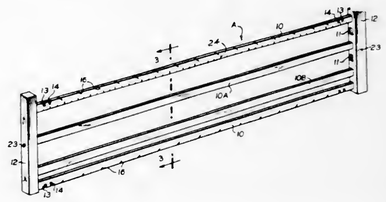
An inner drum extending axially through a cylindrical kiln is comprised of a hollow cylinder, and a hollow reinforcement structure closely fitted in the cylinder to prevent same from sagging at elevated temperatures. The reinforcement structure is cooled by the water flowing therethrough and may be substantially cruciform in cross section, dividing the interior of the cylinder into a plurality of air channels adapted to supply air into the kiln through a number of bores formed in the cylinder. The air channels are intercommunicated by a plurality of passageways extending through the reinforcement structure and/or by a hollow space formed at one or both ends of the cylinder in order to reduce fluctuations in the pressure or volume of air supplied thereto.

3,808,989
METHOD AND ARRANGEMENT FOR JOINTLY COMBUSTING HOUSEHOLD REFUSE AND SEWAGE SLUDGE
Ruediger Knaak, Heinestrasse, Germany, assignor to Koppers-Wistra-Ofenbau GmbH, Duesseldorf-Heerdt, Germany
Filed Jan. 3, 1973, Ser. No. 320,754
Claims priority, application Germany, Jan. 7, 1972, 2200756
Int. Cl. F23g *5/04*
U.S. Cl. 110—14 **7 Claims**



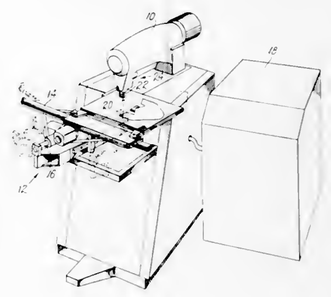
A mix of household refuse and sewage sludge is admitted onto a furnace grate over which it travels. During this travel the mix is dried, ignited and partially combusted. From a discharge end of the grate the partially combusted mix is discharged directly into a rotary furnace drum wherein combustion is completed. The combustion gases developing during partial combustion on the grate and during final combustion in the furnace drum are separately withdrawn and are thereupon united before being passed into a gas cooler.

3,808,990
APPARATUS FOR MAKING FRINGE
Della S. Rosenbaum, 835-B Park Central Dr. N., Indianapolis, Ind.
Filed Jan. 11, 1973, Ser. No. 322,784
Int. Cl. D05b *23/00*
U.S. Cl. 112—9 **2 Claims**



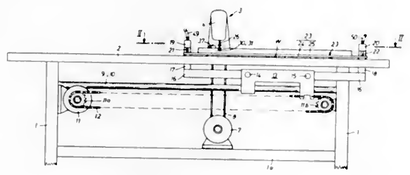
A fringe making apparatus having a pair of yarn coil support bars that are held in a selected one of several predetermined spaced relations by a pair of braces. The braces have a series of recesses for receiving the ends of the coil support bars, and the ends of stitching guide bars located between the coil support bars.

3,808,991
APPARATUS FOR FORMING NORMAL STITCHES
Hans F. Schaefer, Jr., Rockport, Mass., assignor to USM Corporation, Boston, Mass.
Filed Oct. 26, 1971, Ser. No. 192,288
Int. Cl. D05b *21/00, 25/00*
U.S. Cl. 112—121.12 **3 Claims**



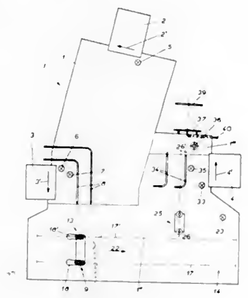
A method and apparatus for forming only normal stitches between threads. Normal stitches are those usually formed by sewing machines such as lockstitch or single or double thread chain stitch machines that do not have half-hitches or extra twists between the threads. The method comprises the steps of positioning the threads in a predetermined relation to stitch forming instrumentalities and then forming a stitch. The apparatus comprises means for adjusting the relative position of the threads prior to stitch formation and means for forming stitches between the threads.

3,808,992
DEVICE FOR FEEDING THE CLOTH IN A SEWING SYSTEM FOR THE PRODUCTION OF OPEN DARTS
Gunther Mall, Kaiserslautern, Pfalz, Germany, assignor to Pfaff Industriemaschinen GmbH, Kaiserslautern/Pfalz, Germany
Filed Jan. 12, 1973, Ser. No. 322,937
Claims priority, application Germany, Feb. 1, 1972, 7203543[U]
Int. Cl. D05b *37/08*
U.S. Cl. 112—121.15 7 Claims



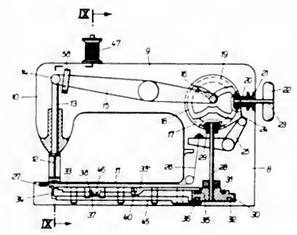
A device for feeding a workpiece cloth which is folded along a fold line along a feed path of a sewing machine, includes a pattern bar, having a guide edge, which is shaped according to the course of the seam, and which defines a guide surface for guiding a flat cutter and the workpiece so that the cutter cuts the workpiece along the folded edge. The pattern bar is mounted for movement to advance the workpiece into association with the sewing machine and the cutter, and the construction includes a stationary guide of U-shaped construction having two leg portions between which the folded end of the workpiece is guided and having a connecting web portion between the leg portions with a cutter access slot into which the cutter projects.

3,808,993
AUTOMATIC UNIT FOR OVERCASTING OR ASSEMBLING PIECES OF FABRIC ALONG SEAM LINES OF DIFFERENT FORMS
Wolfgang Heiler, Soufflenheim; Rudolf Muller, Sessenheim, and Jean-Jacques Becker, Bischheim, all of France, assignors to Vestra-Union S.A., Paris, France
Filed May 30, 1972, Ser. No. 258,048
Claims priority, application France, June 9, 1971, 71.21760
Int. Cl. D05b *25/00*
U.S. Cl. 112—155 7 Claims



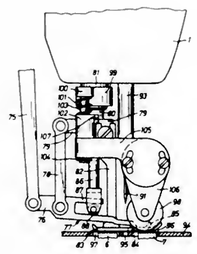
The disclosure is of a unit permitting the overcasting or assembling of pieces of fabric along seam lines of different forms, characterised in that it is constituted by a table, three machines, two transport devices, blowing mechanisms, a brake cylinder, a stacker and detectors.

3,808,994
ARRANGEMENT FOR MAKING KNOTTED CHAIN STITCH SEAM
Jean Kuhn, Buadersrepublic, 6369 Schoneck II, Germany
Filed July 31, 1972, Ser. No. 276,413
Int. Cl. D05b *1/06, 27/06, 29/08*
U.S. Cl. 112—199 10 Claims



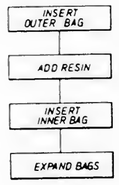
A chain stitch seam with knotted needle loop is formed by twice inserting a needle at the same point of the fabric in such a manner that the loop developed during the first part of the movement forms a knot which connects the loop of the preceeding knot with the loop formed during the second part of the needle movement.

3,808,995
SEWING MACHINE WITH DIFFERENTIAL FEED
Reinhold Dobner, Kaiserslautern; Erich Willenbacher, Karlsruhe, and Wolfgang Baus, Kaiserslautern, all of Germany, assignors to Pfaff Industriemaschinen GmbH, Kaiserslautern/Pfalz, Germany
Filed Dec. 8, 1972, Ser. No. 313,515
Claims priority, application Germany, Dec. 10, 1971, 2161295
Int. Cl. D05b *27/08*
U.S. Cl. 112—209 3 Claims



The invention is concerned with a sewing machine with differential feed means for maintaining the surplus width of garment blanks and simultaneously fixing the surplus width maintained by a seam in which the difference of the amount of feed of the feed dogs is controlled by a rotating program carrier, with a measuring wheel as an impulse emitter that scans the actual material feed at the stitch forming location and controls a step motor that drives the program carrier.

3,808,996
SANITARY HOLDING SUMP AND METHOD OF MAKING
Walter A. Gezari, Killingworth, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Division of Ser. No. 122,721, March 10, 1971, Pat. No. 3,722,538, which is a continuation-in-part of Ser. No. 24,789, Aug. 1, 1970, abandoned. This application Nov. 16, 1972, Ser. No. 307,230
Int. Cl. B63b *35/00*
U.S. Cl. 114—.5 R 6 Claims



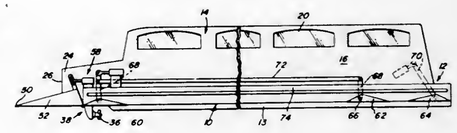
A sanitary holding sump which can be formed in a blind cavity such as a toilet sump below an interior deck of a boat. The sump is formed with a laminated construction including two plastic bags, one within the other, and an intermediate plastic foam filler which has been cured to a rigid state. The top of the sump is sealed to the bulkhead and includes a ducted two-part cover plate for receiving and discharging waste material. The sump is formed below an interior deck by installing a first plastic bag connected to a first flange through an aperture in the interior deck, then placing a charge of foaming plastic resin in a substantially liquid state in the first bag, and then installing a second plastic bag connected to a second flange which covers the first flange. The inner bag is then pressurized internally, displacing the foaming resin in the outer bag and distributing it substantially evenly throughout the entire cavity or space between the two bags. Some expansion of the outer bag is accomplished by means of the foaming action of the resin. The resin eventually sets in its foamed state to provide the structural rigidity of the sump.

3,808,997
METHOD OF CLEARING A PATH THROUGH ICE
Clyde E. Bastian, Jr., Millington, N.J., assignor to Global Marine Inc., Los Angeles, Calif.
Filed Oct. 10, 1972, Ser. No. 295,804
Int. Cl. B63b *35/08*
U.S. Cl. 114—40 5 Claims



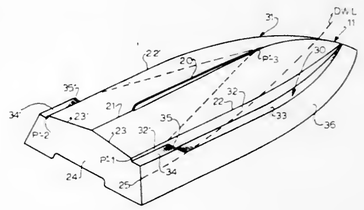
An icebreaking arrangement in which air is applied under sufficient pressure to lower the surface of the water at an ice-water interface to a level below the bottom of the ice over an area which extends on either side of the interface. The unsupported weight of the ice in the region in which the water level is depressed produces failure and breaking off of pieces of ice at the interface. The increased pressure is produced by an air-tight platform having a downwardly extending skirt around the periphery, air under pressure being admitted to the region below the platform. The platform may be mounted on the bow of a ship or moved ahead of a ship to clear a channel through the ice.

3,808,998
BOAT WITH BOW OUTDRIVE AND VERTICALLY SWINGABLE BOW PLANE
George C. Molotzak, 228 W. Ridge St., Coaldale, Pa.
Filed Apr. 2, 1973, Ser. No. 346,818
Int. Cl. B63b *1/22*
U.S. Cl. 114—66.5 R 8 Claims



A boat having the propulsion unit located adjacent the bow thereof with the boat hull having a wedge shaped bow and a transversely extending bow plane that is vertically swingable to facilitate planing of the boat and facilitate various specific uses of the boat. The bow plane, in effect, cuts off or slices through the top portions of waves to provide a boat which remains substantially in a stable attitude during its movement. Additional swingable planes are positioned alongside of the boat to facilitate control and stabilization thereof.

3,808,999
BOAT HULL CONSTRUCTION TO PROVIDE STERN LIFT
Ronald M. Peterson, 601 Continental Dr., Nashville, Tenn.
Filed Jan. 8, 1973, Ser. No. 321,726
Int. Cl. B63b *1/18*
U.S. Cl. 114—66.5 S 1 Claim

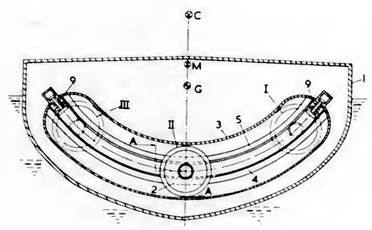


A V-shaped boat hull is formed with a pair of side shelves which extend from the bow to the stern and at the stern end are made of substantially less depth to provide a planing surface which tends to lift the stern and maintain the hull level during both acceleration and deceleration of the boat.

3,809,000
PASSIVE ROLL STABILISERS
Anne Horsford, Twickenham; George Richard Grant Lewison, Kew Gardens, and James Arthur Haines Paffett, Cobham, all of England, assignors to Secretary of State for Trade and Industry in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed Aug. 4, 1971, Ser. No. 168,963
Int. Cl. B63b *39/02*
U.S. Cl. 114—124 13 Claims

A passive roll stabiliser for floating vessels particularly small craft where a mobile body undergoes tuned damped oscillatory motion along an arcuate guide-way when the vessel rolls. The body is subject to the effects of rotational and translational inertias such that the rotational energy is at least half its

translational energy. This increases the oscillatory period of the body and enables the guide-way to be curved sufficiently to ensure an adequate static stability for the vessel. The body



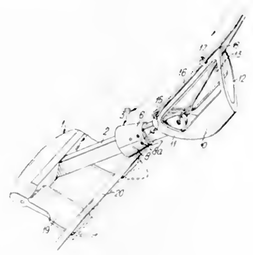
is preferably a rolling body whose motion is damped by a fluid-like substance which slips or tumbles in a chamber within the body as it rolls.

3,809,001

DEVICE FOR FREEING A FOULED ANCHOR

Andrew Alfred Thomas Shute, 37 Earl Hall Ave., Southend-on-Sea, England

Filed July 31, 1972, Ser. No. 276,438
Int. Cl. B63b *21/24*
U.S. Cl. 114—206 R **9 Claims**



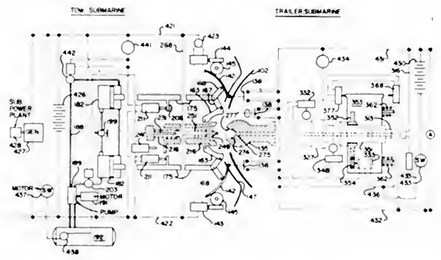
A device for freeing a fouled stockless anchor in which a cylindrical recovery sleeve has its ends cut slantwise to present elliptical leading and trailing edges. The sleeve is adapted, for example by being longitudinally split, to be received on an anchor line or chain so as to be slidable down the anchor line onto the shank of the anchor which is provided with a frusto-conical abutment over which the sleeve can pass. The recovery sleeve is provided towards its leading edge with attachment means for a lifting line and may be provided towards its trailing edge with a clip releasably to hold the lifting line in a position in which it does not interfere with the sliding of the recovery sleeve down the anchor line. Once the sleeve is on the anchor shank, the application of a pull to the lifting line cants the sleeve on the shank so that a pull is transmitted to the shank and the sleeve is prevented from sliding off the shank by engagement of its trailing edge with the abutment. The abutment provided on the anchor shank is suitably formed as two complementary abutment portions which can be secured in position around the shank, with the abutment thus constituted presenting a recess at its face farthest from the end of the shank attached to the anchor line, in which recess the trailing end of the recovery sleeve is positively engageable.

3,809,002

AUTOMATIC COUPLING MECHANISM FOR SUBMARINES DIRIGIBLES AND OTHER LIKE BUOYANT VEHICLES

Charles E. Nagy, 3221 Bend Pl., Hollywood, Calif., and John F. Nagy, 785 W. End Ave., New York, N.Y.

Filed May 31, 1972, Ser. No. 258,350The portion of the term of this patent subsequent to May 20, 1989, has been disclaimed.
Int. Cl. B63b *21/56;* **B61g** *5/06;* **B64c** *7/00*
U.S. Cl. 114—235 B **10 Claims**



This is a coupling mechanism for use in connecting together submarines, dirigible aircraft and other similar vehicles in a manner that cannot be readily effected by hand within water or in the air. These coupling mechanisms are automatic in operation and once the submarine or dirigible has made firm and true axial contact with a tow vehicle the ball mechanism will be automatically put into operation to extend the ball so as to engage a sensor plunger in the ball grip mechanism and thereby effect the operation of the mechanism to enclose the ball grip clamps about the ball head of the trailing vehicle to thereby finally effect the coupling of the vehicles, one with the other. At the same time that the mechanical coupling of the mechanisms is effected an electric coupling of a plug within a socket is made between the mechanisms so that electric current can be passed from the two submarine to the trailer submarine for the purposes of charging its battery and providing current directly from the generator of the tow submarine for various uses in the trailer craft. Adequate provision is provided in the ball head mechanism to take up any shock from the ball head when it is extended engaging with a wall obstruction in such a manner that would normally cause damage and so that the blow can be cushioned within the ball mechanism by the action of cushioning springs and by hydraulic dampening of the return of the ball to its extended position when the obstruction is removed and wherein automatic retraction of the ball should be effected should the obstruction not be removed. The same ball grips mechanisms operable in the same manner in response to engagement of a ball with a sensing pin can also, as shown, be used in the ground for mooring purposes of a dirigible. The finding and the joining of the coupling parts being effected through radio.

3,809,003

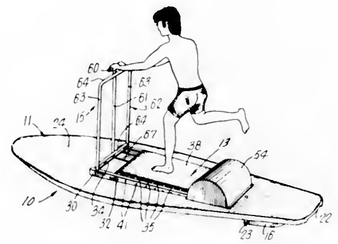
MECHANICALLY PROPELLED WATER CRAFT

Janos Foldvari, 300 Joliette, Apt. 403, Longueuil, Quebec, Canada

Filed Apr. 4, 1972, Ser. No. 240,986
Int. Cl. B60f *5/00;* **A63c** *15/04*
U.S. Cl. 115—1 R **9 Claims**

A water craft comprising a buoyant body having a load supporting surface. An endless belt having spaced apart upper and lower travel portions is supported above the load supporting surface for rotation between two supporting rollers secured within a supporting frame. Steering means are further

provided and positioned above the load supporting surface and connected to a rudder located underneath the buoyant



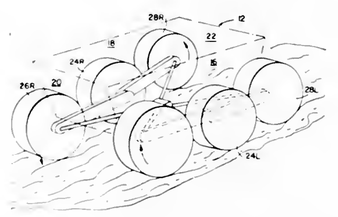
body. Water propelling means are coupled to the endless belt for rotation thereof and for propelling the buoyant body in water.

3,809,004

ALL TERRAIN VEHICLE

William H. Leonheart, 960 Washington St., San Carlos, Calif.

Filed Sept. 18, 1972, Ser. No. 290,201
Int. Cl. B60f *3/00*
U.S. Cl. 115—1 R **6 Claims**



An all terrain vehicle and a suspension system for an all terrain vehicle is disclosed with a drive system that affords steerage by braking the wheels on one or the other sides of the vehicle and without turning the wheels. The improved suspension system is provided with independently suspended wheels which can have interchangeable parts with each wheel independently adjustable to adapt the vehicle for travel over relatively rough terrain or over relatively smooth terrain. Provision is made to shield the driving and suspending members for all wheels from the terrain and elements ambient to the terrain. A body is disclosed with an all terrain vehicle that is lightweight, reinforced for strength, and substantially water tight.

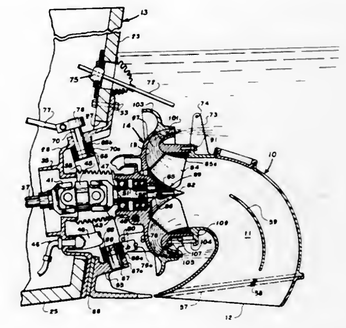
3,809,005

PROPULSION SYSTEM

Waldo E. Rodler, Jr., 1488 Cherry Garden Ln., San Jose, Calif.

Filed July 20, 1972, Ser. No. 273,503
Int. Cl. B63h *25/46*
U.S. Cl. 115—12 R **7 Claims**

A propulsion system for a vessel is described which includes an intake duct and an annular duct which together define a passage which provides two 180° reversals of direction. The annular duct provides a passage of increasing mean diameter and continuously decreasing interior cross section. An impeller accelerates the water by imposing dynamic and centrifugal forces thereon. Stator blades are provided to cause discharge of the water in a direction essentially straight to the rear of the boat.

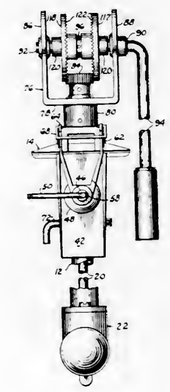


3,809,006

MANUALLY OPERATED SMALL BOAT DRIVE

Burton C. Finn, P.O. Box 396, Lithia Springs, Ga.

Filed Oct. 25, 1972, Ser. No. 300,614
Int. Cl. B63h *16/12*
U.S. Cl. 115—24 **2 Claims**



A housing, vertically connected with and supported by a small boat transom journals a shaft connected through driven gear elements to a propeller, is provided at its upper end portion with a manually operated handle, connected by drive gear elements to the upper end of the shaft by friction clutch assembly for driving the propeller in response to vertical movement of the handle.

3,809,007

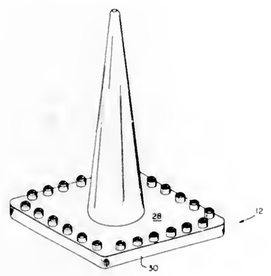
PORTABLE TRAFFIC DELINEATOR

Woodrow I. Brown, 4140 Thompson Dr., Concord, Calif.

Filed Mar. 19, 1973, Ser. No. 342,814
Int. Cl. E01f *9/10*
U.S. Cl. 116—63 P **8 Claims**

A portable traffic delineator characterized by a base structure adapted to extend laterally from a conventional cone or other vertical standard, such base structure having a plurality

of vertical apertures extending therethrough. The apertures act as chimneys, resulting in an updraft of air as the wind passes over the apertures, to thereby cause the lower surface



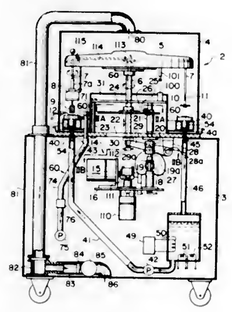
of the base member to more tightly adhere to a roadway or other surface. The chimney effect is enhanced by providing short lengths of tubular elements extending upwardly from the respective apertures.

3,809,008

APPARATUS FOR PROCESSING TISSUE FOR ELECTRON MICROSCOPE EXAMINATION

Kikuo Takahashi, Narashino, Japan, assignor to Sakura Seiki Kabushiki, Kaisha, Tokyo, Japan

Filed Nov. 10, 1972, Ser. No. 305,583
Int. Cl. B05c *11/12*
U.S. Cl. 118—6 **10 Claims**



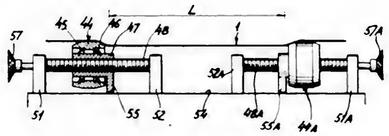
Apparatus for processing tissue for electron microscope examination comprises a series of processing reagent containing receptacles arranged in an annular row, a rotary transfer disc for transferring a tissue-containing basket along the series of receptacles successively one by one to dip the basket and the tissue contained therein into each of the reagents in the receptacles, and means for maintaining the atmosphere surrounding some of the reagents at sub-atmospheric pressure when the basket and the tissue therein are being dipped therein for processing, the sub-atmospheric pressure improving and accelerating ingress and impregnation of the reagents into the tissue being processed.

3,809,009

DEVICE FOR APPLYING A LAYER OF ADHESIVE ON AN ENDLESS BELT IN A SCREEN PRINTING MACHINE

Stierlein Gerard, Mulhouse-Bourtzwiller, France, assignor to Societe Alsacienne de Constructions Mecaniques de Mulhouse, Mulhouse, France

Filed Mar. 22, 1972, Ser. No. 237,139
Claims priority, application France, Apr. 1, 1971, 71.11467
Int. Cl. B05c *11/00*
U.S. Cl. 118—44 **6 Claims**



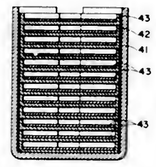
In screen printing machines, in the vicinity to the belt adapted to carry the strip material to be printed, there are provided belt adjustable guiding means for deforming the belt so that its cross-section exhibits a configuration having a central portion of variable width, slightly protruding relative to the two remaining marginal portions, whereby the coating roll bears only against said belt central portion.

3,809,010

APPARATUS FOR GROWING OF EPITAXIAL LAYERS

Anthony John Springthorpe, Richmond, Ontario, Canada, assignor to Bell Canada-Northern Electric Research Limited, Ottawa, Ontario, Canada

Continuation-in-part of Ser. No. 128,284, March 26, 1971, abandoned. This application Oct. 24, 1972, Ser. No. 299,906
Int. Cl. B05c *3/109*
U.S. Cl. 118—429 **3 Claims**



A holder for liquid epitaxial growth includes a vertically slotted wall and a plurality of stacked recessed receptacles closely fitted within the holder and adapted to support the substrates. Each support is slotted through the peripheral wall thereof whereby to communicate the recess with the vertical slot. The loaded holder is contained in a crucible and pressurized means charge the crucible with the growth material.

3,809,011

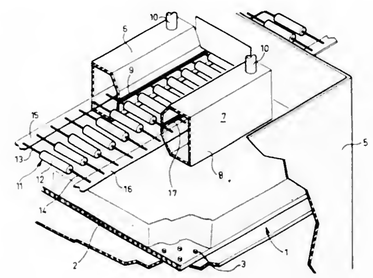
APPARATUS FOR THE SURFACE COATING OF OBJECTS

Pierre Fabre, Grenoble; Robert Giroud-Garampon, Vourey; Michel Gondrand, Grenoble, and Fernand Raymond, Meyland, all of France, assignors to Tunzini Ameliorair Thermique, Aeraulique, Mecanique (T.A.M.), Paris, France

Division of Ser. No. 37,971, May 18, 1970, Pat. No. 3,695,909. This application Dec. 23, 1971, Ser. No. 211,611
Claims priority, application France, May 23, 1969, 69.16009
Int. Cl. B05b *5/02*
U.S. Cl. 118—635 **7 Claims**

The present invention relates to an apparatus for the partial surface coating of objects, such as electrical components,

moving past an electrostatic coating station where they are coated with electrified particles of coating material. According to the invention the portion or portions of the components



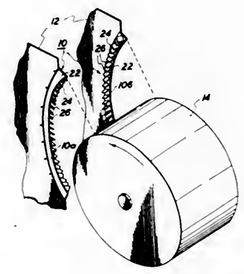
which are not to be coated, e.g. the connecting wires of electrical components, are maintained in a zone of pneumatic over-pressure during their passage through the coating station, whereby such portions do not become coated.

3,809,012

DEVELOPER SEAL

George D. Delvecchio, Briscoe Cove, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 24, 1972, Ser. No. 309,386
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **8 Claims**



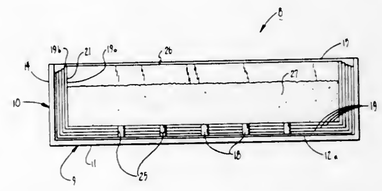
A developer housing seal for electrophotographic apparatus in which a developer with carrier beads which roll over part of the photoreceptor surface is applied to a photoreceptor drum inside a developer housing engaging the drum. This developer housing side or end seal, which may be integrally molded of rubber or other suitable materials, includes a multiplicity of overlapping resilient deflector vanes projecting in the direction of drum surface movement. These vanes angularly impact and deflect the carrier beads inwardly, away from the outside edges of the seals, thereby reducing developer leakage under the seals. The seals are in the form of an arcuate segment of the drum circumference extending partly around the drum, and their outer portion continuously engages the drum surface.

3,809,013

DISPOSABLE INSERT FOR LITTER BOX

Jack C. Rigney, San Francisco; Samuel H. Hollis, Alameda, and Nathaniel J. Doonan, Sausalito, all of Calif., assignors to The Thursday Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 140,901, May 6, 1971, abandoned. This application Nov. 6, 1972, Ser. No. 304,169
Int. Cl. A01k *29/00*
U.S. Cl. 119—1 **26 Claims**



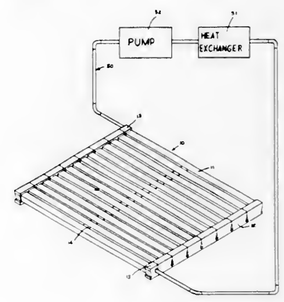
An insert for placement in an open, self-supporting tray for use as an animal litter box. A number of disposable screens are stacked on top of each other, constructed of flat, thin flexible material such as paper or plastic film, include a plurality of holes at their center portion and are placed in the tray so that walls of the tray fold the screens into a receptacle. Means is provided for closing the holes in the screens to prevent articles from entering the holes and for opening them upon lifting a screen from the stack. To change the liner and dispose of waste, the top liner is lifted whereby litter sifts through the holes onto the remaining screens for reuse while the liner and the waste thereon are discarded.

3,809,014

FLOORING SYSTEM FOR STIES AND OTHER ANIMAL SHELTERS

Robert S. Jones, R.R. 3, Pontiac, Ill., and Wesley E. Jones, 707 Burnham Dr., Park Forest South, Ill.

Filed Jan. 5, 1973, Ser. No. 321,386
Int. Cl. A01k *1/00*
U.S. Cl. 119—28 **4 Claims**



A flooring system for sties and other animal shelters utilizing thermoplastic slats and including means provided in the flooring for circulating a heat exchange fluid therethrough.

3,809,015

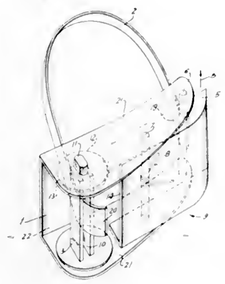
ANIMAL TREATING DEVICE

Claus Wiek, Bieber, Germany, assignor to Rheintechnik Weiland & Kaspar OHG, Bandorf, Germany

Filed Mar. 1, 1973, Ser. No. 337,215
Int. Cl. A01k *15/00*
U.S. Cl. 119—126 **13 Claims**

A device to be used for the treatment of animal claws has a strap which is secured to a support. In use, the strap encircles

the leg of the animal and bears against the Achilles tendon so that when the strap is initially tightened the leg of the animal is

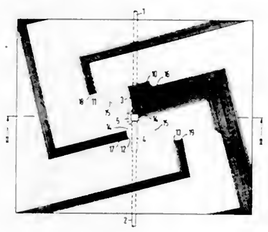


forced against the support. Further tightening of the strap causes pressure to be exerted against the Achilles tendon so that the animal raises its leg for treatment.

3,809,016
STEAM GENERATOR WITH FLAT COMBUSTION CHAMBER BOTTOM

Rudolf Kral, Brauningshof, and Hermann Bruckner, Erlangen, both of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mulheim Ruhr, Germany

Filed Oct. 30, 1972, Ser. No. 302,277
Claims priority, application Germany, Oct. 29, 1971, 2153965
Int. Cl. F22b *27/06*
U.S. Cl. 122—6 A **11 Claims**

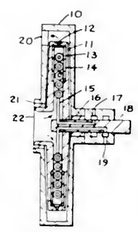


In a steam generator having a combustion chamber defined by tubes forming a generally flat bottom wall and tubes forming upwardly extending side walls, means are provided in the general plane of the bottom wall forming entrance locations at which fluid medium enters the bottom wall tubes. The entrance locations are disposed substantially along vector lines arranged such that substantially all of the bottom wall tubes are each provided with two 90 degree turns in passing between its respective entrance location and said side walls and wherein the length of each of said bottom wall tubes is substantially equal.

3,809,017
HEAT AND STEAM GENERATOR

Michael Eskell, 6220 Orchid Ln., Dallas, Tex.

Continuation-in-part of Ser. Nos. 216,929, Jan. 11, 1972, Pat. No. 3,748,057, and Ser. No. 243,239, April 12, 1972. This application July 5, 1973, Ser. No. 376,877
Int. Cl. F22b *3/06*
U.S. Cl. 122—11 **16 Claims**

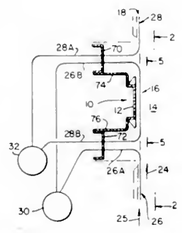


A method and apparatus for the vaporizing of liquids and for generation of steam, wherein a gaseous heating fluid is compressed with accompanying temperature increase, and this temperature increase is employed to provide for heat transfer to a working fluid which is in heat exchange relationship with said heating fluid during said compression. A rotating rotor with a heat exchanger mounted within is used to compress said heating fluid with said working fluid being within said heat exchanger conduits. Said gaseous heating fluid may also be condensed within said rotor with the heat of vaporization of said heating fluid being passed to said working fluid. Various fluids may be used for said heating fluid, such as halogenated hydrocarbons, ammonia, air, nitrogen or sulfur dioxide. For the working fluid, water, halogenated hydrocarbons, hydrocarbons or sulfur dioxide may be used. The fluids are so selected that said heating fluid has a higher temperature increase within said rotor than said working fluid so that heat transfer from said heating fluid to said working fluid may take place. By proper selection of the heating fluid, the work input of the unit rotor can be made to be nearly nil.

3,809,018
VAPOR GENERATOR MIXING SECTION SUPPORT

Harry M. Pratt, West Orange; Byram J. Magol, Convent Station, and Dudley P. Money, Parsippany, all of N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Continuation of Ser. No. 210,687, Dec. 22, 1971, abandoned. This application May 29, 1973, Ser. No. 364,393
Int. Cl. F22b *37/24*
U.S. Cl. 122—510 **2 Claims**

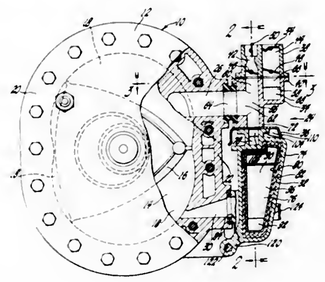


A support is provided for a pressurized wall of a once-through vapor generator in which mixing headers are positioned exteriorly of the wall. The support extends transversely across and is secured to the tubes which connect the mixing headers in flow communication.

3,809,019
ROTARY ENGINE WITH LOW EMISSION MANIFOLDING

Donald D. Stoltman, Henrietta, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 9, 1973, Ser. No. 331,052
Int. Cl. F02b *53/00*; **F02m** *31/04*
U.S. Cl. 123—8.01 **4 Claims**

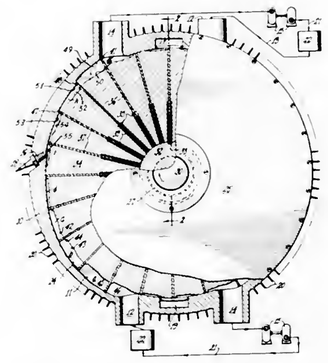


In a preferred embodiment, a dual rotor internal combustion engine is provided with manifolding including a two-stage intake manifold mounted on an exhaust manifold having an integral insulated reactor chamber and an exhaust heat passage external to the reactor chamber with a damper valve to control exhaust flow through the heat passage. The exhaust heat passage is in heat exchange relation with the primary mixture passage of the inlet manifold through a heat-transmitting plate. The plate forms part of a sheet metal bonnet which encloses portions of the exhaust manifold heat passage to form a heat stove connectible to provide heated air to the engine air inlet. Additional features are also disclosed.

3,809,020
SLIDING VANE ROTARY ENGINES AND PROCESS FOR OBTAINING HIGH TORQUE POWER

Hideo Takitani, 200 S. Makapu St., Kahului, Hawaii

Continuation-in-part of Ser. No. 4,799, Jan. 22, 1970, abandoned, which is a continuation-in-part of Ser. No. 752,961, Aug. 15, 1968, abandoned. This application Jan. 28, 1972, Ser. No. 221,572
Int. Cl. F02b *53/10*
U.S. Cl. 123—8.07 **17 Claims**

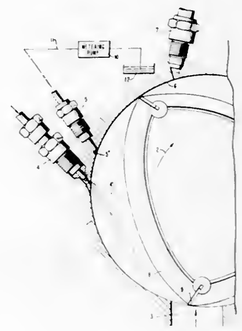


The process consists in obtaining high torque, rotary power from initial (high energy) fragments of expansion-produced work which is obtained by allowing just a limited pressure-drop of successive segments of a highly expansible gas. The rest of the work which could be obtained from more complete expansion may be extracted in some other way, as by segmental expansion in successive chambers and/or by it driving a turbine, and then these secondary outputs may be added to the first. Thus, in comparison with the output curve of the full stroke of a piston engine, here only the initial, nearly vertical segment of the total expansion curve is "severed" from the whole and is used to pace at high torque, a rotary drive shaft. Structurally, this is by the use of one or more successive, shallow, arcuately elongated, curcumferential-stepwise expansion chambers in a sliding vane, rotary engine, in place of the wedge-shaped chambers of the past. The latter resulted in low-torque output partly because they tried to expose as large as possible a contact area of the sliding vane, and the associated outward or radial gas-expansion in the wedge-chamber produced no obtainable work from such radial movement; also, the intended, nearly complete gas-expansion resulted in an "average" low-torque output because most of it was obtained from the flat end of the pressure-volume curve. The present process is applicable to both internal combustion and non-combustion (e.g. compressed air or steam) rotary engines of the sliding vane type, for which several new constructions are provided. Advantage is also obtained by use of a molded carbon facing for the rotor and the combustion chambers.

3,809,021
ROTARY-PISTON INJECTION-TYPE INTERNAL COMBUSTION ENGINE

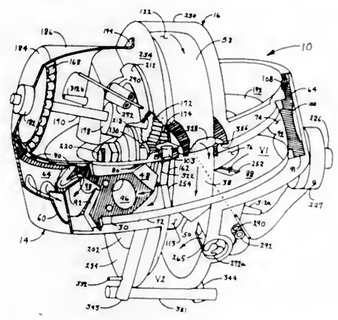
Heinz Lamm, Esslingen-St. Bernhardt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Nov. 18, 1971, Ser. No. 199,921
Claims priority, application Germany, Nov. 18, 1970, 2056673
Int. Cl. F02b *53/10*
U.S. Cl. 123—8.09 **6 Claims**



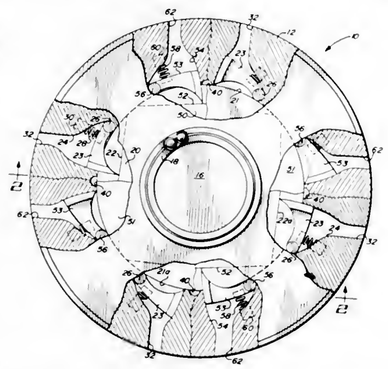
A rotary piston internal combustion engine, especially of trochoidal construction, in which a fuel injection valve is provided in the housing casing which injects fuel into the suction chamber of the engine, and in which a device is provided for lubricating the contact surface of the piston of the housing casing which is arranged downstream of the injection valve with respect to the direction of rotation of the piston.

3,809,022
ROTARY POWER TRANSLATION MACHINE
John K. Dean, Jr., 8007 Green Willow Court St., Huntsville, Ala.
Filed Nov. 15, 1972, Ser. No. 306,570
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.19 **14 Claims**



A rotary internal combustion engine wherein a pair of rotors operate synchronously in crossing orbital cavities and wherein a fuel-air mixture is drawn in and compressed by one rotor in one cavity, the compressed mixture fed to a precombustion chamber and therein ignited and fed into the other cavity to drive the second rotor and the engine.

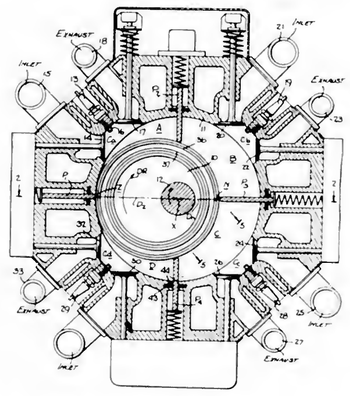
3,809,023
ROTARY INTERNAL COMBUSTION ENGINE
William T. Wells, 1750 W. Ajo Way, Tucson, Ariz.
Filed Aug. 3, 1972, Ser. No. 277,736
Int. Cl. F02b *53/08*
U.S. Cl. 123—8.27 **14 Claims**



A rotary internal combustion engine is disclosed which includes separate members for compressing a gaseous mixture and for deriving power from the combustion of the gaseous mixture.

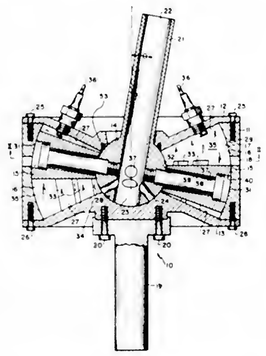
3,809,024
FOUR-STROKE AND TWO-STROKE ROTARY INTERNAL COMBUSTION ENGINE
Harold G. Abbey, 75 Prospect St., East Orange, N.J.
Continuation-in-part of Ser. No. 280,733, Aug. 14, 1972. This application Dec. 26, 1972, Ser. No. 318,664
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.45 **10 Claims**

A rotary internal combustion engine including a stator having a circular chamber within which is coaxially disposed a shaft supporting an off-center circular rotor, the diameter of the rotor being such that the distance between the center of the shaft and the zenith on the rotor periphery is substantially equal to the radius of the chamber whereas the distance between the center of the shaft and the nadir on the periphery is substantially equal to half this radius. Extending into the



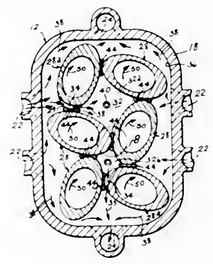
chamber are slide plates which are urged into continuous contact with the rotor surface to divide the chamber into operating zones of varying volume into which fuel charges are admitted for compression and ignition to produce gas expansion creating torque forces, the spent gases being exhausted from the zones.

3,809,025
ROTARY ENGINE HAVING INCLINED PISTON AND CYLINDER ROTATION AXES
Murry D. Harper, Dunbar, W. Va., assignor to Harper Development Corporation, Dunbar, W. Va.
Filed Feb. 2, 1973, Ser. No. 329,186
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.47 **25 Claims**



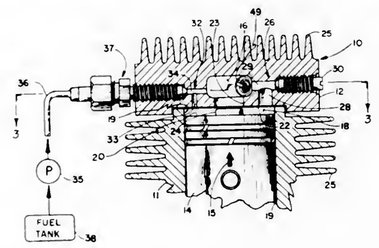
The rotary engine includes a housing which defines a plurality of chambers for primary compression and combustion and a plurality of pistons mounted to a piston carrier positioned within the housing. Both the housing and the piston carrier rotate at the same rate on separate shafts and the axes of rotation of the two shafts are at an angle to one another. Combustible gas is fed through a central hollow portion of the piston carrier shaft where it is directed into the primary compression chamber by inlet means in the piston carrier which are exposed to the chamber through the movement of the housing relative to the piston carrier. Transport means communicate with each primary compression chamber to transport the combustible gas around the piston from an inlet side to a combustion side of the chamber.

3,809,026
ROTARY VANE INTERNAL COMBUSTION ENGINE
Duane P. Snyder, Rt. 1, Box 133, Bridgman, Mich.
Filed Feb. 28, 1973, Ser. No. 336,446
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.47 **10 Claims**



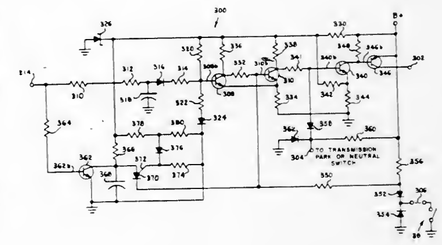
An engine of the internal combustion type having a plurality of cooperating elliptical rotors. A set of four such rotors rotate in the same direction about parallel axes to form a combustion chamber having a varying volume which depends upon the rotational position of the rotors. One of the rotors of each set of four rotors is slotted at its side wall so as to provide valving for the combustion chamber.

3,809,027
INTERNAL COMBUSTION ENGINE
Edward J. Morgan, Fond du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill.
Filed Feb. 28, 1972, Ser. No. 229,738
Int. Cl. F02b *15/00*
U.S. Cl. 123—30 R **14 Claims**



An improved self-injection reciprocating diesel or stratified charge type engine which utilizes pressure in the cylinder to air inject fuel into an adjacent combustion chamber. The combustion chamber and the cylinder space are connected by three separate passages, a small fuel passage, a primary air passage, and a secondary air passage, the secondary air passage being smaller than the primary but considerably larger than the fuel passage. Fuel is delivered by pump pressure to the fuel passage well before top dead center of the piston. As the piston approaches top dead center, it blocks the primary air passage; the resulting rapid pressure increase in the cylinder over that in the combustion chamber causes air from the cylinder to flow through the secondary air passage and create a swirl in the combustion chamber, and air to flow through the fuel passage which atomizes part and ejects the remainder of the fuel onto the wall of the combustion chamber from where it evaporates and burns. The secondary air passage, subsequent to the blocking of the primary air passage, provides the flow path for most of the air flowing from the cylinder to the combustion chamber and hence, controls the pressure differential between the cylinder and combustion chamber. Because the fuel passage is substantially smaller than the secondary air passage, it may be cooled without excessive heat losses and at the same time prevent premature evaporation and decomposition of the fuel. This separation and function of the secondary air and fuel passages in combination with self-injection, swirl creation in the combustion chamber, initial atomization of a small fraction of the fuel, and surface deposition of most of the fuel followed by evaporation are the distinguishing features of this invention.

3,809,028
FUEL CUTOFF CIRCUIT RESPONSIVE TO ENGINE DECELERATION CONDITIONS FOR USE IN CONJUNCTION WITH THE FUEL DELIVERY SYSTEM FOR AN INTERNAL COMBUSTION ENGINE
David G. Luchaco, Horseheads, N.Y., assignor to The Bendix Corporation, Southfield, Mich.
Filed Sept. 27, 1971, Ser. No. 183,907
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **2 Claims**

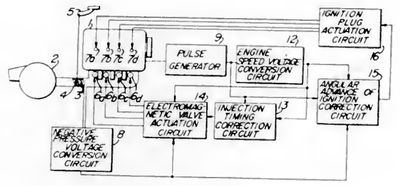


A circuit is disclosed which includes a Schmitt trigger having a pair of control electrodes and which is responsive to a plurality of engine conditions to generate an output signal when the engine conditions indicate that a termination of fuel delivery to the engine is necessary. The circuit is preprogrammable to generate an output signal when the engine speed is in excess of a preselected value and a selected switch has changed state and to thereafter continue to generate the output signal while the switch state remains constant and until engine speed drops to a second, lower, preselected value.

3,809,029
ELECTRIC CONTROL APPARATUS FOR INTERNAL COMBUSTION ENGINES
Hisato Wakamatsu, Kariya, and Kunio Endo, Anjo, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi and Nippondenso Co., Ltd., Kariya-shi, both of, Japan
Continuation-in-part of Ser. No. 1,687, Jan. 9, 1970, abandoned. This application Dec. 21, 1971, Ser. No. 210,322
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **11 Claims**

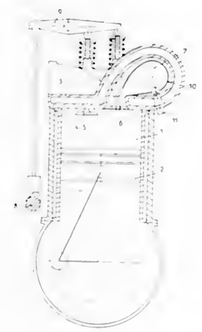
An electronic control for the fuel injection valves or ignition timing of an internal combustion engine senses a plurality of pulses generated throughout each engine cycle including a reference pulse for each cycle. Pulses are fed to a speed load, etc., voltage conversion circuits and a plurality of counting

circuits for each fuel injection valve. The counters supply an output starting signal depending on the capacity of each counter. A timing correction circuit connected to each counter determines capacity depending on engine speed, load,



etc., represented by voltage from the conversion circuit to modify the duration of an electro-magnetic valve driving pulse, or trigger an ignition, for, or at, a certain time determined by the output starting signal and counter input frequency from the pulse generator.

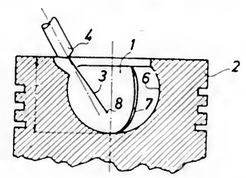
3,809,030
INTERNAL COMBUSTION ENGINES
Auguste Moiroux, 28 Route de Dardilly, Ecully, France
Filed Jan. 18, 1972, Ser. No. 218,810
Claims priority, application France, Jan. 18, 1971, 71.02414; Jan. 13, 1971, 72.01818
Int. Cl. F02b *19/02, 3/12*
U.S. Cl. 123—32 K **16 Claims**



Internal combustion engine which may be of the reciprocating piston type or rotary type in which there is a separate combustion chamber communicating through a valve with a compression and expansion chamber which may be constituted by a cylinder or stator casing of a rotary engine.

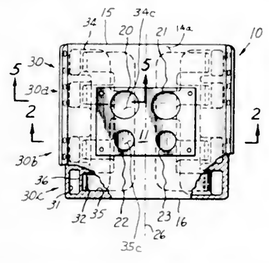
3,809,031
AIR COMPRESSING SELF-IGNITING FUEL INJECTION INTERNAL COMBUSTION ENGINE
Siegfried Meurer, Augsburg; Wolfram Emmerling, Nurnberg, both of Germany, and Nunzio D'Alfonso, Milano, Italy, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurnberg, Germany
Filed Feb. 17, 1972, Ser. No. 227,129
Claims priority, application Germany, Feb. 19, 1971, 2108012
Int. Cl. F02b *19/00*
U.S. Cl. 123—32 R **4 Claims**

An air compressing self-igniting fuel injection internal combustion engine, which includes a piston having a combustion chamber therein which receives the main portion of the injected fuel in the form of a thin film applied to the wall of the combustion chamber, and in which the geometric fuel jet direction during the injection step is so selected that the fuel film formed on the wall of the combustion chamber extends over as great a portion of the depth of the combustion



chamber as possible, the fuel film in view of its kinetic energy and the air circulation in the combustion chamber being conveyed to a downward step where at least a part of the fuel film breaks up and in droplet form and/or vapor form intermixes with the circulating combustion air.

3,809,032
INTERNAL COMBUSTION ENGINE MANIFOLD
George O. Morris, Newport Beach, Calif., assignor to Fred C. Offenhauser, Newport Beach, Calif., a part interest
Continuation of Ser. No. 73,010, Sept. 17, 1970. This application Aug. 3, 1972, Ser. No. 277,641
Int. Cl. F02b *75/22, 75/20;* **F02m** *11/00*
U.S. Cl. 123—52 M **7 Claims**

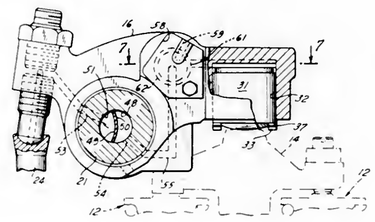


An internal combustion engine manifold adapted to mount a multiple-barrel carburetor to an engine, the carburetor having a primary barrel for supplying fuel-air mixture at lower speeds and a supplemental secondary barrel to supply supplemental fuel-air mixture at higher speeds. The manifold connects respective primary and secondary inlet ports to a respective cylinder intake port by means of separate axially-extending primary and secondary plenum chambers from which respective laterally-extending primary and secondary passages extend in pairs to respective cylinder inlet ports, the primary and secondary passages which discharge into a respective cylinder inlet port doing so in adjacency and in substantial parallelism. The plenum chambers may have a flat bottom surface against which the fuel-air mixture from the inlet port discharges substantially perpendicularly.

3,809,033
ROCKER ARM ENGINE BRAKE SYSTEM
Charles F. Cartledge, West Hartford, Conn., assignor to The Jacobs Manufacturing Company, West Hartford, Conn.
Filed July 11, 1972, Ser. No. 270,698
Int. Cl. F01l *13/06;* **F02d** *13/04*
U.S. Cl. 123—90.46 **16 Claims**

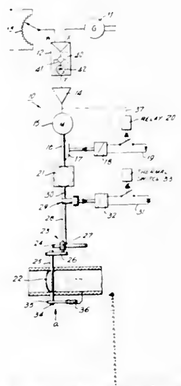
A rocker arm engine brake system for an internal combustion engine in which a rocker arm is movable by a cam operating off the cam shaft to open the exhaust valve of a cylinder at the usual time in the piston cycle; and when it is

desired to retard the speed of the engine, a lash piston in the rocker arm is hydraulically extensible at the will of the operator to take up the usual lash between the rocker arm and the exhaust valve so as to enable an auxiliary cam operating off the cam shaft to effectively cooperate with the rocker arm to open the exhaust valve at a time toward the end of a compres-



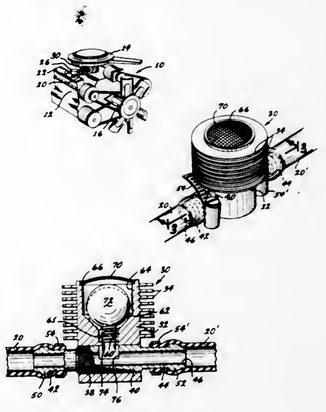
sion stroke of the piston so as to dissipate the energy of gases of compression from acting upon the piston. Separate passages in the rocker arm shaft are utilized for providing fluid for operating the lash piston and for general lubrication. The passages are interconnected by bleed holes. Selective control of the hydraulic system is obtained by means of a solenoid operable valve.

3,809,034
SPEED REGULATOR FOR AN INTERNAL COMBUSTION ENGINE
Horst Durichen, Steinebach am Worthsee, Germany, assignor to Deutsche Vergaser Gesellschaft mbH & Co. K.G., Neuss, Germany
Filed Dec. 30, 1971, Ser. No. 214,231
Claims priority, application Germany, Apr. 27, 1971, 2120510
Int. Cl. F02n *17/00;* **F02d** *11/10*
U.S. Cl. 123—102 **8 Claims**



A speed regulator for an internal combustion engine including a control device regulating the control valve for the fuel-air mixture to the engine. The control device is responsive to a voltage differential between a first voltage proportional to the engine speed and a second voltage based on a preset engine speed value, so as to provide for control of the valve. Another aspect lies in the provision of a thermal switch preventing operation of the control device during time when engine is below a minimum operating temperature, while concurrently maintaining the control valve in an engine idling attitude.

3,809,035
AIR ADMISSION VALVE FOR INTERNAL COMBUSTION ENGINES EQUIPPED WITH POLLUTION CONTROL VALVE
Herbert D. Winton, Woodland Hills, Calif., assignor to Ballmatic Corporation, Orange, Calif.
Filed Aug. 25, 1971, Ser. No. 174,675
Int. Cl. F02m *25/06, 23/08*
U.S. Cl. 123—119 B **5 Claims**

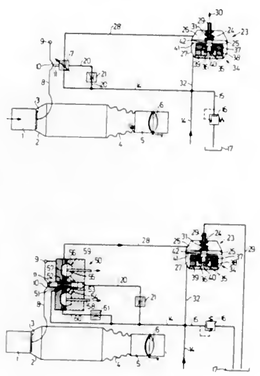


The invention is an automatic air inlet control valve for admitting additional air into the fuel mixture in internal combustion engines. The air valve is positioned in the pipe or conduit connecting the crankcase to the manifold and having a pollution control valve in it. The air valve body has heat radiating fins to produce a cooling effect on inlet air passing through the valve. The valve operates automatically depending upon the degree of vacuum and provides an auxiliary air mixing device which improves engine efficiency and additionally supplies additional air to mix with the fumes emanating from the crankcase and passing through the pollution control valve, thereby permitting improved combustion of these fumes. Thus, this reduces the amount of air pollution expelled from the exhaust pipe of the internal combustion engine.

3,809,036
FUEL INJECTION APPARATUS
Heinrich Knapp, Leonberg-Silberberg, and Reinhard Schwartz, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Jan. 22, 1973, Ser. No. 325,743
Claims priority, application Germany, Jan. 22, 1972, 2203018
Int. Cl. F02m *69/00*
U.S. Cl. 123—119 R **5 Claims**

In a fuel injection apparatus a fuel metering valve is controlled by an air sensor disposed in the air intake tube of an internal combustion engine for metering fuel quantities that are

proportionate to the intake air quantities. The pressure difference across the fuel metering valve is varied as a function of



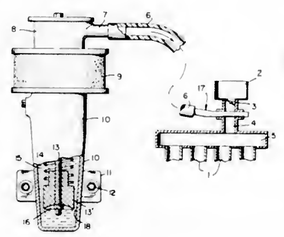
at least one engine variable in a hysteresis-free manner by means of an electromagnetic system including a coil armature and a permanent magnet.

3,809,037

VALVE FOR INTRODUCTION OF ADDITIONAL AIR INTO INTERNAL COMBUSTION ENGINES

Jens Leif Lokka, Haerland, Mysen, Norway

Filed July 20, 1972, Ser. No. 273,469
Claims priority, application Norway, Oct. 11, 1971, 3724/71
Int. Cl. F02m *23/08*
U.S. Cl. 123—119 DB **2 Claims**



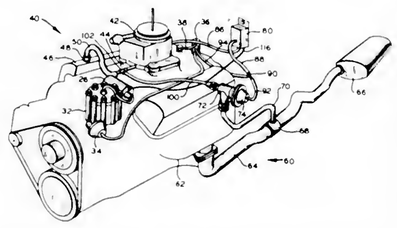
A valve controlled by the vacuum in the manifold of an internal combustion engine, has a valve body, the stem of which extends through an opening in the valve seat and down into a liquid-filled chamber, and a spring and a weight loading the valve, the weight being located in a constricted portion of the liquid-filled chamber so that the internal wall of said chamber and the weight define a narrow passage forming a damping device. Disclosed is an embodiment wherein the liquid-filled chamber is tapered in a direction away from the valve body, and the weight is capable of being raised or lowered on the valve stem, whereby the damping action is thus varied by the position of the weight on the stem. The valve is used to reduce the vacuum in the induction manifold of an engine and to supply additional air to the engine.

3,809,038

EXHAUST POLLUTION CONTROL APPARATUS

Richard N. Young, Richmond, Ind., assignor to Dana Corporation, Toledo, Ohio

Filed Aug. 24, 1972, Ser. No. 283,336
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 A **22 Claims**



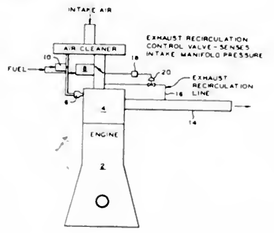
The invention is disclosed herein in apparatus for minimizing the emission of unburned and partially burned fuel from a vehicle internal combustion engine having a carburetor and intake manifold including means for providing a vacuum source for engine control function, an ignition system including an ignition coil, an electrical energy source connected to the ignition coil, and an exhaust gas manifold. An exhaust gas recirculation valve is utilized for feeding exhaust gases back from an exhaust system to an intake manifold. A solenoid valve is utilized for selectively connecting a vacuum source to operate the exhaust gas recirculation valve. An electronic engine speed sensing means is utilized to control the solenoid valve. Although the electronic engine speed sensing circuit disclosed herein has particular applicability as a control means with the vehicle system described, it should be noted that the novel electronic engine speed sensing circuit has utility elsewhere.

3,809,039

STRATIFIED CHARGE SPARK IGNITION INTERNAL COMBUSTION ENGINE WITH EXHAUST RECYCLE

Henry E. Alquist, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sept. 25, 1972, Ser. No. 291,612
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 A **9 Claims**



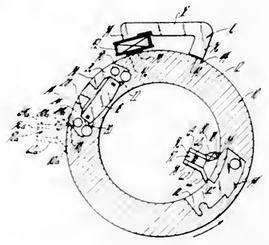
A spark ignition system and a method for operating same by passing a first fuel-air mixture into a precombustion chamber of the engine and a second leaner fuel-air mixture into a primary combustion chamber, igniting the first mixture for igniting the second mixture, and controllably mixing about 5 to about 20 percent of the exhaust gas resulting from the combustion of the fuel mixtures with the second fuel-air mixture during operation of the engine at greater than about 75 percent maximum power output with the amount of exhaust gas being mixed with the second fuel-air mixture varying directly with the power output of the engine.

3,809,040

IGNITION TRIGGERING CIRCUIT WITH AUTOMATIC ADVANCE

Bob O. Burson, East Longmeadow, and Russell Dale Phelon, Longmeadow, both of Mass., assignors to R. E. Phelon Company, Inc., East Longmeadow, Mass.

Continuation-in-part of Ser. No. 758,563, Sept. 9, 1968, abandoned. This application June 5, 1970, Ser. No. 43,845
Int. Cl. F02p *3/06*
U.S. Cl. 123—148 E **12 Claims**



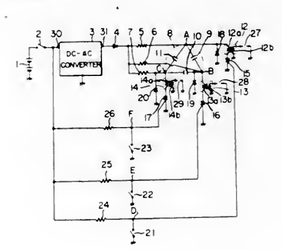
In a breakerless ignition system for a spark ignited engine, two separate magnets are used for generating the electrical energy supplied to the spark plug and for generating triggering signals applied to an electronic switch controlling the application of electrical energy to the spark plug. The system is a condenser discharge system wherein a main rotating magnet assembly generates a varying voltage in a generating coil positioned adjacent its path of movement. A condenser is connected with the generating coil through a rectifying means so as to be charged when the voltage induced in the generating coil is of one polarity. A silicon controlled rectifier controls the discharge of the condenser through the primary of a step-up transformer having its secondary winding connected to the spark plug. Triggering signals for the silicon controlled rectifier are provided by a separate stationary triggering magnet and coil assembly. A rotating piece of magnetic material moves past the triggering magnet and coil assembly to induce a triggering voltage in the triggering coil, the magnitude of which at different positions of the rotating piece is dependent on the speed of rotation so that at different engine speeds the triggering level of voltage is obtained at different positions of the rotating part to provide an automatic spark advance.

3,809,041

IGNITION DEVICE FOR USE IN MULTIPLE CYLINDER INTERNAL COMBUSTION ENGINE

Mihoru Kato, and Masao Nagasawa, both of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya-shi, Japan

Filed June 20, 1972, Ser. No. 264,590
Claims priority, application Japan, June 24, 1971, 46-46164
Int. Cl. F02p *3/06*
U.S. Cl. 123—148 E **14 Claims**



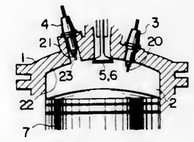
Current from a DC power source charges a group of capacitors. The charges stored in the capacitors are then released through the primary windings of ignition coils and controlled rectifiers which are turned conductive when the gates thereof receives gating signals in synchronism with the ignition timing of the engine, which gating signals are produced by magnetic means to detect the ignition timing in response to the rotation of the crankshaft of the engine. And spark voltage are induced in the secondary windings of the ignition coils in an appropriate timing to fire the spark plugs connected with the secondary windings of the ignition coils.

3,809,042

INTERNAL COMBUSTION ENGINE EQUIPPED WITH MEANS FOR REDUCING THE AMOUNT OF NITROGEN OXIDE WHICH IS EXHAUSTED FROM THE ENGINE

Yukio Hosho; Hisanori Moriya, both of Katsuta, and Yoshishige Oyama, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 22, 1971, Ser. No. 136,529
Claims priority, application Japan, Apr. 22, 1970, 45-33899; June 26, 1970, 45-55162
Int. Cl. F02p *3/06*
U.S. Cl. 123—148 C **9 Claims**



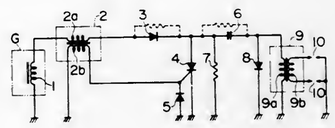
An internal combustion engine for vehicles equipped with means for reducing harmful exhaust gases, especially nitrogen oxide, in which a first ignition plug and a second ignition plug are so installed in the combustion space of the engine that the combustion characteristic of the first plug is superior to that of the second plug. Either or both of these plugs are differently operated in accordance with the nitrogen oxide content in the exhaust gas.

3,809,043

CONTACTLESS IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

Masao Nagasawa, Kariya, Japan, assignor to Nippondenso Co., Ltd., Kariya-shi, Japan

Filed Oct. 20, 1972, Ser. No. 299,452
Claims priority, application Japan, Oct. 22, 1971, 46-84212; Nov. 4, 1971, 46-87779; Feb. 2, 1972, 47-14005; May 31, 1972, 47-64290; June 13, 1972, 47-70094
Int. Cl. F02p *1/00*
U.S. Cl. 123—148 E **48 Claims**



A contactless ignition system for internal combustion engines comprising: at least one charging circuit including a series combination of a capacitor charging coil for generating an output by the rotation of a permanent magnet, rectifying means for rectifying the generated output of the capacitor charging coil and a capacitor, with the flow of current being directed from the capacitor charging coil to the capacitor through said rectifying means; at least one discharging circuit including a series combination of said capacitor and a thyristor having a gate to cause said capacitor to discharge its

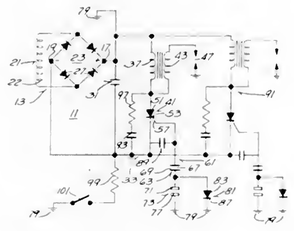
stored charge upon conduction of said thyristor; at least one ignition coil having a primary winding and a secondary winding; and at least one transformer having at least one primary winding and secondary winding, respectively, with the primary winding electrically connected to said capacitor charging coil to thereby detect the generated output thereof, wherein the primary winding of said ignition coil is connected in series in said discharging circuit, wherein at least one spark plug is connected to the secondary winding of said ignition coil, and wherein the secondary winding of said transformer is electrically connected to the gate of said thyristor.

3,809,044

CAPACITOR TRIGGERED IGNITION SYSTEM

Richard F. Jereb, Lindenhurst, and Philip A. Anderson, Waukegan, both of Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jan. 22, 1971, Ser. No. 108,887
Int. Cl. F02a *1/00*
U.S. Cl. 123—148 E **12 Claims**



Disclosed herein is an ignition circuit ignition for an internal combustion engine, which circuit comprises a charge capacitor connected to the positive and negative terminals of a source of direct current generated in response to engine rotation, and an SCR connected to the charge capacitor in series with each other and in parallel with respect to the source and including an anode connected to the positive terminal, and a cathode connected to the negative terminal, and a gate, together with means for triggering the gate to discharge the charge capacitor including connection of the positive terminal to ground, a mechanical switch having a first grounded contact and a second contact electrically connectable to said first contact in response to engine rotation, and a trigger capacitor connected to the second switch and to the gate, whereby upon closing of the switch contacts, the charge capacitor is partially discharged through the contacts and through the trigger capacitor to trigger the gate, whereby to fully discharge the charge capacitor through the primary winding of an ignition coil connected in series with the SCR and the charge capacitor.

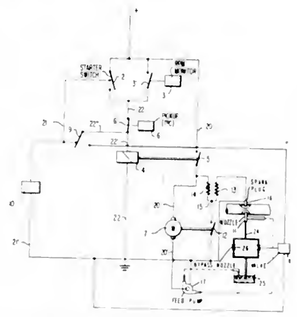
3,809,045

AUTOMATIC FLAME-STARTING INSTALLATION IN PARTICULAR FOR MULTI-FUEL INTERNAL COMBUSTION ENGINES

Gerhard Frankle, Grunbach, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Dec. 17, 1971, Ser. No. 209,314
Claims priority, application Germany, Dec. 18, 1970, 2062455
Int. Cl. F02m *17/00*
U.S. Cl. 123—179 **12 Claims**

A fully automatic flame-starter installation, especially for multi-fuel internal combustion engines, which essentially consists of a fuel feed pump connected to a fuel-injection nozzle arranged in the suction pipe of the internal combustion engine within the area of a spark gap; the starting of the operation of the flame-starter installation takes place simultaneously with the starting of the internal combustion engine by way of a starter switch while the flame-starter installation is turned off



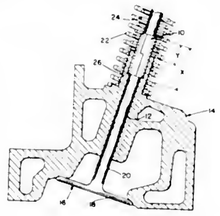
automatically depending on the requirements of the starting conditions of the internal combustion engine and, if necessary, automatically starts up again.

3,809,046

VALVE GUIDE STABILIZING AND SEALING INSERT

James A. Kammeraad, Holland, Mich., assignor to K-Line Industries, Inc., Holland, Mich.

Filed Sept. 1, 1972, Ser. No. 285,607
Int. Cl. F01l *3/08*
U.S. Cl. 123—188 GC **19 Claims**



An insert for sealing and stabilizing the valve stem of a poppet valve in the upper portion of a valve guide of an internal combustion engine. The insert comprises a cylindrical steel jacket having an inner layer of Teflon bonded thereto. The inner diameter of the insert corresponds to the diameter of the valve stem and extends coaxially and forms a substantial continuation of the valve guide wall. The insert extends beyond the upper end of the valve guide a distance of about 25 to 50 per cent of its length for stabilizing the reciprocation of the valve stem in cooperation with the remainder of the valve guide while preventing excessive amounts of lubricating oil from entering the valve guide.

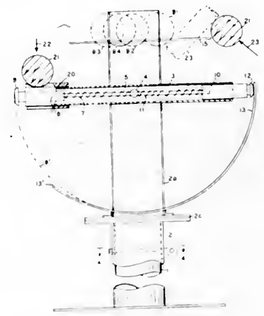
3,809,047

PROJECTING DEVICE HITTING MEANS

Alexander McD. Hess, 67 Hilton Ave., Garden City, N.Y.

Continuation-in-part of Ser. No. 202,155, Nov. 26, 1971, Pat. No. 3,765,395. This application Sept. 22, 1972, Ser. No. 291,398
Int. Cl. F41b *3/00*
U.S. Cl. 124—1 **7 Claims**

A ball projecting machine having a mounting base with a lever pivotally mounted on the base. A ball supporting device having a plurality of spaced ball holding positions is provided by a slotted mounting member. A braking surface is mounted on the base and a spring biased brake shoe is mounted on one end of the lever to engage the braking surface. The lever is adapted to be rotated quickly to hit a ball mounted in one of



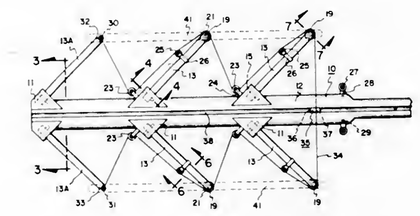
said holding positions. The apparatus is provided with sufficient structure for controlling the trajectory and horizontal direction of the projected ball.

3,809,048

FORCE MULTIPLYING TYPE CROSS-BOW

Carl E. Handford, 1722 Burning Birch Ln., Mt. Prospect, Ill.

Filed June 20, 1972, Ser. No. 264,625
Int. Cl. F41b *5/00*
U.S. Cl. 124—25 **6 Claims**



A multiple-arm cross-bow is provided, the same having an elongate central bowstock portion and a plurality of arms extending on either side of the bowstock. The arms are connected together through a pulley construction by a bow-string and are so arranged that the force of the cocked bowstring is applied to the arrow missile over an elongated distance. When the bow-arms are cocked or bent rearwardly for but a short distance a greater average thrust and a multiplied force will be imparted to the arrow. A thrust is applied to an arrow over a longer relative distance but through a shorter interval of time.

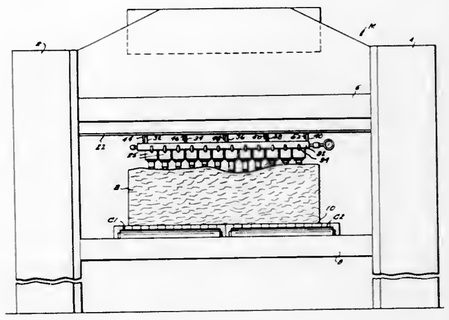
3,809,049

APPARATUS FOR CUTTING ROUGH-SURFACED STONE BODIES

Ralph A. Fletcher, Bedford, N.H., and Joseph R. Oliver, Lowell, Mass., assignors to H. E. Fletcher Co., Westford, Mass.

Filed Dec. 1, 1971, Ser. No. 203,527
Int. Cl. B28d *1/32*
U.S. Cl. 125—23 C **4 Claims**

Rough-surfaced blocks of stone are cut into a number of smaller pieces of a desired thickness by means of specially designed guillotine cutting apparatus in which isostatically held cutting elements are engaged against an upper side of a block and cooperate with a lower set of cutting elements of conventional form engageable with the underside of the block to apply hydraulically actuated cutting forces. The invention method and apparatus provides for the isostatically held cutting elements being removably contained in a vertically adjustable retaining structure. Each of the cutting elements is specially designed to work against a very rough-surfaced block, for example, one having a top side presenting sloping



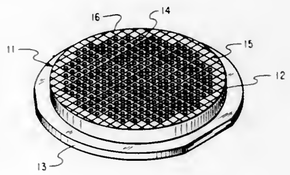
surfaces and projections whose deviations from a plane surface exceed the capacilities of conventional guillotine cutters. Spring means are combined with the cutting elements to provide rapid cutter positioning both during and after a cut is made and sides of the cutting elements are yieldably supported to absorb lateral displacement forces when angularly engaged against the sloping surface portions of the block.

3,809,050

MOUNTING BLOCK FOR SEMICONDUCTOR WAFERS

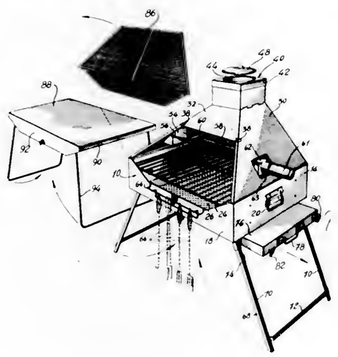
Euiwon Chough; Frank T. Deverse, both of Wappingers Falls; Franz Konrad; John A. Kurtz, both of Hopewell Junction, and Russell C. Manchester, Beacon, all of N.Y., assignors to Cogar Corporation, Wappingers Falls, N.Y.

Filed Jan. 13, 1971, Ser. No. 106,143
Int. Cl. B28d *7/04*
U.S. Cl. 125—35 **2 Claims**



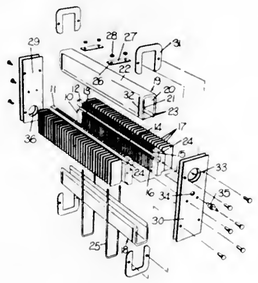
A mounting block carries a processed semiconductive wafer through subsequent steps, i.e., dicing, cleaning, testing and chip selection. The mounting block has a raised circular central portion to which the wafer is bonded by means of an adhesive. The central portion contains a plurality of apertures, each corresponding to and to be in registry with a device in the wafer to be mounted thereon. The apertures enable the wafer to be secured to the block without touching the device surface, by applying a vacuum to the backside. The apertures also permit later removal of only acceptable chips from the mounting block without loss of orientation. The central portion is also slotted to permit wafer to be diced without the blades touching the block surface or adhesive, whereby the block may be repeatedly reused and the blade has longer life. A lower circuit flange on the block is provided with a notch and flats, for alignment purposes using apparatus for mounting the wafer in precise alignment including a microscope. The mounting block is also supported in one of several saws.

3,809,051
PORTABLE BARBECUE OVEN
Jean Louis Giroux, 645-23e Rue, App. 6, Quebec 3, Province of Quebec, Canada
Filed July 10, 1972, Ser. No. 270,200
Int. Cl. A47j *37/04;* **F24c** *1/16*
U.S. Cl. 126—9 R **8 Claims**



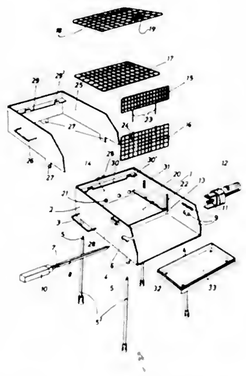
This invention comprises a portable barbecue oven in which the firebox cover is separate from the chimney structure, the latter fitting completely inside the firebox and the cover completely enclosing the firebox, so that all the soot coated elements and surfaces are out of sight and out of reach when the oven is in collapsed and packed condition.

3,809,052
HEATING APPARATUS
John Malcolm Ryffin-Hughes, 27 Witherford Croft, Solihull, Warwickshire; Brian Harding, 28 Arlington Rd., West Bronwich Staffs, and Graham Albert John Lake, 30 Green Acres, Birmingham, all of England
Filed Aug. 30, 1971, Ser. No. 176,229
Claims priority, application Great Britain, Aug. 29, 1970, 41696/70; Apr. 2, 1971, 8474/71; Apr. 2, 1971, 8475/71; May 18, 1971, 15512/71
Int. Cl. F24h *3/06*
U.S. Cl. 126—116 R **5 Claims**



This invention relates to heating apparatus for imparting heat to a fluid. The heating apparatus comprises combustion chamber means, and burner means at one side of the combustion chamber means. The burner means incorporates a plurality of inlet orifices through which a fuel/air mixture can enter the combustion chamber means, the heating apparatus having a plurality of outlet passages through which the products of combustion of the mixture when ignited can leave the combustion chamber means. The outlet passages are formed within a core of heat conducting material forming at least a part of a heat exchanger. The burner means and the combustion chamber means are arranged so that flames formed by ignition of the fuel/air mixture will be held at positions from which the major portion of the heat arising from combustion of the fuel/air mixture will be conducted through the core to the fluid to be heated.

3,809,053
ROASTING DEVICE
Jorge Roca Navarro, Lauria St. 123, Barcelona, Spain
Filed Sept. 25, 1972, Ser. No. 291,556
Claims priority, application Spain, June 26, 1972, 181929
Int. Cl. A47j *37/07*
U.S. Cl. 126—25 R **4 Claims**

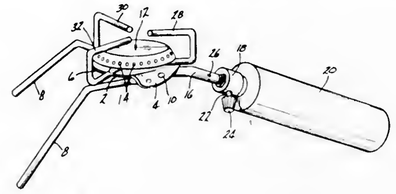


An improved roaster of the type comprising a cooking chamber formed by a rectangular body provided with a broad base wall and an end wall and two parallel side walls at 90°, in one of which there is an open slot terminating in circular supporting surfaces in order to serve as a bearing for the neck of a split that is disposed transversally to said chamber, said spit provided on one extremity with a handle and on the opposite extremity with an end portion connectible to and rotatably driven by an electric motor situated outside a cooking chamber and fixed at the side of same, wherein the body has a transversal partition of small height, extending upwardly from the base wall and spaced from the end wall to form a compartment therebetween for holding combustible material, a bottom grate seated on flanges of the side walls of the chamber and limited by said transversal partition, said bottom grate forming the bottom wall of the compartment, said bottom grate being spaced upwardly from said base wall and forming an ash collection chamber therebetween, a vertical grate situated in vertical guides on the side walls of the chamber and forming the front side of the compartment.

3,809,054
COLLAPSIBLE CAMP STOVE
Cader E. Bowman, Sycamore, and Daniel W. Lapins, Dekalb, both of Ill., assignors to Olin Corporation, New Haven, Conn.
Filed Dec. 11, 1972, Ser. No. 313,901
Int. Cl. F24c *5/20*
U.S. Cl. 126—38 **2 Claims**

A campstove of the collapsible variety having preferably three point support. Two pivotable legs provide two of the points of support for the stove and the fuel container provides the third point of support. Burner means for the stove is

mounted on a bracket as are the two stove legs. Utensil supports are sandwiched between the burner means and the



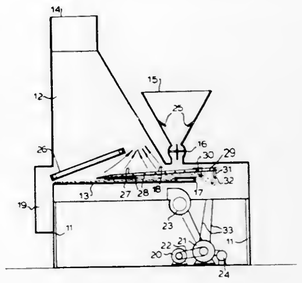
bracket and are pivotable between operative and inoperative positions. The stove can be collapsed for storage without use of special tools.

3,809,055
BURNER CAP ASSEMBLY
Albert F. Craver, Bay Village, Ohio, assignor to Aurora Corporation
Continuation of Ser. No. 36,907, May 5, 1970, Pat. No. 3,625,196. This application Dec. 6, 1971, Ser. No. 209,634. The portion of the term of this patent subsequent to Dec. 7, 1988, has been disclaimed.
Int. Cl. F24c *3/00*
U.S. Cl. 126—39 H **10 Claims**

A combination of a steel burner cap, a burner cap mounting plate and a mixing tube. One end of the tube is adapted for connection to a gas manifold and the other end is connected to the mounting plate. Unobstructed openings intermediate the ends of the tube allow air to be aspirated when gas is injected from the manifold. The cap may be crimped to the plate for assembly tightness. Gas and primary air pass from the tube into the cap for further mixing while flowing radially out within the cap and subsequently through a plurality of ports. Ledges on the cap both above and below the ports extend radially outwardly to provide a flame shielding annular recess at the outer extent of the ports.

3,809,056
SMOKE PRODUCERS
Aubrey Francis Snelling, White House, Kemp Rd., Swanland, North Ferriby, East Yorkshire, England
Filed Jan. 10, 1972, Ser. No. 216,733
Claims priority, application Great Britain, Jan. 12, 1971, 1353/71
Int. Cl. A23b *1/04*
U.S. Cl. 126—59.5 **18 Claims**

A smoke producer comprising a smoke box, having a smoke outlet at its upper regions, a grate within the smoke box and a rake mechanism capable of being reciprocated to rake fuel, such as sawdust or peat, burning on the grate. The producer includes a feed hopper and fuel dispensing means by which



fuel is fed to the grate in a controlled manner and the air supply to the smoke box is controlled to obtain optimum smoke production.

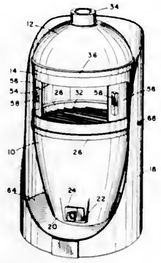
3,809,057
ORCHARD HEATER
Robert Ray Frost, 1070 E. Verdugo Ave., Burbank, Calif.
Filed Dec. 18, 1970, Ser. No. 99,409
Int. Cl. A01g *13/06*
U.S. Cl. 126—59.5 **11 Claims**

An orchard heater is disclosed having a dome-shaped combustion chamber with a conical deflector mounted above the dome adjacent the exhaust port. The deflector functions to direct rays of radiant energy radially outward in a horizontal plane directly to the boles of the trees located nearby. The burner assembly of the heater also includes an intermediate chamber which functions to relieve the back-pressure generated to the burner during ignition and provide a continuous flow of fuel to the burner at all times.

3,809,058
FIREPLACE UNIT
Alvin L. Becker, 3109 Carnegie Pl., San Diego, Calif.
Filed Mar. 5, 1973, Ser. No. 337,900
Int. Cl. F24b *1/18*
U.S. Cl. 126—120 **10 Claims**

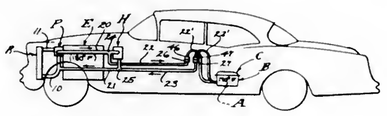
A fireplace unit having upper and lower enclosing portions of ceramic material, joined by a girth band which incorporates circumferentially sliding doors. The lower portion comprises a firebox and contains a grille which is readily accessible through the doors, the upper portion being a vented

cover. The unit can be floor or wall mounted, the mounting including a reflective shield which remains cool and allows close



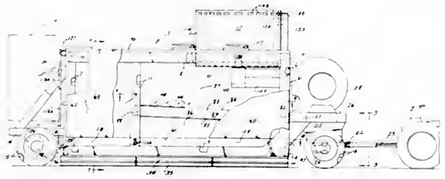
spacing of the unit from its support. In one form the lower firebox portion is readily removable. The unit is firmly supported and is particularly suitable for use on a boat.

3,809,059
COOLANT HEATED OVEN FOR USE WITH VEHICLE ENGINES
Robert L. Burk, 417 S. Lucerne Blvd., and Jack G. Hotchkiss, 418 S. Arden Blvd., both of Los Angeles, Calif.
Filed Nov. 17, 1972, Ser. No. 307,381
Int. Cl. F24b *1/00*
U.S. Cl. 126—19.5 **3 Claims**



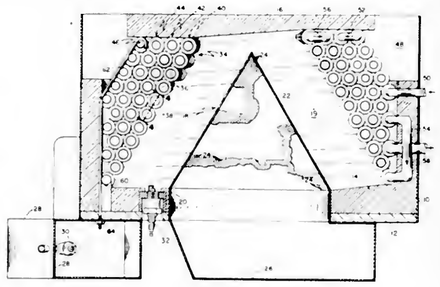
A moderate heat oven for use in vehicles and safely operated by the passage of engine coolant therethrough and adapted to bring foods to and to maintain food at serving temperature. The oven is a unit separable from the engine to which it is connected by quick detachable couplers and is thereby made portable, and is insulated for retaining a heated condition; all to the end that normal internal combustion engine operation in the 175°–180° F. coolant heat range maintains a "ready to serve" oven temperature of approximately 170° F. and which is retained at a slow rate of temperature drop.

3,809,060
MOBILE BURNING APPARATUS FOR AGRICULTURAL USE
Howard E. Shirley, Eugene, and Jackie L. Jensen, La Grande, both of Oreg., assignors to Turbo Cycle Company, Inc., Eugene, Oreg.
Filed Mar. 2, 1973, Ser. No. 337,300
Int. Cl. F23c *5/00*
U.S. Cl. 126—271.2 C **17 Claims**



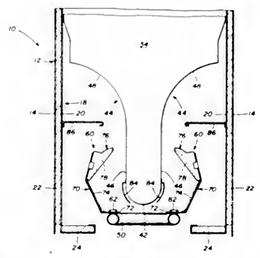
A wheel supported apparatus with a battery of gas fired burners discharging into ground contact for igniting vegetable matter thereon. Air is supplied to the interior of the closed vehicle framework by conduits in close proximity to and discharging onto the ground. A blower delivers a constant airflow to the conduits via hollow framework members. An exhaust fan discharges through a detachable stack resulting in a negative pressure within the apparatus. Insulated walls are further protected against heat by an airflow therethrough resulting from the negative internal pressure. An internal barrier within the apparatus routes the combustion flow along a reverse path with air being added during such combustion, through said barrier.

3,809,061
HEAT EXCHANGER AND FLUID HEATER
Joseph Gerstmann, Sudbury, Mass., assignor to Steam Engine Systems Corporation, Newton, Mass.
Filed Nov. 3, 1971, Ser. No. 195,235
Int. Cl. F23d *13/24*; **F24d** *17/00*
U.S. Cl. 126—350 R **11 Claims**



A heat exchanger is provided with a matrix of successive coils of finned tubing for the fluid to be heated which are each wound into the form of a truncated cone, the coils being closely wound and packed together so that fins of turns of each pair of coils are in at least approximate engagement with fins of two turns of the same coil and two turns of the other coil of the pair. A fluid heater incorporating such heat exchanger has a combustor with a correspondingly conical wall located coaxially within the exchanger and provided with a multiplicity of small apertures for directing flames of ignited fuel toward the matrix.

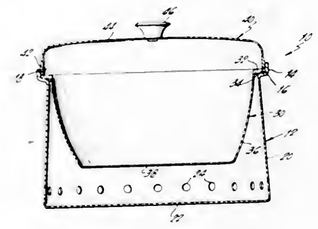
3,809,062
COOKING SYSTEM
Lewis Frank Moore, and George McNair Price, both of Shreveport, La., assignors to The Frymaster Corporation, Shreveport, La.
Filed Feb. 4, 1972, Ser. No. 223,443
Int. Cl. A47j *27/00*
U.S. Cl. 126—369 **11 Claims**



A cooking system includes a frypot comprising heat transfer walls which are spaced to facilitate cleaning of the frypot.

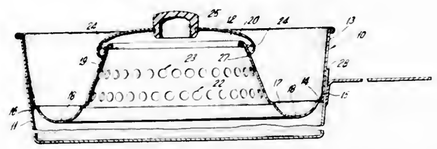
Each heat transfer wall comprises a lower vertically extending portion and an upper outwardly curved portion shaped to cause wastes to flow to the bottom of the frypot. A plurality of burners are provided for maintaining combustion in zones adjacent to the vertically extending portions of the heat transfer walls. This causes heated products of combustion to flow upwardly along the vertically extending and outwardly extending portions of the heat transfer walls, whereby heat transfer is effected through the walls to cooking oil in the frypot. Each burner comprises two or more orifices for discharging mutually interacting gas jets and a target for deflecting the gas jets and entrained air toward the heat transfer walls and for reflecting heat into the combustion zone and through the heat transfer walls. Baffles are provided for preventing recycling of the products of combustion into the combustion zone and for maintaining the cooking oil in the bottom of the frypot relatively cool.

3,809,063
WATERLESS COOKING POT
Steven Hajnal, 5600 Riverdale Ave., New York, N.Y.
Filed Nov. 10, 1972, Ser. No. 305,224
Int. Cl. A47j *27/00*
U.S. Cl. 126—373 **3 Claims**



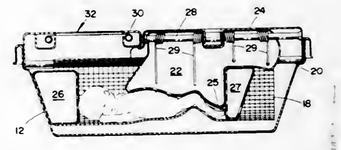
A waterless cooking pot comprising a small pot resting inside of a larger pot and a cover for both pots. The larger pot has a series of holes near the bottom.

3,809,064
VESSEL COVER
Charles O. Ziegler, East Marion, N.Y., assignor to Herman Kanfer, Plainview, N.Y., a part interest
Filed July 11, 1972, Ser. No. 270,670
Int. Cl. A47j *27/00*
U.S. Cl. 126—381 **3 Claims**



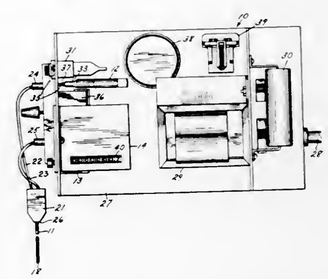
A cover for a vessel wherein liquids are boiled includes a circular member and a cap. The circular member includes a conical wall which is frictionally engageable with the vessel and an annular extension having a first and second arcuately spaced series of holes. The annular extension runs into a semicircular annular groove having a number of circularly spaced holes, and the small diameter edge of the groove extends into the large diameter end of a second conical wall having a plurality of holes. The small diameter end of the second conical wall provides an access to the contents in the vessel. The cap includes a plurality of holes, a handle, and a large hole whose edge is frictionally engageable with the second conical wall to securely cover the access. When a liquid boils in the vessel, its vapor is vented to the atmosphere through the plurality of holes in the cap, and its foaming liquid is vented through the plurality of holes in the conical wall to the atmosphere and the groove. The resulting condensed liquid is returned through the number of holes in the groove to the vessel, thereby preventing the liquid in the vessel from boiling over the vessel's edge. The first and second arcuately spaced series of holes prevent the boiling liquid from disengaging the vessel and the cover.

3,809,065
INFANT ENVIRONMENTAL TRANSITION SYSTEM
James D. Gatts, 4625 E. Louisiana No. 201, Denver, Colo.
Filed Apr. 5, 1971, Ser. No. 131,126
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R **13 Claims**



The disclosed infant environmental transition system relates to the method and apparatus for providing an infant with an incrementally controlled, healthy transition from its intauterine environment as it exists near birth to the extrauterine environment. The apparatus comprises a housing within which the infant is supported on a sling-like member. Means are provided to initially generate environmental conditions within the housing simulating the intrauterine environment and to alter this environment in controlled incremental steps to a normal extrauterine environment. Said means provide and control the tactile sensations perceived by the infant; the temperature and humidity within the container; the degree of movement imparted to the housing, which in turn is imparted to the infant; the degree of light perceived by the infant; and an audio profile which initially simulates intrauterine cardiovascular and gastro-intestinal sounds and gradually transitions to normal extrauterine sounds.

3,809,066
MEDICAL SENSOR DEVICE FOR LOCATING CALCULI IN BODY CAVITIES
Donald R. Krawitt, Rock Ledge Rd., Rye, N.Y.
Filed Feb. 3, 1972, Ser. No. 223,184
Int. Cl. A61b *5/06*
U.S. Cl. 128—2 R **2 Claims**



A device for detecting the presence of kidney stones, gallstones and the like in situ within a body cavity. The device includes a fiber optic light conducting probe, the free end of which is introduced into a duct leading to the suspected cavity. Where the free end contacts tissue or organic matter, light

emanating from the tip of the probe is diffused into the material. However, where the free end contacts inorganic material, the light is not diffused, but is reflected back through the probe to be sensed at the opposite end thereof, thus giving an indication of the presence of such material.

3,809,067

MODULATION RESPONSIVE ANTI-EVASION SYSTEM FOR BREATH TESTERS

Joseph P. Hoppesch, Streamwood, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed June 7, 1972, Ser. No. 260,603
Int. Cl. A61b *5/00*
U.S. Cl. 128—2 C **2 Claims**



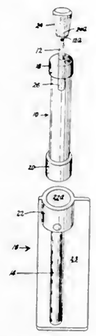
An anti-evasion system is disclosed for breath alcohol testers including a sound transducer and filter network that distinguishes between the presence and absence of human modulation of the breath sample (such as humming) and prevents a gas sample not obtained in conjunction with such modulation from indicating a "pass".

3,809,068

CONTAINER UNIT FOR LIQUID SAMPLE

David I. Kosowsky, Newton Centre, Mass., assignor to Damon Corporation, Needham Heights, Mass.

Continuation of Ser. No. 191,949, Oct. 22, 1971, abandoned. This application Feb. 16, 1973, Ser. No. 333,003
Int. Cl. A61j *1/00*
U.S. Cl. 128—2 F **10 Claims**



This invention relates to an improvement in disposable container units for liquid samples. The container units are particularly useful for the collection of blood specimens. The container unit includes an elongated compressible bulb member having an integral nozzle attached thereto. An elongated storage volume or compartment having a closed and an open end and a small cross sectional area is also provided, the open end being in communication with the bulb member. If the container unit is held vertically upward, liquid in the bulb will not flow freely into the storage volume because of its small cross sectional area. Similarly, if the storage volume contains liquid and is turned upside down, the liquid will not flow from it into the bulb. The improvement comprises a re-entrant tube extending from the nozzle opening into the compressible bulb to prevent aspiration of liquid in the bulb and to provide means for measuring the volume of sample in the container and for expelling excess sample.

3,809,069

APPARATUS AND METHOD FOR MEASURING INTELLIGENCE

William Frederick Bennett, 940 15th St., West Vancouver, B.C., Canada

Continuation-in-part of Ser. No. 95,874, Dec. 7, 1970, abandoned, which is a continuation of Ser. No. 741,194, June 28, 1968, abandoned, which is a continuation-in-part of Ser. No. 569,328, Aug. 1, 1966, abandoned. This application Mar. 22, 1972, Ser. No. 236,841
Claims priority, application Great Britain, Aug. 4, 1965, 33284/65
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.1 B **11 Claims**



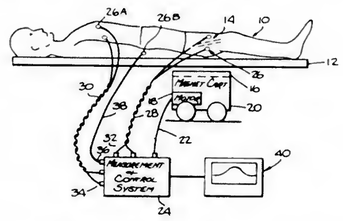
Apparatus and method for measuring intelligence of a subject exposed to pulsed stimuli which stimuli evoke sensory response in subject. Response is detected, amplified and signal-to-noise ratio increased producing improved signal with increased legibility. Signal is recorded and is analyzed to determine a dominant fundamental frequency which is related to intelligence of the subject. Frequency so obtained is compared with frequencies obtained from other subjects of known intelligence so as to obtain measure of intelligence of first subjects. Other subjects have been previously tested by prior art intelligence tests and have also been tested by instant invention so as to obtain relationship between intelligence and record of improved signal. Use of computer for analysis and comparison permits relatively quick measurement of intelligence.

3,809,070

NON-INVASIVE ELECTROMAGNETIC BLOODFLOW MEASURING SYSTEM WITH REJECTION OF NOISES

Henri Georges Doll, New York, and Hans J. Broner, Glendale, both of N.Y., assignors to Doll Research, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 158,697, July 1, 1971, Pat. No. 3,759,247, which is a continuation-in-part of Ser. No. 66,240, Aug. 24, 1970, Pat. No. 3,659,591. This application Oct. 11, 1972, Ser. No. 296,677
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 F **39 Claims**



A non-invasive measuring system adapted to measure arterial blood flow in human beings is provided. A stable, strong

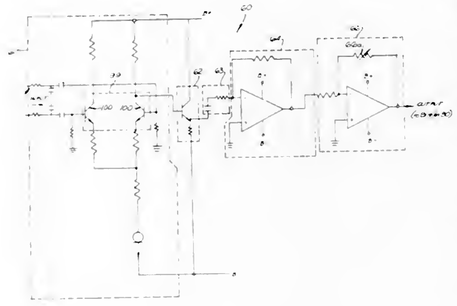
magnetic field is produced in the region of the artery under measurement by a magnet suitably positioned near the human being. A mechanical means moves the magnet away from its normal position or back to such position. The blood flow induced signals, which are pulsatile, are sensed by electrodes placed on the skin adjacent to the artery. Mixed with the blood flow signals are the local electrocardiogram signals. In addition, the electrodes also pick up random noises which are not synchronized with the heart. The signals are amplified and processsed by a repetitive waveform averager which is synchronized by a cardiogram signal obtained from auxiliary electrodes. The waveform averager accumulates a first predetermined number of composite pulsatile signals from said measuring electrodes during a first series of heart cycles occurring when the magnetic field is produced in the region of the artery, and accumulates an equal number of composite pulsatile signals from said measuring electrodes during a second series of heart cycles occurring when the magnetic field in the region is suppressed. A signal selector includes a comparator connected at the input of the waveform averager for comparing each incoming pulsatile signal with predetermined acceptable signal characteristics, so that the incoming pulsatile signal will be accumulated by the waveform averager only if it is accepted by the signal selector. The waveforms registered in the waveform averager respectively during the first and the second series of heart cycles are subtracted from each other to obtain the blood flow pulse substantially free from electrocardiogram and random noise influence.

3,809,071

METHODS AND MEANS FOR THE DETECTION AND IDENTIFICATION OF LOW LEVEL COMPONENTS OF THE ELECTROCARDIOGRAM COMPLEX WITHOUT LOSS OF REFERENCE TO THE HIGHER LEVEL COMPONENTS

Dominick D. Davolos, 176 W. McMillan St., Cincinnati, Ohio; Jerry B. Denker, 9458 Galecrest Dr., Cincinnati, Ohio, and Phillip A. Davolos, 106 Lafayette La., Audubon, N.J.

Filed Feb. 18, 1972, Ser. No. 227,463
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 B **18 Claims**



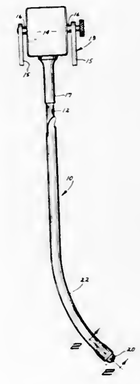
By this invention, and by the use of well known electronic circuitry, low level electric signals may be progressively amplified without loss of reference to other signals, with retention of strict linearity and without damage to recording equipment, by non-invasive methods utilizing electrodes on the exterior human body surface. This is accomplished by the physical method of this invention which incorporates a high gain, low noise, high common mode rejection amplifier with a variable gain control and a preset sharp cut off saturation level. Using this mechanism, low level signals (p,q,s) can be gradually increased in gain until they are prominently displayed at the same level as a typical electrocardiogram high level signal (Q,R,S) would have been displayed. In the application of this amplifier to the electrocardiography, it is demonstrated that the P-wave may be amplified to a height of 20 mm. on a standard electrocardiograph paper. In this way the relationship of the P-wave to the Q,R,S may be readily determined and diagnosis of abnormal heart rhythms may be greatly facilitated.

3,809,072

STERILE SHEATH APPARATUS FOR FIBER OPTIC ILLUMINATOR WITH COMPATIBLE LENS

Robert A. Ersek; Donald E. Wall, and Michael C. Garity, all of Minneapolis, Minn., assignors to Med General Inc., Minneapolis, Minn.

Filed Oct. 7, 1971, Ser. No. 187,297
Int. Cl. A61b *1/06*; **A61n** *5/06*
U.S. Cl. 128—23 **7 Claims**



A sterile sheath for enclosing certain surgical illuminating lamp structures having elongated light-transmitting shafts with a light-transmitting lens means disposed at the tip end of the light-transmitting shaft. The sheath means of the present invention comprises an elongated tubular sheath having a closed end with a lens element secured to and forming a portion of the closed end, and with an opening at the other end thereof, the tubular sheath having sufficient length to cover that portion of the light-transmitting shaft having a sterile requirement. The light-transmitting lens element at the tip end is adapted to be disposed in series with a lens arranged on the light-transmitting shaft. The sheath has a pair of generally axially extending slots formed adjacent the open end to form a pair of grasping ears, with one of the axially extending slots having a length in substantial excess of the other in order to provide the grasping ears with substantial asymmetry.

3,809,073

APPLIANCE FOR BUBBLING COMPRESSED AIR THROUGH A LIQUID, PARTICULARLY WATER IN A BATHING TUB AND THE LIKE

Ludwig Baumann, Niederhelfenschwil, Sankt Gallen, Switzerland

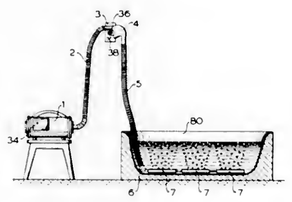
Filed Mar. 27, 1973, Ser. No. 345,423
Claims priority, application Germany, June 20, 1972, 2229973
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **11 Claims**

An appliance for bubbling compressed air through a liquid, particularly water in a bathing tub and the like, comprises compressed-air generating means such as a blower, compressor and the like for blowing compressed air into a controllable air bubble generating mat immersed in the liquid through an air hose incorporating means for preventing liquid from flow-

ing back into the compressed-air generating means. The appliance is characterized by the combination of the following features:

i. the compressed-air generating means are contained in a synthetic plastics casing which completely encloses the same, contains control means and has an opening closable by a preferably hinged insulating cover;

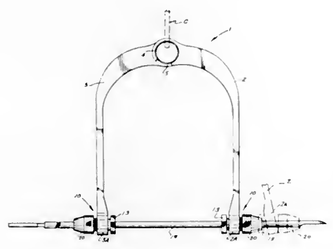
ii. the air hose leads from the compressed-air generating means in the synthetic plastics casing to an air distributor head of the air bubble generating mat and comprises two



separate lengths of hose joined together by a horizontally or vertically located connector, preferably an angular connector, which is airtight only when located at a given level above the air bubble generating mat,

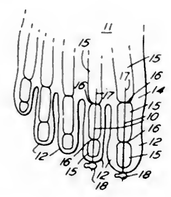
iii. the air bubble generating mat comprises several longitudinally joined caterpillar-like elements and is traversed in its lengthwise direction by a plurality of perforated air tubes connected to the air distributor head which permits compressed air permanently to be selectably admitted into said perforated air tubes.

3,809,074
PIN ATTACHMENT MEANS FOR SURGICAL BOW
Adrian J. De Moude, 8505 S.W. Cecilia Ter., Portland, Oreg.
Filed May 24, 1973, Ser. No. 363,378
Int. Cl. A61f *5/04*
U.S. Cl. 128—84 R **4 Claims**



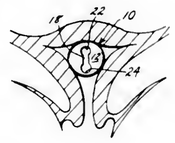
Attachment means for securing bow extremities to the bone penetrating member. Included in the attachment means is a slotted component closeable into gripping engagement with a segment of the bone penetrating member to hold same against axial movement and accidental separation. Conveniently sized fingergrips permit installation or removal of the present attachment means without tools.

3,809,075
BONE SPLINT
Arthur L. Matles, 59 East 78th St., New York, N.Y.
Filed Mar. 29, 1973, Ser. No. 345,861
Int. Cl. A61f *5/04*
U.S. Cl. 128—92 A **3 Claims**



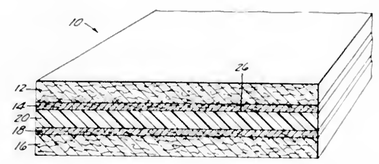
Bone splints are provided which include a wire or pin with an easily attachable and detachable retainer or retainers secured thereto, which splints do not migrate into the bones or tissue of the person undergoing treatment.

3,809,076
INTRAUTERINE CONTRACEPTIVE DEVICE
Irwin Chabon, 500 East 77th St., New York, N.Y.
Filed June 16, 1971, Ser. No. 153,754
Int. Cl. A61t *5/46*
U.S. Cl. 128—130 **9 Claims**



An intrauterine contraceptive device having a closed perimeter and an interior opening of limited size to prevent catching of a loop of bowel in the event that the device perforates the uterus. The device is of a thin wafer, disc design and is made of silicone rubber elastomer. A steel band may be impressed into the perimeter.

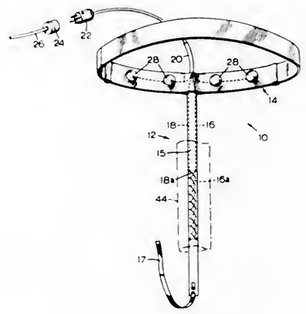
3,809,077
SURGICAL DRAPE
Paul E. Hansen, Village of Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of Ser. No. 7,109, Jan. 30, 1970, abandoned. This application May 11, 1972, Ser. No. 252,368
Int. Cl. A61f *13/00*
U.S. Cl. 128—132 D **6 Claims**



A surgical drape is constructed of two layers of thin, absorbent, compacted web of randomly interlaced, staple textile fibers having disposed therebetween a thin drapable, imprevious sheet of a thermoplastic film which is adherently bonded to the absorbent sheet across the contacting surfaces thereof

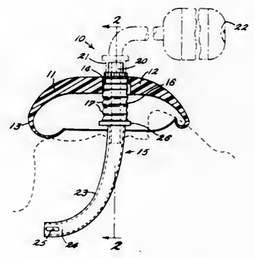
by means of a soft latex adhesive. The bonding is such that the absorbent sheet and film are not readily separable at any point across the contacting surfaces which results in a surgical drape having substantially improved strength, wet strength, and abrasion-resistance.

3,809,078
DETECTOR DEVICE FOR DETECTING UNINTENTIONAL URINATION
Alexander Mozes, 301 Lesmill Rd., Don Mills 405, Ontario, Canada
Filed July 20, 1972, Ser. No. 273,443
Int. Cl. A61b *19/00*; **A41b** *13/02*
U.S. Cl. 128—138 A **9 Claims**



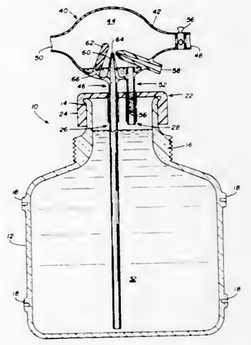
Devices for detecting unintentional urination are well known. However, they have generally employed complex detector electrode means. The detector electrode means of the present invention is extremely simple, employing a narrow strip of plastic material with electrodes woven through the body of the strip and extending outwardly from the strip in spaced relationship over a predetermined length of the strip spaced inwardly from the end of the strip. The electrodes are covered by a water pervious cover. The cover serves to act as a barrier between the metal electrodes and the wearer. The cover may be in the form of a disposable paper sleeve.

3,809,079
RESUSCITATOR
Philip M. Buttaravoli, Cincinnati, Ohio, assignor to E-Med Corporation, Cincinnati, Ohio
Filed Sept. 14, 1972, Ser. No. 289,068
Int. Cl. A61m *16/00*
U.S. Cl. 128—145.7 **5 Claims**



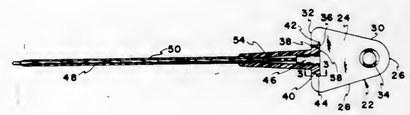
This invention is directed to a resuscitator having a combined face mask and air-way that is particularly useful in hospital emergency rooms and which facilitates the manual placement and subsequent ventilation of a patient's lungs in a positive and reliable manner.

3,809,080
STERILE LIQUID ENTRAINING SYSTEM
David W. Deaton, Dallas, Tex., assignor to Deaton Medical Company, Burns Flat, Okla.
Continuation of Ser. No. 57,028, June 24, 1970, abandoned. This application Sept. 5, 1972, Ser. No. 286,085
Int. Cl. A61m *11/02*
U.S. Cl. 128—194 **4 Claims**



A sterile liquid entraining system includes a vapor generator and a liquid container. Initially, the container is sterilized and is filled with a sterile liquid. Then, the vapor generator is connected to the container and the sterile liquid is fed from the liquid container into the vapor generator. As the liquid flows from the container into the vapor generator, the container is filled with a sterile gas, preferably by directing the gas through a microorganism impervious filter. Because the sterile liquid in the container is replaced with a sterile gas, the sterility of the interior of the container is maintained throughout the operation of the vapor generator.

3,809,081
OBTURATOR
James C. Loveless, Sandy, Utah, assignor to Deseret Pharmaceutical Company, Inc., Sandy, Utah
Filed Feb. 4, 1970, Ser. No. 8,577
Int. Cl. A61m *5/00*, *5/32*
U.S. Cl. 128—214.4 **2 Claims**

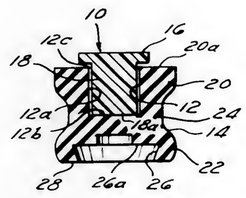


A device for selectively occluding the flow of fluid through an indwelling catheter, the device having an elongated stem adapted to be interposed snugly within the catheter, a handle with opposed generally flat sides and luer coupling structure for releasibly connecting the device to the catheter.

3,809,082
PLUNGER TACK
Alfred A. Hurschman, Hudson, Ohio, assignor to Ampoules, Inc., Macedonia, Ohio
Filed Dec. 30, 1971, Ser. No. 213,902
Int. Cl. A61m *5/22*
U.S. Cl. 128—218 P **9 Claims**

There is provided a plunger tack for transmitting driving force to a deformable plunger adapted to be disposed in a

compressed configuration in sliding, sealing engagement within a medicament containing chamber of a hypodermic device. The tack includes a rearwardly exposed flange for engagement with a driving member such as a movable piston, and an axially extending shank received within a recess in the plunger and retained therein solely by frictional forces when



the plunger is in the compressed configuration. The shank is arranged to transmit the driving forces to a forward portion of the plunger to provide the plunger with an elongated, deformed configuration of reduced lateral dimensions and to thereby reduce the static frictional force developed between the plunger and sidewall of the chamber.

3,809,083
TOOL FOR ADMINISTERING INJECTIONS TO LIVESTOCK

Melvin George Westergaard, 5304-121 Ave., Edmonton, Alberta, Canada

Filed July 13, 1972, Ser. No. 271,583
Int. Cl. A61m *5/20*
U.S. Cl. 128—218 F **2 Claims**

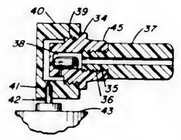


The tool includes a long handle carrying a syringe at one end. A spring-biased carriage moves longitudinally along the handle to push the syringe plunger from the loaded position to the discharged position. A catch holds the carriage at the loaded position. A lever is provided to release the catch; the end of the lever is positioned adjacent the tip of the syringe needle. When the needle is jabbed into the animal, the lever is biased rearwardly and releases the catch so that the carriage moves to discharge the syringe contents. The tool enables the stockman to quickly administer an injection to an animal from a distance of 5 or 6 feet.

3,809,084
PRESSURIZED PORTABLE DISPENSER

Lloyd Frank Hansen, Campbell Hall, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 11,555, Feb. 16, 1970, Pat. No. 3,653,380. This application Feb. 8, 1972, Ser. No. 224,497
Int. Cl. A61l *13/00*; **A61m** *15/08*
U.S. Cl. 128—266 **1 Claim**

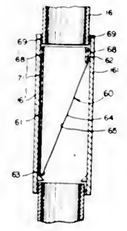


A portable powder dispensing device has a medicament chamber in which a dose of powdered medicament in an open capsule shell is introduced and an outlet to cooperate with a human body cavity, such as a mouthpiece or a nozzle for inserting in a nostril. A jet of gas under pressure, from a propellant tank is introduced into the chamber at a swirl angle. The shell containing the medicament vibrates and spins thereby breaking up the particles or aggregates.

3,809,085
SURGICAL DRAINAGE SYSTEM

Robert E. Bidwell, Melville, and Leonard D. Kurtz, Woodmere, both of N.Y., assignors to Deknatel, Inc., Queens Village, Long Island, N.Y.

Filed May 23, 1972, Ser. No. 256,158
Int. Cl. A61f *5/44*; **A61m** *1/00*
U.S. Cl. 128—275 **16 Claims**



A surgical drainage system including a container for collecting fluid drained from a cavity, such as a pleural cavity, and a drainage tube for placing the container in fluid communication with a cavity to be drained, is provided with a check valve in the drainage tube. The check valve permits the flow of fluid from the cavity to the container and prevents the flow of fluid in the opposite direction thus permitting the development of a high negative pressure in the cavity. The check valve comprises an elongate tapered tube which can be positioned inside the drainage tube with its wide end towards the cavity. The tapered tube is provided with an elongate slot lengthwise of the tube to form a liquid flow passage, the edges defined by the slot being sufficiently flexible to permit fluid to pass outwardly therethrough and to close on being subjected to a negative pressure within said tapered tube to permit the development of a high negative pressure therein.

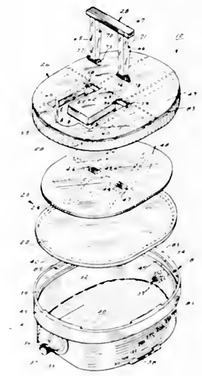
3,809,086
WOUND DRAINAGE DEVICE

Eli Schachet, and Fritz Deuschle, both of St. Louis, Mo., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed Dec. 9, 1971, Ser. No. 206,307
Int. Cl. A61m *1/00*
U.S. Cl. 128—278 **23 Claims**

A portable, wound drainage, suction pump for extracting body fluids from wounds has a substantially rigid vessel, a top plate carrying an actuator member, a resilient diaphragm

disposed in the vessel and defining with the lower portion of the vessel an expansible chamber, and an actuating plate on the diaphragm adapted to be urged downwardly by an applied force on the actuator member to move the diaphragm downwardly and evacuate air from the expansible chamber. Upon removal of the applied force, the diaphragm tends to

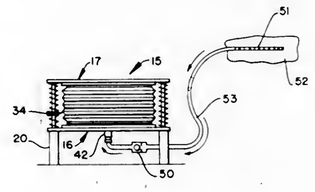


return to its original position due to the resiliency thereof, and while it is moving to expand the chamber, it produces a negative pressure for drawing fluid into the chamber. Cooperating latching elements are provided to maintain the diaphragm in the evacuated position without manual forces being applied thereto, the pump being unlatched to activate it when it is desired to start the drawing of fluid into the chamber.

3,809,087
CLOSED WOUND SUCTION APPARATUS HAVING BIASED PLATE MEMBERS

Royce C. Lewis, Jr., 5233 W. 19th, Lubbock, Tex.

Filed May 17, 1973, Ser. No. 361,026
Int. Cl. A61m *1/00*
U.S. Cl. 128—278 **10 Claims**



Continuous suction apparatus for post operative wounds comprised of contiguous plates superimposed upon one another in aligned relationship, and having guide means associated therewith so that a distracting force biases the plates apart from one another. A disposable, collapsible bag has opposed faces thereof removably affixed to the adjacent faces of the plate members so that when the plates are pulled apart by the distracting force, a reduced pressure is effected within the interior of the bag.

A disposable plastic tubing is placed in communication with the interior of a wound and the interior of the bag so that any secretion formed within the wound is immediately withdrawn into the sterile disposable bag, thereby greatly facilitating healing of the wound.

3,809,088
HYDROLYTICALLY UNSTABLE POLYURETHANE COTAMENIAL DEVICES

Donald Aloysious Ulrich, Jr., Cincinnati, Ohio, assignor to The Proctor & Gamble Company, Cincinnati, Ohio

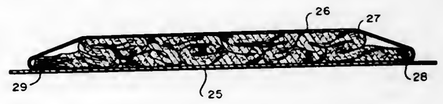
Division of Ser. No. 272,594, July 17, 1972. This application June 21, 1973, Ser. No. 372,140
Int. Cl. A61f *13/20*
U.S. Cl. 128—285 **1 Claim**

Water-disintegratable, sewerage disposable, polyurethane foams wherein the conventional polyol reactant is replaced in whole or in part with a hydrolytically unstable polyester polyol, said foams being especially adapted to use in personal hygienic articles.

3,809,089
DIAPER

Bengt Hedstrom, Inspectorsbacken 59, and Ebbe Hoden, St. Eriksgatan 67, both of Stockholm, Sweden

Continuation of Ser. No. 146,796, May 26, 1971, abandoned, which is a continuation-in-part of Ser. No. 783,612, Dec. 13, 1968, abandoned. This application May 8, 1973, Ser. No. 358,380
Int. Cl. A41b *13/02*
U.S. Cl. 128—287 **3 Claims**

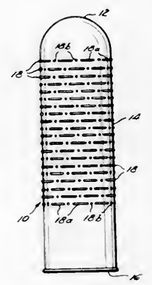


A diaper including a thin and flexible plastic back sheet or swaddle contoured and dimensioned to enable a person handling an infant to adjust it without requiring a separate fastening means. The back sheet is provided with a lining of liquid penetratable nature, the lining preferably extending over and covering the entire inner fact of the back sheet. An absorbent wadding or pad is interposed between the lining and the back sheet.

3,809,090
RUBBER ARTICLE

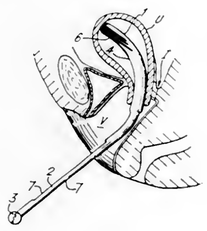
Lawrence J. Poviacs, and William B. Crawley, both of Dothan, Ala., assignors to Akwell Industries, Incorporated, Dotham, Ala.

Filed Sept. 21, 1972, Ser. No. 290,870
Int. Cl. A61f *5/42*
U.S. Cl. 128—294 **7 Claims**



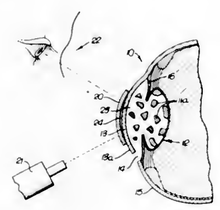
A prophylactic device comprising a membrane-like tube having peripherally extending projections integrally formed therein is provided.

3,809,091
SURGICAL INSTRUMENT
Wallace B. Shute, 300 Island Park Dr., Ottawa, Ontario, Canada
Filed July 31, 1972, Ser. No. 276,313
Claims priority, application Canada, Aug. 25, 1971, 121340
Int. Cl. A61b *17/42*
U.S. Cl. 134—122 R **5 Claims**



The invention relates to a surgical instrument primarily for use during the sterilization of females. The instrument has a handle, a shank and a curved or hook-shaped primary portion. The primary portion is capable of insertion into the uterus where it engages the inner surface of the posterior uterine wall so that, when the instrument is rotated through an angle of approximately 180° the fundus of the uterus is pressed downward in acute retroversion into the cul-de-sac of the peritoneal cavity.

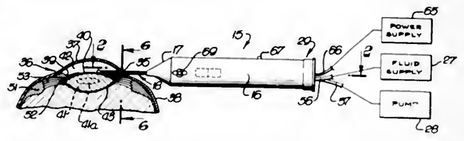
3,809,092
CONTACT LENS FOR VIEWING FLUORESCENT EYE TISSUE
Samuel V. Abraham, 16026 Royal Oak Rd., Encino, Calif.
Filed Apr. 13, 1972, Ser. No. 243,773
Int. Cl. A61b *17/32, 6/08*
U.S. Cl. 128—305 **8 Claims**



During eye surgery, particularly cataract removal, visibility of lens and capsule tissue in the eye is enhanced by placing on the cornea a contact lens having a color near the ultraviolet end of the visible spectrum. Light projected into the eye causes the lens and capsule material to fluoresce and become readily discernable to the surgeon through the colored contact lens.

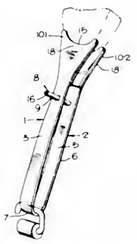
3,809,093
SURGICAL TOOL
Samuel V. Abraham, 16026 Royal Oak Rd., Encino, Calif.
Filed Apr. 14, 1972, Ser. No. 244,143
Int. Cl. A61b *17/32*; **A61f** *9/00*
U.S. Cl. 128—305 **18 Claims**

The probe of a hand held surgical tool includes a surgical tip at the end of a rod which swings through a limited arc in one plane only at a rate of less than about 100 cycles per second. One or more stationary tubes supply fluid to and/or suction fluid from the region of the tip. For eye surgery, the probe may use a globular tip about 1 millimeter in diameter having a small (0.1 mm) lateral or forward cutting projection and/or an



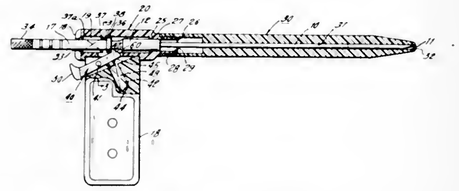
abrasive surface. The tool facilitates cataract removal through a small limbal opening, and is useful for other surgical procedures of the eye and other body areas.

3,809,094
TONGUE EXTENDER
Galen B. Cook, 3413 Norwich, Modesto, Calif.
Continuation-in-part of Ser. No. 887,886, Dec. 24, 1969, abandoned. This application May 22, 1972, Ser. No. 255,732
Int. Cl. A61b *17/28, 17/08*
U.S. Cl. 128—321 **9 Claims**



A device for extending and holding the tongue has two arms held in tongue-grasping position by a quick release mechanism. The arms each carry means for obtaining traction on the wet and slippery tongue without injury to the tongue. In the illustrative embodiments, such means comprise sponge-like materials with or without tacky substances on them, means for applying a vacuum to the tongue surface, or an arm surface designed to aid in frictional engagement of the tongue. The free end of each arm also may be shaped so as to avoid damage to the fraenum linguae membrane, which connects the tongue with the lower portion of the mouth.

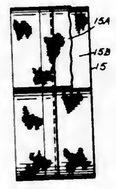
3,809,095
ASPIRATOR NEEDLE INJECTOR
Hugo S. Cimber, Neufeldstrasse 134, 3012 Bern, Switzerland
Filed Oct. 15, 1969, Ser. No. 866,634
Int. Cl. A61b *17/34*
U.S. Cl. 128—347 **2 Claims**



A disposable sterilizable aspirator needle and operating mechanism therefor constituting an improvement of the

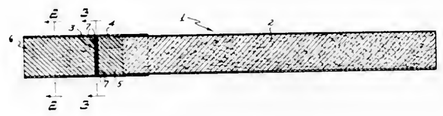
device shown in Application Ser. No. 719,659, filed Apr. 8, 1968, now U.S. Pat. No. 3,580,255 in which a hollow disposable needle is supported in a hollow barrel for controlled spring loaded injection into the body for a predetermined distance. The barrel is secured to a pistol grip and the hollow needle is secured to a plunger in the pistol grip which is spring biased toward the injecting position and retained against movement under the spring bias by a latch mechanism which may be manually released. The needle is fully recessed in the barrel so that the barrel end may be placed against the body at the appropriate location and is extruded under the spring bias from the barrel end on release of the latch. The hollow needle may, as required, receive a catheter and a catheter stiffening wire.

3,809,096
PERINEAL PAD
Winnifred F. York, 128 Summit Park Ave., Portland, Maine
Continuation-in-part of Ser. No. 108,464, Jan. 21, 1971, abandoned. This application Jan. 18, 1973, Ser. No. 324,573
Int. Cl. A61f *7/04*
U.S. Cl. 128—403 **7 Claims**



A sterile perineal pad is disclosed that is preferably of a disposable construction and has a thermal pack underlying that portion of its absorbent member that is to be in engagement with the urogenital region of the perineum. The absorbent member includes a thicker posterior portion and is preferably held concave in use with respect to its perineum engaging surface.

3,809,097
TOBACCO SMOKE FILTER
Benjamin Clayton, 1621 Bank of the Southwest Building, Houston, Tex., and Benjamin H. Thurman, Rt. 4, Culpeper, Va.
Filed July 27, 1971, Ser. No. 166,444
Int. Cl. A24d *1/04*
U.S. Cl. 131—10.7 **1 Claim**

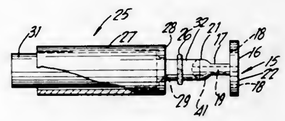


A filter for removing harmful ingredients from tobacco smoke without unduly increasing the draw including at least one section of a rod composed of longitudinally extending and generally parallel continuous cellulose acetate fibers and at least one very thin disc composed of randomly deposited wood cellulose fibers abutting a rod section, the rod section and disc being closely confined within an impervious shell. Preferably, a plurality of discs are sandwiched between two of the rod sections. The discs composed of wood cellulose fibers occupy only a very small fraction of the total length of the filter.

3,809,098
HAIR SETTING PROCESS
John Alfred Anderson, Wyoming, Ohio, assignor to The procter & Gamble Company, Cincinnati, Ohio
Filed Oct. 2, 1972, Ser. No. 294,052
Int. Cl. A45d *7/00*
U.S. Cl. 132—7 **17 Claims**

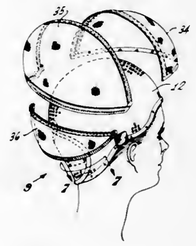
A process for curling or straightening hair which has been previously oxidized comprising applying a solution of a polyvalent metal ion chelator thereto and subjecting the hair to a longitudinal stress.

3,809,099
ATTACHMENT TO HAIR
Eugene J. Goldberg, 34 Rockland Dr.; Marvin W. Kramer, 117 Scholarie Dr., both of Jericho, N.Y., and Joseph R. Licci, 215 Malloy St., Copiague, N.Y.
Continuation-in-part of Ser. No. 146,679, May 25, 1971, which is a continuation-in-part of Ser. No. 54,148, July 13, 1970, abandoned. This application Mar. 13, 1972, Ser. No. 234,249
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 **10 Claims**



Apparatus and a method are provided for securing, for example, an article to a person's natural hair in a manner which permits the article to be periodically adjusted. This is accomplished by drawing or threading a person's hair through a fastener secured to the article so that the fastener can be moved about the threaded length of the person's hair toward and away from the scalp. Securing is accomplished by a selectively removeable retainer which holds the threaded hair against the fastener.

3,809,100
WIG
Salvatore J. Megna, 3721 Fair Oaks Blvd., Sacramento, Calif.
Filed Oct. 18, 1971, Ser. No. 189,908
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 **6 Claims**



A wig construction in which a cap to which the hair is attached is mounted on a foraminous form whose edges rest on the head of the wearer, but which is otherwise spaced from the head. The wig cap with its attached hair may be a single section that covers the entire form or may optionally be composed of a number of independently replaceable sections.

3,809,101
NAIL FILE

Takaetsu Shimizu, 24-12 4-chome Kami-Ikedai, Ota-ku, Tokyo, Japan

Filed Jan. 8, 1973, Ser. No. 321,556
Claims priority, application Japan, Nov. 11, 1972, 47-128877[U]
Int. Cl. A45d 29/04
U.S. Cl. 132—76.4 5 Claims



A novel nail file comprising an abrasive holding member and an abrasive paper characterized in that an elastic layer is interposed between said abrasive holding member and abrasive paper.

3,809,102
COMBINATION VANITY CASE

Andrew Ross, P.O. Box 2626 Station, Edmonton, Alberta, Canada

Filed Aug. 31, 1971, Ser. No. 176,557
Int. Cl. A45d 33/00
U.S. Cl. 132—82 R 5 Claims



This invention relates to new and useful improvements in toilet articles and in particular to a novel vanity case for the ladies. The combination vanity case possesses a number of utilities which may be conveniently carried and used and furnish all the usual requisites that may be required.

The vanity case has a cosmetic compartment and a separate lipstick compartment. The cosmetic compartment consists of a tapered plastic tray containing powder puff or pad, and alternatively eyeshadow-and rouge cakes, and has two coiled springs mounted to its bottom to provide the uplift force for opening the lid of the vanity case, when released by a rotary catch.

The lipstick is housed separately in a tubular container within the vanity case. The rotary catch in combination with camming grooves moves the lipstick simultaneously to a projected position at the side of the case and permit its complete withdrawal for use.

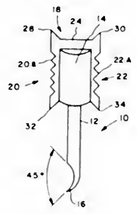
Thus not only is the cosmetic stick completely protected, but the holder in which it is housed is quite inconspicuous. The general shape and compactness of the vanity case allows the holder the use of the mirror which is mounted on the inside of the lid. When the case is closed, it presents the novel attractive appearance of a tapered book.

The vanity case shall be made of plastic materials and all parts are compactly arranged, so that the article will present a neat and attractive appearance and will occupy a minimum of space in a purse or handbag.

3,809,103
DISPOSABLE DENTAL IMPLEMENT

Harry Bender, 2 Overhill Rd., Elmsford, N.Y.

Filed Jan. 3, 1973, Ser. No. 320,699
Int. Cl. A61c 15/00
U.S. Cl. 132—93 6 Claims

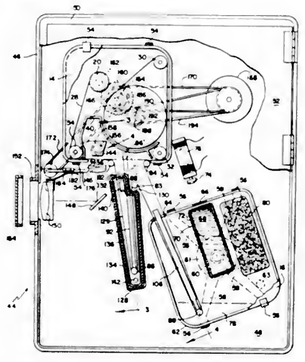


A spongy, porous cleaning member mounted to a shaft, preferably at an angular relationship thereto, such porous, spongy member including a stiffened tapered outer rib portion extending about the perimeter of the spongy member, the outer rib including first and second deflected segments extending away from the spongy member with an opposite angular relationship, and exhibiting thereupon a number of points disposed at an obtuse to the spongy, porous, cleaning member, and placed at regulated intervals. In addition, the support shaft includes a tapered end portion at 45° angle to the support shaft opposite the spongy member and provided with an arcuate tapered portion, the tapered arcuate portion forming a flexible pliable cleaning and exercising implement.

3,809,104
MOTION PICTURE PROCESSING AND PROJECTION SYSTEM EMPLOYING MULTI-PURPOSE CASSETTE

Rogers B. Downey, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 83,645, Oct. 23, 1970, which is a division of Ser. No. 761,771, Sept. 23, 1968, Pat. No. 3,597,062. This application Dec. 11, 1972, Ser. No. 313,838
Int. Cl. G03d 3/16
U.S. Cl. 95—89 R 12 Claims

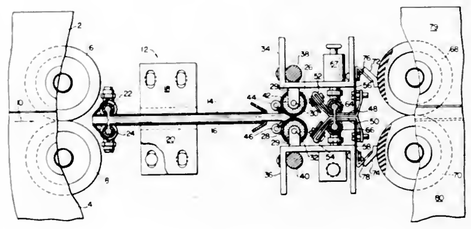


A motion picture system utilizing a cassette having two releasably connected sections. In one section respective ends of a strip of film are permanently attached to reels for reversible transport across a film gate, while the other section contains development fluid. Initially, when the two sections are connected together, the cassette is adapted to be positioned in a camera for exposure purposes. Subsequently, the two sections are separated and mounted independently in a unique projector in which the film is sequentially and simultaneously developed, by passing a loop thereof drawn from the film gate of the first section through the developing fluid contained in the second section, dried and projected through an appropriate optical system. Specially devised features are employed in the projector to release the development fluid from a sealed container into a reservoir section of the developing section of the cassette, to draw the loop of film from the film gate of the first section and insert the loop into the reservoir of development fluid, to dry the developed film and to subsequently retain the development fluid in a safe manner.

3,809,105
APPARATUS FOR PROCESSING TWO SIDES OF A PRINTING PLATE

Ellwood J. Horner, Armonk, N.Y., assignor to American Hoechst Corporation, Bridgewater, N.J.

Continuation of Ser. No. 215,533, Jan. 5, 1972, abandoned. This application Apr. 10, 1973, Ser. No. 349,737
Int. Cl. G03d 3/08
U.S. Cl. 134—122 R 11 Claims



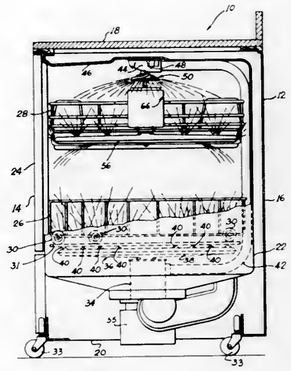
This invention relates to an apparatus for processing two sides of a printing plate comprising means for pre-soaking both sides of a printing plate with developer, opposed rotary brush means mounted adjacent said pre-soaking means and adapted to contact both sides of said plate, and opposed scrubber pad means mounted adjacent said brush means.

3,809,106
DISHWASHER WITH IMPROVED SPRAY APPARATUS

Clarence Crabtree, Herrin, Ill., assignor to Fedders Corporation, Edison, N.Y.

Filed Aug. 23, 1972, Ser. No. 283,060
Int. Cl. B08b 3/02
U.S. Cl. 134—176 3 Claims

A dishwasher with an improved spray apparatus is provided. The dishwasher includes a washing tub having an upper and a lower dish rack supported therein. The spray system for the dishwasher includes a first spray member positioned below the lower rack for spraying liquid from a lower elevation to the lower rack, a second spray member positioned intermediate the upper and lower racks for spraying liquids from a higher

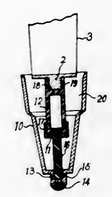


elevation to the lower rack and from a lower elevation to the upper rack; and a third spray member positioned for spraying liquid from a high elevation to the upper rack.

3,809,107
MULTIFUNCTIONAL UMBRELLA CAP

Hsing-Ching Liu, Taipei, China, assignor to Hsing-Ching Liu and Wen-Sieh Chen, both of Taipei, Taiwan, China

Filed Apr. 2, 1973, Ser. No. 346,931
Int. Cl. A45b 25/28
U.S. Cl. 135—48 5 Claims



An umbrella cap comprising a cap body and a piston slidably mounted in a cylinder, said piston having a piston rod connected at one end to the inside bottom portion of said cap body and the cylinder is adapted for connection on the tip portion of an umbrella. When the umbrella is folded the cap body is moved upward and receives the umbrella ribs therein. Rainwater dripping from the umbrella is collected in the cap body.

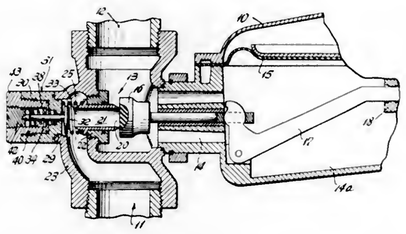
3,809,108
MONITOR AND AUTOMATIC SHUTOFF FOR GAS REGULATORS

George C. Hughes, Anderson, Ind., assignor to Textron Inc., Providence, R.I.

Filed Apr. 16, 1973, Ser. No. 351,804
Int. Cl. G05d 16/06; F16k 31/14
U.S. Cl. 137—73 8 Claims

There is disclosed a gas regulator having a resiliently positioned orifice sleeve adapted to yield in the event foreign matter becomes lodged between it and the diaphragm-operated regulator valve and to move to a position in which an auxiliary valve functions to regulate the flow of gas between the inlet and outlet of the regulator, the auxiliary valve being movably mounted and being moved in response to a deter-

minate pressure differential resulting from excessive gas flow through the regulator from any cause to shut off gas flow until the auxiliary valve member is manually reset; the auxiliary



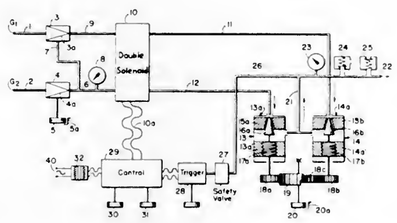
valve means may include means for causing it to engage the orifice tube automatically in case it is excessively heated as by fire.

3,809,109

METHOD AND APPARATUS FOR MIXING GASES UNDER PRESSURE PARTICULARLY FOR RESPIRATORS AND MEDICAL DEVICES

Hans Georg Breiling, Gross Gronau, and Detlef Warnow, Lubeck, both of Germany, assignors to Dragerwerk AG, Lubeck, Germany

Continuation of Ser. No. 42,672, June 2, 1970, abandoned.
This application Mar. 14, 1972, Ser. No. 234,637
Claims priority, application Germany, June 25, 1969, 1932141
Int. Cl. A62b *7/02*; **G05d** *11/03*
U.S. Cl. 137—88 **2 Claims**



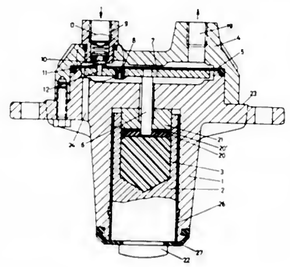
Gases under pressure are mixed by directing the gases through two separate conduits while the pressure in one of the conduits is regulated by a pressure regulator to a desired mixing pressure and the pressure in the other conduit is passed through a pressure valve which is operated in proportion to the regulated pressure in the first conduit. The gases are then directed through separate throttles in the respective conduits to a common mixing line while the valves of the throttles are regulated together in order to vary the mixing ratio and the flow area through each throttle while the combined flow area is maintained constant. The throttle valves include valve members which are movable in respect to the associated valve seat to provide a constant variation of the flow area for the gases and each valve is connected to a gear which is rotated by a central common gear which is affixed to a hand wheel adjustment. The regulation of the hand wheel effects a simultaneous proportionate opening and closing of each of the throttle valves. In addition the valves are constructed so that the changes which are produced by one produces a corresponding change of the other so that the overall output flow through the valves is constant.

3,809,110

DEVICE FOR PASSING COMPRESSED AIR AT PRESSURES VARYING IN DEPENDENCE UPON FORCES TRANSMITTED THROUGH THE DEVICE

Lars Mattis Severinsson, Malmo, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Nov. 28, 1972, Ser. No. 310,117
Claims priority, application Great Britain, Dec. 4, 1971, 56415/71
Int. Cl. B60t *8/22*
U.S. Cl. 137—116.5 **12 Claims**



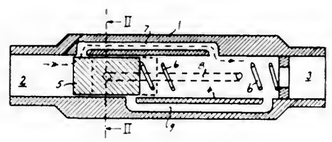
A force transmission device for mounting on a vehicle to determine the load has a movable differential piston having a member of smaller diameter including an intermediate deformable medium, connected with a movable member of larger diameter. A valve member connected to a pressure source regulates the pressure in a chamber bearing on the movable member of larger diameter as the position of this member changes thereby causing a greater pressure as the load increases and a lesser pressure as the load decreases. The pressure of this chamber is monitored to operate suitable load responsive devices such as brakes.

3,809,111

PRESSURE REDUCTION VALVE

Anders E. I. Olsson, Frustunavagen 41 A, Alvsjo, Sweden

Filed July 7, 1971, Ser. No. 160,335
Claims priority, application Sweden, July 10, 1970, 9592/70; Mar. 23, 1971, 3727/71
Int. Cl. F16k *17/04*
U.S. Cl. 137—503 **10 Claims**



A pressure reduction valve for moving medium adapted to be connected into a conduit between the source of the pressure medium and a valve controlled tapping place. Between an inlet and an outlet is a device for executing a variable resistance against movement substantially dependent upon the pressure drop in the valve. The valve contains a run in a valve housing, one end of which is in connection with the outlet. An axially displaceable piston is arranged in the run, so that the piston will be subjected on its one side to the action of the inlet pressure and on its other side to the influence of the outlet pressure. The piston is under spring bias against the action of the inlet pressure and thereby tends to assume a position in which the action of the inlet pressure is equal to the action of the sum of the outlet pressure and the spring force. The valve

contains a plurality of elongated relatively narrow by-pass-channels between the inlet and the outlet, which by-pass-channels are so shaped and arranged that they are opened or closed, respectively, dependent upon the position of the piston in the run, so that a progressively increasing number of by-pass-channels are opened and the effective resistance against movement of medium of the valve decreases when the piston is displaced in direction onto the outlet, and vice versa.

3,809,112

FLUID FLOW CONTROL APPARATUS

Mario Herbello, St. Louis, Mo., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed May 30, 1973, Ser. No. 365,206
Int. Cl. F16k *21/04*; **A62c** *37/06, 37/22*
U.S. Cl. 137—236 **16 Claims**



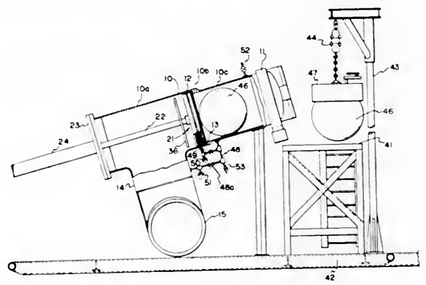
An apparatus for controlling fluid flow through a conduit, including a housing having an inlet and an outlet adapted to register with the conduit. A valve member is disposed in the housing and is operatively connected to an actuator for moving the valve between an open position in which fluid flow is permitted through the housing and a closed position in which fluid flow through the housing is prevented. The valve is normally urged to the open position and the arrangement is such that a continuous manually applied energy input to the apparatus is required to move the valve to the closed position. A fire protection system incorporating the above apparatus.

3,809,113

SPHERE HANDLING APPARATUS AND METHOD

Marvin H. Grove, and Ronald G. Dunegan, both of Houston, Tex., assignors to M & J Company, Houston, Tex.

Filed Feb. 20, 1973, Ser. No. 334,043
Int. Cl. F17d *3/00*
U.S. Cl. 137—268 **6 Claims**



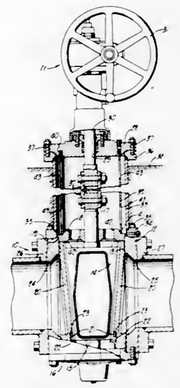
Sphere handling apparatus for use with pipe lines carrying fluid under pressure and serving to introduce or remove a sphere or other clean-out device. It makes use of an inclined hollow body connected to the line and adapted to contain a sphere. The interior of the body is divided into two spaces that are separated by a closure movable by power means between closed and open positions for enabling the two spaces to be sealed with respect to each other or to be placed in communication to enable a sphere to move from one space to the other. The closure is sealed with respect to a sleeve that forms a part of the body and is disposed intermediate the two spaces. Preferably bypass means is provided to enable an operator to connect the two spaces for pressure equalization. Also means is provided for detecting leakage past the closure. Preferably the sealing means between the closure and the sleeve is of the double resilient cup type. One embodiment is used for launching and another for retrieving spheres.

3,809,114

UNDERGROUND VALVE HAVING BELOW-SURFACE PARTS REMOVABLE FROM ABOVE-SURFACE POSITION

John W. Mueller, 1617 Chelsea Rd., Palos Verdes Estates, Calif., and William M. Pearson, 2712 Josie Ave., Long Beach, Calif.

Filed May 8, 1972, Ser. No. 250,869
Int. Cl. F16k *43/00*
U.S. Cl. 137—315 **3 Claims**



An underground valve having a subsurface valve body containing valving components operable from a ground level zone by actuating means including a connecting stem structure, the valve body having a tubular extension removably mounting a valve bonnet at the ground level zone, and upon removal releasing the valve components for withdrawal and replacement through the tubular extension along with the valve actuating stem structure.

3,809,115

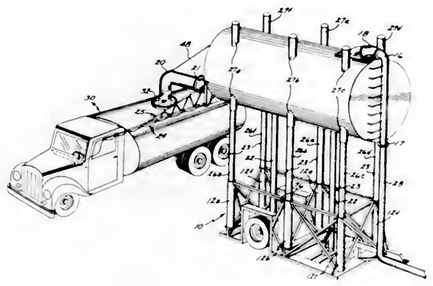
REMOTE CONTROL APPARATUS

Richard F. Klein, 20911 Via Verde, Covina, Calif.

Filed Mar. 13, 1972, Ser. No. 234,061
Int. Cl. B65j *1/06*
U.S. Cl. 137—344 **11 Claims**

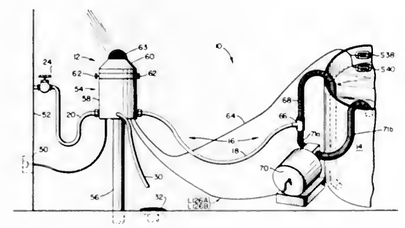
The present invention relates to a remote control system, and more particularly relates to such a remote control system that is particularly adapted for the operation of filling a tanker truck from a water tank. The disclosed invention is such that

the truck operator can readily control the entire fill-up operation from his seat in the cab of the tanker. The disclosed



system is adapted to service tankers of different sizes, different lengths, different heights, and different capacities without the need for a tank attendant.

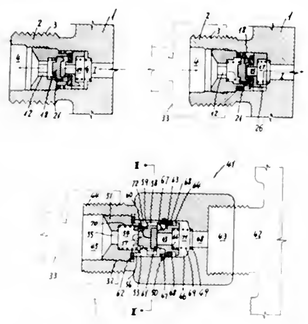
3,809,116
FLUID FLOW CONTROL SYSTEMS
George E. Sanner, Sparks, Md., assignor to Santron Corporation, Towson, Md.
Division of Ser. No. 272,793, July 18, 1972, Continuation-in-part of Ser. No. 18,829, Feb. 12, 1970, abandoned, which is a division of Ser. No. 456,787, May 18, 1965, Pat. No. 3,500,844. This application Jan. 10, 1973, Ser. No. 322,384
Int. Cl. G05d *9/12*
U.S. Cl. 137—391 **10 Claims**



A system for controlling the flow of fluid to and/or from a receptacle or reservoir which has a timed mode of operation and manual and demand modes, one or more level responsive controls, and at least one control for overriding the level responsive control or controls.

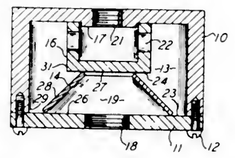
3,809,117
PRESSURE RESPONSIVE VALVE
Shiro Oota, 1-237, Aza Kukuchimae, Shimosakabe, Amagasakishi, Hyogoken, and Keitaro Yonezawa, 12-9-3, Kusugaokacho, Nadaku, Kobe, Hyogoken, both of Japan
Filed Jan. 26, 1973, Ser. No. 326,961
Claims priority, application Japan, Jan. 31, 1972, 47/11536
Int. Cl. F16k *17/26*
U.S. Cl. 137—493.6 **12 Claims**

A valve which permits fluid to flow therethrough under normal pressure conditions but which closes in response to a reduction of fluid pressure in the system below a predetermined value. The valve operates to prevent the detrimental in-



trusion of foreign substances, such as air, dirt, vapor, oil, fumes, etc. into the system.

3,809,118
CONE DISK SPRING RELIEF VALVE
Ray S. Harding, Racine, Wis., assignor to J. I. Case Company, Racine, Wis.
Filed July 19, 1973, Ser. No. 380,891
Int. Cl. F16k *15/14*
U.S. Cl. 137—525 **3 Claims**

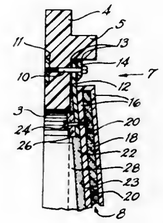


A cone disk spring relief valve having two spaced-apart walls disposed within a housing containing a resilient cone-shaped member compressed between the walls. A fluid port is in flow communication with the hollow interior of the cone-shaped member, and fluid pressure on the interior of the member will cause the member to flex to allow the fluid to pass beyond the cone-shaped member and thereby the fluid is relieved. The housing walls are movable toward each other for compressing the cone-shaped member which has circular edges in fluid tight contact with the respective walls. Also, the housing has a fluid inlet port and a fluid outlet port which are aligned with each other for straight line flow of fluid through the valve, and the inlet port is in flow communication with the interior of the cone member, and the housing has connectors for moving one wall toward the other wall in compressing the cone-shaped member.

3,809,119
VALVES
Gordon Milford Cave, Solihull, England, assignor to Coplastix Limited, Worcestershire, England
Filed May 1, 1972, Ser. No. 248,989
Int. Cl. F16k *15/03*
U.S. Cl. 137—527.8 **10 Claims**

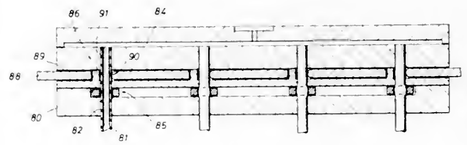
A flap valve comprising a frame having an opening therein and a door adapted to close said opening out of which liquid may flow to a region containing another liquid the level of which may vary, said door being, in use, hinged above the opening with the opening arranged below the highest level

reached by liquid in said region, the door comprising a portion of a density selected to be less than that of the liquid in said region and a portion of a density selected to be higher than that



of the liquid in said region, the relative amounts of the low density portion and the high density portion being selected so that the overall density of the door is slightly greater than that of the liquid in said region.

3,809,120
RAMDOM SEQUENCED PNEUMATIC MULTIPLEXING VALVE APPARATUS
Joseph L. Schweppe; Arthur H. McMorris, and Erick L. Ahlgren, all of Houston, Tex., assignors to Houston Engineering Research Corporation, Houston, Tex.
Filed Sept. 21, 1971, Ser. No. 182,478
Int. Cl. F16k *19/00*
U.S. Cl. 137—607 **22 Claims**

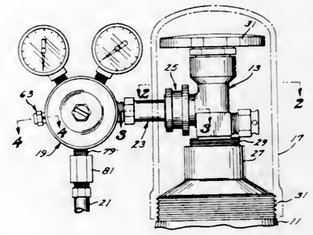


For multiplexing a number of pneumatic signals in random sequence, an apparatus which incorporates a plurality of gang operated valves arranged in a two dimensional pattern wherein the apparatus includes a body with two groups of valve operators extending therethrough, preferably at right angles. Each individual valve operator is preferably connected to several valves. However, the operation of two valve operators is required to open a single pressure source to the outlet so that the pressure to be scanned is identified by the coordinates of its location in the two dimensional pattern.

3,809,121
QUICK DISCONNECT PRESSURIZATION APPARATUS
Harold Ronald Harris, 12741 Canter St., Garden Grove, Calif.
Filed May 1, 1972, Ser. No. 249,005The portion of the term of this patent subsequent to Mar. 6, 1990, has been disclaimed.
Int. Cl. F16l *29/00*; **F16k** *45/00*
U.S. Cl. 137—613 **3 Claims**

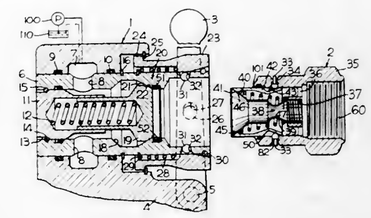
Quick disconnect pressurization apparatus including a control valve mounted on a pressure bottle and having an integral female socket projecting from the housing thereof. A regulator has a connector which is formed on its free end with a male plug for telescopical receipt in such socket and a quick discon-

nect coupling is provided for locking the plug in the socket thereby enabling the socket to be relatively short so a conven-



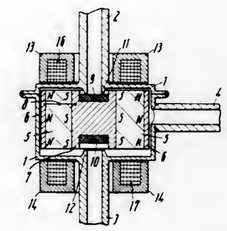
tional protective cap may be conveniently installed over the control valve while providing for quick and convenient connection and disconnection of the socket and plug.

3,809,122
HYDRAULIC COUPLING
David A. Berg, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Nov. 2, 1972, Ser. No. 303,283
Int. Cl. F16l *37/22*
U.S. Cl. 137—614.06 **10 Claims**



A fluid coupling having a quick disconnecting means with automatic valving to simultaneously terminate and initiate fluid flow in the coupling.

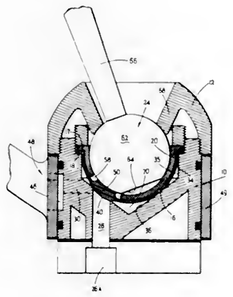
3,809,123
ONE- AND SURPLUS-WAY MAGNETIC VALVE WITH PERMANENT MAGNET AND CONTROLS BY PULSES
Georg Heimann, Wendelinusstr. 61, Stetternich, Germany
Filed Mar. 14, 1972, Ser. No. 233,052
Claims priority, application Germany, Mar. 16, 1971, 2112614; Feb. 22, 1972, 2208218
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.5 **9 Claims**



A magnet-valve device comprising a housing constructed of a non-magnetic material, said housing having an outlet tube and a pair of opposed inlet tubes, said housing containing at

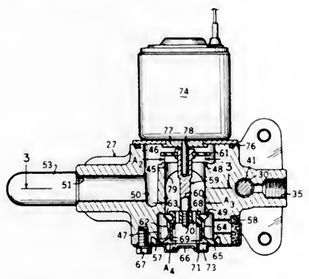
least one armature comprising a pair of terminals disposed on either side of a magnet, one of said terminals adapted to engage on opposed sides one of said inlets, said housing having disposed therearound at least one electricity-carrying coil whereby movement of the terminal adapted to engage the opposed inlets opens and closes said inlets in response to current passing through said coil.

3,809,124
MIXING VALVE
Donald R. Nelson, Worcester, Mass., assignor to Goddard Industries, Inc., Worcester, Mass.
Filed May 14, 1973, Ser. No. 360,381
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.41 **11 Claims**



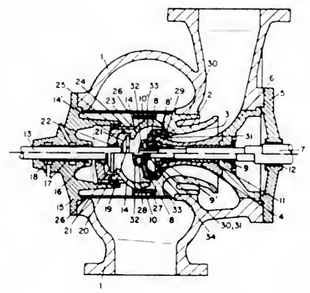
The valve is of the type that includes a single operating handle for controlling both the proportioning between hot and cold water flow, and also the volume of flow. The valve includes a body having hot and cold inlet passages and an outlet duct, a ball-shaped control member, a rigid stationary plastic liner into which the control member fits, and a resilient diaphragm that is stationary but deflectable and is disposed intermediate the liner and valve seat cavity of the body. The liner has a pair of apertures for accommodating a corresponding pair of nipples which are displaceable toward and away from the inlet passages for controlling the flow of fluid therefrom.

3,809,125
ANTI-SKID MECHANISM
John A. Machek, Creve Coeur, Mo., assignor to Wagner Electric Corporation, Newark, N.J.
Division of Ser. No. 199,431, Nov. 17, 1971. This application Dec. 13, 1972, Ser. No. 314,813
Int. Cl. F15b *13/44*; **F16k** *11/00*
U.S. Cl. 137—625.65 **8 Claims**



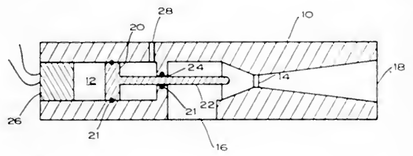
An anti-lock device for a vehicle brake system is provided with a solenoid operated control valve including a first valve member and a second diaphragm valve member actuated in response to signals from a sensing mechanism to subject a control member to vacuum and selectively subject said control member to atmosphere for controlling the application of supplied fluid pressure to a vehicle brake, and throttling valve means is provided to control the subjection of said control member to the vacuum.

3,809,126
COMBINED EMERGENCY STOP AND GOVERNOR VALVE FOR CONTROLLING FLUID FLOW TO A TURBOMACHINE
Arthur Oberle, Ennetbaden, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland
Filed Sept. 13, 1972, Ser. No. 288,547
Claims priority, application Switzerland, Sept. 24, 1971, 13888/71
Int. Cl. F16k *1/00*
U.S. Cl. 137—630.14 **4 Claims**



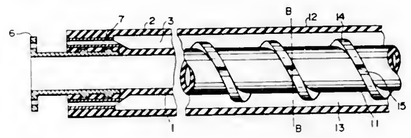
A combined emergency stop and governor valve structure includes a valve housing which encloses a governor valve assembly actuated from one end of the housing and a stop valve assembly actuated from the opposite end of the housing. The governor valve includes a bell-shaped portion the end of which defines a valve seat, the emergency stop valve is operable within the bell-shaped portion of the governor valve and both valves are rigidly supported in all operation positions.

3,809,127
TWO POSITION LIQUID FLOW CONTROL VALVE
Lee N. Gilbert, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Dec. 3, 1971, Ser. No. 204,657
Int. Cl. F15d *1/02*; **F16d** *31/00*
U.S. Cl. 138—44 **5 Claims**



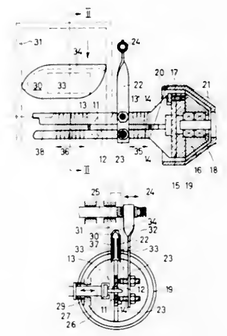
A two position liquid flow control valve comprising a piston connected to a pintle. Movement of the piston causes the pintle to move into or out of the throat of a cavitating venturi thereby altering the throat area and thus the liquid flow rate through the venturi.

3,809,128
FLOATING AND SUBMERGING CONTROLLABLE HOSE
Tamotu Tateisi; Shigeo Ueda, and Masayoshi Kuwabara, all of Yokohama, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan
Continuation of Ser. No. 887,921, Oct. 24, 1969, abandoned. This application June 3, 1971, Ser. No. 149,622
Int. Cl. F16l *11/12*
U.S. Cl. 138—114 **5 Claims**



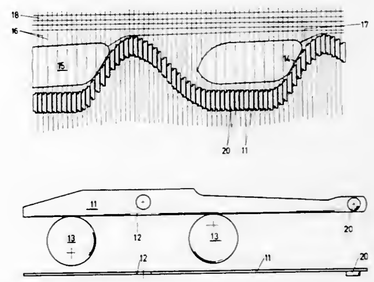
A submersible hose section having an inner hose and an outer hose, for transportation of liquid material, e.g., crude oil. The hose includes a resistive core structure secured to the outer surface of the inner hose for preventing the outer hose from coming into blocking contact with the inner hose when the space between the inner and outer hoses is evacuated for causing the hose section to submerge in sea water or other liquid medium.

3,809,129
DEVICE FOR TRANSFERRING A PORTION OF WEFT THREAD TO A WEFT INSERTING MEANS
Walter Muller, Jona/St. Gall, Switzerland, assignor to Ruti Machinery Works Ltd., Ruti/Zurich, Switzerland
Filed Aug. 10, 1972, Ser. No. 279,291
Claims priority, application Switzerland, Aug. 13, 1971, 11941/71
Int. Cl. D03d *47/26*
U.S. Cl. 139—12 **3 Claims**



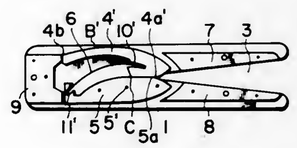
A device for transferring a portion of weft thread to a weft thread inserting means in a traveling wave loom, the device having a thread coiling member formed with a slot and along which a portion of the thread is adapted to be displaced, as a coil, with the aid of a pusher means extending through the slot, the weft thread inserting means having two flat, juxtaposed lateral walls with the coil of thread being transferred to the inserting means by pushing the inserting means over the coiling member, transfersely of the longitudinal direction thereof, and then pulling-away the inserting means in the longitudinal direction of the coiling member, over one end thereof.

3,809,130
ARRANGEMENT FOR DRIVING WEFT INSERTION MEANS
Edgar Strauss, Ruti, and Charles Karcher, Kusnacht, both of Switzerland, assignors to Ruti Machinery Works Ltd., Ruti/Zurich, Switzerland
Filed Aug. 23, 1972, Ser. No. 283,058
Claims priority, application Switzerland, Sept. 3, 1971, 12931/71
Int. Cl. D03d *47/26*
U.S. Cl. 139—12 **12 Claims**



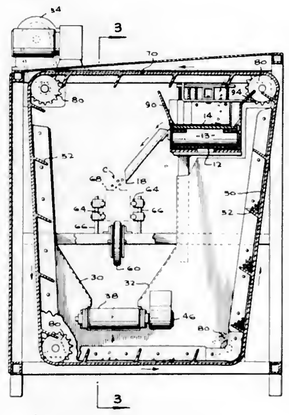
An arrangement for driving weft insertion means on a wave type loom having a multiplicity of lamellae for driving the insertion means, the lamellae arranged in a row, juxtaposed at their wide sides and, in operation, adapted to pivot, whereby one follows after the other so that, in their entirety, they perform a "wave"-like movement, with the pivoting lamellae impinging in the zone of one of their ends obliquely against an edge of the insertion means so as to displace the latter.

3,809,131
YARN CARRIER FOR A WEAVING MACHINE
Hiroshiro Kimura, Uji; Heiji Arimoto, Kyoto; Hirohisa Nara, Uji; Tsugio Miyamatsu, Uji, and Mitsuo Kitajima, Uji, all of Japan, assignors to Unitaka Ltd., Amagasaki-shi, Japan
Division of Ser. No. 49,476, June 24, 1970, Pat. No. 3,695,306. This application Aug. 3, 1972, Ser. No. 277,549
Int. Cl. D03j *5/06*
U.S. Cl. 139—125 **2 Claims**



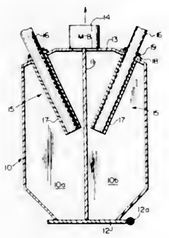
A yarn carrier for a weaving machine which has two arms including a yarn gripping portion which grips the yarn by means of contact between the two arms which are resiliently biased toward each other at the front of the yarn carrier in the flying direction. The yarn carrier also has a mechanism for releasing the depression of the two arms of the yarn gripping portion by a force applied from outside against the resiliency so as to freely pass the yarn through a gap made between the arms. Also, the yarn carrier has a guide groove formed in such a manner that width gradually decreases from the front to the rear of the feeding direction of the yarn carrier so as to feed the yarn to the yarn gripping portion and that the yarn gripping portion is formed in parallel with the flying direction of the yarn at the end portion at the inlet portion of the yarn to the yarn gripping portion of the yarn carrier.

3,809,132
FOOD PACKING MACHINE
Lewis H. Jones, Anchorage, Ky., assignor to Food Packers Equipment Company, Inc., Louisville, Ky.
Filed June 23, 1972, Ser. No. 265,711
Int. Cl. B65b *1/06*
U.S. Cl. 141—122 14 Claims



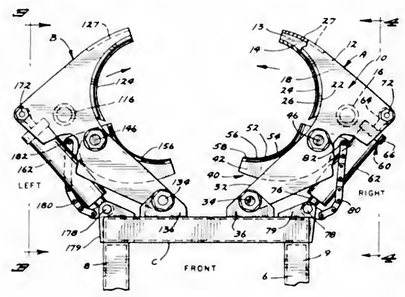
A food packing machine is disclosed including an infeed food conveyor from which a plurality of deflector plates deflect food particles onto a food slide to provide a cascade of particles onto a row of empty containers moving through the cascade with excess food particles falling onto an overflow return conveyor which returns the excess food to a lifting conveyor in the form of a cleated belt member oriented in a rectangular configuration and having inwardly extending flat cleats for engaging and lifting the returned food upwardly to deposit the returned food onto the infeed conveyor for return to the filling area.

3,809,133
HOPPER WITH VARIABLE LEVEL HOPPER FEED TUBE
David I. Skinner, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed July 20, 1973, Ser. No. 381,008
Int. Cl. B65b *1/30*
U.S. Cl. 141—198 16 Claims



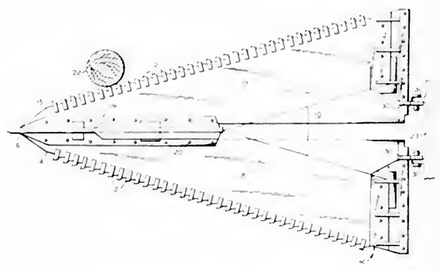
A feed tube extends downwardly into a hopper, preferably a vacuum hopper wherein vacuum pressure is created within the hopper to draw material through the feed tube thereinto, and it is preferably a split hopper having at least two sections filled with separate material at a predetermined ratio. The lower end of the feed tube includes an arrangement such as openings in the tube itself and a relatively rotatable surrounding sleeve for varying the upper limit of lateral through openings through the side of the feed tube. When the material in the hopper reaches the said upper limit and hence covers the through openings, the vacuum will no longer be communicated to the interior of the feed tube and hence the flow of material therethrough will terminate. Consequently, the relative positions of the inner tube and the surrounding sleeve determine the amount of material delivered to the section of the hopper associated with that feed tube.

3,809,134
DEVICE FOR DELIMBING TREES
Thomas C. McCabe, Duluth, Minn.
Continuation of Ser. No. 213,466, Dec. 29, 1971, abandoned.
This application July 27, 1973, Ser. No. 383,267
Int. Cl. B27c *9/00*
U.S. Cl. 144—2 Z 9 Claims



A delimber head for removing the limbs from felled trees by drawing the trees through the head in which primary left and right axially facing cutting units are pivoted to a base and urged toward one another by hydraulic force producing means and secondary left and right axially facing cutting units are pivoted to the first named cutting units and moved into cutting position by restraining means acting between and said base and said secondary cutting units.

3,809,135
EARTH WORKING BLADE WITH SAW TEETH
Ralph E. Dove, Rte. No. 4, Sedalia, Mo.
Filed July 27, 1972, Ser. No. 275,524
Int. Cl. A01g *23/08*; B27b *11/12, 33/02*
U.S. Cl. 144—34 F 1 Claim



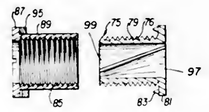
An earth working machine blade assembly of triangular shape and saw-toothed at the outer edge for mounting parallel and close to the ground apex forward to clear brush and trees in front of a bulldozer.

3,809,136
THREE-WAY SCREW DRIVER
Roger J. A. Cournoyer, 17200 Libby, Maple Heights, Ohio
Filed May 3, 1973, Ser. No. 356,897
Int. Cl. B25h *15/00*
U.S. Cl. 145—50 R 4 Claims



A screw driver device consisting primarily of a shank portion with a handle, having a multi-edged blade with a notch and shoulder on each edge of the blade for positioning a tool to apply pressure to a screw.

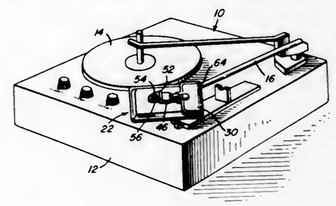
3,809,137
PENCIL SHARPENING DEVICE
James J. Dombroski, 40 Belknap Ave., Newport, N.H.
Filed Sept. 17, 1971, Ser. No. 181,388
Int. Cl. B43l *23/08*
U.S. Cl. 145—3.61 2 Claims



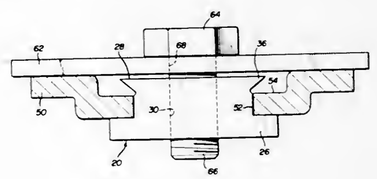
A pencil sharpener is described including a fastening-pin assembly comprising a bore-defining fastening pin, having a pencil-sharpening blade therein. The fastening pin's bore is funnel shaped for receiving pencil points to be sharpened. In one embodiment the fastening-pin assembly comprises a tubularly shaped rivet with a pencil sharpening blade assembly mounted therein. The rivet pencil sharpener is described in combination with a folding ruler wherein several rivet assemblies are located at pivotal joints of the folding ruler. When the folding ruler is folded so as to line up the pivotal joints, the rivet assemblies cooperate to form a pencil sharpener. The rivet pencil sharpener is also described in combination with a tape ruler wherein it is mounted at the axis about which a roll of tape rotates. In another embodiment, the fastening pin assembly comprises a tubularly shaped bolt, having a pencil sharpening blade mounted therein and being fastened to objects with a nut.

3,809,138
PHONOGRAPH TONE ARM JACKET
Donald S. Workman, 3745 S.W. 59th Ave., Davie, Fla.
Filed June 30, 1972, Ser. No. 268,119
Int. Cl. B65d *55/02, 85/20*
U.S. Cl. 150—52 R 2 Claims

An envelope having an opening extending along one marginal edge portion and provided with a closure flap foldable over the open edge portion of the envelope. The free edge portion of the flap and the side of the envelope over which the flap is foldable include coacting structure for releasably securing the flap in a closed position. The flap of the envelope is defined by an extension of one side panel of the envelope and the extension defines a base end portion secured to the corresponding side panel of the envelope and a free end portion, a fold zone for the flap being spaced outwardly of and generally paralleling the open side of the envelope and the extension, in one side edge portion thereof including a laterally opening notch through the center of which the fold zone extends, the notch defining a passage extending into the envelope when the flap is disposed in the closed position to accomodate an elongated member having one enlarged end within the envelope and its other end projecting outwardly of the envelope, the flap preventing withdrawal of the enlarged head from within the envelope.



3,809,139
CLINCH-SLIDE NUT, PANEL ASSEMBLY AND METHOD OF FORMING SAME
William E. Strain, Birmingham, Mich., assignor to Kean Manufacturing Corporation, Dearborn Heights, Mich.
Filed May 26, 1972, Ser. No. 257,109
Int. Cl. F16b *37/04*
U.S. Cl. 151—41.72 7 Claims

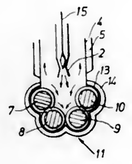


A nut and panel assembly, wherein the nut is loosely retained in an elongated panel opening for sliding adjustment therein. The nut includes a central pilot which is disposed through the panel opening, a pair of opposed flanges which overlie one face of the panel and a pair of ears which extend upwardly from the top face of the pilot, prior to securement, and are deformed outwardly and downwardly to overlie the opposed flanges and the panel to loosely retain the nut in the panel opening. A pair of grooves are provided in the side walls of the pilot, beneath the ears, to accommodate the flow of metal during deformation of the ears and limit lateral displacement of the side walls which would lock the nut in the panel opening.

3,809,140
CONCENTRATION OF MATERIALS
Rudolf Erdmenger, Bergisch Gladbach; Martin Ullrich, Opladen, and Manfred Hederich, Leverkusen-Schlebusch, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 23, 1970, Ser. No. 101,090
Claims priority, application Germany, Dec. 24, 1969, 1964946; Dec. 24, 1969, 1964949
Int. Cl. B01d *1/28, 1/00*
U.S. Cl. 159—2 E 10 Claims

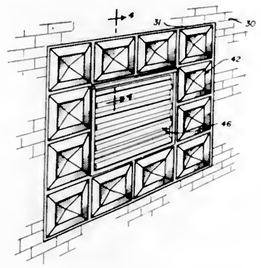
In the concentration of materials, e.g., a solution of polymers, by discharging the material from an expansion noz-

zle into an evaporating chamber, the degree of the concentration is increased so that the concentrated material is no longer fluid. Such operation is made feasible by disposing screw conveying means in the discharge of the evaporating chamber for



withdrawal of the material. Efficiency of the concentration is increased. The material can be further concentrated in evaporating chambers through which the conveying means carry the material.

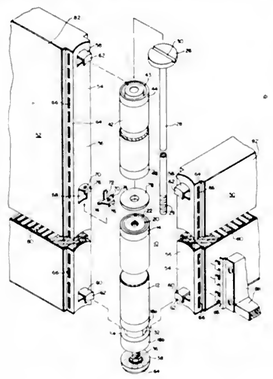
3,809,141
VENTILATOR AND SIMULATED STRUCTURE PANEL
Jack C. Loerop, 5129 Lawn Ave., Western Springs, Ill.
Filed Jan. 26, 1972, Ser. No. 220,783
Int. Cl. E06b *3/32*
U.S. Cl. 160—89 **14 Claims**



A ventilator formed from molded parts and a simulated structural panel formed from molded parts, said ventilator and panel used in combination or separately. The panel has four molded frame parts with integrally formed structures to support a screen, a window pane, a louver assembly, and a roller for opening and closing the louver assembly. The frame parts have integrally formed interlocking members for joining and bonding the frame parts together. The louver assembly includes a plurality of louver members with integrally formed brackets which are pivoted to the side frame parts and to common links, one of which common link is operated by the roller to open and close the louver members. Molded split stem pivot shafts are used for the roller and louver assembly. Other integrally formed parts on the molded frame part are provided to tilt the window pane in open position, to provide rigidity, and interlocking of the frame parts, to provide interior and exterior flanges for the ventilator, and to provide other features of advantage in the substantially all plastic ventilator.

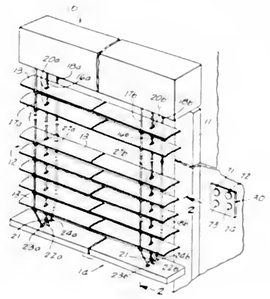
3,809,142
MULTIPLE HEIGHT SPACE DIVIDER SYSTEM AND CONNECTOR ASSEMBLY THEREFOR
Raymond A. Bleeker, Grand Rapids, Mich., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 23, 1971, Ser. No. 211,584
Int. Cl. A47g *5/00*
U.S. Cl. 160—135 **11 Claims**

A streamlined, modern, space dividing system for use in environmental office design applications and the like which includes one or more hollow tubular vertical post of two or more differing heights having two or more panel connector adapters axially aligned therewith. Each panel connector adapter includes a vertically oriented annular slot therein adapted to



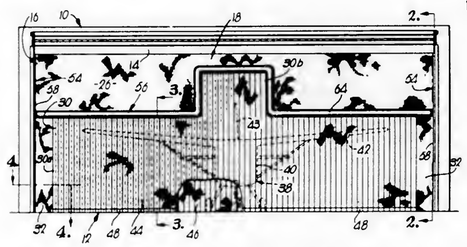
receive complementary hook connectors associated with the vertical edges of at least two spaced dividing panels of differing heights, thereby providing support for panels of differing heights in any angular orientation about the axis of the post.

3,809,143
AUTOMATIC CONTROL FOR VENETIAN BLIND
Ayhan Ipekgil, 301 S. Kenmore Ave., Los Angeles, Calif.
Filed June 29, 1972, Ser. No. 267,566
Int. Cl. E06b *9/30*
U.S. Cl. 160—168 **5 Claims**



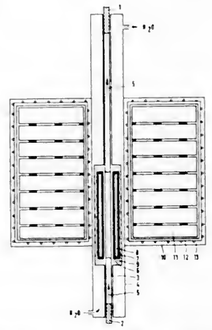
Apparatus for automatically controlling a venetian blind is provided within a cornice box from which the blind is suspended. The apparatus includes a first and second drive motor for driving shafts provided with reels. Thus, in order to raise the blind a pair of cords, one on each side of the blind, is taken up by reels on a drive shaft being rotated by a first motor; and in order to lower the blind the pair of cords are played out from the reels by reversing the rotation of the first motor. The slats for the blind are supported by transverse cord members connected across a front and back cord provided on each side of the blind. Thus, in order to close the blind the front cord on each side of the blind is taken up by reels on a drive shaft being rotated by the second motor and the back cord on each side of the blind is simultaneously played out of reels on a drive shaft being rotated by the second motor; and in order to open the blind the direction of movements of the front and back cords is reversed by reversing the rotation of the second motor. Push buttons on a conveniently positioned panel provide for controlling the operation of the blind by selectively actuating the first and second motors.

3,809,144
WEATHER CURTAIN FOR AIRPLANE HANGAR ENTRANCE
James F. Garufo, 2716 George Washington Blvd., Wichita, Kans.
Filed Nov. 20, 1972, Ser. No. 307,984
Int. Cl. A47h *23/05*
U.S. Cl. 160—184 **6 Claims**



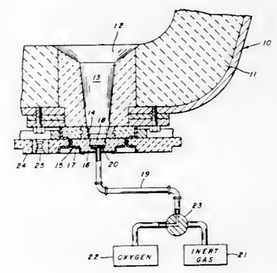
A pass-through curtain suspended across the entrance of a large enclosure such as an airplane hangar or other building has an inner and outer series of transparent, back-to-back, depending closure flaps which are arranged in overlapping relationship with one another to prevent the escape of temperate air from the hangar or the inflow of ambient air when the hangar door is open, yet allow the forced entry of an airplane by deflecting and parting of the flaps. A substantially air-impervious barrier portion of the curtain above the pass-through, flap portion and along each end thereof precludes air flow through areas of the curtain other than the flap portion to thereby further reduce the total volume of air passed by the curtain. A transverse, air-inflated, stiffening tube extending across the curtain slightly above the flaps and an individual, vertically extending stiffening tube on each flap rigidify the curtain and flaps so that the flaps quickly return to their undeflected positions instead of clinging to the wings and tail structure of the airplane as it moves through the curtain. Zippered pockets of granular weight material along the bottom of the flaps provide variable ballast.

3,809,145
PROCESS FOR THE PRODUCTION OF PERMANENT MAGNETS
Wilhelm Kuhlmann-Schafer, Hannover, Germany, assignor to Preussag Aktiengesellschaft, Hannover, Germany
Filed June 15, 1972, Ser. No. 264,399
Claims priority, application Germany, June 15, 1971, 2129592
Int. Cl. B22d *27/02*
U.S. Cl. 164—49 **9 Claims**



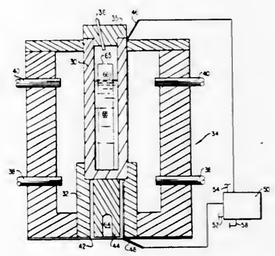
Permanent magnets having high coercivity forces and remanence are produced by melting and cooling a charge of magnetic material in a strong magnetic field.

3,809,146
METHOD OF OPENING AN INTERMEDIATE VESSEL NOZZLE FOR CONTINUOUS CASTING
Sigmund L. Andrzajak, Chicago, Ill.; Michael A. Orehoski, Duquesne; James T. Shapland, Wilkins Township, Allegheny County, both of Pa., and Raymond S. Szumilas, Chicago, Ill., assignors to United States Steel Corporation, Pittsburgh, Pa.
Filed Feb. 18, 1972, Ser. No. 227,476
Int. Cl. B22d *11/10*
U.S. Cl. 164—66 **4 Claims**



A method of and apparatus for handling liquid steel in a tundish preparatory to teeming the steel into a continuous casting mold. Initially the tundish outlet is closed with a slidable gate which has a porous plug aligned with the outlet. Inert gas is injected into the steel through this plug to agitate the steel in the region of the tundish outlet. Inert gas injection is terminated shortly before the commencement of teeming, and oxygen rich gas is injected to react exothermically with the steel in the nozzle well area. Thereafter the porous plug slidable gate is replaced with a conventional gate having a teeming opening.

3,809,147
METHOD FOR MAKING PRODUCTS SUITABLE FOR USE IN FORMING COMPOSITE SUPERCONDUCTORS
Jan Wayne Raymond, 250 S. Oneida, Apt. 401B, and Clay N. Whetstone, 840 S. Oneida, Apt. 403A, both of Denver, Colo.
Division of Ser. No. 47,390, June 18, 1970. This application Sept. 24, 1971, Ser. No. 183,594
Int. Cl. B22d *27/04*
U.S. Cl. 164—122 **6 Claims**



A plurality of rods are assembled in a predetermined configuration to form a core which is surrounded by a molten matrix metal within a heated crucible. The temperature of the thusly charged crucible's upper portion is maintained above the matrix metal's melting point. In this respect, as the heat is applied to the top of the melt, the crucible is maintained in a hot environment while the bottom of the crucible is centrally chilled. In this manner the charge is solidified from the bottom toward the top so that the solidification progresses upwardly

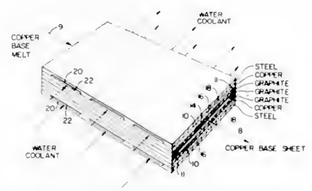
and outwardly in a conical pattern. After the controlled solidification is completed the casting is separated from the crucible to form a cored extrusion billet. In one embodiment the rods are separated from the casting and the resulting open holes are filled with superconductive material to form a composite superconductor extrusion billet. In another embodiment the rods themselves are made of a superconductive material so as to eliminate the step of separating the rods from the casting.

3,809,148

CONTINUOUS CASTING DIE WITH COMPATIBLE LINING AND JACKET

Verne Pulsifer, Pittsburg, Pa., assignor to Copper Range Company, White Pine, Mich.

Filed Nov. 30, 1972, Ser. No. 310,688
Int. Cl. B22d *11/00*
U.S. Cl. 164—283 M **9 Claims**



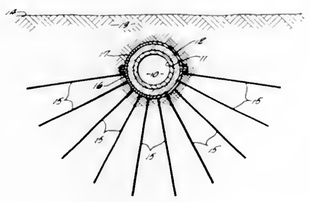
A continuous casting die, particularly for copper base melts, has a graphite lining and a copper jacket, which are connected by molybdenum fasteners. The thermal expansion coefficients and the other physical characteristics are such that threaded joints between the fasteners and the jacket do not loosen in service and bearing pressure between the lining and the jacket is maintained.

3,809,149

METHOD OF SUPPORTING A HOT OIL PIPELINE THROUGH PERMAFROST

Daniel H. Deutsch, 141 Kenworthy Dr., Pasadena, Calif.

Filed Oct. 4, 1972, Ser. No. 294,790
Int. Cl. F28f *7/00*
U.S. Cl. 165—1 **11 Claims**



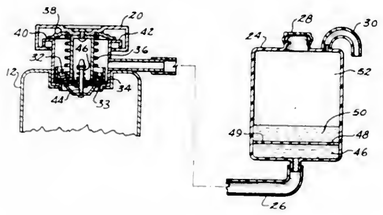
An underground hot oil pipeline is maintained in a stable location by maintaining the permafrost in a frozen condition. This frozen condition is maintained by a combination of insulation means to reduce heat loss from the pipeline into the permafrost to below about 1 calory per square centimeter per day and by the provision of a plurality of elongated thermally conductive strips extending outwardly from the exterior of the pipeline insulating means in order to conduct that heat which flows from the immediate region of the pipeline insulating means into the surrounding permafrost. Above ground heat radiating means may be advantageously utilized to help conduct heat into the surrounding atmosphere.

3,809,150

MINIMIZING CORROSION OF OVERFLOW RECEPTACLE EQUIPPED ENGINE COOLING SYSTEM

Allie B. Holmes, Corpus Christi, Tex., assignor to Opti-Cap, Inc., Corpus Christi, Tex.

Filed Apr. 16, 1973, Ser. No. 351,371
Int. Cl. F28f *19/00*; **F01p** *3/00*
U.S. Cl. 165—1 **11 Claims**



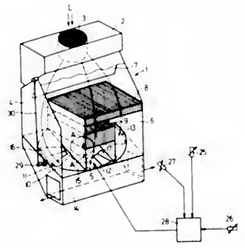
A method and system for minimizing corrosion in a vehicle engine cooling system containing a water base coolant and having an overflow receptacle vented to atmosphere and connected to the cooling system to receive overflow coolant from the system and to return the coolant to the system. The method and system includes maintaining a liquid seal on the surface of the coolant in the overflow receptacle. The liquid seal completely covers the surface of the coolant in the overflow receptacle and includes a coolant insoluble air excluding component and a coolant soluble corrosion inhibiting component. The air excluding component prevents absorption of fresh air by the coolant in the overflow receptacle and the corrosion inhibiting component gradually dissolves in the coolant over long periods of time to prevent cooling system corrosion.

3,809,151

AIR HEATING AND COOLING SYSTEM FOR A VEHICLE PASSENGER COMPARTMENT

Wolfgang Scheidel, Buhlertal, and Helmut Steinmann, Baden-Baden, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 7, 1973, Ser. No. 338,745
Claims priority, application Germany, Mar. 8, 1972, 2211091
Int. Cl. B60h *3/00*
U.S. Cl. 165—42 **16 Claims**



The output of a blower is supplied to three branch ducts in one of which the air passes through a cooler, in another of which it passes through a heater and in the third of which the air always passes through unchanged. A common control valve controls the discharge from the three ducts, never allowing discharge from more than two of them and providing smooth transition as the valve is moved from one extreme

position to the other, from 100 percent heated air to 100 percent unchanged air to 100 percent cooled air. For reasons of heat exchanger design, the air passing through the duct in which the heater is located is branched off downstream of the cooling device from the duct in which the cooler is located.

3,809,152

AUTOMOTIVE COOLING SYSTEMS

Matthew A. Boehmer, Allen Park, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation-in-part of Ser. No. 782,468, Dec. 9, 1968, abandoned. This application July 22, 1971, Ser. No. 165,329
Int. Cl. C09n *3/02*
U.S. Cl. 165—51 **3 Claims**

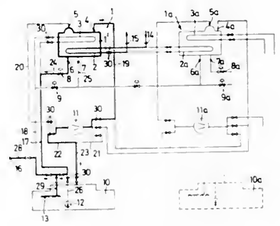
An automotive heat exchange type cooling system includes an automotive radiator coupled with a reservoir exteriorly disposed thereof and vented to the atmosphere and a two-phase aqueous coolant, one phase being capable of forming a supernatant layer on the surface of the other when in the reservoir to retard evaporation thereof.

3,809,153

SYSTEM FOR USE WITH STORAGE TANKS FOR RECEIVING, DELIVERING OR RETAINING LIQUIFIED GAS

Drago Kober, Rondorf/Cologne, Germany, assignor to Liquid Gas Anlagen Union GmbH, Remagen-Rolandseck, Germany

Filed Oct. 1, 1971, Ser. No. 185,617
Claims priority, application Germany, Oct. 1, 1970, 2048271
Int. Cl. F25b *13/00*
U.S. Cl. 165—62 **9 Claims**



A system for filling and draining a storage tank with liquified gas and/or for cooling and heating stored liquified gas includes a heat exchanger having a chamber with two nests of tubes, one for circulating cooling or heating medium and the other for circulating liquified gas. The other nest of tubes is connected by conduit means to a storage tank while the chamber itself is connected by further conduit means both with the first conduit means and also through a compressor and pump with the storage tank.

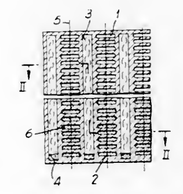
3,809,154

HEAT EXCHANGER FOR TRANSFERRING HEAT BETWEEN GASES

Laszlo Heller; Laszlo Szucs, and Zoltan Szabo, all of Budapest, Hungary, assignors to Energiagazdalkodasi Intezet, Budapest, Hungary

Filed Sept. 16, 1971, Ser. No. 181,125
Claims priority, application Hungary, Aug. 21, 1970, OE-572
Int. Cl. F28d *15/00*
U.S. Cl. 165—105 **5 Claims**

A heat exchanger for taking heat from a hot gas and delivering the heat to a cool gas. The heat exchanger includes a lower passage structure through which the hot gas flows and an upper passage structure through which the cool gas, which is to be heated, flows. A heat-transfer structure is operatively connected with the upper and lower passage structure so as to be in heat-exchanging relation therewith, this heat-transfer structure including an elongated vertical enclosure which is in heat-transfer communication with the gas in the lower passage structure as well as with the gas in the upper passage structure. This heat-transfer structure includes within the latter enclosure a fluid which is in a liquid phase in a lower portion of the enclosure which is operatively connected with the lower



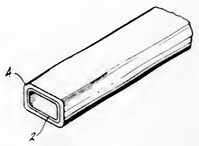
passage structure and in a vapor phase in an upper portion of the enclosure which is operatively connected with the upper passage structure. Thus, heat from the hot gas in the lower passage structure serves to vaporize the liquid phase of the fluid in the enclosure with the vapor rising up to the elevation of the upper passage structure where the vapor gives up its heat to the gas in the upper passage structure with consequent condensing of the vapor to form again the liquid phase which settles to the lower portion of the enclosure.

3,809,155

EROSION-CORROSION RESISTANT ALUMINUM RADIATOR CLAD TUBING

William H. Anthony, and James M. Popplewell, both of Guilford, Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Feb. 2, 1972, Ser. No. 222,795
Int. Cl. F28f *13/18*
U.S. Cl. 165—133 **6 Claims**



A composite aluminum article having increased resistance to erosion corrosion in aqueous environments comprising an aluminum base alloy cladding consisting essentially of 0.8 to 1.3 percent zinc, 0.7 percent maximum silicon plus iron, 0.10 percent maximum copper, 0.10 percent maximum manganese, 0.10 percent maximum magnesium, balance essentially aluminum, bonded to at least one side of an aluminum base alloy core consisting essentially of manganese from 1.0 to 1.5 percent, chromium from 0.1 to 0.4 percent, copper from 0.05 to 0.4 percent, balance essentially aluminum.

3,809,156

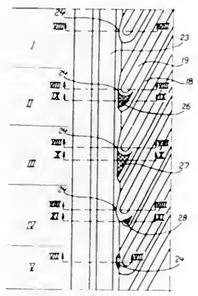
HEAT EXCHANGING PLATE WITH PRESSED RIDGES

Jarl Anders Andersson, Lund, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Filed Oct. 6, 1972, Ser. No. 295,428
Claims priority, application Sweden, Oct. 8, 1971, 12730/71
Int. Cl. F28f *3/08*
U.S. Cl. 165—167 **2 Claims**

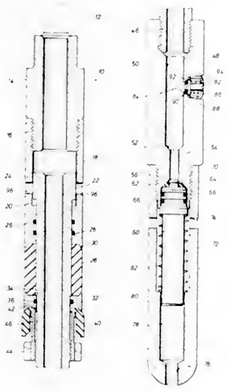
One side of the heat exchanging plate has a marginal pressed groove for receiving the usual gasket, and both sides

have pressed ridges extending side-by-side for crossing and contacting similar ridges on adjacent plates in a plate heat exchanger. The ridges on the same side of the plate as the marginal groove extend all the way to this groove, so that their end



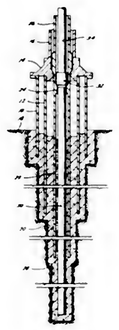
surfaces form parts of a side wall of the groove; and the ridges on the opposite side of the plate merge into plate portions between the latter ridges and the groove, these plate portions being situated between the two planes extending through the crests of the ridges on the two sides, respectively, of the plate.

3,809,157
TUBING PLUG
Alex Dufrene, P.O. Box 194, Des Allemands, La.
Filed Nov. 21, 1972, Ser. No. 308,327
Int. Cl. E21b *33/128*
U.S. Cl. 166—185 **9 Claims**



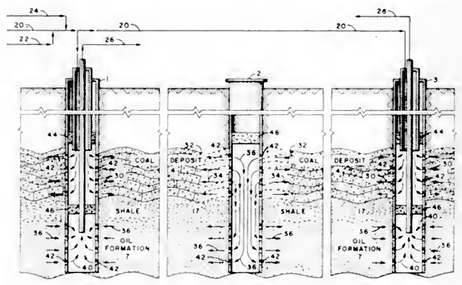
A plug suitable for use in a tubing string which incorporates an elongate body formed of a slidable inner mandrel which moves a spacer ring mounted on the exterior, the spacer ring expanding a resilient pack-off element adjacent a fixed external mandrel. The apparatus is set by upward flow in the tubing string wherein upward flow forces the inner mandrel upward. A check valve arrangement is attached to the lower end of the inner mandrel. A lateral relief valve is included so that a release tool can reduce the pressure differential acting across the plug.

3,809,158
WELL COMPLETION APPARATUS AND METHOD
James Vaull Bonds, and John Walton McCaskill, both of Houston, Tex., assignors to Rockwell International Corporation, Pittsburgh, Pa.
Filed July 27, 1972, Ser. No. 275,576
Int. Cl. E21b *33/035, 23/06*
U.S. Cl. 166—250 **24 Claims**



Well completion apparatus in which a casing hanger is suspended from a first member of a well tool and a sealing member is suspended from a second member of the well tool. The first and second members are releasably connected whereby upon landing the casing hanger within the well the first member is disconnected from the second member and the sealing member is lowered into sealing position independently of the casing hanger. A portion of the sealing member is rotated to cause an expansion ring to engage an annular groove in the casing head thereby actuating the sealing member and locking the sealing member and casing hanger in position.

3,809,159
PROCESS FOR SIMULTANEOUSLY INCREASING RECOVERY AND UPGRADING OIL IN A RESERVOIR
Gary C. Young, and Howard H. Ferrell, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
Filed Oct. 2, 1972, Ser. No. 293,968
Int. Cl. E21b *43/14, 43/24*
U.S. Cl. 166—258 **4 Claims**

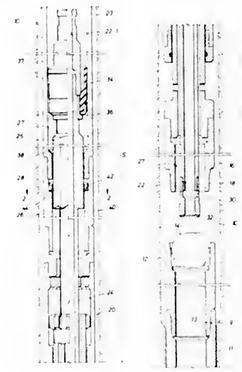


A process for simultaneously increasing recovery and upgrading oil in a reservoir by injecting gas produced by the in situ gasification of coal to increase recovery and upgrade said oil. The gas is also useful in the production of steam and other gaseous materials for injection.

3,809,160
IMPROVED METHOD FOR SELECTIVELY CONTROLLING FLOW OF AQUEOUS FLUIDS IN SUBTERRANEAN FORMATIONS
Willis G. Routson, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 44,609, June 8, 1970, Pat. No. 3,687,200. This application Aug. 3, 1972, Ser. No. 277,765
Int. Cl. E21b *33/138*
U.S. Cl. 166—294 **5 Claims**

A method for selectively reducing the flow of water in permeable subterranean formations by injecting into said formations a solution of a polyvalent metal ion followed by a solution or dispersion of an organic polymeric polyelectrolyte, thereby forming a stable colloidal dispersion of a water-insoluble inorganic solid in said water-containing formation in preference to its formation in oil-containing strata. This, then, results in improved oil recovery.

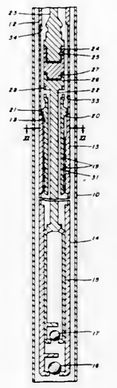
3,809,161
POSITIVE ROTATION CLEANOUT APPARATUS AND METHOD
William F. Carothers, Houston, Tex., assignor to Wilson Industries, Inc., Houston, Tex.
Filed Oct. 13, 1971, Ser. No. 188,876
Int. Cl. E21b *31/00, 41/00*
U.S. Cl. 166—301 **18 Claims**



Apparatus for retrieving drill pipe, drilling tools, or other equipment stuck in a well bore has a selectively insertable, positively rotating drill bit which can clean out the box end of a collar or tool to enable a fishing string to engage the stuck object, and can clean out the bore of a well pipe to enable lowering therethrough of an explosive charge as an aid to retrieving the stuck object. A method for retrieving drill pipe, drilling tools, or other equipment stuck in a well bore is also provided.

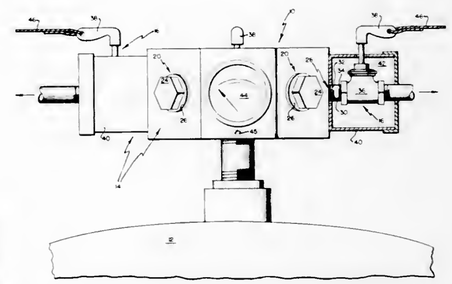
3,809,162
OVERSIZE SUBSURFACE TUBING PUMP INSTALLATION AND METHOD OF RETRIEVING THE PUMP
Matthew Sydor, Edmonton, Alberta, Canada, assignor to United States Steel Corporation, Pittsburgh, Pa.
Filed Oct. 24, 1972, Ser. No. 300,090
Int. Cl. E21b *33/00*
U.S. Cl. 166—315 **8 Claims**

An oversize subsurface tubing pump installation and method of retrieving the pump from a well. Both the pump barrel and plunger are too large to pass through the tubing. When the pump is to be retrieved, the sucker rods are raised and lift the seating assembly to expose a drain hole in the seating nipple. Fluid drains from the tubing through the exposed drain hole. Continued raising of the sucker rods breaks the



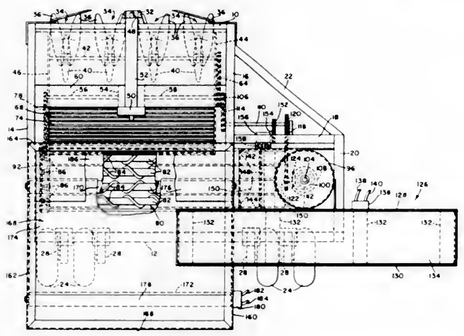
connection between the sucker rods and pump plunger. The sucker rods and then the tubing and pump are pulled from the well. Draining the tubing prevents spillage at the top of the well.

3,809,163
MULTIPLE VALVE DISTRIBUTOR HEAD
George Weise, 1462 Alps Rd., Wayne, N.J.
Filed Mar. 7, 1973, Ser. No. 338,835
Int. Cl. A62c *37/12*
U.S. Cl. 169—9 **3 Claims**



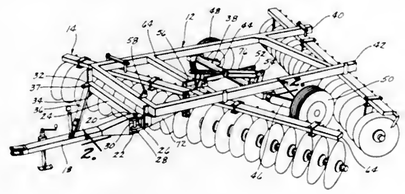
This invention relates to fire extinguishing systems and specifically pertains to a multiple valve distributor head for pressure actuated cartridges containing a fire extinguishing agent which protect a plurality of fire hazard areas through fixed pipe systems attached to the valves of the distributor head. The multiple valve distributor head permits the selective discharge of the entire contents of the cartridge through one valve into the fixed pipe fire system protecting one hazard area upon detection of a fire in that area, without unseating or opening valves leading to the fixed pipe systems of unaffected hazard areas. The multiple valve distributor head comprises a fitting for pressurized cartridges of fire extinguishing agent formed with a plurality of opposed laterally-extending bosses having openings communicating with an interior distribution cam chamber and counterboard and internally threaded at their outer ends to receive independently actuated valves which in turn are connected to fixed pipe fire systems through which the fire extinguishing agent is discharged.

3,809,164
STORAGE TANK AND RECLEANING APPARATUS FOR ROOT CROP HARVESTERS
Richard Wayne Hook, Des Moines, and William Wayne Jackson, Bettendorf, both of Iowa, assignors to Deere & Company, Moline, Ill.
Filed May 21, 1973, Ser. No. 361,934
Int. Cl. A01d *19/02*
U.S. Cl. 171—58 **10 Claims**



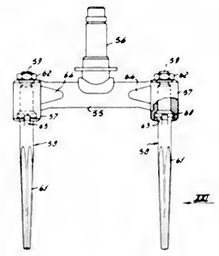
A root crop harvester having a horizontal cleaning conveyor for conveying harvested roots to one side of the machine while simultaneously removing excess dirt therefrom, and a vertical conveyor for receiving roots from the horizontal conveyor, elevating them and discharging them either into a receptacle alongside the harvester or into a storage tank mounted on the harvester frame. The storage tank has a transversely extending opening in its forward portion disposed directly above the cleaning conveyor, and a floor conveyor selectively operable to move roots lying on the floor forwardly to the opening so that they can gravitate there-through onto the cleaning conveyor to be recleaned.

3,809,165
HYDRAULICALLY OPERATED WEIGHT CONTROL
Maurice E. Miller, Stratton, Nebr.
Filed Feb. 26, 1973, Ser. No. 335,444
Int. Cl. A01b *59/04*
U.S. Cl. 172—328 **6 Claims**



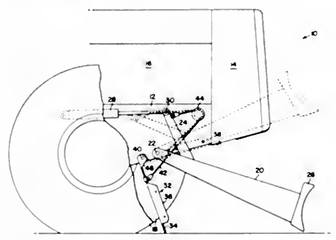
A hydraulically operated weight control apparatus for a disc or the like is disclosed comprising means for shifting the weight between front and rear disc sections. The disc comprises a frame means having front and rear disc sections secured thereto. A transversely extending axle is secured to the frame means and has ground engaging wheels at the opposite ends thereof which control the discing depth and transport height. A hydraulic cylinder is secured to the axle to raise and lower the wheels with respect to the frame means. A forwardly extending hitch is pivotally secured about a horizontal axis to the forward end of the frame means. A hydraulic cylinder is connected to the axle and the hitch means to pivot the hitch means with respect to the frame means to permit the selective shifting of weight between the front and rear disc sections.

3,809,166
TINE MOUNTINGS
Cornelis van der Lely, 7 Bruschemain, Zug, Switzerland, and Ary van der Lely, 10 Weverskade, Maasland, Netherlands
Filed Jan. 18, 1972, Ser. No. 218,667
Claims priority, application Netherlands, Jan. 19, 1971, 7100672; Mar. 1, 1971, 7102669; Aug. 31, 1971, 7111947
Int. Cl. A01b *15/00*
U.S. Cl. 172—763 **7 Claims**



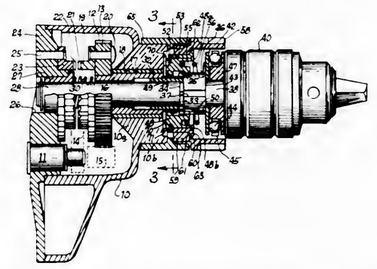
A cultivator tine mounting includes an elongated support that rotates about a central axis with tine holder holes at each end of the support. The holes are surrounded by upper and lower surfaces which can be configured to seat the upper fastening portions of a tine with securing means, retaining the tine in fixed relationship with the support. A stiffener element or deformation of the support can be located near the holes for additional support. The support can be hollow and made of two sheet metal interengaging parts. Also the tine holders can be vertically extending members that are attached to the remainder of the support.

3,809,167
DEVICE FOR POSITIONING A PIVOTAL VEHICLE BOTTOM GUARD
Lawrence James Glider, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Dec. 14, 1972, Ser. No. 315,148
Int. Cl. E02f *3/76*; **B62d** *25/20*
U.S. Cl. 172—808 **3 Claims**



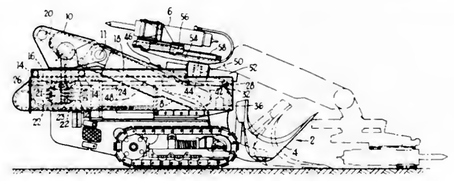
A skidder-type vehicle includes a blade assembly vertically pivotally mounted on the main frame of the skidder at its forward end and a pair of hydraulic cylinders are mounted between the skidder main frame and the blade assembly for swinging the latter vertically. The skidder includes a bottom guard which is vertically pivotally mounted to the underside of the main frame at the forward end thereof and a cable is connectible between the blade assembly and the bottom guard to act as a motion-transfer means for causing the bottom guard to be raised and lowered concurrently with the raising and lowering of the blade assembly when screw fasteners normally holding the bottom guard in its installed position are removed.

3,809,168
HAMMER DRILL
Walter James Fromm, Chicago, Ill., assignor to Skil Corporation, Chicago, Ill.
Filed Apr. 23, 1973, Ser. No. 353,562
Int. Cl. E21c *1/12*
U.S. Cl. 173—13 **6 Claims**



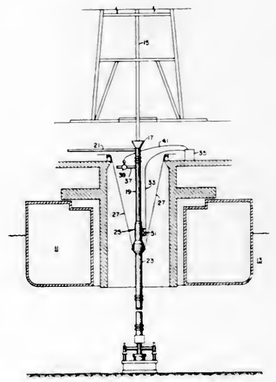
A driven shaft carries a ring gear having an annular formation of teeth adapted for ratcheting engagement with an annular series of fixed teeth. When the shaft is moved inwardly of the tool housing as the result of contact of the drill bit with the work, these teeth are brought into engagement to provide a hammering action. A spindle has one end thereof rotatably mounted in a bore formed in the shaft and has the other end thereof supporting a drill chuck. A coupler sleeve is axially slidable for being located in three predetermined positions; this coupler sleeve transfers rotation from the shaft to the spindle in two of its three axial positions thereby defining a drilling mode and a combined hammering and drilling mode. In the third axial position of the coupler sleeve, the same abuts a thrust formation and prevents engagement of the ratcheting teeth thereby to define a hammering mode of operation. The sleeve is axially positioned by manually operated cam means.

3,809,169
LOADING MACHINE IMPACT TOOL SUPPORTED BY ADJUSTABLE BOOM AND CARRIAGE
William Allen Hunt, Tynemouth, England, assignor to Eimco (Great Britain) Limited, Earlsway, Team Valley Gateshead Nell OSB, England
Filed Feb. 2, 1973, Ser. No. 329,074
Claims priority, application Great Britain, Feb. 16, 1972, 7188/72
Int. Cl. E21c *11/02*
U.S. Cl. 173—28 **17 Claims**



An earth-working vehicle having a first earth-working implement located at its forward end and a stowable second boom supported earth-working implement located along one side of the vehicle. The boom is mounted on a track traversing carriage for pivotal adjustment relative to the carriage about substantially vertical and horizontal axes and the implement is mounted on the free end of the boom for movement about two axes contained in two mutually perpendicular planes.

3,809,170
METHOD AND APPARATUS FOR DETECTING FLUID INFLUX IN OFFSHORE DRILLING OPERATIONS
William T. Ilfrey, and James R. Sheffield, both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.
Filed Mar. 13, 1972, Ser. No. 234,226
Int. Cl. E21b *15/02*
U.S. Cl. 175—7 **9 Claims**



An improved method and apparatus for use in connection with offshore drilling is disclosed. The system is particularly useful in operations where a drilling vessel is situated at the surface of a body of water and circulation of drilling fluid is accomplished by introducing drilling fluid into a drill string extending from the vessel into a borehole in the floor of the body of water and returning it through a separate conduit. The present invention includes method and apparatus for terminating circulation of the drilling fluid and then monitoring the fluid level of the drill fluid within the return conduit to detect any influx of formation fluid into the borehole.

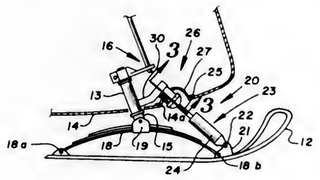
3,809,171
WEIGHING SCALE
William Y. Hutchinson, Chicago, and Walter P. Kushmuk, Niles, both of Ill., assignors to Continental Scale Corporation, Chicago, Ill.
Division of Ser. No. 254,767, May 18, 1971. This application Mar. 21, 1973, Ser. No. 343,548
Int. Cl. G01g *23/14*, *21/28*, *1/36*
U.S. Cl. 177—165 **4 Claims**



A weighing scale is provided having a number of features including a folding column or pillar, a new type of weighing

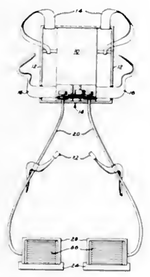
mechanism, a new type of beam scale, and a new type of knob assembly for weight indicating means for a beam scale, all arranged in a compact form which is completely portable and adapted for packing, shipping and storage.

3,809,172
SHOCK ABSORBER MOUNTING FOR SNOWMOBILES
G. Vernon Hendrickson, 309 Main Ave. So., Rouseau, Minn., and Kermit A. Hendrickson, Rt. 2, Lake Park, Minn.
Filed Aug. 17, 1972, Ser. No. 281,448
Int. Cl. B62b *13/12*; **B62m** *27/02*
U.S. Cl. 180—5 R **3 Claims**



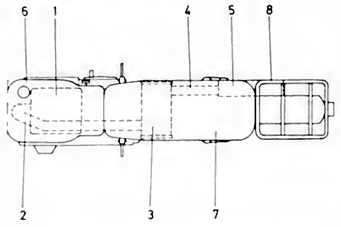
A structure for mounting shock absorbers onto snowmobiles or other vehicles that are provided with front steering and riding ski structures including means for mounting one end of the shock absorber to the spindle housing of the snowmobile with the other end thereof being provided in absorbing relationship to the ski of the vehicle and providing a means for mounting the upper end of the shock absorber in a universal captured arrangement which will permit the shock absorber to react in its normal fashion for any ski position and further such mounting means providing an adjustable universal arrangemement wherein the tension applied to the upper end of the shock absorber will tend to return the skis to a forward or frontwardly directed alignment.

3,809,173
SKI PROPELLING DEVICE
Duncan T. McLeod, 610 W. Second Ave., Anchorage, Alaska
Filed Aug. 21, 1972, Ser. No. 282,064
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 R **10 Claims**



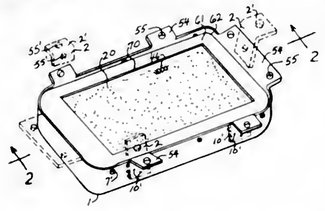
A device that is selectively projectable below a ski bottom to propel a ski across snow covered ground. The device includes a pair of pulleys mounted to the ski for heightwise movement between upper and lower positions and an endless belt extending about and between the pulleys. The belt has a bottom run that is located above the ski bottom when the pulleys are in the upper positions and projects through a slot in the ski below the ski bottom when the pulleys are in the lowered positions. An engine, mounted to the skier's back, is connected to one of the pulleys by a flexible cable. A propelling mechanism operates in response to the turning on of the engine and the rotation of the flexible cable to cause the pulleys to move downwardly so as to project the bottom run below the bottom of the ski and to rotate the pulleys in such a direction as to move the bottom run rearwardly to thereby propel the ski forwardly.

3,809,174
MOTORCYCLE WITH PROTECTED EXHAUST PIPE SYSTEM
Gosta Hjalmar Fredrik Lovgren, and Ove Vilmer Lundell, both of Varberg, Sweden, assignors to Monark-Crescent AB, Varberg, Sweden
Filed Aug. 21, 1972, Ser. No. 282,110
Claims priority, application Sweden, Feb. 24, 1972, 2273/72
Int. Cl. B60k *13/04*
U.S. Cl. 180—64 A **2 Claims**



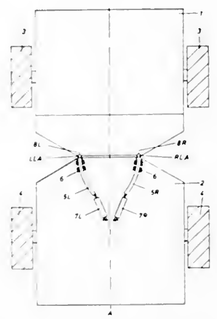
An exhaust pipe system including exhaust pipes and mufflers is placed entirely within the horizontal extent of the rest of the motorcycle.

3,809,175
HEALTH, SURFACE, WATER AND/OR MATERIAL PROTECTIVE DEVICE
Peter Andrews, 190 Gebhardt Rd., Penfield, N.Y.
The portion of the term of this patent subsequent to July 6, 1988 has been disclaimed.
Continuation-in-part of Ser. No. 94,793, Dec. 3, 1970, abandoned, which is a continuation-in-part of Ser. Nos. 532,831, Feb. 21, 1966, Pat. No. 3,669,204, and Ser. No. 750,094, Aug. 3, 1968, Pat. No. 3,590,937, which is a continuation-in-part of Ser. No. 508,625, Oct. 21, 1965, Pat. No. 3,396,810, which is a division of Ser. No. 288,159, June 17, 1963, abandoned. This application Dec. 14, 1972, Ser. No. 315,174
Int. Cl. B62d *25/20*
U.S. Cl. 180—69.1 **32 Claims**



A process and an entirely upstanding walled receptacle member of a subcombination apparatus which is removably secured to at least one portion of a motor vehicle of the race car, automobile or car, truck, bus, boat or monorail type, and accordingly having oil or fluid drippings retained therein. The process invention is substantially performed in a material and/or a receptacle portion of the subcombination apparatus. The receptacle, in one of its embodiments, having at least one separate material for at least retaining one portion of the oil or fluid which drips therein. The process being substantially for increasing the rate of oxidation and thickening and evaporation of the oil or fluid which is captured in at least one portion of at least one receptacle and/or at least one material retained therein. The oil or fluid leaks or drips from and/or into the motor vehicles having a defective oil or fluid gasket, seal and the like, the latter generally pertaining to a sliding and/or rotating shaft member thereof. The process invention substantially prevents the captured or dripped in fluid from being spilled, ejected or dumped substantially out of the receptacle and onto, for example, a roadway's, race track's, highway's (car, truck and/or bus) travelling surface. Thereby "summer icing" of the disclosed traveled surfaces and "viscous hydroplaning" of the motor vehicle's tires thereon and especially when the motor vehicle's are abruptly started, stopped, curving or curving in and out and/or travelling at a very high rate of speed.

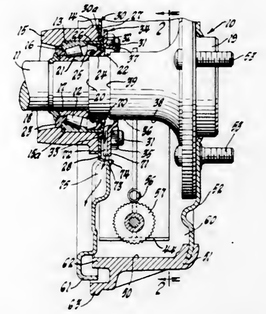
3,809,176
TRACTOR-SHOVEL WITH PIVOTAL STEERING MEANS
Georg Von Braunschweig, Krahenwinkel, Germany, assignor to Firma Rheinstahl Aktiengesellschaft Hanomag Baumaschinen, Hannover, Germany
Filed Sept. 7, 1972, Ser. No. 287,013
Claims priority, application Germany, Sept. 8, 1971, 2144909
Int. Cl. B62d *5/00*
U.S. Cl. 180—79.2 B **8 Claims**



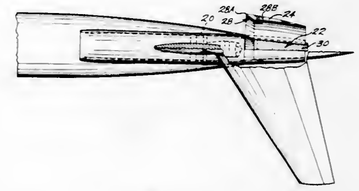
A tractor-shovel comprises two carriages, one for a shovel and one for a motor, connected by two pivotal joints located at either side of the longitudinal axis of the vehicle. The joints are pivoted about vertical axes, and steering of the tractor-shovel is effected by laterally displacing one of the joints along the drive direction while holding the other joint fixed.

3,809,177
VEHICLE DRIVE AXLE WHEEL ASSEMBLY
John F. Pirochta, Jr., Okemos, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Jan. 29, 1973, Ser. No. 327,589
Int. Cl. B60b *35/00*
U.S. Cl. 180—88 **2 Claims**

A vehicle drive axle wheel assembly having a brake backing plate and a retainer plate fixed to an axle tube of the vehicle, the brake backing plate having an opening and a channel aligned with a corresponding channel in the retainer plate to direct the flow of any lubricant leaking past the axle bearing seal of the assembly away from the side of the backing plate on which the brake components are mounted.



3,809,178
CLAMSHELL EXHAUST NOZZLE AND SOUND DEFLECTOR
Michael E. Manca, Bellevue, and Robert H. Drinnon, Kent, both of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Apr. 30, 1973, Ser. No. 356,021
Int. Cl. F01n *1/00*
U.S. Cl. 181—33 HC **19 Claims**

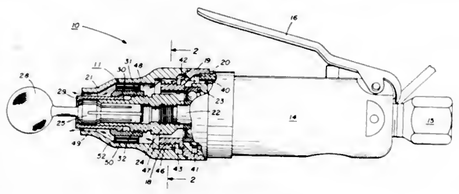


A sound suppression apparatus for a jet engine mounted in a nacelle wherein the exhaust nozzle duct comprises a variable ramp as the lower surface thereof and a pair of clamshell doors as the enclosure thereof. The clamshell doors are pivotally mounted about a longitudinal hinge on each side of the engine nacelle and when they are in the closed position, the interior surface of the duct, formed by the closed clamshell doors, conforms to the predetermined shape of the high speed cruise nozzle and externally, the shape of the doors conform to the configuration of the streamlined nacelle. When the clamshell doors are opened outwardly from the top, they form an upward opening exhaust nozzle with a pair of clamshell deflecting surfaces extending laterally outwardly and upwardly about the exhaust nozzle flow for the sound suppression mode of airplane operation during low speed flight of takeoff and landing.

3,809,179
EXHAUST MUFFLER FOR PNEUMATIC TOOLS
Glenn Allen Delaney, Jr., and Robert Wayne Jones, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed Apr. 18, 1973, Ser. No. 352,169
Int. Cl. F01n *3/06*
U.S. Cl. 181—36 A **9 Claims**

A muffler for the air exhaust of pneumatic tools to reduce the noise level thereof. Composition of the muffler comprises

an abrasive grit distributed on a thin flexible base to which it is secured. An example of the composition is represented by commercially available grades of common emery cloth. Positioning the muffler in a manner affording retention of its flexibility enables sound muffling within an otherwise restrictive exhaust passage with only minimal, if any, adverse effect on operational characteristics of the tool. With this construction it is possible to muffle the exhaust of tools previously regarded as impossible or impractical to muffle satisfactorily because of space limitations ordinarily insufficient to accommodate a muffler device.

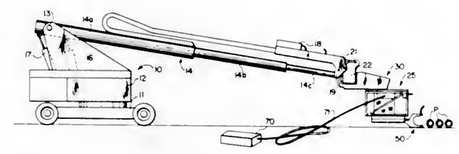


3,809,180

AERIAL PLATFORM APPARATUS HAVING PIPE GRABS

John L. Grove, McConnellsburg, Pa., assignor to Fulton Industries, Inc., McConnellsburg, Pa.

Filed May 25, 1973, Ser. No. 364,195
Int. Cl. B66f *11/04*
U.S. Cl. 182—2 **15 Claims**



An aerial platform apparatus includes a wheeled chassis, an extensible boom mounted on the chassis for luffing and swinging movement, and a workman's platform carried by the boom. The platform is equipped at its forward vertical face with pipe grabs, for engaging and holding a length of pipe, and each pipe grab may be separately elevated relative to the platform by jacks. The platform may be rotated on a normally vertical axis at the end of the boom through 180°, so as to be along either side of the boom, and the platform may be inclined relative to horizontal by actuating a levelling cylinder at the boom end to incline the normally vertical axis to provide inclination of the basket when rotated to lie beside the boom, or to place the pipe grabs at ground level.

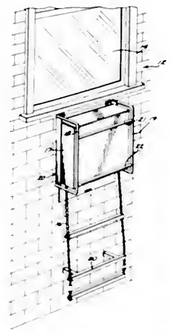
3,809,181

RETRACTABLE LADDERS

Steve Staranick, 2062 Mori Ln., Orange, Calif., and Jerome R. Garrison, 7931 Orangewood, Stanton, Calif.

Filed Dec. 26, 1972, Ser. No. 318,121
Int. Cl. E06c *9/14*
U.S. Cl. 182—70 **3 Claims**

A retractable ladder is disclosed which includes a flexible ladder having rungs spanning a pair of flexible lines, the upper ends of which are fastened to the interior of a generally rectangular box container whose lower wall swings open to release the ladder and permit it to fall so that it can be extended to full length. The upper wall of the box can be opened whereby the ladder can be returned to storage in the box by pulling it up through the box. The container is mounted on a frame which serves as a means by which the unit may be mounted at the side of a building, generally below a window. The unit includes a fixed ladder to facilitate crawling over the container and down to the flexible ladder which extends below it. The container is provided with a special latch operable from above which secures the lower wall of the container in place and so that the ladder will be contained until it is needed.

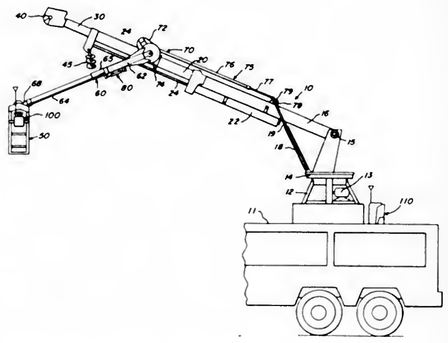


3,809,182

REMOTE CONTROL CIRCUITS FOR HYDRAULIC MOTORS

Wendell E. Wilson, Bloomington, Minn., assignor to Tel-E-Lect, Inc., Minneapolis, Minn.

Filed Oct. 16, 1972, Ser. No. 297,785
Int. Cl. B66f *11/04*; **B66c** *23/62*
U.S. Cl. 182—148 **12 Claims**



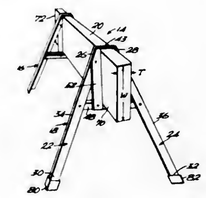
A simplified remote control system for a plurality of hydraulic motors in which the transmitter and receiver controllers are simplified by providing for only a single proportional control member at each location with on-off type controls for all of the motors and in which the hydraulic circuit incorporates a proportional valve in series with a plurality of on-off valves or bidirectional valves in direct control of the motors and in parallel circuit to proportionally control flow from a hydraulic source to all of the bidirectional controllers or valves simultaneously. This will permit speed and directional control with speed of operation being effected for all motors operated simultaneously and at the same rate.

3,809,183

PLATFORM SUPPORT

George L. Lowd, and Robert T. Lowd, both of P.O. Box 650-395, Miami, Fla.

Filed Aug. 9, 1973, Ser. No. 386,967
Int. Cl. F16m *11/00*
U.S. Cl. 182—186 **7 Claims**



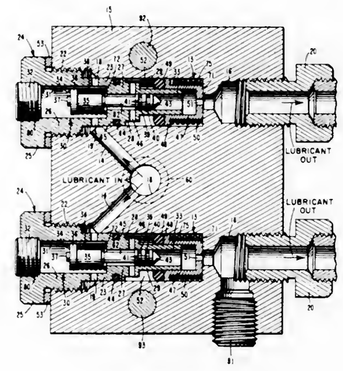
A support for a horse to support planks defining a platform comprising a generally A-shaped member wherein the cross bar of the A-shaped member defines orienting means for the support and socket means are provided to receive the end zones of a board spanning a pair of supports according to this invention to define a horse.

3,809,184

METERING VALVE AND LUBRICATING SYSTEM PROVIDED THEREWITH

Roy B. Smith, Washington Court House; Alex T. Sabo, Cuyahoga Falls, and Edward M. Kavick, Chardon, all of Ohio, assignors to Samuel Moore & Company, Mantua, Ohio

Filed Mar. 23, 1973, Ser. No. 344,211
Int. Cl. F16n *25/02*
U.S. Cl. 184—7 D **10 Claims**



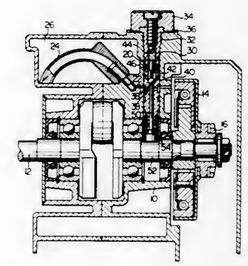
A metering valve and a modular valve assembly for a lubricating system for vehicles or the like are provided. The metering valve has a casing, a valve body with an axial bore therethrough disposed in the casing, a piston slidably disposed in the bore and carrying means for alternately sealing the bore upstream and downstream of a port leading to a chamber for measuring lubricant, means for applying to and withdrawing pressure from the piston, means for charging lubricant through the bore into the chamber when the sealing means is downstream of the port, and means for discharging the lubricant from the chamber in the absence of pump pressure. The casing may be the wall of a bore in a metal block which contains a plurality of bores and valve bodies to provide a unitary assembly of metering valves.

3,809,185

OIL FEED PUMP OF CHAIN SAW

Torao Kobayashi, Tokyo, and Hiromasa Miyata, Mitaka, both of Japan, assignors to Kioritz Corporation, Tokyo, Japan

Filed Oct. 17, 1972, Ser. No. 298,236
Int. Cl. F16n *13/14*
U.S. Cl. 184—15 R **3 Claims**



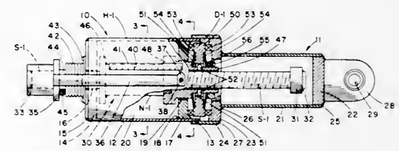
An oil feed pump of a chain saw is disposed in a chain saw crankcase. An adjustable pump cylinder is received in a crankcase cylindrical bore and has a pump plunger in said cylinder. A cam portion on the crankshaft reciprocates the pump plunger so that an oil passage which communicates with the cylinder bore delivers oil therein to be pumped to the point of use by the plunger.

3,809,186

MECHANICAL SHOCK AND SWAY ARRESTOR

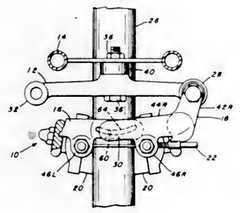
Leonard S. Suozzo, 366 Maple Hill Dr., Hackensack, N.J.

Filed Dec. 14, 1971, Ser. No. 207,838
Int. Cl. F16f *7/10*
U.S. Cl. 188—1 B **6 Claims**



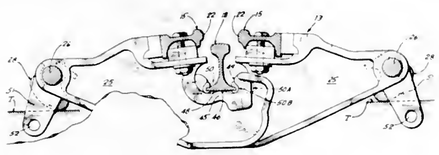
A mechanical arrestor for protecting equipment, such as high temperature piping, vessels, or the like, against shock loading or undesirable vibratory movement while permitting requisite movement of the equipment due to normal changes in temperature or thermal movement of the equipment. The arrestor includes a housing which is anchored at one end to a stationary structure; a screw member which is anchored to the equipment and which extends through the other end of the housing and terminates in the housing; a nut member within the housing and engaging the screw member; and a spring device which is also within the housing and which is connected to the nut unit. The spring device is rotatable with the nut member about the axis of the screw member and is slidable relative to the nut member. The parts are so constructed and arranged as to automatically adjust the effective length of the arrestor in response to normal changes in temperature or thermal movement of the equipment and to convert the arrestor into a rigid strut in the event the equipment is subjected to shock loading or the like.

3,809,187
BRAKE ASSEMBLY FOR VEHICLE WHEEL
Richard A. Grieve, 1610 S. 2nd St., Marshalltown, Iowa
Filed Oct. 20, 1972, Ser. No. 299,231
Int. Cl. B62l 1/14
U.S. Cl. 188—24 **11 Claims**



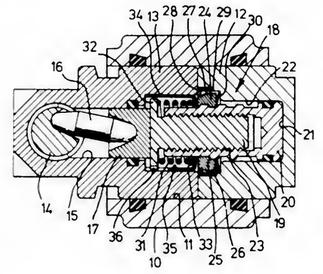
A brake assembly for a bicycle is disclosed which includes a yoke adapted to be mounted on a bicycle adjacent the rim of the wheel, a pair of arms pivotably connected to the yoke on opposite sides of the rim for swinging movement of a brake pad on the end of each arm toward and away from the vehicle rim and a manually actuable cable for pulling the arms toward one another and the wheel rim. The friction of the rim against the brake pads exerts a moment force on the arms which either increases or decreases the force of the pads against the rim depending on the direction of rotation of the wheel. A bicycle which has at least one such brake assembly mounted thereon is also disclosed.

3,809,188
RAILROAD CAR RETARDERS
Earl E. Frank, Tallman, N.Y., and Glenn R. Graham, Upper Saddle River, N.J., assignors to Abex Corporation, New York, N.Y.
Filed May 1, 1972, Ser. No. 248,929
Int. Cl. B61k 7/08
U.S. Cl. 188—62 **17 Claims**



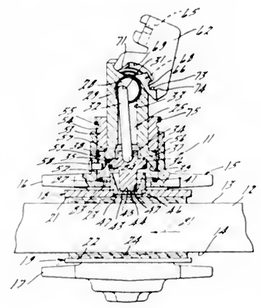
A retarder for installation in a railroad classification yard comprises a pair of retarder levers supporting retarder elements engageable with a car wheel. Noise is suppressed by modifying those elements. The levers are actuated by a cylinder assembly presenting opposed piston rods for applying actuating forces, and in order to eliminate any moment arm tending to bend the cylinder or piston rods, the cylinder is supported by a restrainer suspended from the traffic rail in the yard, provision being made for tangential contact between opposed surfaces of the cylinder assembly and the restrainer so that lines of force are constantly concentrated substantially at the axial center line of the cylinder assembly.

3,809,189
BRAKE ADJUSTERS
Glyn Phillip Reginald Farr, Kenilworth, England, assignor to Girling Limited, Birmingham, England
Filed Jan. 7, 1972, Ser. No. 216,210
Claims priority, application Great Britain, Jan. 13, 1971, 1623/71
Int. Cl. F16d 65/56
U.S. Cl. 188—71.9 **16 Claims**



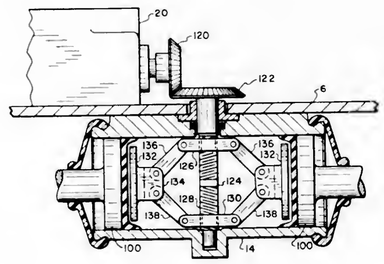
A hydraulic brake actuator comprises opposed pistons and an automatic slack adjuster is operative between a first piston and a mechanical actuator fitted to the second piston. The adjuster comprises a first member sealingly slidable in a bore in said first piston, a second member screw-threaded in said first member and a third or ring member in reversible screw-thread connection with the first member and biassed by a spring into frictional engagement with the first piston. A further spring acts between the second piston and the second adjuster member in a direction opposite to the direction in which the hydraulic pressure acts on said first member.

3,809,190
DISK TYPE PARKING BRAKE
Anthony C. Evans, Westland, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed May 18, 1972, Ser. No. 254,657
Int. Cl. F16d 55/46
U.S. Cl. 188—72.2 **14 Claims**



A disk type parking brake embodying a tilting member interposed between the mechanical actuator and the brake pad. The tilting member is adapted to pivot upon the engagement of the brake pad with the associated rotor braking surface for generating a self-energizing action to assist in the brake operation. The point of the contact of the tilting member with the brake pad is defined by an arcuate surface generated about the point of pivotal movement so that the application forces to the brake pad always pass through the same point. An automatic adjusting mechanism is also incorporated that adjusts the at-rest position of the actuator and the tilting member to compensate for wear. The tilting member is supported within a pocket and is engaged by a conical return spring.

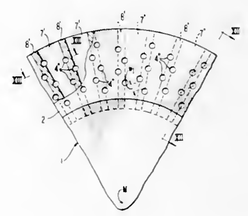
3,809,191
AUXILIARY BRAKING SYSTEM
Herber Jay Woodward, Salt Lake City, Utah, assignor to Index Industries, Inc., Salt Lake City, Utah
Continuation-in-part of Ser. No. 847,278, Aug. 4, 1969, Pat. No. 3,613,356. This application Aug. 25, 1971, Ser. No. 174,756
Int. Cl. F16d 65/36
U.S. Cl. 188—106 A **1 Claim**



Electromechanical auxiliary braking systems are provided to supplement hydraulic braking systems. A reversible electric motor drives means for mechanically urging the brake shoes into or out of engagement with the brake drum. In some forms of the present invention, the mechanical means are located within the hydraulic cylinder of the hydraulic brake system and act upon the pistons thereof, while in other forms, the electromechanical system is completely independent of the hydraulic system and acts directly on the brake shoes.

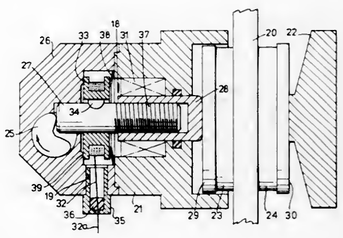
3,809,192
BRAKE DISK FOR DISK BRAKES
Heinz Stehle, Stuttgart-Zuffenhausen, Germany, assignor to Firma Dr. Ing. h.c.F. Porsche KG, Stuttgart-Zuffenhausen, Germany
Filed Oct. 10, 1972, Ser. No. 295,954
Claims priority, application Germany, Mar. 25, 1970, 7011084
Int. Cl. F16d 65/12
U.S. Cl. 188—218 XL **27 Claims**

A brake disk for disk brakes, especially for high performance passenger motor vehicles, of the type having friction surfaces which are brought into friction contact with friction members of the disk brakes during braking operations. A plurality of recesses penetrating inwardly from the braking surfaces are provided for assisting in the cooling of the brake disk. The recesses are arranged in a uniform pattern over the braking surfaces along dividing lines interconnecting the centers of the recesses. In one preferred embodiment, the dividing lines are of zig-zag shape and are arranged symmetrically with respect to radii of the brake disk. Another preferred embodiment of the present invention arranges the dividing line as single or multiple spirals which extend spirally around the center of the brake disk. Another preferred embodiment arranges the dividing lines as curved vane-wheel blade shaped lines which are spaced from one another to exhibit a vane wheel configuration when viewed in a plane parallel to the braking surface. The preferred recess patterns may be arranged in either solid or ventilated brake disk. In the solid brake disk embodiments,



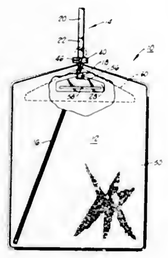
the recesses may extend either partly or completely through the brake disk. In the ventilated brake disk embodiments, the recesses extend through the brake disk and communicate with the hollow ventilating spaces between the portions of the brake disk. The recesses preferably partially overlap connecting webs between the two sections of the brake disk.

3,809,193
BRAKE ADJUSTERS
Anthony William Harrison, Birmingham, England, assignor to Girling Limited, Birmingham, England
Filed July 7, 1972, Ser. No. 269,841
Claims priority, application Great Britain, July 8, 1971, 32065/71
Int. Cl. F16d 65/56
U.S. Cl. 188—196 BA **17 Claims**



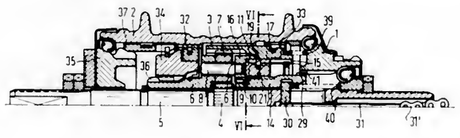
An automatic brake adjuster, e.g., for a spot-type disc brake is provided with a re-setting device which extends through a lateral opening in the housing of the adjuster generally radially of the adjuster and enables a normally non-rotatable and otherwise inaccessible screw member of the adjuster to be turned for re-setting the adjuster when worn brake linings are replaced by new linings. The re-setting device may comprise a wire, thread, chain or other elongate flexible member wound round a bobbin which is attached to the normally non-rotatable screw member. The wire or the like passes out of the housing through the access opening so that its free end can be pulled to re-set the adjuster. The lateral access opening is sealed to the re-setting device.

3,809,194
GARMENT BAGS
Warner A. Chappelle, 4801 N.W. 69th St., Oklahoma City, Okla.; Jerry A. Stead, 6383 E. Reno, Midwest City, Okla., and Harold D. Cheney, 2828 Manchester Dr., Oklahoma City, Okla.
Filed Sept. 21, 1972, Ser. No. 290,793
Int. Cl. A45c 3/00
U.S. Cl. 190—41 B 5 Claims



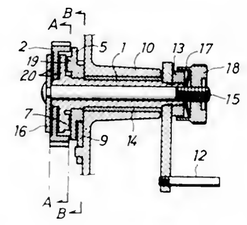
Apparatus constituting a garment bag for carrying and protecting clothing while in transit, the bag including structure which enables more facile carriage and transport while retaining decorative exterior appearance. The garment bag is constructed comprising a carrying strap of unitary formation which includes a new and novel hanger hook locking assembly and necktie carrying device.

3,809,195
MULTIPLE SPEED HUB WITH COASTER BRAKE
Horst Schulz; Hans-Joachim Schwerdhofer, both of Schweinfurt am Main, and Gunter Look, Grafenrheinfeld, all of Germany, assignors to Fichtel & Sachs AG, Schweinfurtam Main, Germany
Filed Feb. 20, 1973, Ser. No. 333,977
Claims priority, application Germany, Feb. 29, 1972, 2209535
Int. Cl. F16d 41/24; F16h 3/44
U.S. Cl. 192—6 A 10 Claims



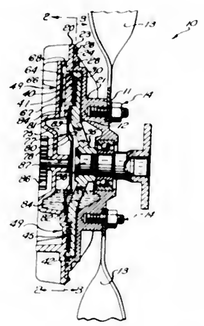
In a three-speed bicycle hub with internal hub or coaster brake, the transmission ratio between a driver and the hub shell is changed by axially shifting a coupling sleeve angularly secured to the driver between a high-speed position in which a claw coupling connects the sleeve to the planet carrier of planetary gearing in the hub shell, and a normal-speed position in which a double-acting pawl coupling connects the sleeve to the ring gear of the planetary gearing, overrunning clutches being interposed beteen the planet carrier and ring gear respectively and the hub shell. To prevent loss of braking function if the sleeve should accidentally become stuck between its two axial positions, cooperating cams on the pawls and the planet carrier move the pawls relative to the sleeve into the normal-speed position as soon as the claw coupling approaches disengagement.

3,809,196
ONE WAY POSITIVE CLUTCH WITH ONE WAY FRICTION BRAKE
Kamataro Moribe, Nagoya, Japan, assignor to D. Nagata Co. Ltd., Kobe, Japan
Filed May 30, 1972, Ser. No. 257,656
Int. Cl. F16d 67/02
U.S. Cl. 192—12 B 2 Claims



A one way positive clutch connects a handcrank drive shaft to a driven gear. A ratchet brake prevents the drive shaft from rotating backwards whereby a friction coupling between the drive shaft and gear functions as a drag brake for the gear.

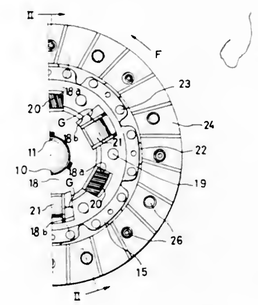
3,809,197
VISCOUS COUPLING
Stephen M. Clancey, Battle Creek, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Nov. 10, 1972, Ser. No. 305,376
Int. Cl. F16d 35/00
U.S. Cl. 192—58 B 10 Claims



A coupling for driving a cooling fan device associated with a vehicle may be located so that ram air impinges directly thereon. The coupling comprises relatively rotatable input and output coupling members. The output coupling member defines a chamber within which said input coupling member rotates. The input and output coupling members have a plurality of interdigitated lands and grooves which define a shear space therebetween and which are cooperable with viscous shear fluid in the shear space to transmit torque therebetween. A reservoir chamber 15 defined by said output member and means for directing viscous fluid from said shear space into said reservoir chamber is provided. Temperature-responsive valve means controls flow of viscous fluid from the reservoir chamber into the shear space and includes a temperature-sensing device located forwardly on said output member in the ram air stream. All of the lands and grooves on the output member are located on a forward position thereof which is directly in said ram air stream and all of the cooperating lands and grooves on the input member are located on a forward

portion thereof to thereby provide effective heat dissipation due to their location relative to the ram air stream. Means is provided for directing viscous fluid flow radially of the input and output members to distribute viscous fluid to the outer peripheral lands and grooves including two radially extending rectangular-shaped channels in the output member, and which are located diametrically opposite each other. The means for directing viscous fluid radially further includes three radially extending V-shaped channels in the input member and intersecting the lands and grooves thereon. The V-shaped channels and the rectangular-shaped channels are located such that on relative rotation of the input and output members, they periodically axially align to provide a large fluid flow area for directing viscous fluid radially thereof.

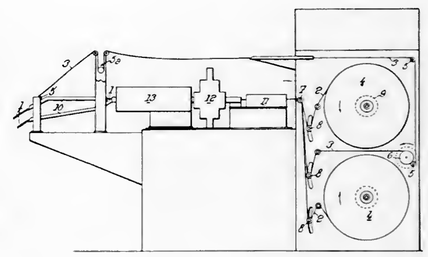
3,809,198
CLUTCH DISC WITH COIL AND RUBBER SPRINGS
Masanori Mori, Toyota City, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya City, Japan
Filed June 29, 1972, Ser. No. 267,415
Claims priority, application Japan, June 29, 1971, 46-056739
Int. Cl. F16d 13/64
U.S. Cl. 192—106.2 5 Claims



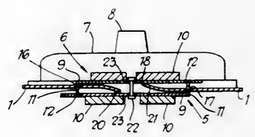
A clutch disc, particularly for use in motor vehicles, having at least two different types of elastic means, such as coil springs and elastic members of rubber, for absorbing torsional vibrations of the clutch disc, wherein openings in which one of the two different types of elastic means are disposed are designed such that no elastic force will act in one of the torque transmitting directions of the clutch disc, whereby it is possible to eliminate abnormal noises which are generated during substantially any stage of the torque transmission.

3,809,199
MACHINE FOR FASHIONING THE STRUCTURES OF FLEXIBLE PRODUCTS, AND PRODUCTS FASHIONED THEREBY
Pierre Etienne Bessiere, Golf Saint-nom-la-Breteche, France, assignor to Precision Mecanique Labinal, Saint-Oune (Seine-Saint-Denis), France
Filed Nov. 30, 1972, Ser. No. 310,694
Int. Cl. B31d 5/04
U.S. Cl. 93—84 28 Claims

The machine is designed to produce pleated developable herring bone structures, such as used as filter elements in the motor industry. The machine includes first means for scoring longitudinal fold lines on a band transversely spaced by the width of half-chevron and for initiating folds about these lines to obtain the chevron pattern, second means for producing transverse folding lines to form the folds half-fold by half-fold and accentuate the chevrons on each half-fold, third means for imparting the final shape to the chevrons and formed by convergent differentially moving rakes directed substantially longitudinally, and fourth means for moving the fashioned structures out of the machine. The starting material comprises two tapes initially wound on respective reels and, as these two tapes pass through the machine, there is interposed therein an endless supporting tape. A novel electrical control arrangement is provided whereby the machine may be operated in automatically repeated cycles, cycle by cycle, or operation by operation.



3,809,200
CLUTCH DISC WITH REMOVABLE FRICTION PADS
Herbert Smales, Morley, England, assignor to BBA Group Limited, Cleckheaton, Yorkshire, England
Filed June 19, 1972, Ser. No. 264,330
Claims priority, application Great Britain, June 22, 1971, 29189/71
Int. Cl. F16d 13/64
U.S. Cl. 192—107 C 8 Claims

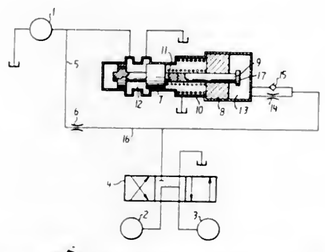


A clutch plate assembly having a center boss part and pad elements removably mounted on the periphery of the center boss part and extending outwardly therefrom. Each pad element includes a backing plate and a pad of friction material firmly secured thereto. The pad elements are mounted in pairs which are peripherally spaced around the center boss part, the pad elements in each pair being mounted with their backing plates axially opposed in back-to-back relationship and each backing plate being capable of flexing axially relative to the center boss part and the backing plate which opposes it. A cushioning surface, preferably in the form of a spring plate, is interposed between each pair of opposed backing plates to provide a cushioning effect for at least one of the pad elements of a pair when the backing plates are flexed axially towards each other. Also, a restraining element preferably constituted by one or more pins is provided for restraining flexure of the backing plates of each pair axially away from each other beyond a predetermined spacing.

3,809,201
MODULATING VALVE FOR VEHICLE TRANSMISSION SYSTEMS

Noritake Miyanishi; Shigeru Kubota, both of Ogaki; Hirotoshi Baba, and Masahiro Takahashi, both of Akashi, all of Japan, assignors to Kobe Steel, Ltd., Kobe and Shinko Engineering Co., Ltd., Ogaki-city, both of, Japan

Filed Oct. 30, 1972, Ser. No. 301,950
Claims priority, application Japan, Oct. 30, 1970, 45-86504
Int. Cl. F16k *31/163, 31/363*
U.S. Cl. 192—109 F **4 Claims**

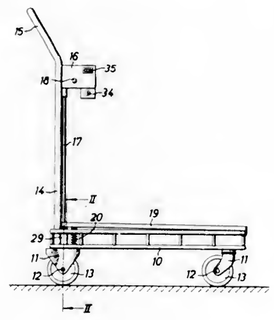


A modulating valve capable of shortening the operating time of the clutch and also preventing the generation of an impulsive torque in the clutch-transmitted power by discontinuously changing the rate of variation of pressure used for pressing together the frictional members of the friction clutch. In order that the force, acting upon the valve body of the pressure regulating valve, will vary discontinuously relative to time, a plurality of independently slidable pistons are provided so that a discontinuously varying force will be generated by the strokes of these pistons. Thus, according to this arrangement, pressure, varying with the time in a manner that is not readily achievable with conventional systems, can be used for pressing together the frictional members, thereby realizing an operation with reduced working time and which is free of impulsive torque.

3,809,202
LUGGAGE TROLLEYS

Stefan Eugene Tyszkiewicz, Villa Les Cypres, Chemin Ermitage, 06 Antibes, France

Filed June 12, 1972, Ser. No. 261,653
Claims priority, application France, June 16, 1971, 7121893
Int. Cl. G07f *17/00*
U.S. Cl. 194—1 R **13 Claims**

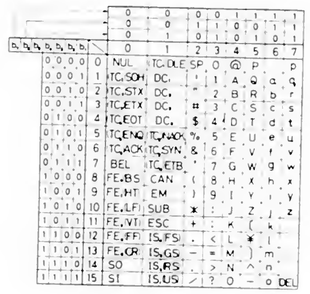


A luggage trolley having a brake which is applied when the trolley is laden and which has a coin operable brake release mechanism for releasing the brake whilst the trolley is laden. The brake release mechanism may be arranged to be released by use of a key so that authorised personnel may use the torley to transport luggage without payment of the appropriate fee.

3,809,203
CHINESE CHARACTER (KANJI) TELEPRINTER OR A CHINESE CHARACTER (KANJI) PUNCHING TYPEWRITER OR SIMILAR APPARATUS

Shimeo Ogawa, Kitakami; Koji Shinozaki, Hanamaki, and Shinpei Chida, Kitakami, all of Japan, assignors to Yamura Kabushiki Kaisha Shinkoseisakusho, Hanamaki-shi, Iwateken, Japan

Filed Jan. 31, 1972, Ser. No. 221,937
Int. Cl. B41j *3/50*
U.S. Cl. 197—1 A **7 Claims**

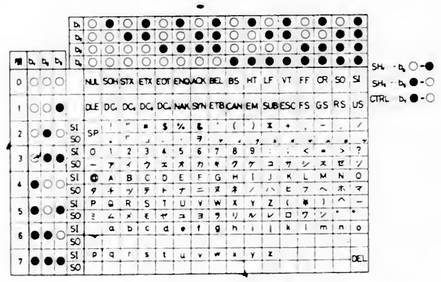


A teleprinter apparatus for typeing or tape punching Roman alphabet characters, numbers, and symbols, and Chinese characters includes a platen and means for spacing and rotating the platen and operating the tape punching means. Code unit receiving means is provided for receiving multi-element code units representing characters, symbols, numbers and functions to be carried out by the apparatus, and the apparatus has a plurality of function means responsive to receipt of function code units for driving the apparatus for carrying out the functions represented by the function code units. Conversion function means is provided which is responsive to the receipt of conversion function code units for converting the apparatus from a normal operational state in which it prints Roman characters, numbers and symbols to a Chinese character operational state in which it prints Chinese characters and vice versa. One of said function means is spacing function means for driving the platen spacing means for every two code units received by said code unit receiving means, and this spacing function means is coupled to the conversion function means for actuation when the apparatus is in the Chinese character operational state. The apparatus has printing means for printing characters, symbols and numbers on the platen, and transmission means are coupled to the code unit receiving means for receiving single code units and when they are for characters, numbers and symbols to be printed, transmitting them, further transmission means are coupled to the code unit receiving means for receiving code units corresponding to characters, numbers and symbols, storing them and then transmitting them when the apparatus is in the normal operation state and when the apparatus is in the Chinese character operational state transmitting the second code unit of each pair directly to the printing means. One of said function means is normal printing function means coupled to the further transmission means for causing the further transmission means to store the code unit and transmit it to the printing means. One of said function means is Chinese character printing function means coupled to the further transmission means for coupling the further transmission means directly to the printing means, and one of the function means is tape punching function means for coupling the respective transmission means to the tape punching means.

3,809,204
KEYBOARD SYSTEM FOR CHINESE CHARACTER TELEPRINTER, CHINESE CHARACTER TYPEWRITER, MONOTYPE ETC.

Shimeo Ogawa, Kitakami, Japan, assignor to Yamura Kabushiki Kaisha Shinkoseisakusho, Hanamaki-shi, Iwateken, Japan

Filed Dec. 27, 1971, Ser. No. 212,330
Int. Cl. B41j *3/50*
U.S. Cl. 197—1 A **5 Claims**



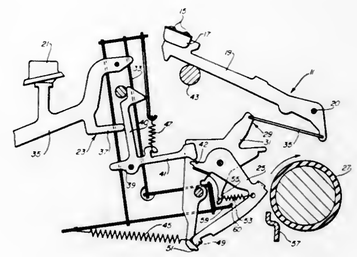
A teleprinter apparatus for producing pairs of seven element code units which together represent a character or symbol, such as a Chinese character. The apparatus has a keyboard much like the keyboard of a conventional teleprinter or typewriter for typing Roman letters, numbers and symbols, and the keyboard is connected to conventional apparatus for producing seven element code units each time a key is depressed. As a guide to the pairs of keys which are to be depressed to produce desired pairs of code units for representing the desired character, there is provided a character board which has two sets of blocks thereon. Each set has the same number of blocks as there are keys, and each block in each set corresponds to an individual key character. The blocks are in the same arrangement as the arrangement of the keys. Each of the blocks in one set has therein a plurality of characters for which code units are produced, and the characters are arranged in the same pattern as the pattern of the keys on one half of the keyboard. Each of the blocks in the other set has the characters arranged therein in the same pattern as the keys on the other half of the keyboard. A character for which the code units are to be produced is located in one of the blocks on the character board, and the key corresponding to the block is actuated to produce the first code unit and then the key corresponding to the position of the character in the block is actuated to produce the second code unit.

3,809,205
POWERED TYPE ACTION WITH A CAM ARRESTOR

Theodore Madison, Wethersfield, Conn., assignor to Litton Business Systems, Inc., New York, N.Y.

Filed Nov. 3, 1972, Ser. No. 303,353
Int. Cl. B41j *23/08*
U.S. Cl. 197—16 **4 Claims**

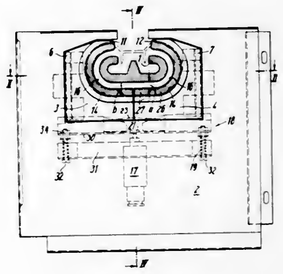
A type action, which is driven by a cam engaging a rotatably driven power roll, is provided with a cam arrestor for preventing the cam from returning directly to a rest position where it would normally bounce off a stop formed in a type linkage and possibly reengage the power roll to cause an unintended repeated operation of the type action.



3,809,206
SAFETY ARRANGEMENT FOR ESCALATOR HANDRAILS AND THE LIKE

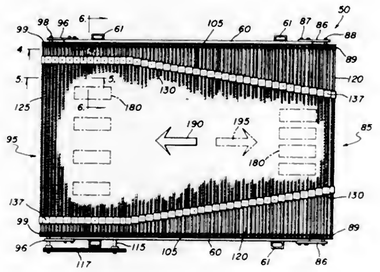
Friedrich Bredehorn, Hamburg, and Heinz Doge, Norderstedt, both of Germany, assignors to Rheinstahl Eggers-Kehrhahn GmbH, Hamburg, Germany

Filed Apr. 27, 1972, Ser. No. 251,534
Int. Cl. B66b *9/12*
U.S. Cl. 198—16 R **23 Claims**



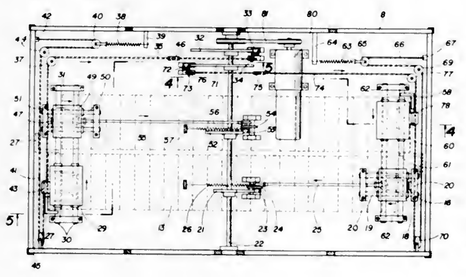
A safety arrangement for escalators, moving sidewalks and the like includes a handrail cover defining an opening and including bounding parts movable between normal and released positions. An escalator handrail, or other movable component, moves through the opening into the handrail cover. The handrail defines with the bounding parts a clearance which, when the bounding parts are in their normal position, has a first cross-sectional area and constitutes a hazardous point of entry for fingers and hands. When the bounding parts are in their released position, the clearance between handrail and bounding parts has a larger second cross-sectional area facilitating the removal of finger or hands introduced into the clearance. The safety arrangement further includes a release arrangement positioned at the opening for normally preventing movement of the bounding parts to released position. The release arrangement is actuatable by a finger or hand introduced into the clearance for permitting movement of the bounding means to released position.

3,809,207
CONVERGING AND DIVERGING CONVEYOR
Maynard R. Euverard, Clarendon Hills, Ill., assignor to Velten & Pulver, Inc., Chicago Ridge, Ill.
Filed Dec. 11, 1972, Ser. No. 313,660
Int. Cl. B65g 47/26
U.S. Cl. 198—34 7 Claims



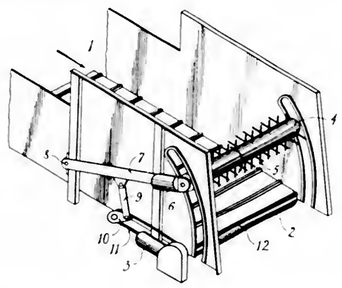
A conveyor for converging and diverging a row of articles wherein a plurality of elastic supports are movable along a predetermined path and provide a plurality of support points for the articles. An adjustable guide structure is provided for controlling movement of the ends of the elastic supports in a direction transverse to the predetermined path along with means for maintaining contact between the ends of the elastic supports and the adjustable guide structure. Drive mechanism moves the elastic supports along the predetermined path. The elastic supports provide support points for the articles which converge and diverge according to the position of the guide structure as the elastic supports move from the infeed end of the conveyor to the discharge end of the conveyor.

3,809,208
APPARATUS FOR ADVANCING ARTICLES RELATIVE TO FILLING AND SEALING DEVICES
Walter A. Shields, Jamaica, N.Y.
Filed June 12, 1972, Ser. No. 262,060
Int. Cl. B65g 37/00
U.S. Cl. 198—85 5 Claims



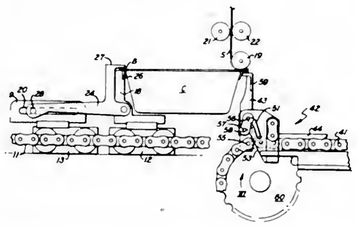
The articles are intermittently advanced in two parallel rows and in opposite directions by separate first means simultaneously reciprocated in opposite directions and are transferred from the first row to the second row and from the second row to the first row by separate second means simultaneously reciprocated in opposite directions. The first means advancing the articles in each row before the second means transfer the leading article in each row to the other row to leave a space at the receiving end of each row to receive the article transferred by the second means.

3,809,209
APPARATUS FOR CONTROLLING THE FEED OF LOOSE MATERIAL
Yngve Reinhold Akesson, Halsingborg, Sweden, assignor to Produits Findus S.A., Vevey, Switzerland
Filed May 12, 1972, Ser. No. 252,800
Claims priority, application Switzerland, May 18, 1971, 7255/71
Int. Cl. B65g 15/00
U.S. Cl. 198—167 3 Claims



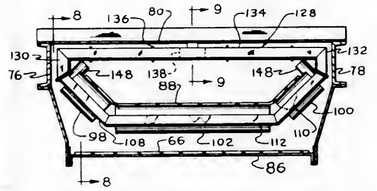
Apparatus for controlling the feed of loose material in a transport channel, in which a shaft carrying rotating arms is carried by an oscillating support.

3,809,210
METHOD AND APPARATUS FOR CONVEYING A CONTAINER
Andrew W. Anderson, West Caldwell, N.J., assignor to Scandia Packaging Machinery Company, Clifton, N.J.
Filed Mar. 3, 1972, Ser. No. 231,588
Int. Cl. B65g 15/00
U.S. Cl. 198—179 10 Claims



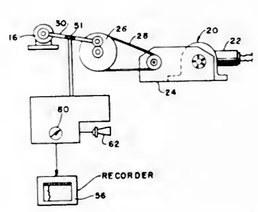
The conveyor assembly includes endless means for moving at least one container along a path. A first means is mounted on the moving means for supporting the container along a first side thereof. A second means is mounted on the moving means for supporting the container along a side opposite said first moving means. The first and second support means are capable of providing sole support for the container as it moves along the path. The conveyor assembly is particularly useful in feeding rimmed tray containers through a wrapping machine. More particularly, while the first and second support means are holding the container on opposite sides thereof, a cover sheet is being folded along adjacent unsupported side rims as the container moves along a path. A further feature is directed to a mechanism which operates when the conveyor means changes direction. Another feature of the invention is directed to the adaptability for the conveyor assembly to various sized containers.

3,809,211
CONVEYOR SYSTEM
Benjamin A. Padilla, 314 Illinois Ave., Maumee, Ohio
Filed Dec. 14, 1971, Ser. No. 207,767
Int. Cl. B65g 15/08
U.S. Cl. 198—192 R 3 Claims



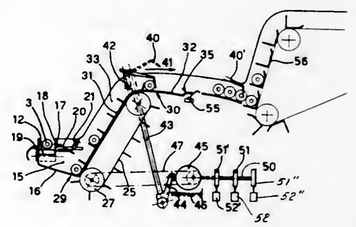
An enclosed conveyor system is provided, especially designed for conveying grain or similar materials with which air-borne fines or dust is a problem. The conveyor is totally enclosed thereby to eliminate the hazards of grain dust and the need for an expensive air-suction system. The dust is retained within the enclosure and is returned to the conveyor to substantially reduce the losses otherwise incurred. Idlers for the belt of the conveyor are rigidly supported from the side or above and the return run of the belt is located directly below the upper run to receive any spills. The return run of the belt is supported on a flat bottom wall of the enclosure with no idlers being used. This reduces expense and also substantially decreases the overall height of the conveyor. The spills and dust are collected at the tail pulley of the conveyor and returned to the upper run of the conveyor belt. The enclosed conveyor also employs unique self-aligning idler assemblies which are pivotally supported from the top wall of the enclosure.

3,809,212
CONTROL FOR RECIPROCATING GRATE CONVEYOR
Walter C. Gothe, Macungie, Pa., assignor to Fuller Company, Catasauqua, Pa.
Filed July 31, 1972, Ser. No. 276,491
Int. Cl. B65g 43/00
U.S. Cl. 198—232 1 Claim



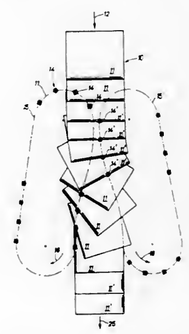
A control for a reciprocating grate conveyor wherein the conveyor includes support structure which supports alternate rows of fixed and movable grates with a motor and transmission arrangement for reciprocating the movable grates to advance material along the conveyor. The control system includes a strain gage network mounted on the crank shaft of the movable grate drive mechanism. The strain gages generate a signal proportional to the forces on the means for reciprocating the movable grates. An arrangement is provided whereby when the force exceeds a first predetermined maximum, an alarm is sounded. If the forces on the drive mechanism exceed a second, higher predetermined maximum, the conveyor drive motor is stopped.

3,809,213
DEVICE FOR WITHDRAWING AND POSITIONING COPS AND BOBBINS IN BULK
Luciano Savio, Pordenone, Italy, assignor to Officine Savio S.p.A., Pordenone, Italy
Filed Apr. 26, 1972, Ser. No. 247,834
Claims priority, application Italy, Apr. 4, 1971, 83338/71
Int. Cl. B65g 47/24
U.S. Cl. 198—33 AA 7 Claims



Conveyor means for withdrawing cops or bobbins stored in bulk in a storage container formed with an outlet ramp. The conveyor means including lower belt sections spaced and proportioned with respect to each other so as to pre-position and maintain the cops or bobbins with their axes side-by-side in parallel alignment, and wherein the final section of the lower belt sections is provided with air jet means to erect loose yarn ends and with means to cut said loose yarn ends prior to final removal for use in automatic spooling machines or the like.

3,809,214
TURNING CONVEYOR FOR FLAT STRUCTURES, ESPECIALLY PRINTED PRODUCTS
Walter Reist, Hinwil, Switzerland, assignor to Fehr & Reist AG, Hinwil, Switzerland
Filed Aug. 28, 1972, Ser. No. 284,366
Claims priority, application Switzerland, Sept. 14, 1971, 13421/71
Int. Cl. B65g 47/24
U.S. Cl. 198—235 10 Claims



A turning conveyor for flat structures, especially printed products, arriving in an essentially fish-scale formation at a main conveyor. The turning conveyor encompasses a plurality of entrainment members which move along with the flat structures and each of which can be brought into engagement with a respective one of the flat structures. The entrainment members are controlled such that at least at the time that they are in engagement with a flat structure they carry out a relative

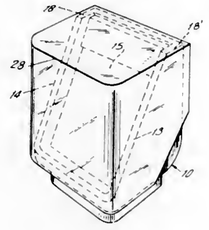
movement with regard to the direction of movement of the main conveyor in order to turn the flat structures during the course of conveying same about an axis which is perpendicular to the flat structures.

3,809,215
INFUSION PACKAGE
Reuven Dobry, Stamford, Conn., assignor to Tetley Inc., New York, N.Y.
Filed Feb. 7, 1972, Ser. No. 221,017
Int. Cl. B65d *85/70*
U.S. Cl. 206—0.5 **6 Claims**



Providing an infusion package, such as a tea bag, with means for holding the bag in a horizontal floating position during steeping results in a more rapid quiescent extraction without mixing or dunking of the bag, and in a greater yield of extract over a given period of time than is otherwise attainable with conventional tea bags.

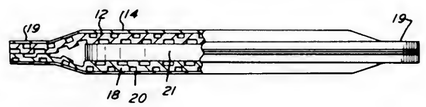
3,809,216
DISPLAY CASE
Howard Ferguson, Valley Cottage, N.Y., assignor to Arrow Manufacturing Company, Inc., West New York, N.J.
Filed Oct. 30, 1972, Ser. No. 302,285
Int. Cl. B65d *5/52, 25/00, 43/14*
U.S. Cl. 206—45.34 **3 Claims**



The invention relates to a display case or box for watches, pencils, pens, articles of jewelry and similar items, which has a container for the item to be displayed, a cover for the container, a pedestal to hold the container in elevated position and hinge arrangements between the container and cover which permits the cover to be opened by an approximately 180° rotation whereby the cover, in open position, fits snugly about the container, without disturbing the equilibrium of latter or projecting into the surrounding space.

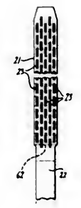
3,809,217
PACKAGING FOR FLAT OBJECTS
Brian G. Harrison, Drexel Hill, Pa., assignor to Franklin Mint Corporation, Yeadon, Pa.
Division of Ser. No. 843,526, July 22, 1969, Pat. No. 3,597,894. This application Oct. 27, 1970, Ser. No. 84,443
Int. Cl. B65d *85/30, 85/58, 27/30*
U.S. Cl. 206—.84 **4 Claims**

Coins or other generally flat objects are packaged by being sandwiched between plastic layers at least one of which has an embossed surface juxtaposed to the coin or object to prevent tracing the surface contour thereof through said one layer. The plastic layer is of stiff plastic material such as styrene so that it cannot be opened by heat or will rupture or crack if



tampered with. Indicia on a paper layer joined to the plastic layer is printed with ink which is soluble in aromatic hydrocarbon solvents such as toluol.

3,809,218
PLIABLE TAPE RECORD AND REEL THEREFOR
Marcel Furst, Sunnyvale, Calif., assignor to Newell Industries, Inc., Sunnyvale, Calif.
Filed Jan. 24, 1972, Ser. No. 220,168
Int. Cl. B65d *85*; **G03b** *1/04, 1/56*; **G11b** *23/10*
U.S. Cl. 206—53 **3 Claims**

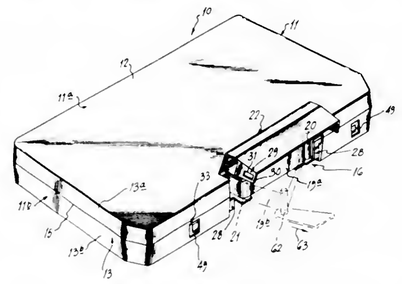


A tape record adapted to be coiled to form a roll thereof between the flanges of a support reel wherein the tape record comprises an information portion and terminal end portions. The tape record is characterized by means imparting resilient lateral compliance to at least one of the end portions to permit resilient reduction in the width occupied by the end portion when pressed between the flanges of a support reel thereby retaining the laterally reduced end portion between the flanges. More generally, a reel of pliable tape is provided comprising a cylindrical hub having flanges carried by the ends of the hub. A pliable tape record is wrapped about the hub between the flanges. The record has an information portion and a terminal end portion. The reel is characterized by resilient means yieldingly retaining engagement between the side edges of the end portion and the flanges.

3,809,219
TAPE CASSETTE
Hanjiro Esashi, Sendai, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Apr. 14, 1972, Ser. No. 244,210
Claims priority, application Japan, Apr. 22, 1971, 46-31739
Int. Cl. A47j *27/08, 36/10*; **B65d** *45/00*
U.S. Cl. 220—55 K **12 Claims**

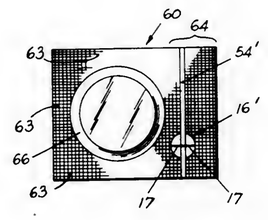
In a tape cassette housing having an opening through which magnetic tape contained in the housing can be engaged and withdrawn from the housing, for example, for the recording and/or reproducing of signals on the tape by means of a head assembly outside the cassette, and a pivoted lid for closing such opening; a latch mechanism is provided for locking the lid in its closed position to normally protect the tape, and such latch mechanism is released by an actuating element which is inserted into the cassette housing in the normal course of the positioning of the cassette in the holder therefor of the recording and/or reproducing apparatus. The latch mechanism includes a keeper on the lid disposed within the cassette housing

adjacent an edge of the opening when the lid closes such opening, and a latching element slidable rectilinearly in a guide provided at the inside of a wall of the housing and having a latch nose at one end of the latching element engageable with the keeper under the urging of a spring. The housing wall and



latch element have adjacent apertures which are normally offset relative to each other and which are brought into registry by the penetration of the actuating element through the wall aperture, whereby to displace the latching element against the force of the spring for relasing the latch nose from the keeper.

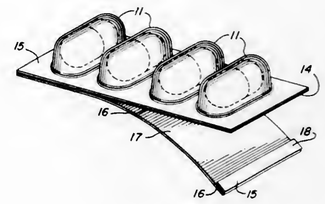
3,809,220
CHILD SAFETY PACKAGE
Joseph Arcudi, Elizabeth, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed July 24, 1972, Ser. No. 274,304
Int. Cl. B65d *83/04, 85/56*
U.S. Cl. 206—484 **15 Claims**



A sealed package that is openable by adults but which is sufficiently difficult for children to open is disclosed. The sealed package is preferably in the form of an envelope of the type having a pocket or cavity for receiving and storing a material such as a drug. The sealed package is preferably made from a plastic film which is flexible, liquid impervious and resists tearing even by adults but which will tear when manipulated to expose a hidden tear zone positioned away from any of the exposed sealed edge portions. Thus, the package in the sealed and unmanipulated position is in an inoperative tear resistant position and when manipulated is in an operative tear or opening position.

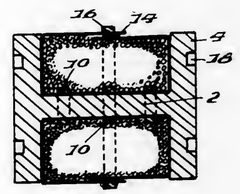
3,809,221
RUPTURABLE BLISTER PILL PACKAGE WITH SAFETY BACKING
Newton L. Compere, 775 N. Bank Ln., Lake Forest, Ill.
Filed Oct. 10, 1972, Ser. No. 296,192
Int. Cl. B65d *75/42, 75/46, 83/04*
U.S. Cl. 206—461 **10 Claims**

A rupturable press-through blister type medicament or pill package is "childproofed" by securing a strong flexible polymeric backing sheet, such as polyethylene terephthalate, over the rupturable sheet in such a manner that the pill cannot



be forced through the package unless the backing sheet is first peeled off.

3,809,222
SEALED PACKAGE OF FLEXIBLE MATERIAL AND METHOD OF MAKING THE SAME
James W. Newman, Scarsdale, N.Y., assignor to Windings, Inc., Yonkers, N.Y.
Filed Nov. 13, 1972, Ser. No. 305,683
Int. Cl. B65d *85/04*
U.S. Cl. 206—398 **2 Claims**

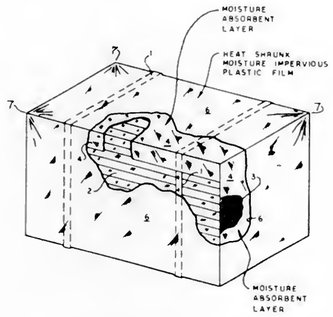


In order to enclose a coil of flexible material in an air-tight manner, a spool with end discs and a spindle portion is enclosed within a sleeve of flexible air-tight plastic. The part of the sleeve between the end pieces is drawn in and held against the spindle portion of the spool, leaving substantial extensions beyond the end pieces at each end. The flexible material is then wound on the spool, and the extensions of the sleeve are folded inwardly to overlap each other and secured to each other in an air-tight manner.

3,809,223
PROTECTED LUMBER PACKAGE AND METHOD OF MAKING SAME
Burt C. Kendall, Aptos, Calif., assignor to Crown Zellerbach Corporation, San Francisco, Calif.
Filed Aug. 27, 1971, Ser. No. 175,455
Int. Cl. B65d *85/46*
U.S. Cl. 206—204 **12 Claims**

Conventionally stacked lumber is protected from weathering by an envelope of moisture impervious plastic sheet film material which is heat-shrinkable. To prevent mold growth and discoloration of the lumber by moisture which would become trapped between the film and the lumber, resulting

from entrapped air and the vaporization of moisture inherently present in the lumber, a layer of moisture absorbent



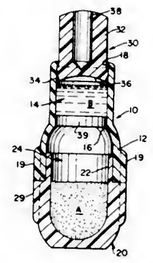
material is provided at least over the top of the stack between the plastic envelope and the lumber. Heat shrinking of the film effects a tightly bonded reinforced package.

3,809,224
COMPARTMENTED POUCH
David L. Greenwood, 3118 Sandy La., Glenview, Ill.
Filed Feb. 14, 1972, Ser. No. 225,754
Int. Cl. B65d *31/12, 81/32*
U.S. Cl. 206—219 **7 Claims**

A compartmented flexible pouch is provided for filling with at least two liquid materials which are to be stored in isolation from each other. The pouch is made of a thin liquid-impervious flexible film and has front and rear panels joined to each other about all edges except one to leave an opening. Extending from the opening toward the opposite edge there is a linear permanent seal between the inner faces of the two panels extending a first portion of the distance and a linear clamp seal extending the remainder of the distance. The clamp may be removed just prior to use of the composition to permit the two components to blend within the pouch.

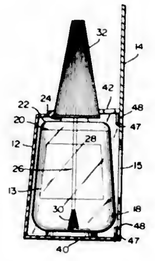
3,809,225
CONTAINERS
Pierre Allet-Coche, Paris, France, assignor to Jean-Jacques Goupil, Cachan, France
Continuation-in-part of Ser. No. 703,422, Feb. 6, 1968, abandoned. This application May 1, 1970, Ser. No. 33,780
Claims priority, application France, May 2, 1969, 69.14008
Int. Cl. B65d *81/32;* **A61b** *19/02*
U.S. Cl. 206—220 **16 Claims**

Small reusable containers with two compartments for storing, transporting and intermixing pre-proportioned substances such as a metallic powder and mercury used in making a dental amalgam, provided with a displaceable disk-shaped partition between the compartments to prevent intermingling of the substances during storage and transportation but which,



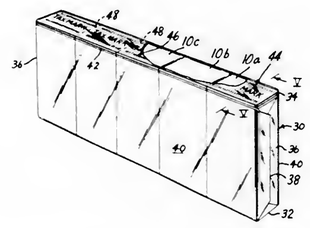
when displaced by way of a pusher, and with the intermingling of the substances, acts as a pestle in aiding trituration of the substances into the dental amalgam.

3,809,226
DISPLAY PACKAGE FOR COSMETICS
Luigi M. Ferrari, Douglaston, N.Y., assignor to Del Laboratories, Inc., Farmingdale, N.Y.
Filed Jan. 24, 1972, Ser. No. 220,226
Int. Cl. B65d *73/00*
U.S. Cl. 206—78 B **4 Claims**



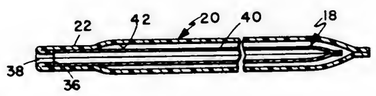
A display package for a cosmetic product such as lipstick or nail lacquer which product is composed of two parts, one being a handled cosmetic applicator such as a brush or lipstick rod, and the second being a part with an open-ended cavity such as a cap or a bottle, to receive the applicator and ensheathe the same with the handle outside the second part. The two parts are detachably interengageable when the applicator is ensheathed in the second part. The second part has a shoulder near its open end, but otherwise is of substantially uniform configuration. The cosmetic product is secured to a flat panel by a pocket which is shaped to receive the second part. The packet can have an open top through which the handle of the first part extends or it may completely enclose both the first and second parts. The panel can have a hole therein aligned with the second part so that the second part could be directly gripped and forced toward a wall of the pocket. The open top of the pocket has an inwardly directed flange which forms an interference fit with the cosmetic product so as to captively hold the cosmetic product stationary while permitting removal of the first part through manipulation of the handle. Other embodiments are also shown herein.

3,809,227
CIGARETTE PACKAGING
Carl J. Begemann, Miami, Fla., assignor to Philip Morris Incorporated, New York, N.Y.
Filed Oct. 13, 1972, Ser. No. 297,262
Int. Cl. B65d *85/10*
U.S. Cl. 206—264 **8 Claims**



Cigarette packages are wrapped in an aligned single row or assembly of five such packages, so that two such wrapped assemblies can be placed side-by-side in a conventional carton making a unit sale of five prepackaged packages possible if desired. The cigarette packages in each assembly are connected in linked together assembly by means of a component superposed on and secured to one end surface of each package, the component being provided as an elongated strip which has frangible segments therein extending transversely of the strip in regions where the strip overlies the location of abutment of each package with an adjacent package. If unit sales of less than five packages are desired, a selected package or packages can be removed from the assembly by severing the strip along appropriate frangible segments, with the associated strip portion remaining secured to the package or packages which have been removed, the strip portion associated with the removed packages bearing the tax marking indicia required by most localities remaining affixed to such packages at the time of retail sales of the same.

3,809,228
TEMPERATURE PROBE COVER
Charles F. Fowler, 5157 Park West Ave., San Diego, Calif., and Samuel G. Dawson, 1869 Hidden Mesa Rd., El Cajon, Calif.
Continuation-in-part of Ser. No. 85,388, Oct. 30, 1970, abandoned. This application Mar. 1, 1972, Ser. No. 230,790
Int. Cl. B65d *85/20*
U.S. Cl. 206—306 **18 Claims**



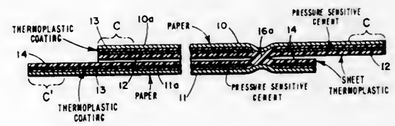
A temperature probe cover with an inner sheath and outer jacket, with the inner sheath constructed of thin virtually nonporous sheet material that is capable of being sterilized during manufacture along with the inner surface of the jacket. The exterior of the inner sheath is sealed and remains sterile within the outer jacket until the latter is removed, normally after insertion of the thermometer probe into the inner sheath. The jacket is preweakened at a point adjacent the seal allowing localized rupture of the jacket without endangering the integrity of the sealing of the inner sheath. The sheath and jacket have an opening that is spaced for easy insertion of the temperature probe.

3,809,229
PROPHYLATIC ENCLOSURE FOR CLINICAL THERMOMETERS DURING USE
James William Wahlig, 195-17 Station Rd., Flushing, N.Y.
Filed May 6, 1971, Ser. No. 140,797
Int. Cl. G01k *1/08;* **B65d** *85/20*
U.S. Cl. 206—306 **1 Claim**



An enclosure within which an elongated medical thermometer is to be placed prior to insertion into the body orifice of the subject whose temperature is to be taken. The enclosure may be secured to the thermometer at its heat sensitive portion. This enclosure will enable attainment of a level of asepsis presently obtainable only by discard of the thermometer itself after one-time use.

3,809,230
SHEATH-PACKAGE AND METHOD
George William Poncy, Chatham, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.
Continuation-in-part of Ser. Nos. 77,917, Oct. 5, 1970, Pat. No. 3,732,975, Continuation-in-part of Ser. No. 736,218, June 11, 1968, Pat. No. 3,552,558. This application July 17, 1972, Ser. No. 272,159
Int. Cl. A61b *19/02;* **B65d** *85/08*
U.S. Cl. 206—306 **15 Claims**

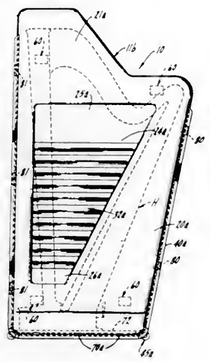


The sheath-package comprises an outer cover and an inner sheath formed of heat sealable material, with a layer of releasable bonding material sandwiched between the cover and sheath for releasably bonding them to each other over substantially the entire outer surface of the sheath. The cover and sheath have an opening through which an instrument can be inserted into the sheath. The sheath is formed from two sheets joined along a seal line which defines the sheath. The cover is strippable from the sheath upon the insertion of an instrument therein, whereupon the sheath and sheathed instrument are exposed for use.

3,809,231
HARP TRUNK
Joseph Palma, Wheaton, and Henning Christiansen, Oak Lawn, both of Ill., assignors to Lyon and Healy, Inc., Chicago, Ill.
Filed Aug. 24, 1971, Ser. No. 174,392
Int. Cl. B65d *85/54;* **A45c** *5/14*
U.S. Cl. 206—314 **9 Claims**

A harp trunk comprising two tub-like sections which open in clam-shell fashion to receive or disgorge a harp. The trunk sections each comprise vacuum formed or molded plastic shells having vertically elongated depressions formed therein.

The depression bases are horizontally corrugated. The depressions rigidify the shells. Skid rails encircle three sides of the

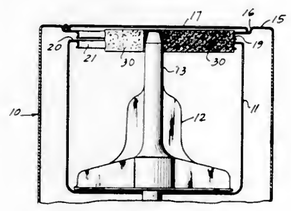


trunk and mount wheels at its bottom. Rollers are recessed in one section wall. Resilient members within the sections grip the harp within the trunk.

3,809,232
PACKING BRACE FOR WASHING MACHINES AND THE LIKE

Joseph B. Kennington, Wheaton, Ill., assignor to Francis P. Brennan, Lisle, Ill.

Filed Aug. 21, 1972, Ser. No. 282,391
Int. Cl. B65d *81/06*
U.S. Cl. 206—320 **3 Claims**

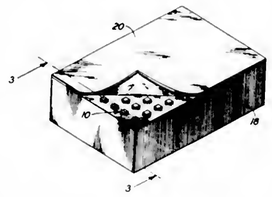


Packing brace for automatic washing machines, bracing the agitator, spin basket and casing of the machine from movement relative to each other during moving of the machine from place to place. The brace is made from a single block of resilient plastic material. Parallel slits separate the block into a plurality of bracing arms. The slits are enlarged adjacent their inner ends to provide integral hinges between the arms and accommodate opening thereof to extend about the center post of the agitator. The block is of sufficient height and the arms are of sufficient length to fit between the inner rim of the casing, spin basket and center post of the agitator. The outer end portions of the arms taper inwardly toward their lower ends, and the inner end portions of the arms are recessed along generally uniform arcs to fit around the center post of the agitator when the arms are opened relative to each other.

3,809,233
METHOD OF AND PACKAGE FOR TRANSPORTING ARTICLES

Raymond Frank Gruszka, Reading, Pa., assignor to Western Electric Company Incorporated, New York, N.Y.

Continuation-in-part of Ser. No. 112,263, Feb. 3, 1971, abandoned. This application July 14, 1972, Ser. No. 271,882
Int. Cl. B65d *73/02*; **B65b** *15/02*; **H01f** *7/20*
U.S. Cl. 206—328 **20 Claims**

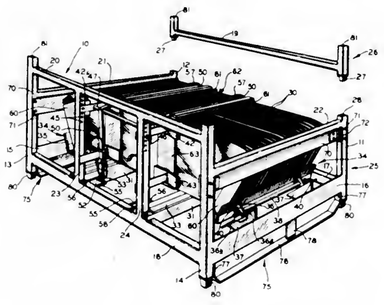


Integrated circuits are arrayed on a carrier of permanently magnetized material, such as barium ferrite. The circuits may be plated with a layer of magnetic material. A thin foil cover of magnetic soft material is placed over the array of circuits to hold the circuits in the array and enclose them. Where the circuits are to be transported through fluids, the cover is made porous to admit the fluids. A convenient protective package is thereby provided for transporting the integrated circuits.

3,809,234
GLASS SHIPPING RACK

James F. Kurick, Perrysburg, Ohio, assignor to Libby-Owens-Ford Company, Toledo, Ohio

Continuation of Ser. No. 126,424, March 22, 1971, abandoned. This application Dec. 20, 1972, Ser. No. 316,781
Int. Cl. B65d *81/02, 85/48, 85/54*
U.S. Cl. 206—448 **18 Claims**

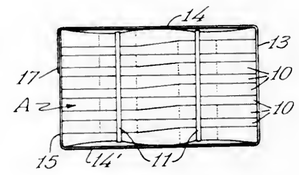


A rack for shipping and storing a plurality of individual sheets of glass or the like, and particularly curved automotive glass units. The rack includes resilient brace members which can be adjusted both vertically and horizontally so as to accommodate units of various sizes supported upon edge. The resilient braces and support members have multiplanar surfaces for engaging the units whereby the rack will accommodate a variety of units with different curvatures, dimensions and outlines. Adjustable straps secured to the rack frame at their opposite ends support the top edges of the individual units.

3,809,235
BAG BALE

John W. Edwards, Richmond, and Herbert G. Tull, III, Charlottesville, both of Va., assignors to Hoerner Waldorf Corporation, St. Paul, Minn.

Continuation-in-part of Ser. No. 120,543, March 3, 1971, abandoned. This application Jan. 3, 1972, Ser. No. 214,670
Int. Cl. B65d *71/00*
U.S. Cl. 206—499 **5 Claims**

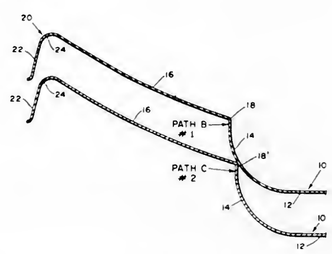


A bale of bags is provided which is strapped about the thickest areas of the bag bottoms. A sleeve of paper is wrapped about the bale at right angles to the direction of the straps.

3,809,236
DISPOSABLE PLASTIC DISH

Paul Davis, Swampscott, and David N. Shore, Brookline, both of Mass., assignors to Sweetheart Plastics, Inc., Wilmington, Mass.

Filed July 3, 1972, Ser. No. 268,484
Int. Cl. D21j *7/00*
U.S. Cl. 206—519 **7 Claims**



A pair of nestable containers each having bottom and side walls, and a nesting shoulder formed in one of the walls. The shoulder of each container is composed of alternate side and corner segments. The corner segments of one container lie radially beyond the corresponding segments of the other container, while the side segments of the one container lie radially within the side segments of the other container. Therefore, when the two containers are nested together, certain segments of the upper container overlap the corresponding segments of the lower container to prevent jamming.

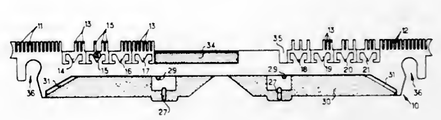
3,809,237
DEVICE FOR THE SELECTION OF DOCUMENTS SUCH AS, FOR INSTANCE, INDEX CARDS

Michel Gerard Schimmerling, 30 Rue de la Libert, Lingolsheim, France (67380)

Filed May 9, 1973, Ser. No. 358,539
Claims priority, application France, May 10, 1972, 72.17526
Int. Cl. B07c
U.S. Cl. 209—80.5 **13 Claims**

The invention relates to a device for the selection of documents filed in a filing cabinet and comprising a selecting carriage which can be displaced above the documents.

According to the invention the documents are suspended to support straps of breakable plastics material provided at their upper portion with selecting tabs some of which being in-



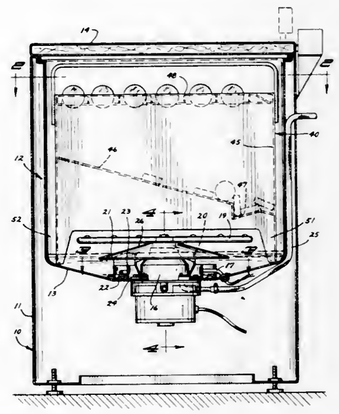
terchangeably mounted on said support straps without protruding on the two faces of said support straps.

The invention particularly applies to the selection of cards.

3,809,238
LENS PROCESSING APPARATUS

Jack L. Reisman, 4713 E. Coventry Rd., Minnetonka, Minn.

Filed Mar. 15, 1972, Ser. No. 234,902
Int. Cl. B07b *13/04*
U.S. Cl. 209—83 **3 Claims**



Lens processing apparatus operable to remove lens blocks from a plurality of lenses and to completely clean the lens after dissolving the adhesive bond.

A tub enclosure is adapted to receive one or more racks having notched lens engaging portions and an inclined block receiving portion.

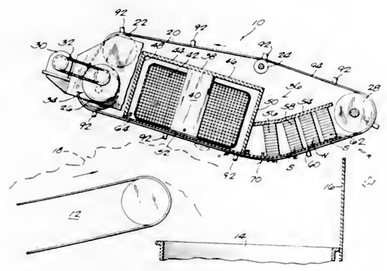
The tray is placed in the tub and sealed therein. The tub includes a heating element and a pump and spray arrangement for impelling a heated cleansing solution upwardly on the lens blanks and blocks.

The adhesive, which may preferably be of low melting point metal, is dissolved and the blocks are released from the lenses to fall down onto the inclined bottom of the rack. The blocks roll to the lowermost portion thereof to a location that is out of the spray pattern.

The solution may then be continuously applied to the lenses at the top of the tray to continue the cleaning cycle.

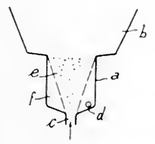
The metal adhesive falls to the bottom of the tub into a sump configured to collect the liquid metal. A heated trap serves to allow the metal to flow exteriorly of the tub to be collected for reuse.

3,809,239
MAGNETIC REFUSE SEPARATOR
William T. Barrett, and Newton I. Potter, both of Waukesha, Wis., assignors to Wehr Corporation, Milwaukee, Wis.
Filed Dec. 26, 1972, Ser. No. 318,622
Int. Cl. B07c 5/344
U.S. Cl. 209—111.8 12 Claims



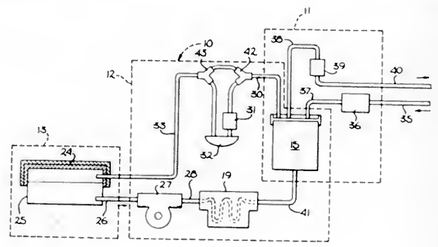
A magnetic separator is located at the discharge end of a refuse conveyor. The separator includes a continuous belt revolving in a closed path and having a curve in its path other than at its head or end pulley. A magnetic assembly generates a magnetic field at the belt curve and on both the upstream and downstream as sides thereof. The refuse conveyor runs at an angle toward and discharges its burden into the belt in the upstream portion of the magnetic field. Magnetic material in the burden is attracted to the belt and non-magnetic material falls away. The magnetic material travels with the belt around the curve causing some agitation to dislodge any non-magnetic material being carried along with the magnetic material. Downstream of the curve, the belt, and the magnetic material, move out of the magnetic field whereupon the magnetic material falls away from the belt. The magnetic separator is supported above a receptacle into which the thus separated magnetic and non-magnetic materials fall into segregated areas. The separator's position is adjustable horizontally to accommodate different levels of burden on the refuse conveyor.

3,809,240
METHOD OF INJECTING FLUIDS INTO A FLOTATION TANK
Vincent Savail, Velizy, France, assignor to Degremont, Societe Generale D'Epuration & D'Assainissement, Rueil Malmaison, France
Filed Dec. 6, 1971, Ser. No. 205,140
Int. Cl. B01d 21/00
U.S. Cl. 210—44 5 Claims



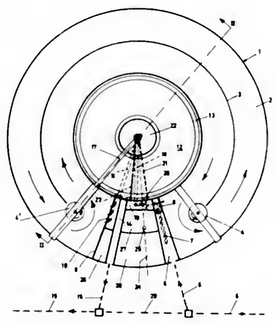
Method of injecting fluids into a flotation tank in which the flotation process is carried out by expanding, within the liquid mass to be treated, which contains particles in suspension, another liquid saturated with a gas under pressure. This method consisting in introducing the liquid saturated with gas under pressure into an enclosure preferably of circular horizontal cross section, to which the liquid to be treated is supplied through the bottom, and causing a stepped expansion of the liquid saturated with gas under pressure before introducing it into the enclosure.

3,809,241
SELF-CONTAINER KIDNEY DIALYSIS APPARATUS
Charles E. Alvine, Palos Verdes Peninsula, Calif., assignor to Electro Systems Engineering, Inc., Palos Verdes Peninsula, Calif.
Filed Feb. 23, 1973, Ser. No. 335,006
Int. Cl. B01d 13/00
U.S. Cl. 210—87 16 Claims



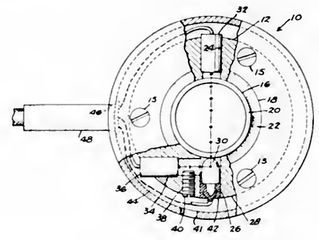
An improved kidney dialyzer. An improvement to kidney dialysis machines which provides for the portability of the apparatus. The improvement comprises a portable dialysate delivery system comprising a pump assembly flow section. The pump assembly flow section is made up of the artificial kidney, a heat reclaiming element and a recirculation pump for the dialysate passing therethrough. The pump assembly flow section is adapted to be connected to either a single pass dialysate proportioning system or a bath dialyzer reservoir cell. The pump used for recirculation of the dialysate solution is the source for the heat reclamation element, the recirculation pump being coupled to a clutch assembly used to control operation of a blood pump in the blood circulation system. The present invention is adapted to operate on any input voltage pursuant to a self-contained power transmission source.

3,809,242
PURIFYING PLANT FOR SEWAGE
Jan Bosje, De Goorn 30, Oosterwolde, Netherlands
Filed July 25, 1972, Ser. No. 274,961
Claims priority, application Netherlands, Aug. 20, 1971, 7111546
Int. Cl. C02c 1/10
U.S. Cl. 210—195 3 Claims



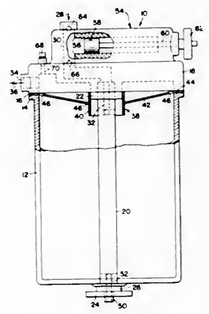
A purifying plant for sewage according to the active sludge method comprising an open tank provided with a partition and having the shape of a closed aerating circuit with a supply conduit, a discharge conduit and at least one surface aerator, said aerating circuit having a curved shape such that it substantially encloses a space in which at least one after-settling tank and at least one thickening pond are provided.

3,809,243
TURBIDITY MONITOR FOR DIALYSIS MACHINES
Philip J. Teders, Ann Arbor, Mich., assignor to Sarns, Inc., Ann Arbor, Mich.
Filed Jan. 26, 1972, Ser. No. 220,836
Int. Cl. B01d 31/00
U.S. Cl. 210—96 2 Claims



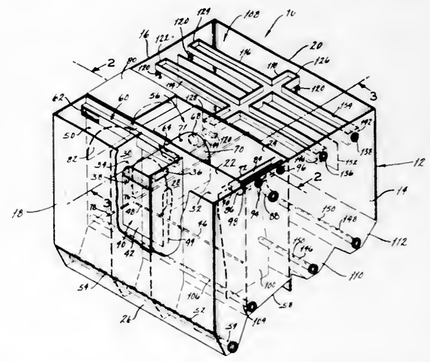
An improved turbidity monitor for a dialysis machine. The amount of turbidity, or impurity, of dialytic fluid is continuously monitored by a measuring photocell which receives light transmitted from a lamp through a conduit which carries the dialytic fluid. As the fluid turbidity changes, the amount of light received by the photocell also changes. The photocell correspondingly generates an electric signal measurement of fluid turbidity. Light is also shone onto a reference photocell to develop a reference signal which compensates for variations in the output of the measuring photocell caused by aging thereof. As the two photocells age, their operating characteristics change in substantially the same fashion. The two photocells are connected in circuit such that error in the turbidity signal due to aging of the measuring photocell is offset by change in the reference signal due to aging of the reference photocell. The monitor therefore maintains accuracy for an extended period of time. An alarm may be used to indicate when the fluid turbidity exceeds a predetermined level.

3,809,244
FUEL SEDIMENT BOWL ASSEMBLY
James Edward Jackson, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Dec. 14, 1972, Ser. No. 315,147
Int. Cl. B01d
U.S. Cl. 210—136 10 Claims



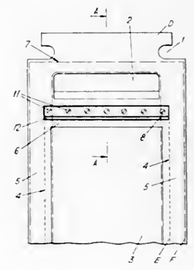
A fuel sediment bowl assembly is located in a fuel line between a source of fuel and a fuel pump. A hand pump is formed integrally with the sediment bowl and cooperates with appropriate valving for pumping fuel into the sediment bowl when separated water in the sediment bowl is being drained therefrom, the action of the pump effecting the replacement of the volume formerly occupied by the water by fuel such that no air will be introduced into the system. The sediment bowl assembly further includes a baffle at the top thereof which is constructed so as to aid in the separation of water from the fuel being drawn through the sediment bowl by the fuel pump.

3,809,245
SEWAGE TREATMENT APPARATUS
Sterling R. Kennedy, 3460 Hollenberg Dr., Bridgeton, Mo.
Filed Jan. 31, 1972, Ser. No. 222,229
Int. Cl. B01d 21/00
U.S. Cl. 210—207 16 Claims



A sewage treatment apparatus having an aeration circulation system for separating sludge from sewage wherein sewage is circulated around an outlet port shielded by a circulation guide member. The circulating sewage causes solid matter contained therein to move radially away from the outlet port so that liquid entering the outlet port is substantially free of solids.

3,809,246
FLUID SEPARATION APPARATUS AND MEMBRANE SUPPORT FRAMES THEREFOR
Gilbert Niogret, Lyon, France, assignor to Rhone-Poulenc S. A., Paris, France
Filed Dec. 15, 1972, Ser. No. 315,457
Claims priority, application France, Dec. 15, 1971, 71.45076
Int. Cl. B01d 25/26
U.S. Cl. 210—232 13 Claims



Fluid separating apparatus and a support frame for placing between the membranes thereof, in which the frame comprises a generally rectangular plate, having two faces and two

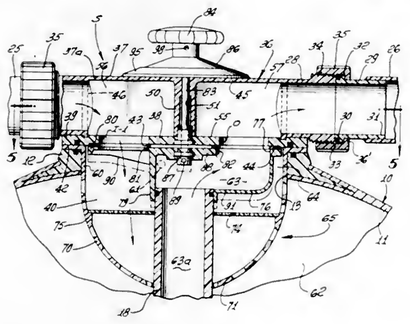
ends, at least one cell forming recess formed in each face, at least one orifice extending through the thickness of the plate adjacent the ends of the plate for the passage of fluid to be treated, a duct for the removal of fluid, which is passed through the membrane supported by the plate over each of said cells forming recesses, an aperture passing through the plate and positioned between at least one of the orifices and the cell forming recess, said aperture having a rules surface along the edge thereof adjacent said cell forming recess, and a detachable clamp located wholly within said aperture to clamp membranes disposed on each of said faces in a fluid-tight manner against said rules surface of said plate.

3,809,247

HIGH THROUGHPUT FILTER HAVING MULTIPOSITION VALVE

James E. Brett, Redondo Beach, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif.

Filed Nov. 9, 1972, Ser. No. 305,172
Int. Cl. B01d *23/24*
U.S. Cl. 210—278 **16 Claims**



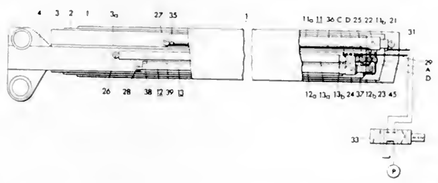
Filter for swimming pool water in which multiple operational modes including filtration, backwash and rinse modes are achieved with a valve structure affording positive sealing during operation, positive locking into mode, and adjustment between modes without frictionally wearing critical seals in the valve. The filter valve structure further employs large ports and direct flow passages to provide low pressure drop, even at very high flow rates through the filter, and a novel water distributor to avoid turbulence and undue disruption of the filter medium during filtration.

3,809,248

BOOM EXTENSION MEANS

Kazuhiro Ohniwa, and Seuti Ishikawa, both of Takamutsu, Japan, assignors to Kabushiki Kaisha Tadano Tekkosho, Takamatsu City, Japan

Continuation of Ser. No. 11,131, Feb. 13, 1970, abandoned. This application Jan. 18, 1972, Ser. No. 218,822
Int. Cl. F15b *15/16*
U.S. Cl. 212—55 **5 Claims**



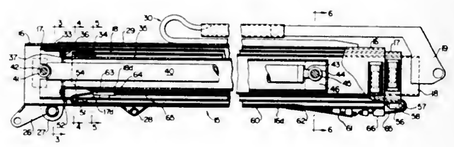
In a boom consisting of more than three boom members telescopically extensibly connected with each other and including a plurality of hydraulic cylinders each having compressed oil chambers on the extending and retracting sides thereof and arranged to extend between adjacent boom members, a boom extension means comprising oil supply and discharge lines connected to an oil pressure source; oil pressure supply and discharge lines connecting said plurality of hydraulic cylinders with each other; a plurality of control valve means each connected to each of the secondly mentioned oil pressure supply and discharge lines which are connected between adjacent hydraulic cylinders, each of said control valve means being so adapted as to be normally maintained in a closed position to permit the flow of oil pressure in the same direction and forcibly biased into an opened position only when the hydraulic cylinder relating to said control valve is operated to an utmost limit of extension or retraction, thereby permitting the flow of oil pressure in a direction opposite to said same direction, the opening and closing operations of said control valve being automatically effected in association with movement of the hydraulic cylinder relating to said control valve.

3,809,249

TELESCOPIC CRANE BOOM WITH CHAIN ACTUATION OF FLY SECTION

John L. Grove, Greencastle, Pa., assignor to Fulton Industries, Inc., McConnellsburg, Pa.

Filed Mar. 15, 1972, Ser. No. 234,937
Int. Cl. B66c *23/06*
U.S. Cl. 212—55 **2 Claims**



A telescopic crane boom having a base section, a mid section telescopically received in the base section and a fly section telescopically received in the mid section, a hydraulic cylinder for moving the mid section relative to the base section and chains connected to the base and fly section for extending and retracting the fly section upon actuation of the hydraulic cylinder to extend and retract the mid section. The chains are trained on front and rear sprockets supported by the mid section; the axes of the sprockets are below the bottom of the mid section, the chains are anchored to the bottom of the base section and one chain passes rearwardly through an aperture rearwardly of the anchor. Plural front and plural rear sockets are provided, with a chain for each.

3,809,250

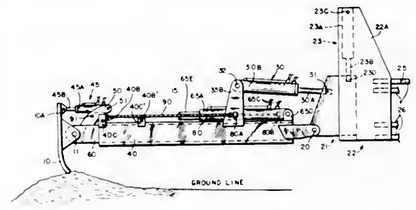
TELESCOPIC APPARATUS

John S. Pilch, Ware, Mass., assignor to Ware Machine Works, Inc., Ware, Mass.

Filed Apr. 16, 1973, Ser. No. 351,284
Int. Cl. B66c *23/06*
U.S. Cl. 212—55 **17 Claims**

Telescopic apparatus adapted for use with graders, trenchers or backhoes, loaders, lifters and the like which include an earth moving implement, dipperstick, hook or other tool, attachment or the like. The apparatus includes a first support which is adapted to be supported in relation to the ground. The boom includes a first longitudinally extending part which is pivotally associated with the first support for substantially vertical swinging movement relative thereto and a second longitudinally extending part which is slidable relative to the first part. It also includes longitudinally reciprocable means, such as an hydraulic cylinder and ram, and means for connecting one end thereof to the first part. A first arcuate

member, such as a sheave or sprocket is rotatably mounted on the other end of the longitudinally reciprocable means substantially in alignment with its longitudinal centerline and a second arcuate member is rotatably mounted on said first longitudinally reciprocating means in spaced longitudinal relationship from said first arcuate member and from said first longitudinally reciprocable means and substantially in alignment with the longitudinal centerline thereof. First elongate flexible means, such as a chain or cable, is passed over the first arcuate member, one end thereof is connected to the first part and the other end is connected to the second part adjacent to its inner end. Second elongate flexible means is passed over the second arcuate member, one end thereof is connected to



the first part and the other end thereof is connected to the second part at a locality towards the outer end thereof. A device or tool of the type described above is associated with the outer end of the second part. The second part and the attached device or tool are moved longitudinally relative to the first part upon actuation of the longitudinally reciprocable means, thereby facilitating the grading, digging, loading and/or lifting with the device.

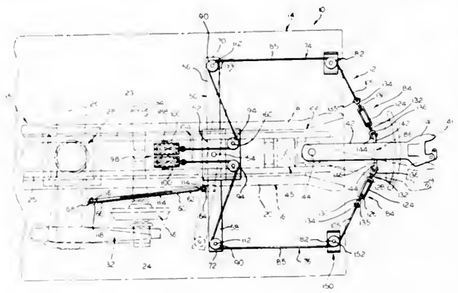
According to a preferred embodiment, the apparatus also includes another longitudinally reciprocable means for swinging the first part substantially vertically relative to the ground, one end of this means being pivotally connected to the first support and the other end being pivotally connected to the first part.

3,809,251

COUPLER POSITIONING DEVICE FOR SLIDING SILL CUSHION UNDERFRAME CARS

Osvaldo F. Chierici, Elmhurst, and Frederick P. Winters, Lombard, both of Ill., assignors to Holland Company, Lombardi, Ill.

Filed Feb. 28, 1973, Ser. No. 336,638
Int. Cl. B61g *7/12*
U.S. Cl. 213—15 **8 Claims**



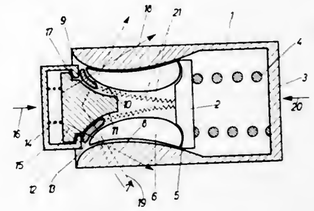
A railroad car coupler positioning device of the general type disclosed in Chierici U.S. Pat. No. 3,642,149 that is arranged specifically for use in connection with sliding sill cushion underframe cars, in which the coupler is connected to either end of a command or swing lever by an essentially uncushioned cable connection, with the connecting cables being trained over sheaves at the respective ends of the swing lever for connection to a shock absorbing device carried by the sliding sill that is independent of the primary sliding sill cushioning device. The cables are tensioned against the action of the shock absorber to provide the desired flexion free linkage between the swing lever and the coupler for coupler positioning purposes, and while buff and draft movement of the sill relative to the underframe results in automatic slack take up and slack let out in the cables without effecting their tension, the shock absorbing device acts to cushion the cables against the action of buff and draft movement of the coupler relative to the sill.

3,809,252

SPRING ELEMENT PARTICULARLY ADAPTED FOR AUTOMATIC CENTER HEAD COUPLERS OF RAILROAD VEHICLES

Axel Schelle, Rottach-Scherfen, Germany, assignor to Knorr-Bremse KG, Berlin and Munich, Germany

Filed Aug. 22, 1972, Ser. No. 282,668
Claims priority, application Germany, Aug. 31, 1971, 2143565
Int. Cl. B61g *9/18, 11/14*
U.S. Cl. 213—24 **6 Claims**



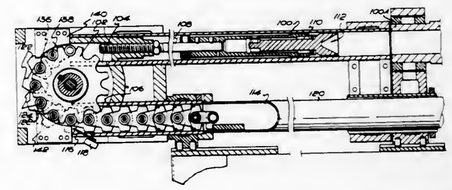
A spring element has a thrust member insertable into a sleeve against spring and friction forces. The thrust member is coupled by force transmitting wedge means to a friction element which is carried along by insertion of the thrust member and moves against a friction surface on the inner face of the sleeve. The force transmitting wedge means comprises cooperating curved wedge surfaces extending in the direction of insertion and an intermediate element is disposed between the wedge surfaces. Regulator means are provided which are responsive to the magnitude of shock loads acting on the spring element to position the intermediate element with respect to the wedge surfaces.

3,809,253

BAR FEED MECHANISM

Austin Cartwright Mercer, Jr., Guiseley, England, assignor to Mercer Pneumatic Tools Limited, Yorkshire, England

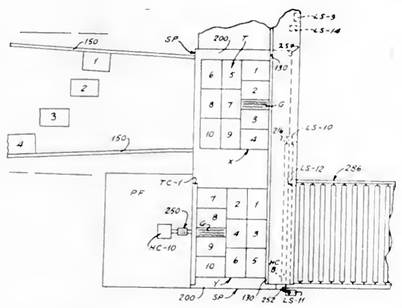
Filed Aug. 2, 1972, Ser. No. 277,468
Claims priority, application Great Britain, June 16, 1972, 36471/72
Int. Cl. B23q *5/00*
U.S. Cl. 214—1.5 **8 Claims**



A bar feed mechanism for a machine tool comprising a feed tube and a length of link chain which is adapted to the bore

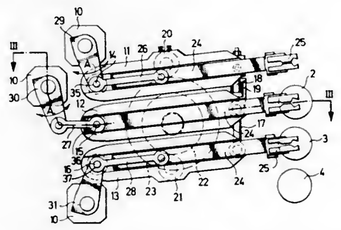
section of the tube such that the chain can be fed into the tube and once in the tube the chain is constrained by the tube whereby relative pivotings of the links is prevented and in effect the length of chain in the feed tube becomes a rigid rod usable for pushing the bar stock along the tube, and including feed means for feeding the chain into the tube at the end remote from which the bar stock is fed to the machine tool.

3,809,254
CASE PALLETIZER
John M. Leach, P.O. Box 341, Port Jefferson, N.Y.
Division of Ser. No. 34,201, May 4, 1970, Pat. No. 3,627,103.
This application Sept. 9, 1971, Ser. No. 179,091
Int. Cl. B65g *57/22*
U.S. Cl. 214—6 P **1 Claim**



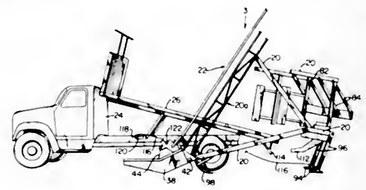
A palletizing machine which is particularly applicable to high speed loading of cases in tiers on pallets or other type of support in that every case received at th tiering operation and which requires repositioning is contacted by a case orienter and conducted to a scheduled relative position to ultimately form the desired tier or layer pattern without stopping forward motion of any case at any time. In addition the tiers so formed are alternately stacked onto two pallets or other supports without any lost time motions or movements.

3,809,255
WORKPIECE CONVEYOR FOR MULTISTAGE PRESS
Friedrich-Karl Koch, Krefeld, and Oskar Rahn, Hubert, both of Germany, assignors to Peltzer & Ehlers, Krefeld, Germany
Filed Sept. 8, 1972, Ser. No. 287,521
Claims priority, application Germany, Sept. 29, 1971, 2148529
Int. Cl. B23q *7/04*
U.S. Cl. 214—1 BD **6 Claims**



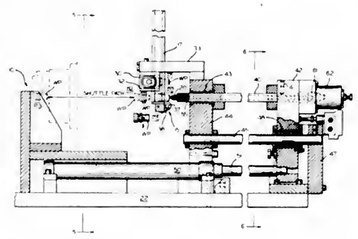
A conveyor for transporting a workpiece from one die to another in a multistage press, so that successive pressing operations can be performed on the workpiece. Parallel carrier arms corresponding in number to the number of dies, are pivotally supported at one end, and the other end swings between a first position adjacent one die, and a second position adjacent the next successive die. The free ends of the carrier arms are tied together by spring-loaded, extensible link means, so that they swing as one. A rotating double cam acts on diametrically opposite cam followers on two carrier arms, causing the arms to oscillate between the first and second positions. Each carrier arm has a support rail slidably mounted thereon, with gripper jaws at one end to grip the workpiece. A connecting rod joins the other end of each support rail to a cam-actuated lever arm, and when the support rail is at one extreme position, the pivot center between the connecting rod and lever arm coincides with the pivot axis of the carrier arm.

3,809,256
BALE LOADER
Richard B. Miskin, Ucon, Idaho, assignor to Miskin Scraper Works, Inc., Ucon, Idaho
Filed Mar. 10, 1972, Ser. No. 233,430
Int. Cl. B65g *57/32*
U.S. Cl. 214—6 B **16 Claims**



Bale loader, for use with a truck having a horizontal bed adapted to be tilted to vertical position for depositing its bale load on the ground, characterized by means for attaching the loader to the truck to be bodily carried thereby during use, means for picking up spaced bales lying on the ground as the truck moves along a field and conveying same to a bale assembly station disposed adjacent the rear end of the bed wherein a bale wall is assembled, and means for sequentially pushing the bale walls toward the front end of the bed until the entire length of the bed is filled with bale walls, after which the loader may be detached from the truck, whereby the truck may proceed to an unloading locus without being encumbered by the loader. Since all loading operation are preferably under automatic powered control, the entire loading operation is effected by only a truck driver by guiding the truck along a desired course in the field.

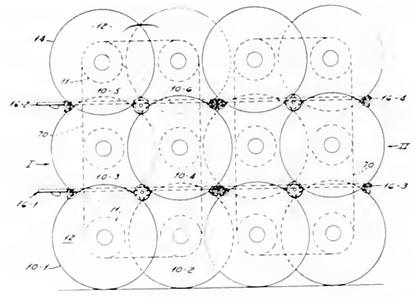
3,809,257
MACHINE TOOL FEED APPARATUS
Adolph V. Klancnik, 1020 Glenview Rd., Glenview, Ill.
Filed Aug. 6, 1971, Ser. No. 169,738
Int. Cl. B65g *59/06*
U.S. Cl. 214—8.5 C **7 Claims**



Work piece transfer apparatus includes a shuttle device which clamps and moves a work piece from a loading station to a work station where the work piece is to be machined, and returns to the loading station. During return movement, the force of the clamp is released and the machined work piece is stripped from the clamp so that the shuttle device returned to the loading station may be reloaded and recycled.

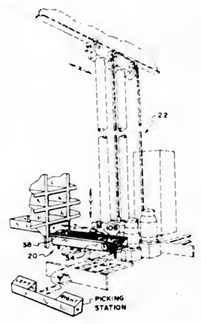
Preferably, the clamp is a collet actuated by an air-operated draw bar, and is supported by a reciprocal shuttle in the form of a mandrel which houses the draw bar. The mandrel and draw bar are operated by independent cylinders.

3,809,258
RACK FOR SHIPPING AND STORING TEXTILE BEAMS
William B. Shepherd, Winston-Salem, N.C., assignor to Hayes-Albion Corporation, Charlotte, N.C.
Filed Aug. 2, 1972, Ser. No. 277,169
Int. Cl. B65g *1/14*
U.S. Cl. 214—10.5 R **14 Claims**



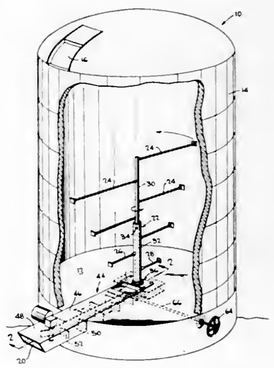
A rack construction for shipping and storing groups of empty textile beams in nested and tiered relation comprises a framework of side members and cross members connected thereto. Spacers secured to each of the cross members in pairs form a cradle engageable from below by the heads of a pair of beams of a lower tier and from above by the heads of a pair of beams of a second tier, the spacers defining a minimum separation between the barrels and heads of nested beams in the same tier and in adjacent tiers. The number of beams in a group can be expanded by the use of another rack for each additional tier. Bands applied around the barrels of the beams of the group retain the beams in engagement with the spacers and enable the group to be handled as a unit; and, the rack or racks of one group can be interlocked with those of another group.

3,809,259
HANDLE ENGAGING TOTE PAN RETRACTOR
George R. Pipes, Salt Lake City, Utah, assignor to Kenway Engineering, Incorporated, Bountiful, Utah
Filed Feb. 26, 1973, Ser. No. 336,109
Int. Cl. B65g *1/06*
U.S. Cl. 214—164 A **4 Claims**



An automated handle-engaging tote pan retractor and method for use with computer controlled warehousing stacker systems, the retractor comprising a support frame, an elevated platform which carries a retrieved tote pan from storage to a picking station, stop mechanisms which hold the retrieved tote pan on the retractor as it moves between storage and the picking station, and two tote pan handle-engaging mechanisms which pull a desired tote pan from a predetermined storage bin location on either side of a storage aisle onto the elevated platform and later push the retrieved tote pan in either direction onto a picking platform at a picking station.

3,809,260
BOTTOM UNLOADER APPARATUS FOR SILOS
Harold M. Zimmerman, R.D. 1, Ephrata, Pa.
Filed Nov. 6, 1972, Ser. No. 303,717
Int. Cl. B65g *65/48*
U.S. Cl. 214—17 D **5 Claims**

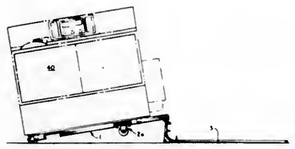


A novel bottom unloader apparatus is disclosed for use in a silo of the type having a floor and upstanding sides. The unloader apparatus comprises an elongated shaft having a plurality of chain agitator devices thereon, the shaft being rotationally journalled within the silo about a substantially vertical axis, such that the shaft extends upwardly from the silo floor. At a lower end portion of the shaft, a drive gear means or sprocket is affixed thereto. A substantially laterally disposed conveyor mechanism extends between the shaft and a discharge outlet exterior of the silo, the conveyor mechanism in the preferred inventive embodiment being disposed in the silo floor and including an endless chain having a plurality of vanes thereon, the endless chain being disposed about the drive gear means or sprocket of the elongated shaft. A single drive means is provided to the outside of the silo and is coupled to the endless chain to advance same, selectively in a forward or reverse direction, so as to discharge silage, advancement of the endless chain simultaneously effecting rotation of the shaft so as to agitate silage downwardly toward the conveyor mechanism.

3,809,261
MOVING SYSTEM
William S. Lee, New Orleans, La.
Division of Ser. No. 9,223, Feb. 6, 1970, Pat. No. 3,633,774.
This application Oct. 14, 1971, Ser. No. 189,337
Int. Cl. B65g *67/02*
U.S. Cl. 214—38 CC **19 Claims**

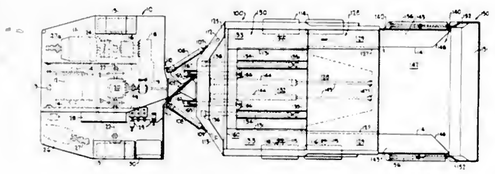
A heavy duty moving system including a sled, two sets of removable heavy duty caster wheels (FIG. 1) and a lever arm assembly (FIG. 1A) for moving heavy equipment, for example, the "XEROX" copy machines of the 2400 series. The sled is slid under the machine (FIG. 3) and then raised at one end

by the lever assembly (FIG. 4), one set of caster wheels then being laterally inserted and locked into the sled (FIG. 5). The



opposite end of the sled is raised and the second set of caster wheels inserted and locked into the sled (FIG. 6). Upon lowering, the equipment is then ready for transportation (FIG. 7).

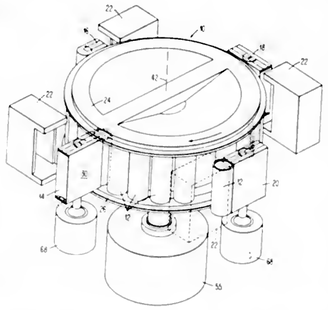
3,809,262
SELF-PROPELLED HAULAGE VEHICLE
Alex J. Galis, Apt. 101 Heatherbrae Square, Indiana, Pa.
Division of Ser. No. 189,512, Oct. 15, 1971. This application Sept. 27, 1972, Ser. No. 292,514
Int. Cl. B60p *1/00*
U.S. Cl. 214—152 **8 Claims**



An improved, self-propelled haulage vehicle, for hauling loose mined material, such as coal, in an underground mine or the like. The haulage vehicle comprises prime mover means operably connected to a trailer having a material haulage compartment that includes a fixed, or stationary, hopper portion having mounted therewith one or more selectively movable hopper portions whereby the effective length, and hence hauling capacity, of the haulage vehicle may be varied, and whereby rapid loading and unloading of the vehicle is obtained. In one embodiment, the trailer means includes a fixed hopper portion having mounted thereon front and rear movable hopper portions which may be selectively positioned during loading and unloading of the haulage vehicle. Each of the hopper portions is channel-shaped and includes spaced-apart vertical sidewalls transversely interconnected by a bottom plate portion. The movable front hopper includes pivotally mounted at the end thereof a loading and holding gate means adapted to pivot to an open position during vehicle loading or unloading and to a closed position during loaded vehicle travel. Further provided is a cleaner plate within the trailer means adapted to travel the length of the fixed hopper portion whereby the hopper contents may be dumped, or discharged therefrom.

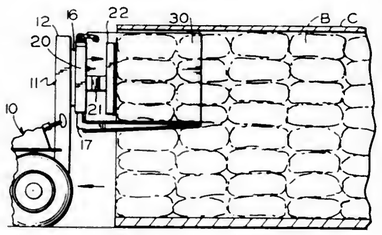
3,809,263
CONTINUOUSLY MOVABLE INFORMATION STORAGE AND RETRIEVAL SYSTEM
Paul D. Dodd, Boulder, Colo.; John J. Lynott, Los Gatos, and John D. Treder, Santa Clara, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 29, 1973, Ser. No. 364,854
Int. Cl. B65g *1/06*
U.S. Cl. 214—16.4 R **13 Claims**

A continuously moving information-bearing article carrier and a selectively actuated article handler are in peripheral velocity synchronism for exchanging information-bearing articles. Such dynamic article exchange occurs without stopping or altering the velocity of the carrier. In a preferred form, the carrier is a rotating cylinder having a large plurality of information-bearing articles spaced about its periphery and extending outwardly of the outer periphery for facilitating dynamic article exchanges. Tiers of such rotating cylinders may be axially aligned with a plurality of article handlers for each of the rotating cylinders; or one or more of the article handlers can



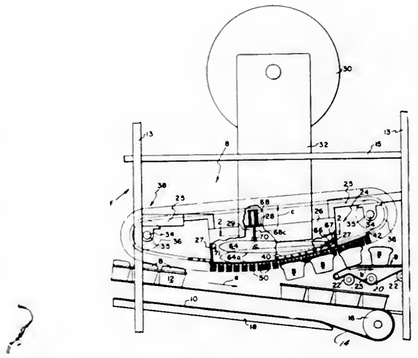
move axially of the assembly for selectively accessing any one of the cylinders. In a data staging environment, a small plurality of such cylinders may have a plurality of spaced-apart accessing mechanisms for reducing total access time to any article in such rotating cylinder. Additionally, other cylinders may be selectively accessed by a traveling access mechanism which selectively transfers an article from one of the other rotating cylinders to the staging rotating cylinder. Several embodiments of the invention are described.

3,809,264
METHOD OF LOADING CARGO CONTAINERS
Gerald K. Mayers, Portland, Oreg., assignor to Container Bins, Inc., Portland, Oreg.
Filed May 17, 1972, Ser. No. 254,227
Int. Cl. B65g *57/02*
U.S. Cl. 214—302 **1 Claim**



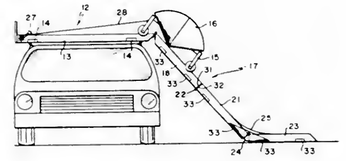
Shipping containers are loaded with cargo, such as bags of seed, by placing the bags in a generally U-shaped bin having a width substantially equal to that of the open loading end of the cargo container and a height substantially equal to a whole number fraction of the height of such open end. The bags are loaded fully across the width of the bin and substantially evenly with the top thereof, whereupon the loaded bin is inserted into the container through the open end and the cargo elements are pushed out en masse as the bin is simultaneously withdrawn. A second batch of cargo is similarly loaded, being placed above and in contact with the top of the first batch, thereby to load a widthwise row of cargo elements fully to the top of the container and completely across the width thereof.

3,809,265
BAKERY PRODUCT DEPANNING APPARATUS
Norman O. Krenke, Saginaw, and De Witt Sims, Burt, both of Mich., assignors to Baker Perkins Inc., Saginaw, Mich.
Filed Dec. 13, 1971, Ser. No. 207,137
Int. Cl. A21b *3/18*
U.S. Cl. 214—309 **26 Claims**



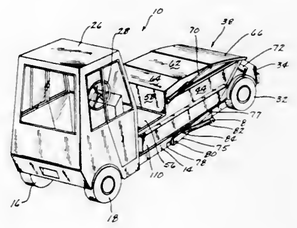
Depanning apparatus for removing bakery products, such as bread loaves, from pans on a product-supplying conveyor and transferring them to a discharge conveyor comprising: a vacuum box having an opening in the bottom thereof; a perforated endless transfer conveyor including a lower run covering the opening in the box; a plurality of dependent resilient cups mounted on the transfer conveyor and including passages communicating with the perforations in the endless transfer conveyor; and vacuum responsive valve members mounted in the cups for movement to and from operative positions blocking the passages when the resilient cups are not sealed to a product and a predetermined vacuum exists in the box. An assembly is also provided in the box for selectively preventing communication of the vacuum source with the cups over a predetermined area of the traveling conveyor.

3,809,266
CARGO LOADING AND CARRYING DEVICE
Paul L. Salerni, c/o Dr. M. E. McCormick, U.S. Naval Academy, Annapolis, Md.
Filed July 25, 1972, Ser. No. 274,906
Int. Cl. B60r *9/00*
U.S. Cl. 214—450 **2 Claims**



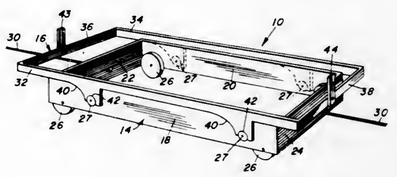
A load carrying device for a vehicle top mounting having a folding track and a load carrying dolly riding on the track. The track is long enough to reach from the vehicle top to the point of delivery or pick-up of the load. A winch is provided to raise or lower the load.

3,809,267
REFUSE COLLECTING AND DISPENSING VEHICLE
John W. Knight, New Hampton, Iowa, assignor to Knight Motor Corporation, Osage, Iowa
Filed June 29, 1972, Ser. No. 267,603
Int. Cl. B65f *3/00*
U.S. Cl. 214—508 **7 Claims**



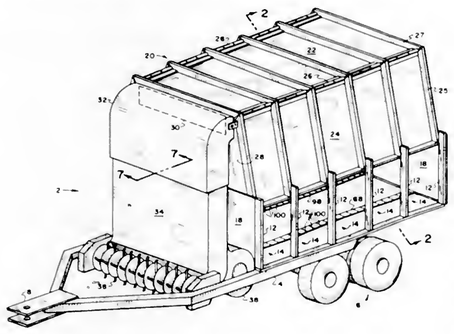
A refuse collecting and dispensing vehicle including a powered wheeled frame means having a refuse collection box pivotally mounted thereon. A hydraulic cylinder means is pivotally connected to the box through a pivoted arm arrangement to pivot the box from a normal collection position to a dispensing position. The box has a collection opening formed in the rearward end thereof to permit refuse to be placed in the interior of the box. A vertically disposed packing plate is movably mounted in the box below the collection opening for moving the collected refuse from the area of the collection opening into the interior of the box. The packing plate also serves to aid in forcing the refuse outwardly from the box when the box is being dumped. A safety switch means is provided in the collection opening for deactivating the hydraulic cylinder means connected to the packing plate to prevent injury to the operator's hand or arm. The box has a discharge opening formed at one end thereof which is closed by a cover element slidably mounted on the upper end of the box. The upper end of the box has a curved configuration to permit the box to be received in the collection opening of a larger refuse truck or the like. The vehicle also includes an operator's cab which is mounted on the rearward end of the frame means behind the collection box.

3,809,268
LOAD-TRANSFER DEVICE
David Edward Lutz, 330 Washington Ln., Carlisle, Pa.
Filed Aug. 30, 1972, Ser. No. 284,823
Int. Cl. B60p *1/00*
U.S. Cl. 214—512 **16 Claims**



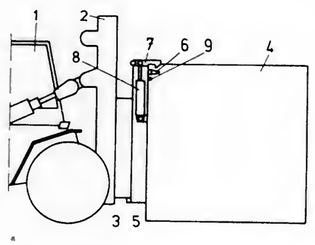
A load-transfer device primarily useful in loading and unloading trucks or the like comprising a conveyor operating on a principle similar to a walking beam conveyor wherein a load-bearing member is raised vertically to lift a load from a supporting surface and then to transfer the load to another point on the surface. The load-bearing member is raised and lowered by reaction with adjacent loads or an immovable bulwark.

3,809,269
SIDE PRESS HAY WAGON
Ezra Cordell Lundahl, Idaho Falls, Idaho, assignor to Ezra C. Lundahl, Inc., Logan, Utah
Filed Mar. 9, 1972, Ser. No. 233,167
Int. Cl. A01d 85/00
U.S. Cl. 214—519 14 Claims



A hay wagon comprising a bed, pick up and haying displacing mechanisms for delivering loose hay from the ground onto said bed in stacked relation, a pressing mechanism for principally compacting side edges of the hay stack and a stack discharging mechanism for unloading the compacted hay stack from the bed.

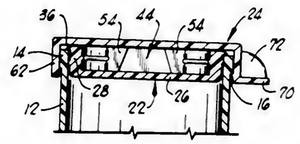
3,809,270
LATERAL CONTAINER GRABBER HAVING CARRYING PINS AT THE UPPER CORNERS OF THE CONTAINERS
Lahja Arvid Peltonen, Tampere, Finland, assignor to Valmet Oy, Helsinki, Finland
Filed May 24, 1972, Ser. No. 256,592
Int. Cl. B66f 9/18
U.S. Cl. 214—621 4 Claims



A lateral container grabber has at least two supporting pins for the container which are pushed from the side of the long vertical side of the container into the corner pieces. Power cylinders act between the frame structure of the lateral grabber and securing levers. A spring is used to move the securing levers into their closed position while power cylinders move the securing levers into their open position.

3,809,271
SAFETY CLOSURE FOR CONTAINERS
Ray D. Stroud, 2421 N.W. 59th St., Oklahoma City, Okla.
Filed June 29, 1972, Ser. No. 267,645
Int. Cl. A61j 1/00
U.S. Cl. 215—9 14 Claims

A safety closure for securement to containers and vials and adapted to prevent access to the contents of said containers and vials, the safety closure including an inner cap and an external lid both frictionally retainable on the open end of the container or vial. The inner cap includes a central plate having a peripheral wall around the outer periphery thereof adapted to frictionally engage the inside wall of the container or vial. A flange secured to the upper edge of the peripheral wall prevents the internal cap from moving downwardly into the container from the upper end thereof. The internal cap includes an interlock structure formed on the peripheral wall. The external cap includes a central plate having an annular flange projecting from the outer periphery of the central wall and dimensioned to frictionally engage the outer wall of the container or vial. The outer wall of the external lid includes an interlock structure adapted to mate with, and engage, the interlock structure of the internal cap to facilitate removal of the internal cap from the container or vial.

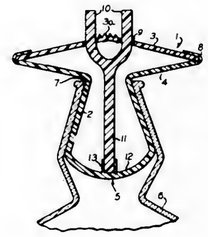


3,809,272
SAFETY BOTTLE CLOSURE
Eino J. Maki, Upper Saddle River, N.J., assignor to Sterling Drug Inc., New York, N.Y.
Filed Feb. 14, 1972, Ser. No. 225,752The portion of the term of this patent subsequent to Nov. 23, 1988, has been disclaimed.
Int. Cl. A61j 1/00; B65d 55/02
U.S. Cl. 215—9 6 Claims

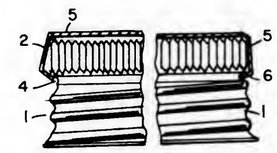
A closure cap of the screw-on or similar type having exertior knurls or the like at the periphery thereof, in combination with a safety overcap having complementary interior knurls or projections for selective engagement with the exterior knurls of the closure cap for turning the latter by rotation of the overcap, said overcap including a yieldable resilient depressed base engaging the base of the closure cap normally maintaining the overcap unengaged with respect to the closure cap. The interior knurls or projections on the interior of the overcap engage the exterior knurls at the periphery of the closure cap only upon the application of downward pressure on the safety overcap relative to the closure cap, said overcap rising to non-engaged position upon release of the pressure.

3,809,273
SAFETY STOPPER
David Lehr, 79 Lloyd Rd., Montclair, N.J.
Filed May 25, 1972, Ser. No. 256,656
Int. Cl. B65d 39/04
U.S. Cl. 215—9 8 Claims

A safety closure having a soft resilient stopper portion adapted to be inserted into a bottle opening and resiliently engaging sealingly against the inner surface of the bottle opening, which comprises a resilient bottom stopper part adapted to be inserted into the bottle and resiliently engaging the inner walls thereof. The resilient bottom stopper part has an upper part outside of the bottle. A rigid upper portion is connected to the upper part bottom stopper part and disposed outside of the bottle. A rigid stick member abuts the bottom stopper portion and extends through and is guided by the upper portion and terminates adjacent thereto in ends spaced apart slightly less than the average size of an adult's thumb, and at least one area on said upper portion is provided between said ends.



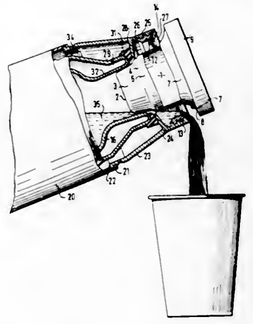
3,809,274
CHILD PROOF CLOSURE FOR CONTAINERS
Vincent Scuderi, East Williston, N.Y., assignor to Van Blarcom Closures, Inc., Brooklyn, N.Y.
Filed July 19, 1972, Ser. No. 273,176
Int. Cl. B65d 55/02
U.S. Cl. 215—9 2 Claims



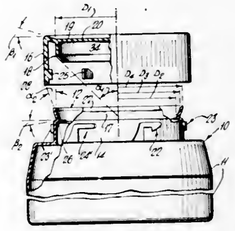
A child proof closure for containers having a threaded neck. A screw type cap has an annular groove in the side of said cap adjacent to the top thereof, and a first circle of teeth on the upper side of the cap. A drive member fits over said cap and has a second circle of teeth adapted to engage said first circle of teeth when said drive member is firmly squeezed in upon said cap. The drive member has a lower lip turned inwardly to engage said groove with a loose fit to permit easy rotation of said drive member when the drive member is not squeezed on the cap. It is necessary to squeeze and turn said drive member simultaneously to unscrew said cap.

3,809,275
STOPPER
Sigvard Ek, Jonkoping, Sweden, assignor to Aktiebolaget Jonkopings Vacuumindustri, Jonkoping, Sweden
Filed Apr. 21, 1972, Ser. No. 246,407
Claims priority, application Sweden, May 10, 1971, 6041/71
Int. Cl. B65d 47/32
U.S. Cl. 215—13 R 9 Claims

A stopper which can be used with a vacuum flash, and includes a head portion, a depending bung portion defining a sealing surface, and a ring portion co-axial with the bung and being spaced therefrom and attached thereto by a plurality of radially extending limbs. The ring portion is provided with a screw thread such that it may be supported in the neck of a flask in at least two axially spaced positions with respect to the flask one of which is a sealing position and another of which is a position in which liquid may be poured from the flask passing between the bung portion and the ring portion.



3,809,276
PLASTIC BOTTLE AND CAP CONSTRUCTION
William James Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.
Filed Sept. 27, 1972, Ser. No. 292,650
Int. Cl. B65d 41/06
U.S. Cl. 215—44 8 Claims

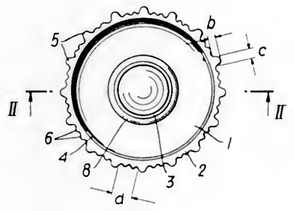


The invention contemplates a bottle and closure-cap construction wherein locking formations hold the parts to secure a liquid-seal closure of the bottle. The nature of the liquid-seal engagement is one of circular line contact, involving a cylinder within a conical concavity, specifically between a relatively thin-walled outwardly flaring upper end of the bottle opening and the lower limit of a cylindrical seal projection on the closure wall of the cap. An axially compliant generally radially extending annular portion connects the lower end of the flared neck part to the rest of the neck and is axially stressed to resiliently load the seal engagement.

3,809,277
SEAL CAP
Ludwig A. Kaltenhauser, D8261 Stadtplatz 21, Tittmoning, Germany, and Alfred F. Tschuggnal, A4690 Resselstrasse 9, Schwanenstadt, Austria
Filed Apr. 21, 1971, Ser. No. 135,831
Claims priority, application Germany, Apr. 30, 1970, 2021372
Int. Cl. B65d 41/22
U.S. Cl. 215—320 12 Claims

The seal cap of a resilient plastic material and comprises a top, an inner annular skirt which depends from said top and an outer peripheral annular skirt which depends from said top

and which is spaced concentrically from said inner annular skirt. The outer annular skirt has a beaded lower edge provided with peripherally spaced apart, radially outwardly



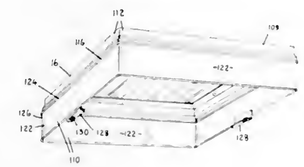
directed projections, which are adapted to support the weight of said cap and tend to bend upwardly under the action of a weight which corresponds to the weight of a filled bottle to which the cap is to be applied.

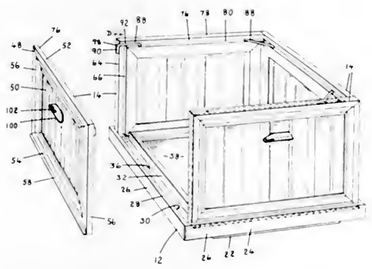
3,809,278

COLLAPSIBLE SHIPPING CONTAINER

Joseph D. Csumrik, Peterborough, Ontario, Canada, assignor to Central Steel Works (Peterborough) Limited, Peterborough, Ontario, Canada

Filed Dec. 21, 1971, Ser. No. 210,531
Claims priority, application Canada, Nov. 2, 1971, 127416
Int. Cl. B65d *7/24, 7/30*
U.S. Cl. 220—4 F **1 Claim**





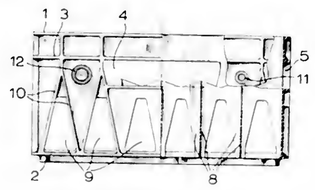
A collapsible rectangular shipping container having a base assembly, four side members and a cover. The container has an erect position for containing goods and a collapsed position in which the component parts are not free to become separated from each other and in which the container may be conveniently stored or transported. The container may be quickly and easily converted between the two positions by hand.

3,809,279

BOTTLE CRATE

Olavi Arjas, Tampere, Finland, assignor to Sarvis Oy, Tampere, Finland

Filed Apr. 4, 1972, Ser. No. 241,030
Claims priority, application Finland, Apr. 7, 1971, 978/71
Int. Cl. B65d *1/24*
U.S. Cl. 220—21 **6 Claims**



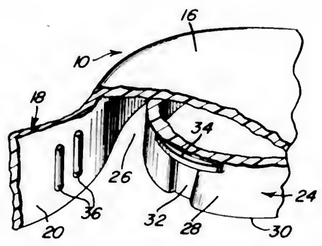
Bottle crate, preferably molded from a synthetic resin material and suitable for handling bottles, e.g. those for beverages, milk and the like. Openings are provided, allowing the bottles in the compartments of the crate to tilt into inclined positions when the crate is stacked on its side. The bottles cannot slip out of the compartments.

3,809,280

CLOSURES FOR CONTAINERS

Wayne Austin Park, Oklahoma City, and Leon Marvin Oswalt, Guthrie, both of Okla., assignors to Cato Oil and Grease Co., Oklahoma City, Okla.

Continuation-in-part of Ser. No. 121,461, March 5, 1971, abandoned. This application Feb. 22, 1972, Ser. No. 228,289
Int. Cl. B65d *41/28, 51/16*
U.S. Cl. 220—42 C **7 Claims**



The present invention relates to improvements in a closure for the opening in a container, said opening having a rim thereabout. The closure comprises a panel section and a first depending integral flange projecting from the panel section defining a socket adapted to snugly receive the container rim. The improvements include a second flange depending from the panel section, coextensive with the first flange and in an inwardly spaced parallel relation thereto. The flanges define a container rim receiving channel about the closure and include an air release means formed in the flanges to enable release of trapped air as the closure is mounted on the container.

3,809,281

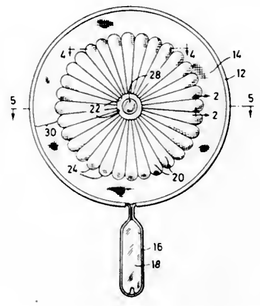
UTENSIL HAVING STABILIZERS FOR PREVENTING SPRAYING WITH FRYING PANS, OR THE LIKE

Kurt-Ulrich Kalkowski, Am Bielberg 3, 5351 Kommern, Germany

Filed Nov. 14, 1972, Ser. No. 306,194
Int. Cl. B65d *51/16, 51/00;* **B01d** *35/00*
U.S. Cl. 220—44 R **12 Claims**

A cover suitable for use with cooking containers to prevent the splattering of grease includes a handled frame carrying a

mesh screen. The screen includes depressions which accommodate thermal expansion and contraction of the screen to re-



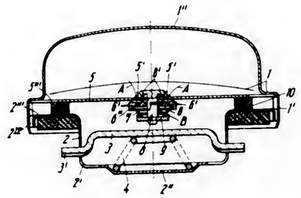
sist the formation of permanent thermally induced deformations in the screen.

3,809,282

CLOSURE COVER WITH PRESSURE RELIEF MEANS

Werner Blau, and Theo Gerdes, both of Langenfeld/Rhineland, Germany, assignors to Blau K.G. Fabrik fur Kraftfahrzeugteile, Langenfeld, Rhineland, Germany

Filed Aug. 3, 1972, Ser. No. 277,801
Claims priority, application Germany, Aug. 5, 1971, 7130127; Aug. 30, 1971, 7133064
Int. Cl. B65d *51/16*
U.S. Cl. 220—44 R **8 Claims**



A sealing cover with pressure relief means for a container such as a petrol tank has a partition with a central hole surrounded by a ring of holes. A rod passes freely through the central hole and has a valve head resting on one side of the partition to cover and seal the central hole. The rod also carries a valve plate resting on the other side of the partition to cover the ring of holes. One or two springs are provided to hold the valve head and plate in sealing positions, and allow them to lift off the partition on the occurrence of a predetermined under or over pressure in the tank, to relieve the said pressure.

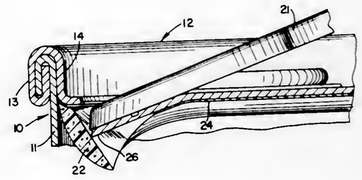
3,809,283

PROTECTIVE SCORE SHIELD FOR EASY OPENING CONTAINER

Alfred W. Kehe, Berkley, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Continuation of Ser. No. 151,381, June 9, 1071, abandoned, which is a continuation-in-part of Ser. No. 884,114, Dec. 4, 1969, abandoned, which is a continuation-in-part of Ser. No. 826,966, May 22, 1969, abandoned. This application July 20, 1972, Ser. No. 273,371
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 **14 Claims**

This disclosure relates to an easy opening container of the type wherein one end has an easy opening end closure including a removable panel portion defined by a score line. The end closure includes pliable band superimposed over the score line and attached to either one or both of the inner or the outer faces of the end closure. Upon removal of the removable panel portion, the band attached to the inner face provides a



protective ledge for the raw metal edge about the opening and the band attached to the outer face provides a protective ledge for the removed panel portion.

3,809,284

REUSABLE PLASTIC SNAP-ON CLOSURE

Roy G. Churan, Oak Lawn, Ill., assignor to Vulcan Plastics Inc., Addison, Ill.

Filed Feb. 3, 1972, Ser. No. 223,139
Int. Cl. B65d *43/10*
U.S. Cl. 220—60 R **1 Claim**

A snap-on type closure which includes, generally, an annular inverted U-shaped channel about its top wall structure into which the upper edge of the open end container is received. This upper edge of the container has a bead or curl on it, and the annular outer wall of the U-shaped channel has interlocking means on its interior surface which interlock with the curl on the container to affix the closure to the container. At least one gripping and pulling handle is affixed to the annular outer wall of the U-shaped channel, for removing it. It has been found that by placing a knee on the top of the closure, gripping the bail normally provided on such containers with one hand, and the handle on the closure with the other hand, a portion of the edge of the closure can be pulled free sufficiently to break the interlocking seal, and once broken, the closure can be pulled or peeled off of the container. Thereafter, the closure can be replaced, with a resulting sealed-tight engagement which is as virtually as good as the original seal.

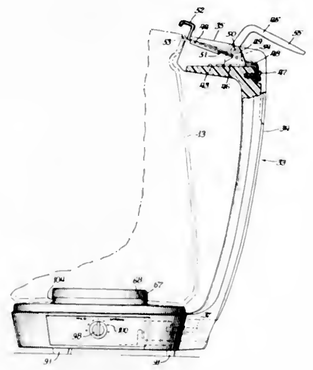
A single handle can be provided, but a pair of handles preferably are provided. Alternatively, with a single handle, an

extended interruption can be provided in the interlocking means on the closure. The second handle and/or the extended interruption permit the closure to be more easily pulled or peeled off the container.

3,809,285
ELECTRIC COFFEE PERCOLATOR

John J. Unger, Elmhurst; Robert J. Augustine, Downers Grove, and Farees U. Khaja, Chicago, all of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Division of Ser. No. 51,193, June 30, 1970, Pat. No. 3,682,089.
This application May 30, 1972, Ser. No. 258,025
Int. Cl. B65d *25/28*
U.S. Cl. 220—94 R **7 Claims**



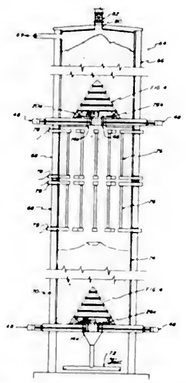
An electric coffee percolator having a glass vessel with an opening in the bottom through which a metallic well for a pump assembly extends. Associated with the well are electric heating elements for both operating the percolator pump and keeping the contents of the vessel warm after coffee making has been completed. The seal between the metallic heater and well portion and the glass vessel is accomplished by an annular gasket which is of sustantial vertical height and includes an undercut at the lower edge thereof to receive and lock the glass vessel portion in sealed engagement with the metallic well portion. All of the functional parts enclosed in the base of the percolator including the thermostat, the main heating element, and the keep warm heater are supported in a unitary assembly which rests upon a plastic base from which the handle is also supported. The upper portion of the handle includes a simple latch which detachably engages the upper edge of the glass vessel, the latch actuating portion being easily accessible to the hand of the user and in its released position being substantially exposed so as to warn the user that the latch is not engaged with the glass vessel.

3,809,286
GRAVITY DISCHARGE APPARATUS

Frank J. Miksitz, Phillipsburg, N.J., assignor to Universal Feeders, Inc., Bethlehem, Pa.

Filed Jan. 7, 1972, Ser. No. 216,105
Int. Cl. B65g *65/70*
U.S. Cl. 222—1 **9 Claims**

Apparatus and method for conveying granular material by gravity assist from an upper zone and a lower zone by means of a horizontal annular plate which is disposed between the two zones, the plate being orbited in a horizontal plane below a fixed shroud so that the material flows downwardly through

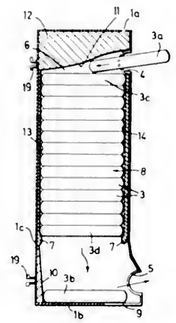


the aperture in the plate along a path which moves in a horizontal plane around the periphery of the aperture.

3,809,287
APPARATUS FOR CLOSED CYCLE DISPENSING OF INDIVIDUAL ITEMS

Wolf Georg Muller-Scherak, Vincenz-Statz Str. 8, 5 Cologne 41, Germany

Filed Sept. 6, 1972, Ser. No. 286,694
Claims priority, application Germany, Sept. 8, 1971, 2144812
Int. Cl. B65g *57/02*
U.S. Cl. 221—66 **5 Claims**



This invention relates to a novel apparatus for the closed cycle dispersing of individual flat items of identical shape stacked in a dispenser, the items being tape magazines or the like, a housing for the stacked items or articles, said housing having opposite end portions and article insertion aperture at one of the end portions and an article discharge aperture at the other of the end portions, projection means adjacent the article discharge aperture for normally restraining movement of the stacked articles therepast but being operative to permit individual article movement to said article discharge aperture, and an insertion gap in the housing defined between an article most adjacent the article insertion aperture and a surface of the housing disposed in opposed relationship thereto, and the insertion gap narrowing in a direction away from the article insertion aperture whereby upon the insertion of an article into the gap, the stack of articles is progressively urged toward the article discharge aperture causing an article most adjacent thereto to pass the projection means for dispensing through the article discharge aperture.

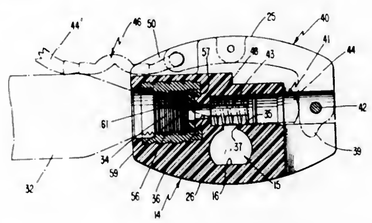
ERRATUM

For Class 222—1 see:
Patent No. 3,809,286

3,809,288
INFLATION MANIFOLD

Glenn H. Mackal, 83 Chestnut Ridge Rd., Saddle River, N.J.

Filed Mar. 26, 1973, Ser. No. 344,749
Int. Cl. B63c *9/24*
U.S. Cl. 222—5 **3 Claims**

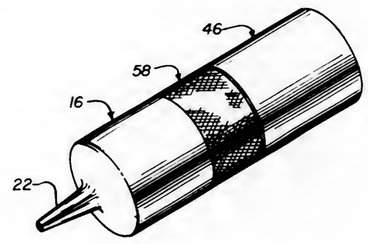


A manifold for use with an inflatable article such as a life vest, life raft, and the like, an improved handle for a lanyard for operating the capsule containing compressed gas mounted on the manifold, a method of and an apparatus for forming such lanyard handle and securing it to the lanyard cord, and an improved means for securing the lanyard cord to the capsule-piercing lever mounted on the manifold. The manifold body is preferably an integral molding of strong and impact-resistant plastic material having an internally threaded metal sleeve therein receiving the threaded neck of a compressed gas-containing capsule. The body of the manifold is so formed as to provide a continuous passage within the molded plastic material from adjacent the outer end of the capsule and within the metal insert sleeve into the chamber formed within the plastic body of the manifold, thereby eliminating what might otherwise be one or more possible leakage paths for the article-inflating gas as it travels from the capsule into the inflatable article.

3,809,289
MIXING CONTAINERS

Henry Komendowski, Evanston, Ill., assignor to Automatic Liquid Packaging Inc., Elk Grove Village, Ill.

Filed Dec. 20, 1971, Ser. No. 210,005
Int. Cl. B67b *7/24*
U.S. Cl. 222—83 **10 Claims**

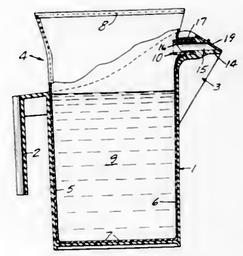


The invention relates to a combination in which two containers include a first and a second product respectively, and a coupler which functions both to affix the two containers together and to unseal one or both containers to permit the products to be mixed and then dispensed therefrom.

3,809,290
LIQUID CONTAINING AND DISPENSING DEVICE

Justin M. Schmit, Pompano Beach, Fla., assignor to Artic Pac, Inc., Pompano Beach, Fla.

Filed Oct. 12, 1972, Ser. No. 296,834
Int. Cl. B67b *7/28*
U.S. Cl. 222—88 **13 Claims**

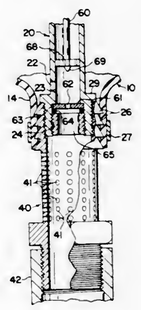


A liquid containing and dispensing device consisting of a flexible sealed liquid-containing pouch mounted within the confines of a rigid wall container having a pouring spout characterized by a bayonet-ended tubular element constructed and arranged to perforate a portion of the side wall of the pouch which is secured to and extends across the open end of a tubular member disposed within the confines of the pouch, to thereby facilitate dispensation of its contents. The pouch is capable of being readily removed and replaced with a similar pouch.

3,809,291
LIQUID PROPORTIONING SYSTEM

Chester A. Purdy, R.F.D. No. 1, Belmont, Wis.

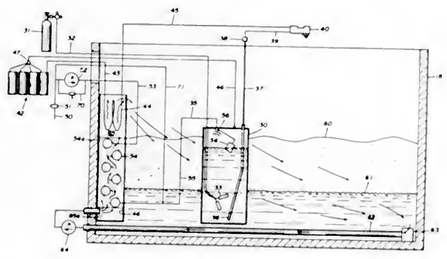
Filed Sept. 5, 1972, Ser. No. 286,200
Int. Cl. B67d *5/60*
U.S. Cl. 222—145 **15 Claims**



Liquid proportioning apparatus that provides equalized hydrostatic pressure on two separate bodies of liquid and equalizes their temperature, throughout wide variations of pressure and temperature to which one of the liquids may be subjected, and that utilizes separate means for metering the two liquids in a predetermined ratio regardless of such variations in temperature and pressure, and with no moving parts. Accuracy of proportioning results from the use of hydrodynamically identical orifices (e.g., identical in both size and configuration) in separate metering means, the ratio of the number of such orifices in the separate metering means determining the proportioning of the liquids metered thereby. In specific embodiments for supplying medicated beverage to farm animals, a collapsible bag containing a concentrated medicament is at least partially submerged in water main-

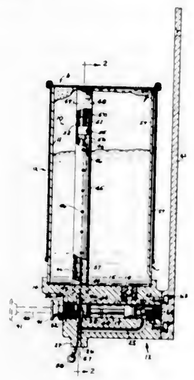
tained under pressure so that the two liquids are in heat exchange and pressure equalizing relationship with each other. The medicament and water, at points thus substantially equalized in temperature and pressure, are separately metered from the bag and reservoir by hydrodynamically identical orifices and flow together to a drinking trough.

3,809,292
STADIUM FILLER
Jack J. Booth, and William C. Branch, both of P.O. Box 507, Carrollton, Tex.
Filed Jan. 31, 1972, Ser. No. 221,940
Int. Cl. B67d *5/62*
U.S. Cl. 222—146 C **9 Claims**



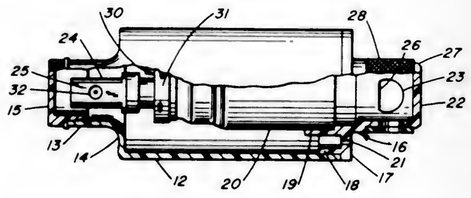
A high volume stadium type filler for delivering substantially uniform chilled carbonated beverages at high volume wherein an ice chest is provided with a carbonator tank therein, a drain in the bottom near one end thereof leading through a pump and a baffled chamber extending the height of and in the other end thereof with water cooling coils in the chamber leading from a pressurized source to the carbonator with means for delivering water from the bottom of said carbonator to a dispensing valve simultaneously with syrup, both under CO_2 gas pressure.

3,809,293
DISPENSER HAVING AIR VENT CLEAN-OUT
Albert R. Chappell, Jerseyville, Ill., assignor to The Metalife Company, Wentzville, Mo.
Filed May 10, 1973, Ser. No. 358,920
Int. Cl. B67d *5/42*
U.S. Cl. 222—148 **1 Claim**



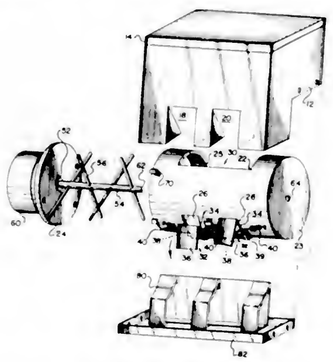
For using dispensers of the type in which a first can of semi-fluid hand cleaner or similar viscous substance is filled into a dispenser sleeve, and then a second can of the substance is inverted and applied telescopingly over the sleeve, accumulation of the substance in the internal vent tube of a large size dispenser may make it difficult to remove and replace cans, and may interfere with air inflow necessary for dispensing. In the present invention, air inflow, to permit removal of such a first can, is assured by a pull-down piston in the vent tube to drive any clogging substance out through the nozzle passage. On applying a second full can over the sleeve, the cleaned tube permits easy expulsion of intervening air. Even while the tube is clogged, dispensing may proceed normally; a groove leading downward on the outer side of the sleeve permits continuing inflow of air.

3,809,294
DISPENSING LUNG CONTACTING POWDERED MEDICAMENTS
William Lee Torgeson, Minneapolis, Minn., assignor to American Cynamid Company, Stamford, Conn.
Filed June 27, 1973, Ser. No. 374,176
Int. Cl. A61m *15/02*
U.S. Cl. 222—182 **3 Claims**



A combination aerosol container carrier and deceleration chamber carries an aerosol container in one configuration and in another dispenses powdered medicament from the aerosol container with inhaled particles predominantly below 10 microns in size at a low velocity which gives a comparatively high degree of topical effect in the lungs as compared with systemic effect from powders absorbed in the mouth. The lungs may be used as an effective administration route for systemic medicament effect.

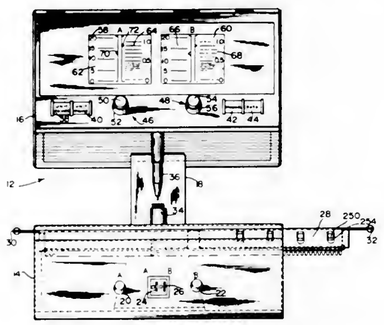
3,809,295
ICE CUBE DISPENSING MACHINE
Michael Vitencz, 182 Hollywood Ave., Fairfield, N.J.
Filed Oct. 30, 1972, Ser. No. 301,979
Int. Cl. B67d *5/64*
U.S. Cl. 222—183 **8 Claims**



An ice cube dispensing machine is provided which is adapted to store ice cubes without having the cubes sticking to each other and to dispense one or more ice cubes at a time. The ice cube dispensing machine includes a storage member having a chamber therein for storing ice cubes and an inlet and outlet, a rotatable shaft, horizontally disposed within said chamber driven by motor means, and having a plurality of angular bars extending therefrom, for keeping ice cubes from sticking to one another and moving the ice cubes to the outlet in said storage member. Cover means are provided for the outlet in said storage member, which are adapted to move between open and closed positions, for dispensing ice cubes or for retaining ice cubes in said chamber, respectively.

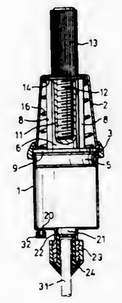
The ice cube dispensing machine is portable or may be secured to a shelf or table top or other support and employed in the home or in commercial establishments such as restaurants or bars, for dispensing ice cubes.

3,809,296
DISPENSING APPARATUS WITH BI-DIRECTIONAL VALVE
Michael E. Croslin, Forest Hills, N.Y., assignor to Grumman Data Systems Corporation, Bethpage, N.Y.
Division of Ser. No. 883,573, Dec. 9, 1969, Pat. No. 3,665,980.
This application Jan. 3, 1972, Ser. No. 214,849
Int. Cl. G01f *11/32*
U.S. Cl. 222—309 **1 Claim**



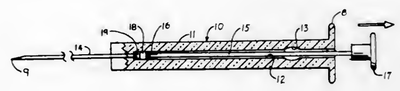
A dispensing apparatus is provided which has various modes of operation including automatic, manual and prime modes. The dispensing apparatus includes coarse and fine metering devices consisting of cylinders with pistons displaceable therein, the displacement of the pistons being controlled by adjustable switches in turn controlling electronic circuits which reverse the direction of movement of the pistons. The metering devices are associated with dispensing nozzles beneath which can be stepped a tray in which are positions for vials or other such receptacles. A sensing switch is provided to detect the presence or absence of receptacles in the aforesaid positions to prevent attempts to dispense fluids into positions in which there are no receptacles. The tray is electronically controlled for automatic or manual modes of operation and a cam control switch is provided which determines whether the tray has been stepped to discrete positions for which dispensing operations might be effected. The apparatus employs a bi-directional, three port valve for enabling the withdrawal of one or more fluids from a source and for dispensing the thusly withdrawn fluids into the aforenoted receptacles. The dispensing apparatus is controlled by a logic circuit involving combinations of flip flops, OR gates and AND gates, and further including decade counters for counting the number of receptacles filled and comparing the count with a selected number in an electronic comparator whereby operation can be terminated after an appropriate number of cycles. The selected quantities for dispensing are indicated on conveniently positioned indexes.

3,809,297
PISTON AND CYLINDER DEVICE
John H. Poulten, Upminster, England, assignor to John Poulten Limited, Barking, Essex, England
Filed Feb. 13, 1973, Ser. No. 332,220
Claims priority, application Great Britain, June 21, 1972, 29152/72
Int. Cl. G01s *11/06*
U.S. Cl. 222—309 **7 Claims**



The invention is a device for filling and emptying pipettes which is particularly applicable to situations where it is desired to take a large number of samples each of which is of identical volume. The device comprises a piston and cylinder arrangement which is arranged to be releasably sealed to the end of a pipette, the device being actuated by depressing a piston rod against the action of a spring. The effective stroke of the piston is variable, so as to adjust the amount of liquid induced into the pipette, by arranging the piston rod in two parts which are in screw-threaded engagment one with the other, whereby the length of the piston rod can be altered.

3,809,298
SYRINGE
Rano J. Harris, Sr., and Rano J. Harris, Jr., both of Baton Rouge, La., assignors to Precision Sampling Corporation, Baton Rouge, La.
Filed July 18, 1973, Ser. No. 380,461
Int. Cl. A61m *5/24*
U.S. Cl. 222—386 **9 Claims**

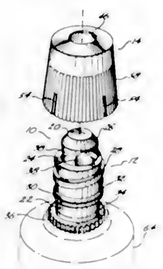


A liquid syringe, particularly a microsyringe, of a type suitable for separating a trapped gas from a liquid, and for dispensing small, preselected, accurately measured quantities of the liquid specimen into a media, e.g., a G.C. or mass spectrograph. The syringe is characterized by a barrel, a tubular needle mounted on the forward end of the barrel and a reciprocable plunger mounted on the opposite end of the barrel. The bore through the needle and barrel are communicated one with the other, and the bore of the barrel is provided with an opening of cross-section larger than the cross-section of the bore forward of the enlarged opening. The enlarged opening permits separation of gas from a liquid specimen. By withdrawal of the forward end of the plunger rearwardly into this opening, gas enters into the enlarged opening, and on forward movement of the plunger the liquid is separated forward of the plunger tip and gas is transmitted rearwardly through the annulus between the plunger and inside wall of the barrel rearwardly of the enlarged opening.

3,809,299
CAPTIVE DISPENSER CAP

Norma Sand, 19301 2nd, N.W., Seattle, Wash., and Per Sand, P.O. Box 644, Blaine, Wash.

Filed Jan. 9, 1973, Ser. No. 322,174
Int. Cl. B67d 3/02
U.S. Cl. 222—521 6 Claims

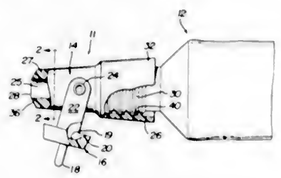


A hollow core with one end closed and the other end opening into and joined to a container, the core has an area of reduced cross-section, then is beveled inward to the closed end, at least one opening extends through the side of the reduced area, a shell mounted to the core has an opening at its outer end, the sides of which contact the core beveled surface when the shell is fully inserted to form a seal and means to provide for movement between open and closed position of the shell and means for limiting the outward travel of the shell.

3,809,300
CLOSURE DEVICE FOR DISPENSING TUBES

Theodore B. Russell, 2190 N.E. 124th St., North Miami, Fla.

Continuation-in-part of Ser. No. 149,574, June 3, 1971, abandoned. This application Nov. 29, 1972, Ser. No. 310,252
Int. Cl. B67d 3/00
U.S. Cl. 222—545 4 Claims



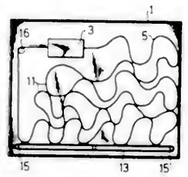
A closure device for closing necked dispensing tubes of the toothpaste type is provided, said device having major features which make it exceptionally convenient to use as it is constructed to be quickly opened or closed with a single hand, is non-losable from the tubes in either open or closed positions, and is semi-universal in being adapted to fit a variety of ordinary squeeze tubes of different neck diameters and types.

3,809,301
STORE FOR BAND-SHAPED INFORMATION CARRIERS

Gunter Feler; Hansjorg Koch, both of Bonlanden, and Walter Suchy, Stuttgart, all of Germany, assignors to Franz Morat GmbH, Stuttgart-Vaihingen, Germany

Filed Jan. 24, 1973, Ser. No. 326,268
Claims priority, application Germany, Jan. 27, 1972, 2203715
Int. Cl. B65h 25/00
U.S. Cl. 226—25 18 Claims

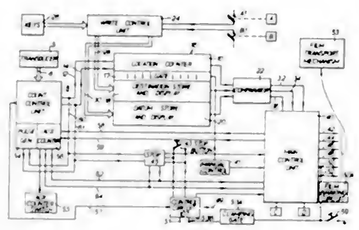
An enclosed store for an endless band-shaped information carrier in which a movable endless conveyor belt is arranged so as to support and assist movement of the lowermost loops of the stored endless carrier toward the outlet of the store or toward a means responsive to the information on said carrier whereby possible breakage and binding of the carrier is diminished.



3,809,302
INFORMATION RETRIEVAL APPARATUS

Brian R. Malyon, Feltham, England, assignor to Selectro-Micro Company Limited, London, England

Filed May 8, 1973, Ser. No. 358,464
Claims priority, application Great Britain, May 9, 1972, 21476/72
Int. Cl. B65h 23/18
U.S. Cl. 226—33 11 Claims

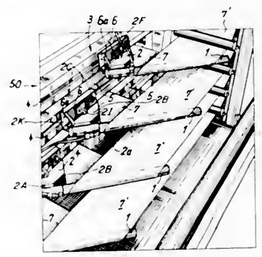


Information retrieval apparatus, particularly for locating a desired frame on a microfilm strip, comprises a photo-electric transducer for detecting the passage therepast of markers on the film strip, each marker being associated with a particular frame, a counter for counting the corresponding signals produced by the transducer, storage means for storing the serial number of a frame to be brought to a reading position, comparing means for continually comparing the count of the counter with the stored serial number, and means for arresting the film movement when the comparison shows equality. The apparatus includes means for slowing the film at a predetermined number of markers before the marker corresponding to a selected frame and means for varying the predetermined number in accordance with the size of the frames on the film strip being used. The apparatus also includes means for selecting from the transducer output a signal representative of the leading edge of the marker, according to the direction of motion of the film, and means operative to halt the film with the transducer located midway between the ends of the selected marker.

3,809,303
DEVICE FOR GUIDING PRINTED PAPER WEBS FROM A PRINTING MACHINE

Heinrich Brunner, Zofingen, Switzerland, assignor to Maschinenfabrik Wifag, Bern, Switzerland

Continuation-in-part of Ser. No. 32,696, April 28, 1970, abandoned. This application May 12, 1972, Ser. No. 252,606
Claims priority, application Switzerland, May 2, 1969, 6719/69
Int. Cl. B41f 13/06
U.S. Cl. 226—197 9 Claims

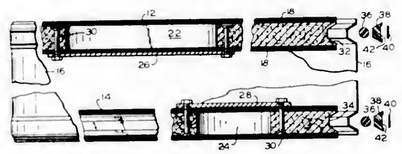


A device for guiding printed paper webs from a printing machine includes a slide assembly mounted in a groove formed in and extending along the length of one side of the machine at a location directly above or below a passage through which the paper web can be directed laterally of the printing machine. The slide assembly includes a socket in which a guide rod is mounted and extends obliquely outwardly from one side of the machine. After the paper web moves through the passage in the side of the machine, it passes over the guide rod and its path of travel is changed so that it extends substantially parallel to the side of the machine through which it has passed.

3,809,304
REUSABLE CONTAINER FOR BULK MATERIALS AND OTHER ITEMS

Robert D. Flanders, 18040 Lower Boones Ferry Rd., Tigard, Oreg.

Filed May 15, 1972, Ser. No. 253,271
Int. Cl. B65d 5/36, 7/42
U.S. Cl. 229—5.7 14 Claims

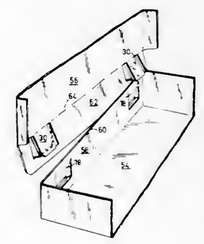


A container for shipping loose bulk materials, packaged products and other items. One embodiment of the container comprises a collapsible cylindrical wall portion with a pair of rigid disc-shaped head members capping the top and bottom ends of the wall portion. When the container is full, its top and bottom heads are kept apart by the container's contents. As the container is emptied its flexible wall portion gradually collapses until the contents are completely emptied, whereupon the collapsed container can be shipped in compact form back to its point of origin for reuse. The top and bottom heads of the container are detachable from the flexible wall portion so that any part of the container may be easily replaced if damaged. A second embodiment of the container is similar to the first except that the wall portion comprises a bendable sheet metal material wrapped around the top and bottom heads, with the edges of the sheet material detachably joined together. After being emptied, this latter container can be disassembled and its wall portion laid flat for compact shipment to its point of origin for reuse.

3,809,305
COUPLING OR LOCK BETWEEN TWO SHEETS OF DIFFERENT MATERIALS SUCH AS CARTON AND PLASTIC

Karl Rune Persson, Halmstad, Sweden, assignor to Sprinter Pack AB, Halmstad, Sweden

Filed Nov. 1, 1972, Ser. No. 302,802
Claims priority, application Switzerland, Nov. 1, 1971, 13930
Int. Cl. B65d 45/14
U.S. Cl. 229—45 10 Claims

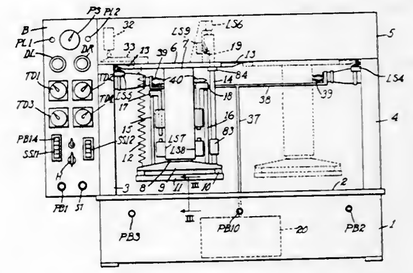


A coupling or lock connecting a first carton or plastic sheet part with a second plastic sheet part. The first part has a U-shaped slit to form a locking tongue and the second part has a recess having one end open to receive the locking tongue. The opposite end and side walls of the second part from abutments for the end edge and side edges of the locking tongue. The recess provided in one side of the second part forms a projection on the opposite side of the second part. The opening formed by the slit defining the locking tongue is moved over the projection so that the walls of the recess will be clamped between the edges of the opening and the corresponding edges of the locking tongue.

3,809,306
APPARATUS FOR ROUNDING WELDED EDGE SEAMS

Anton Muhlbach, Frankfurt am Main-Sossenheim, and Gerhard Lauckhardt, Frankfurt am Main-Rodelheim, both of Germany, assignors to USM Corporation, Boston, Mass.

Division of Ser. No. 49,111, June 23, 1970, Pat. No. 3,673,300. This application Mar. 2, 1972, Ser. No. 231,130
Int. Cl. B23k 1/20
U.S. Cl. 228—5 2 Claims



An apparatus for producing rounded edges on cuts made through welded seams in layers of material by a die placed on

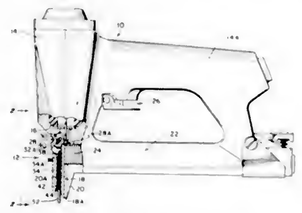
the material in which the die is first pressed into but not through the seams while the weld is soft to roundingly deform the material adjacent the die. After solidification of the weld, further die pressure cuts the material to form a welded edge seam having rounded edges.

3,809,307

SAFETY ASSEMBLY FOR FASTENER DRIVING TOOL

Oscar A. Wandel, Mundelein, and Frank Mullaney, Villa Park, both of Ill., assignors to Fastener Corporation, Franklin Park, Ill.

Filed Feb. 23, 1973, Ser. No. 335,348
Int. Cl. B25c *7/00*
U.S. Cl. 227—8 **18 Claims**



A safety mechanism particularly suited for smaller fastener driving or applying tools includes a mechanical latch carried on the nosepiece structure of the tool with a part of the latch disposed within the drive track immediately below the end of the driver blade. The latch is coupled to a workpiece engaging member which retracts the latch to permit driver blade movement when the tool is placed adjacent a workpiece. If the tool is operated before being placed against a workpiece, the driver blade engages and locks the latch in latching position so that it cannot be retracted or released by thereafter placing the tool against the workpiece. The illustrated embodiments include both positive and indirect cam type couplings between the latch and the workpiece engaging member as well as pivoting and sliding latches.

ERRATUM

For Class 227—8 see:
Patent No. 3,809,307

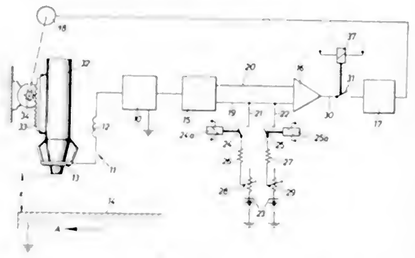
3,809,308

MACHINE FOR MAINTAINING CONSTANT THE DISTANCE OF A CUTTING OR WELDING TORCH FROM THE WORK PIECE

George Roeder, Frankfurt/Main, and Claus Schmidt, Ebersteinburg, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt/Main, Germany

Division of Ser. No. 62,440, Aug. 10, 1970, Pat. No. 3,736,647.
This application Feb. 16, 1973, Ser. No. 333,330
Claims priority, application Germany, Aug. 16, 1969, 1941728
Int. Cl. B23k *5/00*
U.S. Cl. 228—9 **4 Claims**

In a torch cutting or welding machine an apparatus for maintaining constant the distance of the cutting or welding torch from a work piece being cut or welded in which the sensing electrode is secured to the torch and forms a capacitance with a surface portion of the work piece, resonant and discriminating circuits producing a predetermined voltage corresponding to a predetermined value of the capacitance and such voltage operating a positioning motor which positions the torch to establishing the original capacitance value corresponding to a predetermined distance between the torch and the work piece surface, and device for providing a signal to compensate the signal portion from the discriminator circuit in response to a change in the capacitance due to a



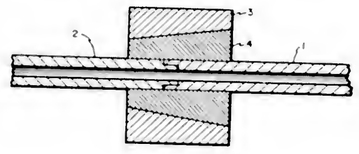
change in the area of the sensing surface of the sensing electrode projected on the surface which otherwise would cause a further false positioning of the torch.

3,809,309

DIFFUSION BONDING APPARATUS

Roy I. Batista, Palos Verdes Estates, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Division of Ser. No. 63,705, Aug. 14, 1970, Pat. No. 3,703,032.
This application Sept. 13, 1972, Ser. No. 288,533
Int. Cl. B23k *19/00*
U.S. Cl. 228—44 **2 Claims**



A diffusion bonding process may be performed by heating a joint of two metal tubes in tight restriction. The difference in the coefficient of thermal expansion between the metal tubes and a retaining sleeve and wedge causes radial pressure which diffusion bonds the tubes at the joint.

ERRATA

For Classes 229—5 and 229—45 see:
Patents Nos. 3,809,304 and 3,809,305

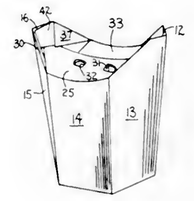
3,809,310

HEXAGONAL CONTAINER FOR FOOD PRODUCTS OR THE LIKE

Thomas VanderLugt, Jr., Kalamazoo, Mich., assignor to Brown Company, Kalamazoo, Mich.

Filed Mar. 1, 1971, Ser. No. 119,593
Int. Cl. B65d *5/34*
U.S. Cl. 229—26 **10 Claims**

A carton for food products or the like of generally hexagonal shape formed from an integral blank of a foldable material such as paperboard. The carton is provided with a self-locking, foldable end closure which is connected to side panels of the carton and which comprises a pair of overlapping closure flaps hingedly connected to opposing side panels which lock in place when folded downwardly by the interaction of a pair of locking tabs and retaining flaps therefor. The locking tabs are provided on one of the closure flaps and the retaining flaps are provided on a pair of web means that are associated with the other of said closure flaps and each web means hingedly connected between the closure flap and a side



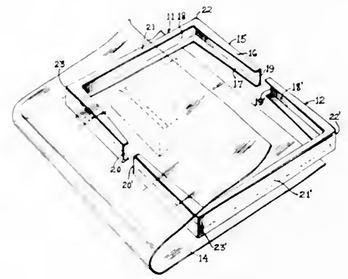
panel adjacent to the side panel connected with the closure flap. An integral blank from which the carton can be erected is also disclosed.

3,809,311

BOOK PROTECTOR AND MAILER

Seymour F. Fohrman, 8242 McCormick Blvd., Skokie, and John F. Chmela, 7256 W. Davis St., Morton Grove, Ill.

Filed May 17, 1972, Ser. No. 250,835
Int. Cl. B65d *65/10, 85/30*
U.S. Cl. 229—87 R **3 Claims**



A light-weight molded plastic book protector and mailer consisting of rigid book edge embracing members secured about the periphery of the book by a transparent envelope formed from a transparent sheeting.

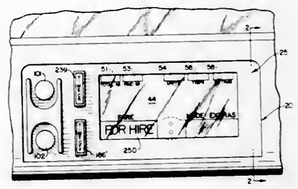
3,809,312

PUSHBUTTON TAMPER PROOF TAXI-METER

Edward C. Warrick; Leo M. Walch, Jr., and Dennis R. Hammerle, all of Pittsburgh, Pa., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed May 23, 1973, Ser. No. 363,131
Int. Cl. G07b *13/00*; **G06c** *5/02*
U.S. Cl. 235—30 R **19 Claims**

A taximeter in which the metering apparatus and a control circuit for the metering apparatus are enclosed in a tamper-proof housing, in which the control circuit is switch operated to selectively condition the metering apparatus to prevent and provide for the registration of a fare, in which tampering with circuit connections between the taxicab's battery and the control circuit and/or with circuit connections between one or more optional passenger detecting switch devices and the control circuit causes a shutter to conceal one or more of the taximeter's registers, in which the passenger detecting switch devices are effective, upon detecting the presence of a pas-



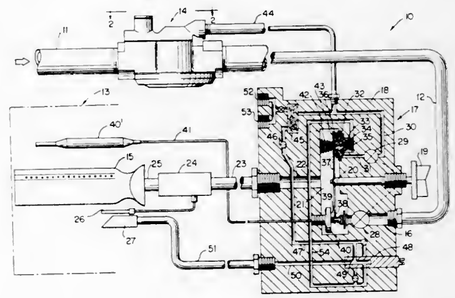
senger, to render the control circuit effective to place the metering apparatus in a hired condition for registering a fare in the event that the driver fails to initiate operation of the meter upon accepting a passenger, in which the control circuit is switch operated for each hired setting to enable the driver to incrementally dispense a preset amount of free waiting time which is not charged to the passenger when the taxicab is held up by traffic or other conditions, and in which the clock or time drive of the meter is utilized to time the free waiting time period.

3,809,313

FUEL CONTROL SYSTEM AND PRESSURE REGULATOR CONSTRUCTION THEREFOR AND METHOD FOR OPERATING THE SAME

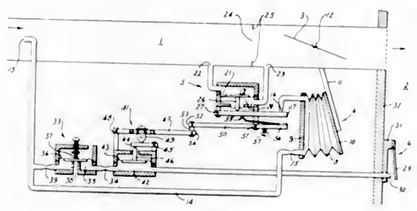
Charles D. Branson, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 18, 1972, Ser. No. 298,521
Int. Cl. F23n *5/06*
U.S. Cl. 236—15 A **13 Claims**



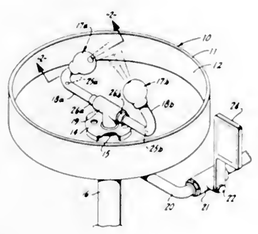
A fuel control system for a cooking apparatus having a source of fuel, main burner means and pilot burner means. A first pressure regulator for regulating the pressure of the fuel delivered from the source to the main burner means and a second pressure regulator for regulating the pressure of the fuel delivered from the source to the pilot burner means for both the operation of the standby flame means of the pilot burner means and the operation of the heater flame means of the pilot burner means independently of the pressure regulation of the fuel for the main burner means.

3,809,314
SELF-POWERED VARIABLE VOLUME AIR DAMPER CONTROL
Roger P. Engelke, 629 Rome Ave., Rockford, Ill., and Marvin H. Zille, c/o Barber-Colman Company, Rockford, Ill.
Continuation of Ser. No. 190,914, Oct. 20, 1971, abandoned.
This application Mar. 21, 1973, Ser. No. 343,219
Int. Cl. F24f *13/10*
U.S. Cl. 236—49 8 Claims



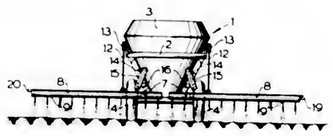
A self-powered control operates a damper to regulate volume flow of air from a duct into a conditioned space solely as a function of a sensed condition regardless of air supply pressure.

3,809,315
EYEWASH FOUNTAIN AND NOZZLE STRUCTURE THEREFOR
Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Fountain Company, Berkeley, Calif.
Filed Oct. 4, 1972, Ser. No. 294,863
Int. Cl. A61h *33/04*
U.S. Cl. 239—31 8 Claims



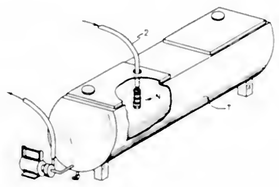
An eyewash fountain and nozzle structure therefor that are especially useful in industrial and laboratory environments to provide a water discharge suitable for flooding the eyes of a workman to flush irritants and injurious matter therefrom. Use of such fountains is mostly sporadic and occasional so that water is ordinarily absent from the nozzle structure and supply conduit leading thereto at the start of each use either because of evaporation therefrom or, in the case of a freeze-proof fountain, because of the self-draining characteristics thereof. The fountain has a flow control device interposed in the water flow circuit to maintain the volumetric flow of water to the nozzle structure relatively independent of supply line pressure and to prevent surging of the water discharge from the nozzle structure. The nozzle structure has a large chamber provided with spaced apart inlet and outlet openings, and a diffuser interposed between such openings in alignment wtth the inlet intercepts any stream of water injected into the chamber to reduce its momentum and convert the discharge of water through the outlet into a lower-energy reduced-velocity flow.

3,809,316
MACHINE FOR THE DISTRIBUTION OF GRANULATED AND POWDERED MATERIALS
Heinz Dreyer, Hasbergen-Gaste, Germany, assignor to Amazonen-Werke, H. Dreyer, Postfach, Gaste, Germany
Filed Nov. 29, 1972, Ser. No. 310,492
Claims priority, application Germany, Dec. 8, 1971, 2160751
Int. Cl. B05b *1/20*
U.S. Cl. 239—167 11 Claims



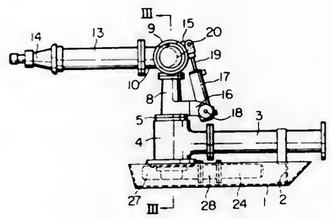
A farm machine such as a planter having pivotably mounted side booms for distribution of, for example, seeds. A lifting system is provided for pivoting the booms. Stop means are provided for limiting upward pivoting of the side booms to a small angle above the horizontal for accommodating the making of turns by the machine. The stop means are disengageable, and when the stop means are disengaged, the booms can be pivoted upwardly beyond said small angle to a transport position.

3,809,317
ROTATABLE SPRAY NOZZLE ASSEMBLY
Lloyd F. Bender, Rt. 2, Hayward, Wis.
Filed Mar. 24, 1972, Ser. No. 237,738
Int. Cl. B05b *3/06*
U.S. Cl. 239—251 10 Claims



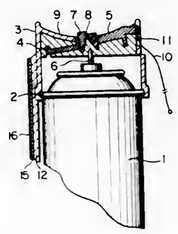
A rotatable spray nozzle assembly for cleaning the interior of a bulk liquid storage tank or the like including a rotatable nozzle member and a stationary inner, central member which together define two interior chambers separated by an automatically operable valve. Water pressure acts first in one chamber to eject water through apertures of the nozzle member, and then when a sufficient head of pressure is built up through the apertures to effect a spraying action, the valve opens automatically to cause pressurization in the second chamber and consequent rotation of the device by means of a stream of fluid directed at an angle to a radius of said nozzle member.

3,809,318
MONITOR FOR DIGGING COAL
Masami Yamamoto, Tokyo, Japan, assignor to Mitsui Mining Company, Limited and Nihom Kikai Kogiyo Co., Ltd., both of Tokyo, Japan
Filed Oct. 31, 1972, Ser. No. 302,503
Claims priority, application Japan, Nov. 12, 1971, 46-90435
Int. Cl. E21c *45/00*
U.S. Cl. 239—273 4 Claims



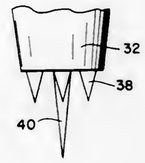
The present invention relates to a monitor used in coal mines for digging coal. The impact of pressured water against a coal face through the nozzle of the monitor effects the coal digging operation. In working the coal face, coal thrown out from the coal face will clash against the monitor, and falling coal lumps will bury the monitor thus decreasing the efficiency of coal digging operation, and the known type of monitor has suffered damage from such severe conditions. According to the present invention, the above impediment has been for the most part eliminated by virtue of the novel constructions wherein the cylinder for raising and lowering the nozzle of the monitor is mounted just behind the monitor while the unit for turning the nozzle of the monitor is disposed under main water supply pipe and is received and closed in a housing. This construction has further advantages in that the full height of the monitor is markedly decreased and in that the stability thereof is greatly increased.

3,809,319
WALL AEROSOL SPRAY
Eiichi Kimura, 198 banchi 3 chome Kamifukushimakita, Osaka, Japan
Filed June 1, 1973, Ser. No. 366,131
Claims priority, application Japan, Oct. 27, 1972, 47-107075
Int. Cl. B05b *15/06*
U.S. Cl. 239—274 2 Claims



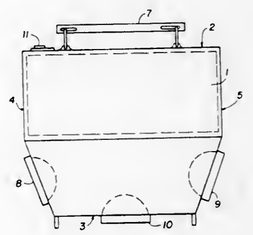
This invention relates to an improvement in a wall aerosol spray having a hanger attached to the cap body, which is suspended from or fixed on a pillar or a wall for spraying aerosol products for the purpose of deodorizing a lavatory or a compartment giving off an offensive smell.

3,809,320
CUTTING TORCH
Edwin K. Taylor, Oklahoma City, and James V. Boyd, Jones, both of Okla., assignors to Sooner Products Company, Bristow, Okla.
Filed Mar. 21, 1973, Ser. No. 343,193
Int. Cl. B05b *7/06*
U.S. Cl. 239—416.4 5 Claims



In conventional oxygen-fuel cutting torches there is a central orifice through which oxygen passes when the oxygen valve is opened, and there are a plurality of smaller orifices coaxial with the central orifice through which a controlled mixture of oxygen and fuel passes which provides a preheating flame to heat the work to a kindling temperature so that the oxygen will cause it to burn. This invention provides a controlled bypass means between the output of the mixer in which the fuel and oxygen are combined, to pass this mixture into the center orifice during the period the oxygen is not being used. Thus a larger central orifice is provided so that a large preheat flame is provided at the center of the torch.

3,809,321
FLASHLIGHT UNIT
Sten I. Rundberg, Grand Valley, Colo., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed May 16, 1973, Ser. No. 360,792
Int. Cl. F21l *7/00*
U.S. Cl. 240—10.63 2 Claims

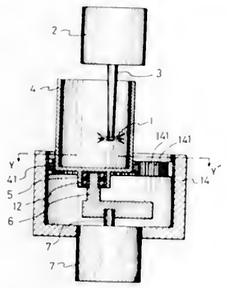


A flashlight unit comprises a housing having upper, lower, front and rear sides. A battery is provided in the housing. A handle is mounted on the upper side of the housing. A plurality of lamps are mounted in the front, rear and lower sides. A multiposition switch in the housing has an actuating member at a side of the housing. A circuit in the housing connects the battery, the switch and the lamps in a manner whereby any desired combination of lamps is selectively actuated by the switch.

3,809,322
MIXER

Shigeo Hirosawa, 22-25 Nishikojiya 2-chome, Ohtaku, Tokyo, Japan

Filed Apr. 28, 1972, Ser. No. 248,484
Int. Cl. B02c 18/10
U.S. Cl. 241—46.17 8 Claims



A mixer devised to rotate an agitating container which is internally provided with a rotary agitating blade along a circular orbit while controlling said agitating container from self-rotation in its circumferential direction when said rotary agitating blade is rotated inside said agitating container.

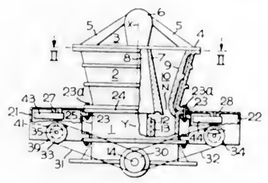
3,809,323

Patent Not Issued For This Number

3,809,324
GYRATORY CRUSHER WITH EXTERNAL DYNAMIC BALANCING ASSEMBLY

Eugene B. Cook, Appleton, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 10, 1972, Ser. No. 305,424
Int. Cl. B02c 2/04
U.S. Cl. 241—210 4 Claims

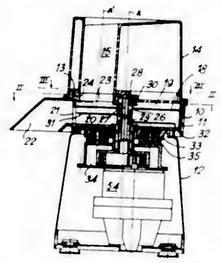


A gyratory crusher, with externally mountable dynamic balancing means, is disclosed having a lower frame, a stationary upright upper frame mounted on the lower frame, and a generally conical crushing head arranged within a concave mounted within the upper frame to define a crushing chamber between the concave and the head. The head is supported by the lower frame and driven to gyrate around a central axis through the upper frame. A pair of upright balance shafts are provided and arranged with one on each of opposite sides of the crusher and the balance shafts are driven to rotate in synchronism with the gyratory movement of the head around the axis of the concave. A pair of balance weights are provided with one balance weight attached to each balance shaft to rotate therewith. The balance weights each have a center of gravity offset from the balance shaft to counterbalance forces generated by the gyratory movement of the head about the upper-frame axis.

3,809,325
FOOD-COMMINUTION DEVICE

Paul Marrie, Dijon, France, assignor to S.A.R.L. Etud, Zone Industrielle, Quetigny, France

Filed May 10, 1972, Ser. No. 251,970
Claims priority, application France, Dec. 30, 1971, 71.47501
Int. Cl. B02c 18/12
U.S. Cl. 241—278 R 8 Claims

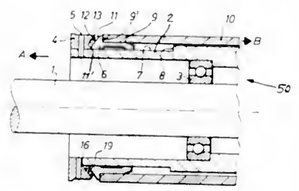


A food chopper has a power base from which a drive shaft extends upwardly. A receptacle provided with a lateral outlet opening is mounted on this base and forms an upwardly open cylindrical chamber around the shaft. A replaceable cutting unit fits within this chamber and has levels, e.g. for cutting the foodstuffs and ejecting the cut product centrifugally or for two cutting stages. A cover formed with a vertical feed well fits over this unit and closes a safety switch which permits the motor in the base to operate.

3,809,326
BOBBIN SUPPORT CHUCK

Olivier Wust, Seuzach, Switzerland, assignor to Maschinenfabrik Rieter AG., Winterthur, Switzerland

Filed Oct. 19, 1972, Ser. No. 299,025
Claims priority, application Switzerland, Oct. 22, 1971, 15379/71
Int. Cl. B65h 75/32
U.S. Cl. 242—19 15 Claims

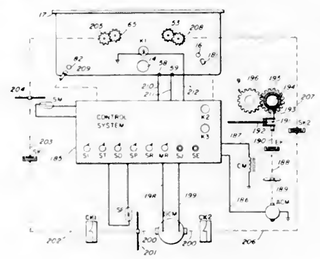


Bobbin support chuck with a thread severing zone defined by a thread severing ring and a thread inserting ring. The thread severing ring has a ring-shaped arrangement of cutting elements on its face. The thread inserting ring is located between the end face of the bobbin tube and the thread severing ring and has a substantially conical thread guiding surface which extends at least partially under the cutting elements when the bobbin tube is placed entirely on the chuck, and at which location there is provided thread clamping means.

3,809,327
FILM TRANSPORT SYSTEM FOR PHOTOGRAPHIC CASSETTE HAVING SELF-CONTAINED FILM PROCESSING SYSTEM

Martin S. Osman, Newton Highland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 17, 1972, Ser. No. 227,169
Int. Cl. G03d 5/00
U.S. Cl. 242—71 3 Claims

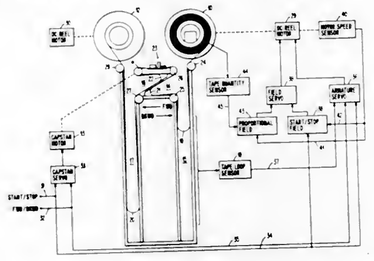


A film transport system for a film cassette comprising a strip of film and containing a film processing system. The transport system effects a programmed sequence of movements of the film by driving a reel to which the film is connected at constant linear speed relative to the processing system with a drive motor supplied with a control signal decaying at a predetermined rate.

3,809,328
FIELD AND ARMATURE CONTROL IN A REEL MOTOR SERVOMECHANISM

James R. Cope, Boulder, and Everette R. McCully, Northglenn, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 26, 1973, Ser. No. 344,795
Int. Cl. G11b 15/06, 15/58, 23/12
U.S. Cl. 242—184 14 Claims

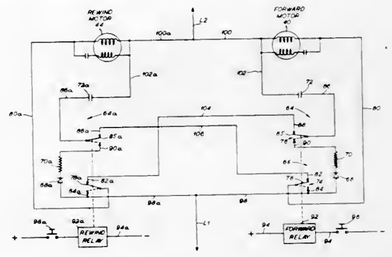


A magnetic tape unit having vacuum column buffers which isolate a centrally located, low inertia capstan from two variable inertia tape reels and their high inertia, direct current motors. Each of the reel motor armatures is servo controlled from tape loop sensing transducers associated with its particular vacuum column. This armature servo control provides speed and direction control of the reel motors. The electromagnetic reel motor fields are servo controlled to control the motor's torque/speed capability in accordance with the tape unit's operational mode. When initially accelerating the reel from a rest condition, the reel motor's field is high, to thereby increase motor torque at the expense of motor speed. Once the reel has been accelerated, the motor's field is decreased, to thereby increase the motor's speed capability at the expense of motor torque. Thereafter, the motor's torque/speed characteristic is controlled in accordance with the quantity of tape on the reel. Specifically, the motor's torque is decreased, by decreasing its field, as the reel empties.

3,809,329
TAPE TRANSPORT WITH AUTOMATIC TORQUE MOTOR BRAKE

John P. Jenkins, Towanda, Ill., assignor to International Tapetronics Corporation, Bloomington, Ill.

Filed Mar. 15, 1973, Ser. No. 341,769
Int. Cl. B11b 15/32; G03b 1/04
U.S. Cl. 242—204 5 Claims

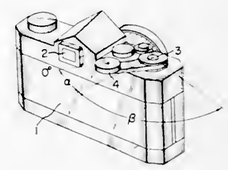


A tape transport having opposite ends of a recording tape wound upon reels driven by forward and rewind torque motors. Switch means for each motor is actuatable between first and second positions. In the first position the corresponding motor is connected to an alternating current power source to drive the motor in a tape winding direction, and a capacitor is connected in series with a rectifier and is charged by the alternating current power source. Subsequent actuation of the switch means to the second position deenergizes the winding motor and simultaneously discharges the capacitor through the unwinding motor to apply a braking load and thereby prevent looping and overrunning of the tape.

3,809,330
WINDING LEVER DEVICE IN A CAMERA

Tatsuya Taguchi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1973, Ser. No. 350,196
Claims priority, application Japan, Apr. 29, 1972, 47-43172
Int. Cl. G03b 1/06
U.S. Cl. 242—713 5 Claims



A winding lever device in a camera for easily varying an allowance angle of the lever whenever necessary is disclosed. The device provides a plurality of releasable connecting means for varying the winding starting position and springs for maintaining the winding shaft and said lever in connected condition.

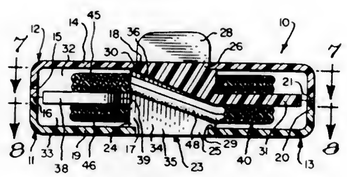
3,809,331
ELECTRIC CORD COILER

Robert G. Gaul, Altamonte, Fla., assignor to Paragon Wire & Cable Corp., Longwood, Fla.

Filed June 28, 1972, Ser. No. 267,244
Int. Cl. B65h 75/38
U.S. Cl. 242—100.1 10 Claims

An electric cord coiler comprising a hub member journaled on the spaced end walls of a hollow housing and carrying a

partition preferably in the form of an annular plate to partition the interior of the housing into two axially separated spaces, these spaces being joined by a diametrical passage in the hub member so that a portion of an electric cord intermediate its ends can be placed in such passage and the contiguous portions of the cord at opposite ends of such intermediate portion can be wound around the hub on opposite sides of the parti-



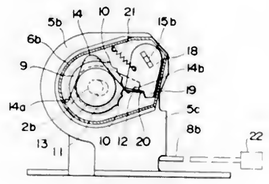
tion with the extreme outer end portions of the cord extending outwardly through openings in the side wall of the housing. The effective length of the electric cord from extremity to extremity can be changed by either unwinding some of the cord from the hub member or winding more thereon. The coiler is characterized by its simplicity, its minimum number of different parts, its ease of manufacture and its ready assembly.

3,809,332

PASSENGER VEHICLE SAFETY BELT LOCKING DEVICE

Yoshihiro Hayashi, Toyota, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed July 13, 1972, Ser. No. 271,392
Claims priority, application Japan, July 13, 1971, 46-61574
Int. Cl. A62b *35/00*; **B65h** *63/00*
U.S. Cl. 242—107.4 **8 Claims**



A passenger vehicle safety belt locking device which comprises a reel having ratchet wheels for winding a belt, a bar member having a clutch plate and pawls for detecting the winding condition of the belt, a tongued disc shiftable to detachably contact the clutch plate, and a jumping cam operating the tongued disc so as to either engage or disengage with the clutch plate with respect to the direction of rotation of the shaft in order to permit either engagement or disengagement of the pawls with the ratchet wheels, whereby the belt can freely unwind from the shaft while the loose belt can automatically wind back onto the shaft.

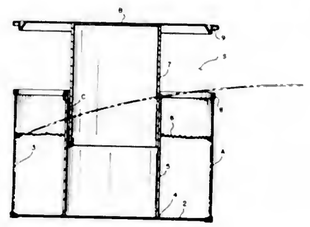
3,809,333

DISPENSING CONTAINER FOR WIRE OR THE LIKE

Richard M. Lefever, Springettsbury Twp., York County, Pa., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Apr. 3, 1972, Ser. No. 240,712
Int. Cl. B65h *49/00*, *55/00*
U.S. Cl. 242—129 **8 Claims**

A dispensing container for wire or the like comprising an open-topped receptacle, a lid for the receptacle adapted to close the receptacle to confine the contents of the receptacle and means for supporting the lid in a position spaced above the top of the receptacle to provide an annular space between the top of the receptacle and the lid through which to dispense the contents of the receptacle. The means for supporting the lid in a position spaced above the top of the receptacle comprise an element which is non-functional when the lid is in position closing the receptacle and which is disposable in lid supporting position when the contents of the receptacle are to be dispensed. The container may comprise an element vertically telescoping with a portion of the receptacle, which element carries the lid. The receptacle preferably has an inner



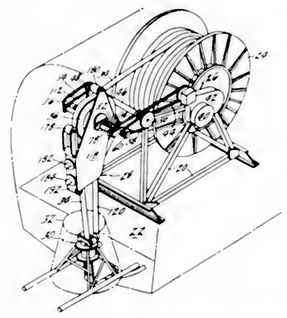
vertical wall forming a core around which the contents of the receptacle are disposed and the element carrying the lid preferably telescopes with the inner vertical wall of the receptacle. The means for supporting the lid in a position spaced above the top of the receptacle may comprise a hook-like element hooking over the top of a portion of the receptacle and having a portion vertically supporting the lid. The hook-like element may hook over the top of the inner vertical wall of the receptacle and may have a portion underlying the element carrying the lid.

3,809,334

WINCH SYSTEM FOR HELICOPTER

Robert John Beurer, West Haven, and Philip Auriol Edgar Jeffery, Trumbull, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 6, 1972, Ser. No. 304,287
Int. Cl. B65h *54/28*, *75/34*
U.S. Cl. 242—158.3 **12 Claims**



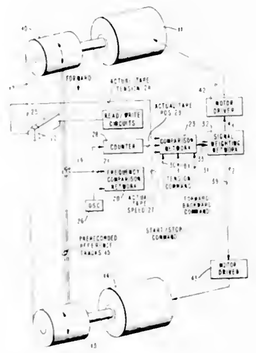
A cable winch for helicopter installation which has a guide sheave assembly utilizing a trunnion and carriage assembly for the guide pulley including a reaction bar and rollers to transmit the horizontal component of cable tension into the reaction bar, a reaction strut for supporting the guide sheave assembly and which is pivoted to follow traversing motion of the guide sheave assembly, a levelwind mechanism having a two-speed drive for traversing of the guide sheave assembly and automatic means for changing traversing speed during cable deploy or retrieval, and a load cell in the guide sheave assembly support for measuring cable tension.

3,809,335

WEB MOVEMENT CONTROL IN A REEL-TO-REEL WEB TRANSPORT

John P. Mantey, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 29, 1972, Ser. No. 267,301
Int. Cl. G11b *15/32*, *15/52*; **B65h** *77/00*
U.S. Cl. 242—186 **9 Claims**



The acceleration/deceleration, speed, position and tension of a length of unbuffered magnetic recording tape running between the two reels of a reel-to-reel tape transport are accurately controlled by a reel motor control servomechanism which jointly controls the two reel motors in response to a plurality of reference signals and a plurality of error signals. A start/stop command controls tape movement. The start/stop command produces a characterized start/stop pulse which is successively integrated to generate an acceleration/deceleration reference signal, a speed reference signal and a position reference signal. A characterized tension command pulse is integrated to generate a tension reference signal. The characterized start/stop command pulse, the characterized tension command pulse, and the acceleration/deceleration, speed and tension reference signals are individually weighted for each of the two motors, the weighting being calculated to control the motors in a manner to achieve desired tape acceleration/deceleration, speed and tension parameters. The four reference signals, including position, are compared to like signals representing the actual value of these tape parameters. As a result of this comparison, four like error signals are generated. These error signals are individually weighted for each of the motors and then summed with the above-mentioned individually weighted reference signals. Each motor is controlled by five individually weighted reference signals (characterized start/stop, characterized tension, acceleration, speed and tension) and four individually weighted error signals (acceleration, speed, tension and position). Each signal is individually weighted for its particular motor.

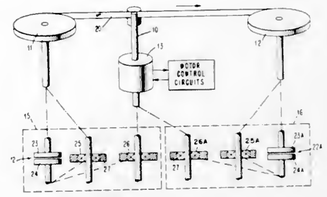
3,809,336

TAPE TRANSPORT

Ernest P. Kollar, Broomfield; Joel M. Levine, Boulder; James M. Tagawa, Boulder, and Hui-Li Tiao, Boulder, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 20, 1970, Ser. No. 82,396
Int. Cl. G11b *15/30*, *15/43*
U.S. Cl. 242—202 **7 Claims**

A magnetic tape is transported by a capstan under constant tension provided by a driving-drag system connected to a pair of spools holding the tape. Constant torque, both drag and drive, is provided to both of the reels by a magnetic coupling. A pair of one-way clutches connected to the driving portion of the magnetic couplings provide braking and uniform tension



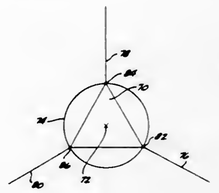
of the tape when a driving motor is stopped. Another pair of one-way clutches enable selective driving of the two reels by a single reversible motor. The motor also drives the capstan.

3,809,337

SPIN STABILIZED VEHICLE AND SOLAR CELL ARRANGEMENT THEREFOR

George J. Andrews, Los Angeles, and Harold A. Rosen, Santa Monica, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 886,332, Dec. 18, 1969. This application July 7, 1972, Ser. No. 269,643
Int. Cl. B64g *1/30*
U.S. Cl. 244—1 SS **2 Claims**



A spin-stabilized vehicle comprising (1) a body and (2) three deployable panels, arranged to present body and panel surfaces covered with photovoltaic or solar cells for increasing the stability and the sun derived power of the craft. The panels are stowed within or wrapped about the craft during ascent towards its utilizable position. When deployed, the panels extend radially from the craft. When extended, the panels are at least as long as the radius of the body. The use of three panels results in a relatively small ripple of the power supplied by the cells as the craft rotates and therefore a relatively high efficiency of cell utilization is provided.

3,809,338

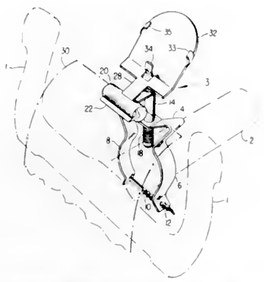
TIMER AND APPROACH PLATE HOLDER FOR AIRCRAFT

Edward L. Gross, Jr., 1327 Ward St., N.W., Warren, Ohio; William R. Pyne, 3271 Winchell Rd., Mantua, Ohio, and Donald L. Yauger, 1661 West Ave., Warren, Ohio

Filed Sept. 21, 1973, Ser. No. 399,284
Int. Cl. B64d *43/00*
U.S. Cl. 244—1 R **6 Claims**

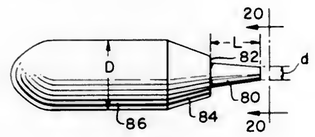
A timer and approach plate holder for aircraft having a spring clip for mounting the holder on the horizontal shaft of the aircraft control yoke, and upwardly extending post bottomed on the shaft secured to the clip supporting at its upper

end an alligator clip having jaws spring urged toward each other for grasping an approach plate and a support for a timer



secured to the alligator clip forming a manually operable lever for opening the jaws for the quick and convenient insertion and removal of an approach plate.

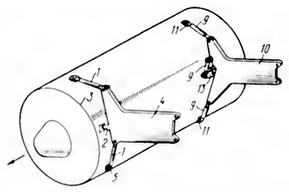
3,809,339
PROJECTILE WITH STING FOR REDUCING DRAG
Walter R. Sieling, 184 Woodbine Cir., New Providence, N.J., and Norman G. Ziesse, Cora Ln., Box D-8, Chester, N.J.
Filed Apr. 12, 1972, Ser. No. 243,313
Int. Cl. F42b *13/02*
U.S. Cl. 244—3.3 **10 Claims**



A rearwardly extending axial protuberance, known as a "sting," is secured to the base of a conventional projectile, such as a bullet or an artillery shell. The sting may assume a variety of configurations, such as cylindrical, frusto-conical, or combinations thereof, and can be utilized as a modification to be added to conventional projectiles, or can be fabricated as an integral part of a new series of projectiles. The sting causes a reduction in base pressure drag and thus lowers the rate of energy loss of the projectile in flight. Such reduction in drag increases the effective range of a bullet by enabling same to maintain a flatter trajectory; a comparable reduction in drag increases the maximum range of an artillery shell.

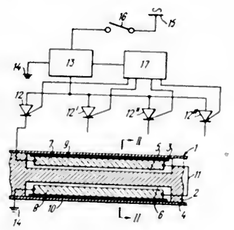
3,809,340
DEVICES FOR MOUNTING AN ENGINE ON AN AIRCRAFT PYLON
Andrei Emelyanovich Dolgy, ulitsa Ofitserskaya, 48; Jury Mikhailovich Balandin, ulitsa Gorkogo 167a, kv. 18, both of Zaporozhie; Viktor Vasilievich Shelepchikov, Leningradsky prospekt, 66 kv. 56, and Vladimir Ivanovich Shutov, ulitsa Zoi Kosmodemyanskoi 18, kv. 49, both of Moscow, all of U.S.S.R.
Filed Dec. 26, 1972, Ser. No. 318,037
Int. Cl. B64d *27/00*
U.S. Cl. 244—54 **1 Claim**

In the forward suspension plane relative to the flight direction, there are provided two struts and a trunnion therebetween. One end of each strut is pivotally connected to the aircraft pylon, while the opposite end of each strut is pivotally connected to the engine. In the rearward suspension plane relative to the flight direction, there are provided at least three struts one end of each being pivotally connected to the aircraft pylon while the other end is pivotally connected to the engine, a means for mounting the engine on the struts and



the trunnion being located laterally on the engine in such a way as to provide for a cantilever suspension of the engine on the aircraft pylon.

3,809,341
DEVICE FOR REMOVING ICE FROM SURFACES OF THIN-WALLED STRUCTURES
Igor Anatolievich Levin, Petrozavodskaya ulitsa, 15, korpus 1, kv. 113; Anatoly Yakovlevich Levin, ulitsa Stepana Supruna, 12, kv. 74; Nikolai Evstigneevich Fedorov, Volokolamskoe shosse, 6, kv. 213; Iosif Alexandrovich Rogov, ulitsa Vostrukhina, 7, kv. 80; Erik Eduardovich Afanasov, ulitsa Baumanskaya, 26, kv. 4, all of Moscow, and Eduard Grigorievich Turyansky, Noginsky raion, p/o Kupovka, ulitsa Matrosova, 11, kv. 52, Moskovskaya Oblast, all of U.S.S.R.
Filed Nov. 14, 1972, Ser. No. 306,554
Int. Cl. B64d *15/16*
U.S. Cl. 244—134 R **7 Claims**

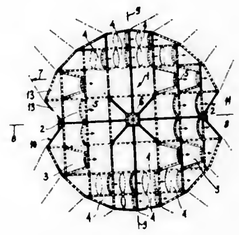


Electric current pulses separated by time intervals are transformed into mechanical power pulses acting on a surface to be de-iced. A converter of electric current pulses is constituted by a pair of electrically connected conductors one of which mates intimately with the surface to be de-iced. The conductors are arranged in the area to be de-iced and disposed one beneath the other. The electric current flowing through the conductors cause their mutual repulsion or attraction whereby electric current pulses are transformed into mechanical power pulses thus causing an elastic deformation of the surface being de-iced and effecting the removal of ice from this surface.

3,809,342
PARACHUTE
Pierre Marcel Lemoigne, 103 Avenue Verdier, 92 Montrouge, France
Filed Sept. 29, 1969, Ser. No. 861,899
Claims priority, application France, Oct. 4, 1968, 68.168720
Int. Cl. B64d *17/02*
U.S. Cl. 244—145 **3 Claims**

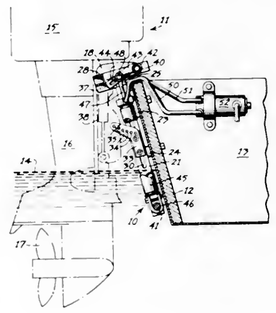
The present invention relates to a parachute whose canopy includes means for imposing a directed flow of air from one surface thereof towards the other to produce a horizontal

component of translation and effect movement of the parachute along a longitudinal axis, and has at least one cut-out part extending in depth along said longitudinal axis from the edge of the canopy substantially to the marginal part of the



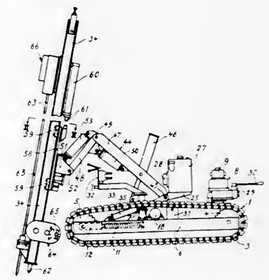
canopy which is substantially vertical when the parachute is in flight. The cut-out part may be provided in either or both of the leading edge of the canopy and the trailing edge of the canopy.

3,809,343
ELEVATOR BRACKET FOR OUTBOARD MOTOR
Crawford W. Adams, 963 Overton Lea Rd., Nashville, Tenn., and David T. Holt, deceased, late of Rt. 3, Goodlettsville, Tenn. (by Myrtle Holt, executrix)
Filed Jan. 8, 1973, Ser. No. 321,700
Int. Cl. B63h *21/26*; **F16m** *1/02*
U.S. Cl. 248—4 **9 Claims**



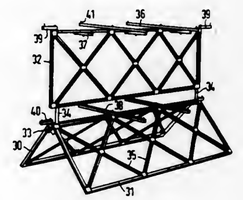
An elevator bracket adapted to be mounted upon the transom of a boat for lifting and tilting an outboard motor, including an upright guide member attached to the transom, a column reciprocably carried in the guide member and supporting a motor mounting head, a lift arm having its forward end journaled in the mounting head and extending rearward in engagement beneath a portion of the motor, a fluid-powered cylinder connected to the guide member, the reciprocable piston rod being pivotally connected to the rear portion of the lift arm, and stop guide means, so that actuation of the cylinder initially will lift the column, mounting head, lift arm and motor, without tilting the motor, until the stop means limits the upward movement of the column, and subsequently will swing the lift arm about its hinge connection to tilt the motor forward.

3,809,344
MOBILE DRILL RIG
Edward Kolderup, Son, and Jacob Eidsmo, Drammer, both of Norway, assignors to Anlegg & Maskin A/S, Kolbotn, Norway
Filed Apr. 25, 1972, Ser. No. 247,267
Claims priority, application Norway, Dec. 8, 1971, 4522/71
Int. Cl. E21c *11/02*
U.S. Cl. 248—16 **10 Claims**



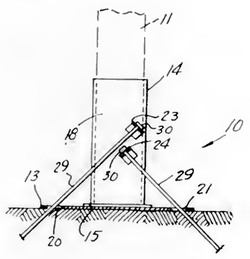
For a mobile drill rig of the caterpillar type it is proposed to mount the turntable on which the drill boom is pivoted, on a substantially vertical shaft placed substantially centrally within the vehicle and having a direct rack and pinion drive from two opposed hydraulic cylinders forming part of the connection between the chassis of the vehicle and the respective track frame structures. One of the track frame structures is rigidly connected to the chassis, and the other is capable of pivotal motion about the axis of the cylinders. The drill boom has a pivotal joint therein, permitting it to form an adjustable downward angle.

3,809,345
STAND FOR DECORATING A GRAVE WITH FLORAL ARRANGEMENTS
Rolf Tebbe, and Barend Huiden, both of 4330 Langenfeldstrasse 47, Muelheim-Ruhr, Germany
Filed Nov. 11, 1971, Ser. No. 197,830
Claims priority, application Germany, Nov. 11, 1970, 7041681; June 6, 1971, 2128892
Int. Cl. A47g *7/00*
U.S. Cl. 248—27.8 **9 Claims**



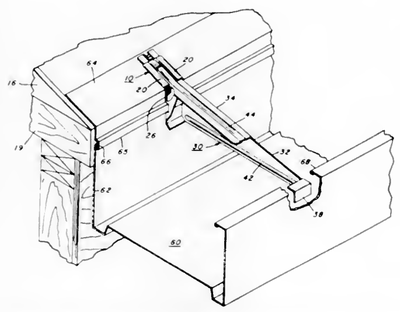
A stand upon which can be placed floral arrangements such as wreaths, sprays and the like for decorating a burial site such as a coffin, grave or tomb has at least two frames mutually connected so as to be positionable over the burial site, each of the frames having a surface for supporting the floral arrangements above the burial site.

3,809,346
FENCE POST SUPPORT
Robert B. Jackson, 410 S.W. 130th Ave., Beaverton, Oreg.
Filed Feb. 2, 1973, Ser. No. 328,970
Int. Cl. F16m *13/00*
U.S. Cl. 248—44 **7 Claims**



A fence post support resting on the surface of the ground and including a fence post receiving socket extending upwardly therefrom. A base plate underlies the socket. Drift pins are driven through angularly positioned brackets on the socket through slots in the base plate to enter the ground at an angle of about 45° to the vertical to lock the fence post support to the ground. Fence posts are supported in the fence post sockets to carry fencing in a conventional manner.

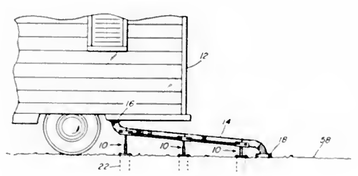
3,809,347
CLIP AND HANGER STRUCTURE FOR BUILDINGS
William R. Pekarek, Pittsburgh, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Oct. 10, 1972, Ser. No. 296,122
Int. Cl. E04d *13/06*
U.S. Cl. 248—48.1 **4 Claims**



A clip and hanger structure for attachment to a building roof, and for disposal in interlocking engagement with each other at at least three locations in a high strength manner enabling the hanger and the structure supported thereby to withstand high upward and downward forces imposed thereon.

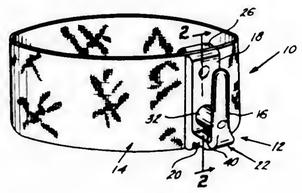
3,809,348
EXTERNAL WASTE PIPE SUPPORT STAND FOR TRAILERS
Ercole Thomas Di Laura, 105 Boone Trl., Severna Park, Md.
Filed Mar. 14, 1972, Ser. No. 234,514
Int. Cl. F16l *3/04*
U.S. Cl. 248—49 **3 Claims**

A new and improved support stand is provided to support and properly direct an external waste pipe from a mobile home, such as a portable or travel trailer, into the input of a sewer main. If required, two or more support stands can be used. Each support stand is constructed of telescoping tubular shafts. These shafts are adjustable in height and have tiltable troughs, with adjustable length extension bars connecting the



troughs. These troughs, in turn, support the external waste pipe from a travel or portable trailer or the like. The stands are held in an upright position by flat blocks resting upon the ground and are secured thereto by stakes. The support stand can readily be used with camping trailers, campers, travel trailers, and mobile trailers of all types.

3,809,349
CORD HOLDER
Dale E. Baedke, 2105 E. Maple St., Des Moines, Iowa
Filed Aug. 17, 1972, Ser. No. 281,433
Int. Cl. F16l *3/00*
U.S. Cl. 248—51 **2 Claims**

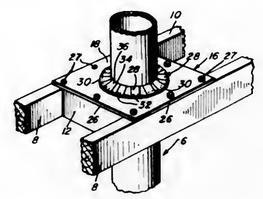


An electric cord supporting device or holder for use with manually operated equipment such as power tools, vacuum sweepers, electric lawn mowers and the like. This device embodies a hook or bracket type support through which the cord can be trained or reeved to keep it from dragging or becoming entangled with the mechanism to which it is attached or the workpiece involved or with the operator using the mechanism and is adapted in different embodiments to be worn on the operator's arm or belt or to be detachably or fixedly secured to a stationary support. A roller is preferably provided for engagement by the cord to facilitate the travel of the cord through this support or holder as the movements of the operator require.

3,809,350
VENT MOUNTING DEVICE
Byron D. Lane, 415 9th St., S.E., Minot, N. Dak.
Filed Aug. 14, 1972, Ser. No. 280,123
Int. Cl. F16l *5/00*
U.S. Cl. 248—57 **2 Claims**

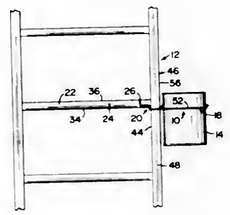
A readily applicable device for use when the user is called upon to install a sheet material vent pipe. It comprises a simple adapter plate having a central opening for insertable and adjustable passage of a conventional type vent pipe, the aper-

tured portion of said plate being encompassed by overhanging coordinating tabs. These tabs have upwardly flexed or canted



inner ends which are slightly resilient and which embrace and yieldingly as well as retentively engage that portion of the vent pipe surrounded thereby.

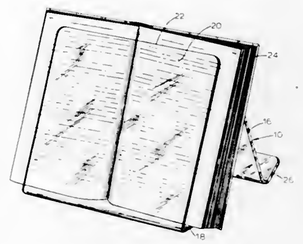
3,809,351
HOLDER
Ricardo Bravo, 2920 St. John, Tampa, Fla., and I. C. Street, 701 Hill Dr., Zephryhills, Fla.
Filed Dec. 26, 1972, Ser. No. 318,539
Int. Cl. E06c *7/14*
U.S. Cl. 248—210 **3 Claims**



A bracket of the type to be used in combination with a ladder so as to support a paint can or like container thereon so as to be readily excessible to a painter or the like positioned on the ladder. The bracket may be formed from a one piece element and include a container holder portion specifically configured to correspond to the shape of the container being supported. An attaching means is designed to engage a single rung and comprises at least two substantially arcuate shaped fingers arranged in opposed relation to one another and interconnected by an arm at the opposite extremities thereof such that the arm is disposed in an angular or non-parallel relation to the longitudinal axis of the rung. An interconnecting means engages a rail of the ladder and interconnects the attaching means to the holder such that the holder is supported adjacent the exterior surface of the rail at the approximate level of the rung which is engaged by the attaching means.

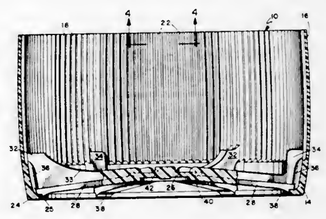
3,809,352
BOOK HOLDER AND SHIELD
Donald L. Mathias, 529 Madison Ave., York, Pa.
Filed Feb. 8, 1973, Ser. No. 330,568
Int. Cl. A47b *97/04*
U.S. Cl. 248—451 **2 Claims**

A book holder formed preferably from a sheet of transparent synthetic resin of suitable thickness to render it relatively stiff and including a book-supporting panel disposed at an acute angle relative to a supporting surface such as a table or the like, a bracing panel extending angularly rearward and downward from the upper edge of the supporting panel, and a transparent holding and viewing panel spaced sufficiently from the book-supporting panel to accomodate a book in open condition and overlying the exposed pages of the book to render the same visible and prevent contact of the surfaces of the pages by any extraneous material. The book-supporting and transparent holding and viewing panel form a slot to receive a book in open condition, the lower edges of the two



panels being connected by a short section of the material comprising a ledge upon which the lower edge of the book rests, and the lower edge of the supporting panel also preferably being bent smoothly outward to form a flange capable of serving as an additional book supporting ledge in relation to the bracing panel.

3,809,353
PROTECTIVE CAP FOR DIVER'S AIR TANK
Richard R. Good, 3142 Larga Ct., San Diego, Calif., and Alan K. Uke, K-14 Muir Apt., San Diego, Calif.
Filed June 14, 1972, Ser. No. 262,482
Int. Cl. B63c *11/22*
U.S. Cl. 248—346.1 **8 Claims**

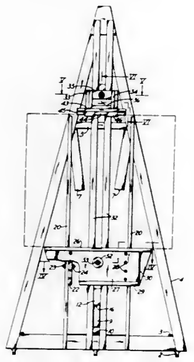


A protective lower end cap for a diver's compressed air tank, which acts as a secure base to stand the tank upright. The interior of the protector has a ribbed wall which grips the circumference of the tank firmly but with minimum contact area, the ribs allowing water to pass through freely, so that the protector can remain on the tank at all times. A multi-armed open base portion supports the lower end of the tank clear of the surface in which the tank stands. The exterior of the protector is smooth, without protuberances, and will not cause injury to the diver.

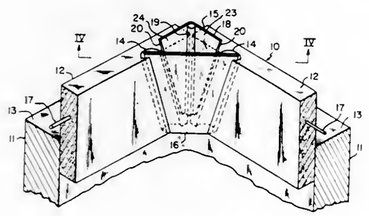
3,809,354
ARTIST'S EASEL
William M. Phifer, 5522 Centre Ave., Pittsburgh, Pa.
Filed Oct. 13, 1972, Ser. No. 297,343
Int. Cl. A47b *97/04*
U.S. Cl. 248—449 **8 Claims**

An easel frame extends upwardly from the front of a base and carries a pair of laterally spaced parallel rails that extend up and down the frame. Extending across the front of the rails is a picture-supporting shelf supported by parallel bars extending along the sides of the rails. Releasable fastening members

extend through these bars and through longitudinal slots in the rails for clamping the bars to the rails at any desired level so that the shelf can be adjusted up and down the rails. A clamp for the top of a picture is adjustable up and down another pair of rails between the first pair.



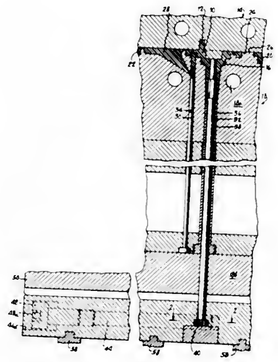
3,809,355
HOT TOP MAINTAINING SYSTEM FOR AN INGOT MOLD
George Rocher, Pittsburgh, Pa., assignor to Metallurgical Exoproducts Corporation, McKees Rocks, Pa.
Filed Sept. 25, 1972, Ser. No. 291,655
Int. Cl. B22d *7/10*
U.S. Cl. 249—106 **4 Claims**



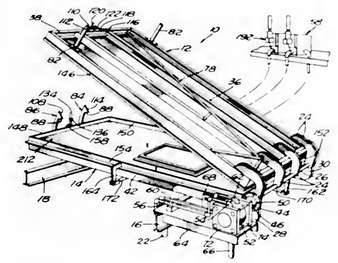
The improved hot top maintaining system permits disposable hot top sideboards to extend above the ingot mold. A chill wedge is used in combination with a wedge plate positioned within converging grooves of adjacent sideboards. The chill wedge, after insertion, is flush against the wedge plate and the adjacent sideboards and provides a chill zone at the sideboard juncture so as to immediately solidify the metal and retain it within the hop top system.

3,809,356
MOLDING DIE BLOCK
John S. Doyel, 404 W. 20th St., New York, N.Y.
Filed Sept. 6, 1972, Ser. No. 286,717
Int. Cl. B28b *7/02*
U.S. Cl. 249—155 **4 Claims**

A die block for molding an object wherein the improvement is in means for changing the configuration of an object molding cavity without removing the die block from its supports and without remachining the cavity. The cavity configuration change is effected by providing a die shaft having a shaped forward end extending partly into the cavity and having a back end provided with a gear meshing with the gear at the forward end of an adjusting shaft whose back end is accessible through a side wall of the die block. The arrangement allows rotating the die shaft by means of the adjusting shaft.

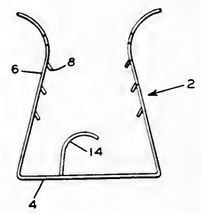


3,809,357
MOLD FOR FORMING A LAMINATED PLASTIC PANEL
Francis Gallap, Van Nuys, Calif., assignor to Exhibit Homes, Inc., Van Nuys, Calif.
Filed Apr. 23, 1970, Ser. No. 31,129
Int. Cl. B41b *11/56*
U.S. Cl. 249—161 **7 Claims**



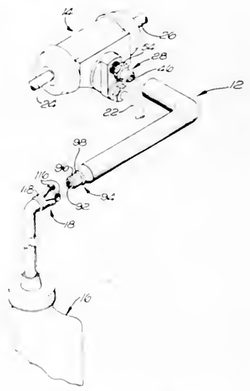
A building construction element having a central core of rigid plastic foam with each outer planar surface formed of a glasslike layer of hard plastic material. A method of forming a building construction element by locating a layer of foamable plastic material in the uncured state between thin films of uncured glass fibrous resinous material, confining the combined resinous films and plastic layer, permitting heat energy that is generated chemically within the resinous films to be transferred to the layer of plastic material causing such to foam and cure into a rigid material, permitting heat energy generated by the foaming procedure to be transferred to the resinous films causing such to become a solid glasslike material, bonding the glasslike resinous films to the layer of foamed plastic. A mold for producing sheetlike building construction elements employing first and second separable mold parts with the edge producing portion of the mold being movable with respect to the first and second mold parts.

3,809,358
CEILING SYSTEM SUSPENSION CLIP AND RUNNER
James E. Hazeley, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.
Filed Apr. 12, 1972, Ser. No. 243,270
Int. Cl. F16l *3/00*
U.S. Cl. 248—317 **8 Claims**



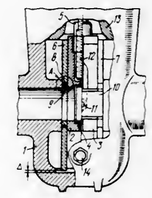
A U-shaped clip is fastened directly to the ceiling joists. Into the clip is inserted a simple runner member to which is fastened the ceiling tile. The simplicity of the invention exists in the fact that the clip is fastened directly to the ceiling joists and no complicated suspension system is needed for the ceiling.

3,809,359
BLEEDING TOOL FOR HYDRAULIC BRAKE CYLINDER
Edward L. Truelove, Sr., 14836 Callahan St., Panorama City, Calif.
Filed Jan. 11, 1973, Ser. No. 322,667
Int. Cl. F16k *51/00*
U.S. Cl. 251—148 **7 Claims**



A bleeding tool for loosening as well as removing gases from an external bleeding member of a hydraulic brake cylinder. The tool contains a generally hollow interior defining a passageway for fluid therethrough. The front end of the tool is formed of a socket member for loosening the bleeding member and enabling the fluid to pass from the brake cylinder through the passageway. The rear end of the tool contains an interconnection device for removing fluid from the passageway. A resilient member is positioned in the tool interior adjacent a front end thereof and has a bore surface therethrough defining a continuation of the tool passageway. A tubular member interconnects the bore surface of the resilient member with the tool passageway. A spring positions the resilient member adjacent the bleeding member for enabling the resilient member to provide a seal between the tool and the bleeding member, thus enabling fluid to pass directly from the bleeding member to the passageway without leakage.

3,809,360
FLAT DIRECT-FLOW GATE VALVE
Nadir Asker Ogly Radzhabov, Ulitsa Ryleeva 36-a, kv. 3, Baku, U.S.S.R.
Filed Apr. 23, 1973, Ser. No. 353,613
Int. Cl. F16k *3/10*
U.S. Cl. 251—196 **2 Claims**

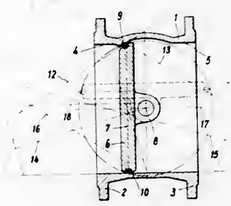


The gate valve comprises a flow control assembly including a gate member made up by two identical parts, the gate member being mounted between two shields associated with seats and rolling-contact guides.

Each guide includes a spherical retaining means and a smoothly narrowing slit between the internal edges of the parts of the gate member, at both sides of the latter.

With the gate member being in either of the two extreme working positions thereof, the spherical retaining means is positioned in the respective narrowing portions of the slit, biasing the two identical parts of the gate member apart and pressing them against the respective seats of the flow control assembly of the gate valve.

3,809,361
SHUTOFF VALVE
Karl Pfundstein, Frankenthal, and Erich Fallert, Mannheim, both of Germany, assignors to Bopp & Reuther GmbH, Mannheim-Waldhof, Germany
Filed Aug. 15, 1972, Ser. No. 280,887
Claims priority, application Germany, Apr. 27, 1972, 2220584
Int. Cl. F16k *1/226, 25/00*
U.S. Cl. 251—305 **9 Claims**

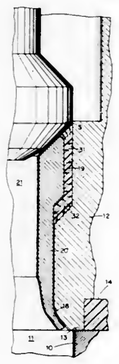


A shutoff valve is formed of a valve body defining a passage. A valve member has a substantially oval disk-shaped portion and an elastic sealing ring extending around the periphery of the disk-shaped portion.

The disk-shaped portion is mounted for movement about a pivot axis extending across said passage. The valve body has a valve seat located in the flow passage in a predetermined plane and to one side of the pivot axis. The valve seat has a surface which includes a pair of first surface portions located near the opposite ends of the pivot axis at one side of the axis and lying on a first imaginary conical surface having its vertex located at one side of said plane. The valve seat surface includes a pair of second surface portions located near the opposite ends of the pivot axis at the other side of the axis and lying on a second imaginary conical surface whose vertex is

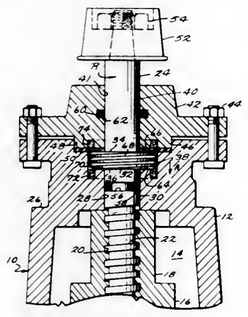
located at the other side of the valve seat plane. The valve member is pivotable about the axis between an open position and a closed position in which the sealing ring is wedged against the first and second surface portions of the seat surface.

3,809,362
HIGH PRESSURE SOFT SEAT VALVE
Hans D. Baumann, Foxboro, Mass., assignor to Masoneilan International, Inc., Norwood, Mass.
Filed Mar. 13, 1972, Ser. No. 234,124
Int. Cl. F16k *1/12*
U.S. Cl. 251—332 **7 Claims**



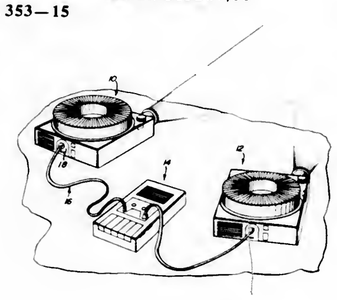
Valve for tight shutoff of high pressure fluid flow having a deformable plastic element arranged between the valve plug and seat means to be highly pressured by the valve closing and thereby to set up a wear-free barrier seal.

3,809,363
GATE VALVE STEM THRUST COLLAR LUBRICATION
Robert L. Rhodes, Hixon, Tenn., assignor to Mueller Co., Decatur, Ill.
Filed Apr. 3, 1973, Ser. No. 347,363
Int. Cl. F16k *41/02*
U.S. Cl. 251—355 **8 Claims**



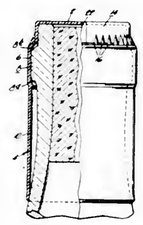
A non-rising stem type of valve assembly utilizing a closed lubricant chamber or reservoir for the thrust collar on the valve stem. Means are provided for replenishing the lubricant to the bearing surfaces of the thrust collar and the reservoir during each operation of the valve, the means including pumping or forcing lubricant between the bearing surfaces of the thrust collar and of the closed lubricant reservoir in either direction depending on rotation of the valve stem. The lubricant may either be forced as a film between the surfaces of the collar and the lubricant reservoir which are about to mate or are separating.

3,809,364
CASSETTE-SLIDE SYNCHRONIZER
James W. Redemann, 1368½ Cherry St., Green Bay, Wis.
Filed Dec. 18, 1970, Ser. No. 99,477
Int. Cl. G03b *31/06*
U.S. Cl. 353—15 **11 Claims**



Operation of the slide advancing mechanisms in one or more slide projectors is automatically controlled by signals from a cassette-type of tape recorder and player. Conductive strips are mounted on the tape stored in the cassette in order to generate the slide advancing signals when the strips bridge contact surfaces on spaced guide posts in contact with the tape. The signals are conducted by a plug-in cable from the posts to each slide projector.

3,809,365
PROTECTIVE CAP OF SYNTHETIC MATERIAL FOR MOUTHS OF CONTAINERS, PARTICULARLY CORKED WINE BOTTLES
Herbert Loffler, No. 37, 5581 Tellig, Germany
Filed June 21, 1971, Ser. No. 155,198
Int. Cl. B65d *41/02*
U.S. Cl. 215—38 R **3 Claims**



For a container having an open end and a radially outwardly projecting ridge on the exterior of the neck and spaced downwardly from the open end thereof defining a pair of radially spaced rims, a closure cap of resilient flexible material comprising a top overlying the open end of the container, a skirt depending from the outer peripheral edge of the top, fracturable means connecting the top to the skirt to permit removal of the top, said skirt having a circumferentially extending section of greater cross section and of an axial depth greater than the ridge on the container neck said section having an internal diameter slightly less than the outside diameter of the ridge on the container, means defining a circumferential groove in said thickened section of said skirt spaced from the top a predetermined distance so that it engages the lower rim of the ridge when the top is seated on the axial end face of the container, the outer portion of the thickened section extending beyond the rims of the ridge to hold the cap in place on the container.

A protective cap of synthetic material, with a substantially cylindrical shell and a seal plate, for closed container mouths having an outer ridge (band), in particular for corked wine bottles, characterized in that the shell has at its inside a substantially cylindrical thickening, which, when the protective cap is set on the mouth opening, extends over the rim of the ridge turned away from the mouth, and in that the inner width of the thickened shell section is smaller than the outer diameter of the ridge or band.

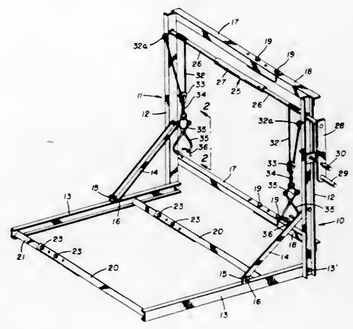
3,809,366
APPARATUS FOR DRAWING CONDUCTOR WIRES THROUGH CONDUITS
Silas Ray Crees, P.O. Box 813, Eau Gallie, Fla.
Filed Apr. 26, 1973, Ser. No. 354,490
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.3 FT **9 Claims**



A power driven tool for driving a flexible plastic rod or tube through a conduit for connection to a conductor wire and then pulling the flexible rod or tube with conductor wire attached thereto through the conduit. The flexible rod is driven by a rotatable friction drive such as a pulley or spiralling pulley in which the rod is wrapped around and driven through a flexible guide conduit for guiding the rod into an electrical conduit. A storage container is provided with a cone spool for storing the flexible rod.

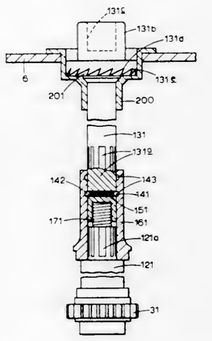
3,809,367
TRACTOR HOIST
Clayton G. Bower, R.F.D. 2, Republic, Ohio
Filed Nov. 24, 1972, Ser. No. 309,216
Int. Cl. B66c *23/60*
U.S. Cl. 254—144 **8 Claims**

A hoist having laterally spaced L-shaped frame elements connected by upper and lower cross bars, one upper cross bar being a rotatable shaft. Reeling cables or the like attached to the shaft have detachable clamping means to connect to the



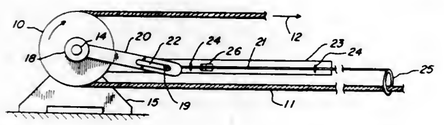
front wheels of a tractor positioned within the frame with its rear wheels abutting a lower transverse connector bar for tilting the tractor upwardly about the rear wheels.

3,809,368
MARINE WINCH
Christopher John Lawrence, London, England, assignor to Knowsley Engineering Limited, Manchester, England
Filed Mar. 2, 1973, Ser. No. 337,458
Claims priority, application Great Britain, Mar. 7, 1972, 10563/72
Int. Cl. B66d *1/30*
U.S. Cl. 254—150 R **3 Claims**



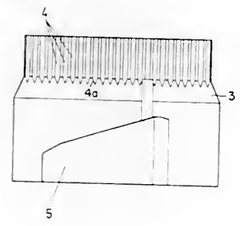
The invention provides a marine winch driven by a central operating spindle coupled at its lower end to drive reduction gearing in turn coupled to an outer casing of the winch to rotate said casing at one of two alternative output ratios selectable on rotating the operating spindle in opposite directions. The operating spindle has a separate upper portion movable vertically relative to a lower portion and in splined driving engagement therewith. When the upper part of the operating spindle is lowered it is coupled directly to drive the outer casing so as to provide a third, 1:1, output ratio. Unidirectional stepless clutch means are provided in the drive lines to enable the three output ratios to be acheived and also to enable the outer casing to over run.

3,809,369
SAFETY RELEASE APPARATUS
John W. Elsing, 7202 Shannon Dr., Edina, Minn.
Filed Dec. 26, 1972, Ser. No. 318,531
Int. Cl. B66d 1/48
U.S. Cl. 254—173 R 11 Claims



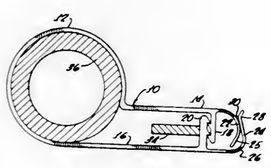
Apparatus for releasing a rope from a pulley upon sensing the proximity of an object attached to the rope, particularly adapted for use with a ski rope tow apparatus for stopping the rope tow when a skier approaches too close to the rope tow return pulley.

3,809,370
BOTTLE CAP SEAL
Jesus Diaz Sugasaga, 49, C. Carretera Monte, Santander, Spain
Filed May 23, 1972, Ser. No. 256,104
Int. Cl. B65d 43/02
U.S. Cl. 215—42 2 Claims



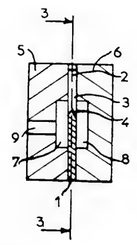
A cap-seal unit to be mounted on the neck of a bottle, which comprises a seal member adapted to be disposed on the neck of a bottle and having circular ribs on its surface in order to retain the seal member. A truncated cone strip is equipped with a progressively weakened wall, until reaching a skirt, for holding together the cap-seal unit. A wall is disposed concentric to the skirt, said skirt being arranged partly inside of the neck of the bottle. A flange extends from the lateral surface of the cap-seal unit, so that upon pulling the weakened wall and seal is separated from the cap.

3,809,371
TENSION BAND
Leo J. Martini, South Gate, Calif., assignor to Master Fence Fittings, Inc., La Habra, Calif.
Filed June 29, 1973, Ser. No. 375,118
Int. Cl. E04h 17/04
U.S. Cl. 256—47 12 Claims



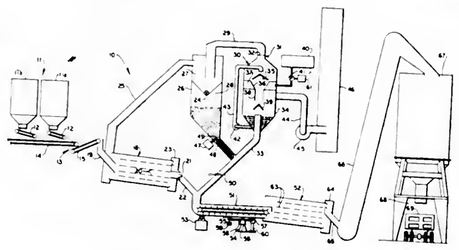
A tension band for retaining a chain link fabric stretcher bar to a support post for maintaining fence fabric under tension. The tension band comprises a loop portion for engaging the support post and two leg portions extending therefrom. Interlocking means are provided on the two leg portions and these interlocking means are forced into engagement by the resilient camming action of biasing means when the leg portions of the tension band are squeezed together.

3,809,372
DEVICES FOR THE GENERATION OF ULTRASONICS AND THEIR APPLICATION TO THE PREPARATION OF EMULSIONS
Louis Duthion, Paris; Claude Charles Doyotte, Le Plessis Robinson; Claude Jean-Marie Seguela, Argenteuil; Gabriel Barthelemy, Paris; Alain Cinquanta, and Yves Drapeau, both of Le Havre, all of France, assignors to Compagne Francaise De Raffinage, Paris, France
Filed Sept. 5, 1972, Ser. No. 286,061
Claims priority, application France, Sept. 3, 1971, 71.31975; Dec. 20, 1971, 71.45738; June 27, 1972, 72.23201
Int. Cl. B01f 3/08, 5/06
U.S. Cl. 259—4 24 Claims



A device for generating ultrasonic waves in a fluid preferably used in emulsifying water and fuel oil and the like constructed of two side plates (each having at least one recess, occurring in adjacent pairs) and a thin steel membrane disk having a liquid access groove (discontinuities) cut out of said disk and extending into said recess such that the remaining portion of the membrane disk extending across each recess pair vibrates (preferably resonates) in the liquid flowing through said groove and into one of said recesses to pass out a discharge conduit extending from the base of such recess.

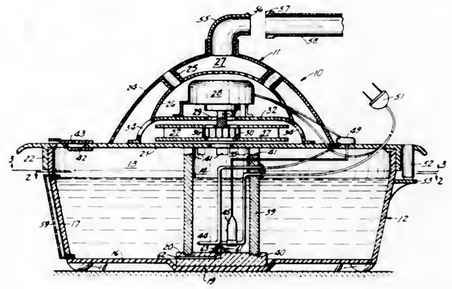
3,809,373
ASPHALT PREPARATION PLANT
James Donald Brock, Chattanooga, Tenn., assignor to CMI Corporation, Oklahoma City, Okla.
Filed Mar. 10, 1972, Ser. No. 233,478
Int. Cl. B28c 7/04
U.S. Cl. 259—154 5 Claims



A continuous flow of aggregate is passed through a drying chamber and a flow of heated air is passed through the drying chamber to heat and dry the aggregate and to remove dust

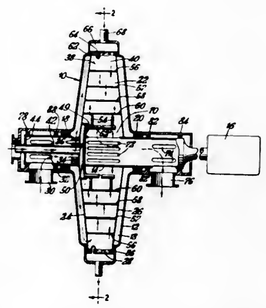
particles from the aggregate. The heavier and larger dust particles are separated from the air flow and accumulated, and the lighter and smaller dust particles in the air flow are charged with an electrostatic charge. The air flow with the charged dust particles is washed with hot bituminous liquid to coat the lighter dust particles with the liquid so that the dust particles are separated from the air flow and combined with the liquid flow. The flow of hot bituminous liquid, a flow of heavier dust particles, and the flow of hot dry aggregate are combined and the combined elements are conveyed to a mixer. The flows of hot bituminous liquid and dust are regulated in response to the weight of combined mix flowing toward the mixer.

3,809,374
VAPORIZER-HUMIDIFIER
George W. Schossow, 2316 Lilac Ln., White Bear Lake, Minn.
Filed June 11, 1969, Ser. No. 832,279
Int. Cl. F24h 1/06; A61m 11/00
U.S. Cl. 261—130 8 Claims



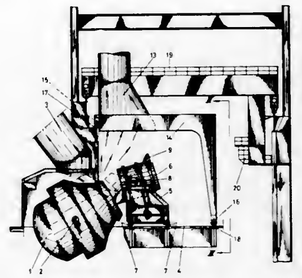
A vaporizer-humidifier having a small insulated vaporization chamber within a larger storage chamber, heating means within the vaporization chamber and a fan above the chamber for drawing air through and vapor from the vaporization chamber and dispelling it. The vaporization chamber is constructed to be self-cleaning, to permit control of the temperature of the exiting moist air, and to minimize the chance of burns.

3,809,375
ROTARY FLUID CONTACTOR
Frederick W. Bonnet, Tonawanda, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Filed Nov. 16, 1967, Ser. No. 684,599
Int. Cl. B01d 47/16
U.S. Cl. 261—87 15 Claims



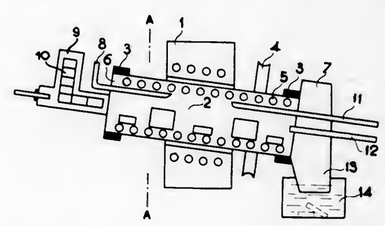
This invention concerns the improvement of mass transfer between fluids in rotary contactors useful, for example, in distillation, adsorption and liquid-liquid extraction. Method and means are provided whereby a heavier fluid, being conducted in a generally radially outward direction under a centrifugal driving force, is caused to flow circumferentially across the contacting zone in a direction opposed to the direction of rotation of the contactor, while the lighter fluid is conducted in a generally radially inward direction through the contacting zones by a radial pressure gradient in the rotary contactor.

3,809,376
METAL FACTORY WITH AT LEAST ONE TILTABLE CONVERTER
Nico Plazier, Castricum, Netherlands, assignor to Hoogovens Ijmuiden B.V., Ijmuiden, Netherlands
Filed Nov. 17, 1972, Ser. No. 307,375
Claims priority, application Netherlands, Nov. 17, 1971, 7115853
Int. Cl. C21c 5/40
U.S. Cl. 266—16 4 Claims



A factory for the conversion of metal is provided which contains at least one tiltable metal converter, machinery for supporting, displacing and tilting either ladles for molten metal or charging boxes for scrap metal which are used to charge the converter, exhaust means for the converter during its normal operation, which exhaust means include hood means extending over the entire opening of the converter when in a tilted position during the charging of the converter with metal to be processed for carrying away and exhausting vapors, dust and the like that are present above the converter opening during the charging of the converter while in a tilted state, thereby providing a work area which will be substantially free of material hazardous to the health of the operator during such charging. The hood means further are movable transversely to the plane of the tilting movement of the charging vessel.

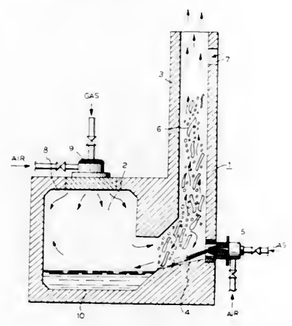
3,809,377
ROTARY VESSEL FURNACE
Chryzant Lesniak, ul. 18-ego Sierpnia Blok C, m. 9, and Edmunt Bryjak, 6 ul. Harcersta 2, both of Katowice, Poland
Filed Dec. 22, 1972, Ser. No. 317,698
Int. Cl. C21d 1/12
U.S. Cl. 266—18 5 Claims



Rotary vessel furnace for the chemical heat treatment of metals and alloys, including a rotatable cylindrical retort

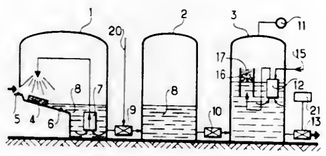
adapted to receive said metals or alloys and a gaseous material-treating medium, said retort having a coil extending along and in proximity to the inner circumferential surface thereof so as to prevent contact between the retort wall and the material being chemically heat treated.

3,809,378
NON-FERROUS METAL MELTING FURNACE
Hirofumi Iida, Chiba, Japan, assignor to Tokyo Gas Company Limited and Nippon Crucible Company Limited, both of Tokyo, Japan
Filed Aug. 17, 1972, Ser. No. 281,502
Claims priority, application Japan, Aug. 21, 1971, 46-75151
Int. Cl. F27b *19/04*
U.S. Cl. 266—33 R **2 Claims**



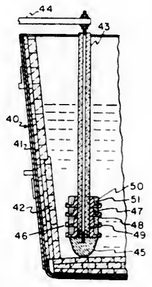
A non-ferrous metal melting furnace in which a primary melting chamber is formed at the lower portion of an exhaust flue and a high velocity burner is provided in the wall of said primary melting chamber. The primary melting chamber opens into a secondary melting chamber. Metal charged into the primary melting chamber is rapidly half-melted therein by direct contact with the combustion gas discharged from said burner, and the half-melted metal is introduced into the secondary melting chamber wherein it is completely melted by radiant heat from a burner mounted in the roof of said secondary melting chamber.

3,809,379
INSTALLATION FOR THE TREATMENT AND MOVEMENT OF LIQUID METALS
Henri Carbonnel, Antony, and Jean-Paul Le Frere, Villejulf, both of France, assignors to Groupement Atomique Alscienne Atlantique, Le Plessis Robinson, France
Continuation-in-part of Ser. No. 136,078, April 21, 1971, abandoned. This application June 27, 1972, Ser. No. 266,800
Claims priority, application France, Apr. 21, 1970, 70.14468; Apr. 7, 1971, 71.12355
Int. Cl. C21c *7/10*
U.S. Cl. 266—34 V **10 Claims**



An installation for the treatment and movement of liquid metals prior to casting, comprising, in succession, at least one metal smelter, involving an electromagnetic pump which forces back metal being smelted toward the solid metal inserted into the furnace; at least one ladle for keeping the metal in the liquid state, at least one degassing furnace, which supplies at least one work station and which involves an electromagnetic metal stirring pump. Electromagnetic or similar pumps are used for moving the liquid from the smelter to the ladle, degassing furnace and work station. This installation is particularly useful for treating and moving aluminum, zinc and magnesium.

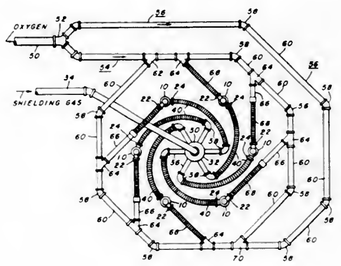
3,809,380
APPARATUS FOR LADLE ADDITIONS
George Rocher, Pittsburgh, Pa., and Pierre Andre Vayda, Burlington, Ontario, Canada, assignors to Metallurgical Exoproducts Corporation, McKees Rocks, Pa.
Filed May 7, 1973, Ser. No. 358,263
Int. Cl. C21c *7/00*
U.S. Cl. 266—34 T **8 Claims**



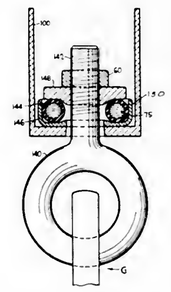
A ladle for receiving molten metal is equipped with an elongated refractory lined rod having an enlarged bottom portion which terminates at the lower end of the ladle. A container assemblage is positioned and maintained about the rod and includes containers, each having an enlarged mass portion adjacent the rod and a containing arm extending outwardly therefrom. An addition agent is maintained on the containers through individual upstanding cardboard liners positioned adjacent a peripheral lip of the container arms or by means of a large cardboard and/or steel liner in which the containers are stacked so that the drum forms the outer boundary for the containers. The assemblage can also be a solid cylindrical addition agent such as aluminum encapsulated in a cardboard and/or steel liner. A wedge system can be employed with the container assemblage to hold it in place about the refractory lined rod.

3,809,381
LIME OXYGEN-NATURAL GAS DISTRIBUTION SYSTEM
Raymond C. Stephan, Gary, Ind., assignor to United States Steel Corporation, Pittsburgh, Pa.
Filed July 10, 1972, Ser. No. 271,094
Int. Cl. C21c *5/48*
U.S. Cl. 266—35 **5 Claims**

A distribution system for supplying an oxygen-lime mixture to the tuyeres in a bottom blown steel refining vessel having a closed continuous oxygen-lime feed line encircling said tuyeres below the vessel bottom, and a plurality of individual conduit means to convey the oxygen-lime mixture from the closed continuous feed line to the individual tuyeres. In order to maintain a substantially uniform oxygen pressure and lime feed rate to each tuyere, the closed continuous feed line is provided with at least two inlet means uniformly spaced along said closed continuous feed line for supplying fresh oxygen-lime mixtures thereto.



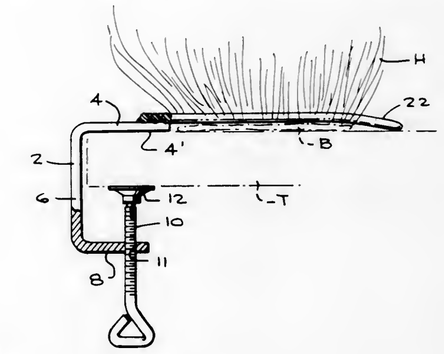
3,809,382
FLUID THRUST DEVICE
Karl A. Pamer, Chagrin Falls, Ohio, assignor to McNeil Corporation, Wickliffe, Ohio
Filed June 9, 1972, Ser. No. 261,377
Int. Cl. B60g *11/26*
U.S. Cl. 267—65 A **7 Claims**



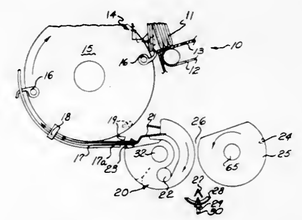
A thrust device comprising a discrete, entirely resilient and flexible, closed vessel filled with liquid.

3,809,383
WIGLET HOLDER
Matha C. Ptacek, 1802 Wood Valley Rd., Macon, Ga.
Filed July 24, 1972, Ser. No. 274,298
Int. Cl. A45d *8/00, 44/14*
U.S. Cl. 269—91 **8 Claims**

A wiglet holder is disclosed in the form of a fork comprised of a plurality of U-shaped members each including base member having first and second tines extending forwardly with the respective U-shaped members having different length base members and connected to a supporting member clamped to a table or the like with the tines extending forwardly in parallel relation to receive and retain a wiglet for combing and styling.

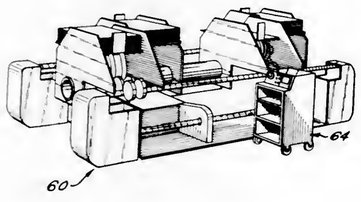


3,809,384
SADDLE GATHERING MACHINE
Victor A. Zugel, Parma, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio
Filed July 13, 1972, Ser. No. 271,488
Int. Cl. B65h *39/02*
U.S. Cl. 270—54 **13 Claims**



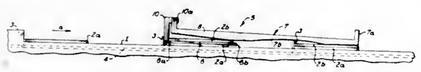
Rotatable transfer drum removes signatures by their folded edges one at a time from a hopper and presents them to a supporting plate with their open ends extending beyond one edge of the plate. The first of a pair of rotatable signature opener drums is arranged to take the open end of each signature lying on the plate in such a fashion that a fairly sharp bend is put in the open end, thus enabling easy signature opening when the outer side is released for taking by a vacuum gripper on a second opener drum. The first opener drum is provided with long gripper fingers, short gripper fingers, and one or more vacuum grippers, for handling different types of signatures having high and low folio laps or no lap at all. The gripper fingers are operated by stationary cams on one side of the first opener drum, and a vacuum line to the vacuum gripper is provided at the opposite side of the drum and is connected to the rotor of a timing valve. The cams are coaxial with the opener drum and are held fixed in position by means of a stationary bracket extending radially from a frame member to the cams. Tamper plates or paddles are provided to engage signatures on the plate to provide a temporary steadying support when the grippers initially take hold of the open ends of signatures.

3,809,385
METHOD AND APPARATUS FOR OFF-LINE MAKE-READY
Victoriano F. Rana, Easton, Pa., assignor to Harris-Intertype Corporation, Cleveland, Ohio
Filed Sept. 25, 1972, Ser. No. 291,716
Int. Cl. B65h *39/02*
U.S. Cl. 270—54 11 Claims



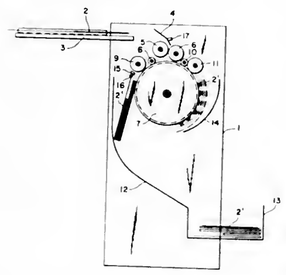
A method and apparatus for optimizing on-line production in a bindery by providing a signature gathering machine in which hopper pockets not being utilized in a production run may be made ready for the next production run without interrupting or interfering with the current production run. The individual hopper pockets may be removable and transportable to an off-line make-ready stand where make-ready adjustments may be made on each pocket individually or the pockets not currently in use may remain on-line but disconnected from the machine drive and, through automatic controls, the necessary make-ready adjustments are made at a single off-line pocket and transmitted simultaneously to all on-line pockets.

3,809,386
DEVICE FOR ASSOCIATING MOUNTS FOR SLIDE TRANSPARENCIES
Johannes Loersch, 4153 Huls, Krefelder Strasse 40, Germany
Filed Feb. 8, 1971, Ser. No. 113,384
Int. Cl. B65h *39/02*
U.S. Cl. 270—58 6 Claims



A device for mounting photographic slide transparencies in mounts, each mount comprising a pair of mount halves wherein one mount half is placed on top of the other and the transparency is positioned between them; the device having a horizontal conveyor system for conveying the lower half mounts under a spaced resilient horizontally disposed tongue with a free after end which supports the upper mount half and cooperates with a pivotable lever which it underlies to retain the upper mount half approximately parallel to it until the mount halves are pressed together by the pivotable lever. Both the upper and lower mount halves are moved by vertically extending catches and are so spaced on the conveyor that the pivotable lever presses the succeeding mount halves together in a downward movement due to gravity when the leading already joined mount is carried from under the after free end of the pivotable lever. A brake is provided at the side of the conveyor system to bias the mount halves snugly against the catches behind the free end of the tongue to insure their proper alignment.

3,809,387
APPARATUS FOR THE AUTOMATIC FOLDING AND CREASING OF SHEET MATERIAL
Hans Heist, Wiesbaden-Schierstein, and Dieter Silbereisen, Wiesbaden, both of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Apr. 20, 1972, Ser. No. 245,922
Claims priority, application Germany, Apr. 22, 1971, 2119372
Int. Cl. B65h *45/20*
U.S. Cl. 270—79 10 Claims



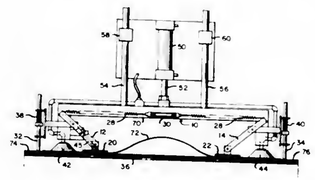
This invention relates to an apparatus for folding and creasing a sheet of material, comprising rotatable drum means for receiving said sheet on its periphery,

a pair of drivable nip rollers on axes parallel to the drum axis, for feeding the sheet onto the drum while the latter is being rotated, said rollers being pivotal parallel to their axes to bring each, one at a time, into driving contact with the drum,

a scanning element for the leading edge of the material on the drum means,

and control means, actuated by said scanning element, to stop the drum, so to pivot the feed rollers that one of them whose surface adjacent the drum has been rotating in the opposite direction to the drum now makes driving contact with the drum to drive it in the said opposite direction, whereby the material is folded and passes for creasing between the driving feed roller and the drum means, and then so to pivot the feed rollers that the other of them drives the drum in its original direction whereby the material is again folded and passes for further creasing between the now driving feed roller and the drum.

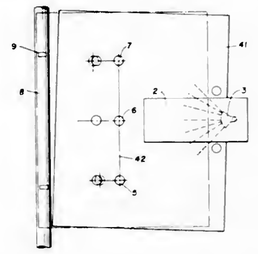
3,809,388
MACHINES FOR PICKING A SINGLE SHEET OF MATERIAL FROM A STACK
Thomas P. Downing, Maitland, Fla., assignor to Acme Conveyor Company, Inc., Sandford, Fla.
Filed Apr. 14, 1972, Ser. No. 244,144
Int. Cl. B65h *3/08, 3/54*
U.S. Cl. 271—20 5 Claims



A machine for picking up one top sheet of material from a stack of sheets. The machine buckles the top sheet leaving a surface near the edges of a second sheet beneath the top sheet

exposed. A pair of feet urge against the exposed surface holding the second sheet against the stack while suction is applied to the top sheet to assist in lifting it from the stack.

3,809,389
SHEET FEEDING APPARATUS FOR PRINTING PRESSES
Arno Wirz, Bammental, Germany, assignor to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany
Filed Dec. 12, 1972, Ser. No. 314,338
Claims priority, application Germany, Dec. 18, 1971, 2163083
Int. Cl. B65h *9/14*
U.S. Cl. 271—91 8 Claims



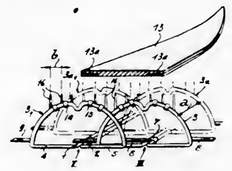
Sheet feed apparatus for printing presses in which sheets are lifted from a stack and transported to a sheet feed device includes a carrier operable between a pick-up position and a feed position. The carrier includes a carrier bar having a central section and two outer sections rotatably mounted relative to the central section. Suction grippers are mounted on the two outer sections and also a suction gripper may be mounted on the central section. A slide bar means is provided for varying the travel pattern of the outer suction grippers such that the latter are operable to align a sheet as the sheet is transported from the stack towards the sheet feed device.

3,809,390
SHEET GRIPPER APPARATUS FOR A CUTTING AND CREASING PRESS
Franz N. Lenoir, Marcinelle, Belgium, assignor to Miller Printing Machinery Co., Pittsburgh, Pa.
Filed Jan. 12, 1972, Ser. No. 217,303
Int. Cl. B65h *29/04*
U.S. Cl. 271—204 3 Claims



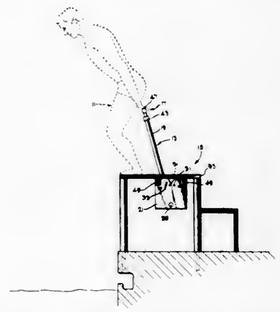
A pair of endless chains are reeved about spaced pairs of sprockets and transverse gripper bars are connected to the endless chain in spaced relation to each other. The sprockets are driven to propel the chains with transverse gripper bars secured therethrough through the cutter and creaser section, stripping section and delivery section of the press unit. The gripper bars have a plurality of gripper members secured thereto and extending rearwardly therefrom. The gripper members include a rigid base or pad member extending rearwardly from the gripper bar and a resilient sheet engaging gripper finger positioned in overlying relation with the fixed rearwardly extending rigid pad member. The gripper finger actuator includes vertical pin members extending upwardly through vertical portions in the transverse gripper bar with the upper edge portions abutting the underside of the resilient gripper fingers. The lower edge portions of the pin members have rollers thereon arranged parallel to the longitudinal axis of the transverse gripper bars. An elongated plate is slidably secured to the underside of the transverse gripper bars and has portions abutting the respective rollers connected to the vertical pins. The plate members have an inclined portion adjacent to the respective rollers so that axial movement of the plate member relative to the gripper bar moves the roller members along the inclined portions of the plate to move the resilient gripper finger end portions away from the fixed pad of the gripper member. The plate unit includes cam followers connected at one end to the transverse gripper bar and at the other end to the slidable plate. The cam followers are arranged to move the slidable plate longitudinally relative to the gripper bar to open the gripper members at preselected locations along the press unit.

3,809,391
FLEXIBLE STRUCTURE FOR SKI TRACKS AND THE LIKE
Jacques Leon Alexandre See, Paris, France, assignor to Royalty S.A., Luxemburg Grand Duchy, Luxembourg
Filed Apr. 17, 1973, Ser. No. 351,888
Claims priority, application France, Apr. 21, 1972, 72.14337
Int. Cl. A63b *69/18*; A63c *19/10*
U.S. Cl. 272—56.5 SS 15 Claims



A flexible structure for ski tracks for simulating skiing on snow. The flexible structure comprises similar partially, imbricated elements. Each element is made of a succession of upstanding parallel arcs. The tops of the arcs are provided with protuberances and vertically protruding flexible fingers. The base basis of the fingers are at a level lower than top of the protuberances.

3,809,392
SWIM STARTING BLOCK WITH ADJUSTABLE HANDLE
Edward F. Kral, Jr., 217 Wehrli Rd., Naperville, Ill.
Filed Jan. 4, 1971, Ser. No. 103,468
Int. Cl. A63b *5/10*
U.S. Cl. 272—57 R 5 Claims



A swim starting block has a handle attached thereto by means of a base in which the handle is pivotally mounted. The

attached handle has both a vertical and horizontal component of position adjustment with respect to the block to accommodate the stance of a swimmer and support the swimmer while assuming a starting position for a swim race. The handle and its attaching base may be a portable assembly attachable to the block.

3,809,393
SWIVEL CASTER SUPPORTED EXERCISING HANDLE APPARATUS

Bowan Jones, 831 N.E. 20th Ave., Fort Lauderdale, Fla.

Filed Oct. 25, 1972, Ser. No. 300,795
Int. Cl. A63b *23/00*
U.S. Cl. 272—57 J **6 Claims**

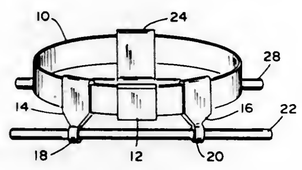


An exercising device in the form of a handle supported by at least three swivel casters and adapted to be moved about a floor while supporting the upper body of a person in use. The handle defines a longitudinal axis around which the swivel casters are symmetrically and fixedly disposed. Additionally, the handle has a girth which enables circumferential gripping by an adult hand.

3,809,394
TWO BAR EXERCISER

Merwin Guy Hall, Rt. Box 268, Covington, La.

Filed Sept. 18, 1972, Ser. No. 289,964
Int. Cl. A63b *23/02*
U.S. Cl. 272—80 **3 Claims**



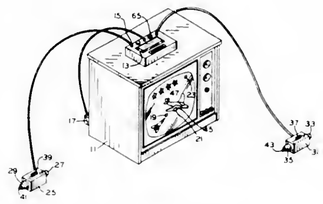
Two semi-rigid bars are suspended from an adjustable belt adapted to encircle the waist. One bar is positioned in front of the body near the top of the pelvis and the second bar is positioned at the rear of the body near the bottom of the pelvis. Means are provided for pulling the first bar toward the second bar so as to rotate the top of the pelvis toward the rear of the body while exercising various body muscles.

3,809,395
TELEVISION COMBAT GAME

Gordon H. Allison, Jr., and Clarence V. Greaf, both of Fort Wayne, Ind., assignors to The Magnavox Company, Fort Wayne, Ind.

Filed Sept. 28, 1972, Ser. No. 293,202
Int. Cl. A63f *9/00*
U.S. Cl. 273—1 E **6 Claims**

Apparatus for playing a combat type game on the screen of a television receiver is disclosed comprising circuitry for generating a target on the screen player movable in its horizontal and vertical positions, circuitry means for generating a projectile on the screen which is player controllable in its vertical position but which executes a trajectory having a preset horizontal component, and circuitry for extinguishing the target when the target and projectile are sufficiently close to indicate a "hit." The apparatus may include a circuitry for extinguishing both the target and the projectile and will, of course, employ player actuable circuitry for restoring the extinguished markers. An overlay which may be attached to

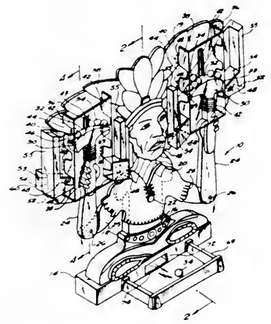


the screen of the receiver has indicia thereon defining permissible target locations thus restricting the positions to which one player may move the target. This overlay also has score keeping indicia which may be selectively illuminated by moving a score keeping marker behind the appropriate indicium reflecting the current game score, and the overlay may also include indicia indicating the projectile source and indicia near the permissible location indicia indicating the target if the permissible location indicia does not itself suggest a target.

3,809,396
BALANCE GAME

Charles Leicht, Merrick, and Tormod K. Reinertsen, East Northport, both of N.Y., assignors to Ideal Toy Corporation, Hollis, N.Y.

Filed Mar. 12, 1973, Ser. No. 340,429
Int. Cl. A63f *9/00*
U.S. Cl. 273—1 R **16 Claims**

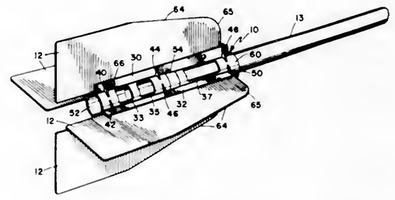


The balance game includes a pivoted balance beam having marble support members pivotally connected thereto at its opposite end portions, with the support members being guided for vertical movement and adapted to support a plurality of objects, such as marbles or the like, in containers operatively associated with the balance beam. The containers have a plurality of apertures formed therein, in spaced positions with respect to each other, so that when an imbalance occurs in the balance beam, and the beam begins to pivot, the ends of the support members are moved to positions adjacent the apertures in the containers, thereby causing the marbles to fall from the containers.

3,809,397
APPARATUS FOR DEVELOPING QUICKNESS IN SWINGING OF A BASEBALL BAT

Bryan J. Gruenewald, 3684 Strand Way, San Diego, Calif.

Continuation-in-part of Ser. No. 170,075, Aug. 8, 1971, abandoned. This application Apr. 3, 1972, Ser. No. 240,446
Int. Cl. A63b *69/40*
U.S. Cl. 273—26 B **10 Claims**

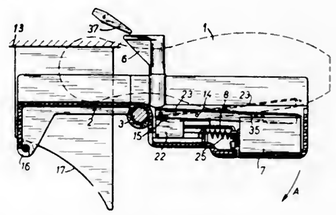


Exercise apparatus for use in conjunction with an ordinary baseball bat including a tubular tapered body that is inserted over the handle end of the bat and lodges near the hitting end of the bat. The tapered body mounts air resistance vanes, spaced around its circumference, and received in channels formed by lengthwise, parallel channel wall members attached to the tapered body. In use, the apparatus is installed over a bat, and the bat swung in the normal fashion. The user experiences the feel of substantially the normal swing augmented by greatly increased resistance. The resistance is at a maximum at the highest velocity. This produces maximum conditioning and developing effect on the wrists and those muscles involved in the follow through portion of the swing.

3,809,398
METHOD AND APPARATUS FOR AUTOMATIC BOWLING PIN SETTING

August Schmid, Schwerzenbach, Switzerland, and Georges Goens, Heverlee, Belgium, assignors to Serania AG Patentverwertungs-und Finanzierungsgesellschaft, Glarus, Switzerland

Filed Sept. 20, 1972, Ser. No. 290,514
Claims priority, application Switzerland, Sept. 22, 1971, 13870/71
Int. Cl. A63d *5/08*
U.S. Cl. 273—43 A **10 Claims**

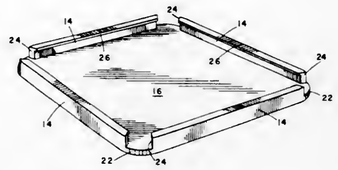


To reset, automatically, all the bowling pins for one game of bowling, or only those which have not been knocked over by a bowled ball, a frame is provided which is supplied with tipping baskets, each one adapted to hold a bowling pin and having electromagnetically operated flaps engaging over the neck of the bowling pin. The frame, with the baskets upright and the flaps open can be lowered to pick up the pins which have been left standing, the frame raised, and empty baskets are, selectively, filled with pins; the frame is then again lowered, and the flaps opened to release all the pins which were in baskets.

3,809,399
SNAP PLATE FOR FOOTBALL

Thomas Cuprak, 2038 Alta View Dr., San Diego, Calif.

Filed Apr. 28, 1972, Ser. No. 248,636
Int. Cl. A63b *67/00*
U.S. Cl. 273—55 R **6 Claims**

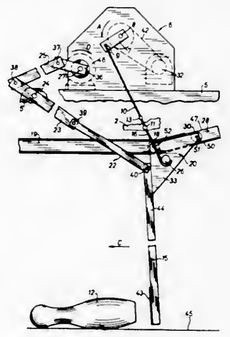


An item for use on a wet football field whereby the ball is supported on the line of scrimmage in reasonably dry condition since otherwise the ball, even though quickly wiped off, may be again made wet and slippery by recontammination with the wet and muddy turf when placed on the ground at the scrimmage line. This invention envisages a light weight water repellent plate which is easily carried manually and which has cleats on its underside to engage the turf and a replaceable absorptive pad or towel held in place on its upper surface by a peripheral wall on the plate.

3,809,400
BOWLING PIN SWEEPING AND CLEARING MECHANISM

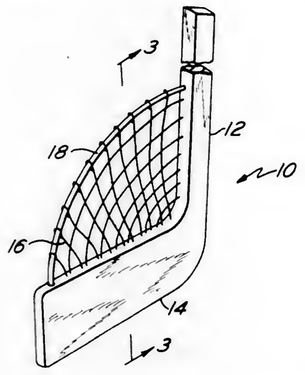
August Schmid, Schwerzenbach, Switzerland, and Georges Goens, Heverlee, Belgium, assignors to Patentverwertungs- und Finanzierungsgesellschaft Serania AG, Glarus, Switzerland

Filed Sept. 20, 1972, Ser. No. 290,533
Claims priority, application Switzerland, Sept. 22, 1971, 13871/71
Int. Cl. A63d *5/08*
U.S. Cl. 273—54 A **12 Claims**



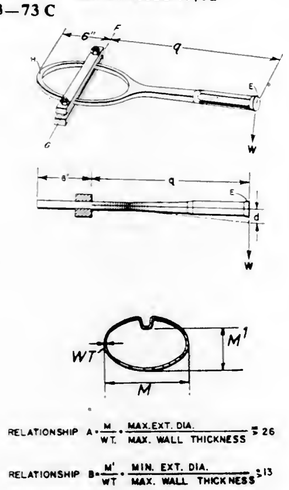
A sweeper arm, guided in guide rails is linearly reciprocable by a motor driven crank through a linkage consisting of levers and links, and additional drive means are provided to swing the sweeper arm about the horizontal axis, upwardly, so that the sweeper arm will be lifted away from the alley floor and clear the field of vision. The sweeper arm can reciprocate approximately horizontally along guide rails which, at an end position, are open upwardly so that when a motor-driven gripper lifts the sweeper arm, rollers engaged in the guide rails can be lifted out of the guide rails for upward swinging movement.

3,809,401
HOCKEY STICK
Allen R. Hankele, Somerdale, N.J., assignor to Hankele Sports Enterprises, Inc., Philadelphia, Pa.
Filed Mar. 12, 1973, Ser. No. 340,157
Int. Cl. A63b *59/12*
U.S. Cl. 273—67 A **6 Claims**



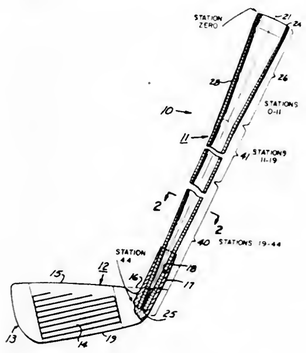
A hockey stick comprising a handle and a blade which is integral therewith. The blade projects at an obtuse angle from the handle, thereby forming an elbow between the handle and the blade. A flexible net is secured in the elbow between the handle and blade.

3,809,402
TENNIS RACKETS AND FRAMES THEREFOR
Robert C. Haines, Huddersfield; John E. Barrett, Kingston-on-Thames, and Eric H. Stevens, Monk Bretton, all of England, assignors to Dunlop Holdings, Limited, St. James, London, England
Continuation-in-part of Ser. No. 889,642, Dec. 31, 1969, abandoned. This application Sept. 5, 1972, Ser. No. 286,001
Claims priority, application Great Britain, Jan. 30, 1969, 367/69
Int. Cl. A63b *49/12*
U.S. Cl. 273—73 C **12 Claims**



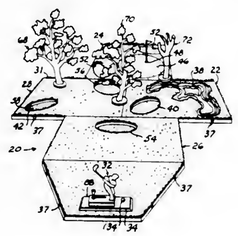
The invention concerns tennis rackets whose frames are formed from steel tube (so called "steel tennis rackets") of enhanced rigidity which gives them superior playing properties. This rigidity can be obtained by choosing steel tube whose dimensions are as follows: (A) the maximum external dimension of the tube cross-section divided by the maximum wall thickness of the tube at the cross-section is at least 26; and (B) the minimum external dimension of the tube cross-section divided by the maximum wall thickness of the tube at the cross-section is at least 13. If the tube is of oval cross-section, the maximum external dimension of the cross-section is preferably in a direction transverse to the plane containing the racket frame, of which the following is a specification.

3,809,403
SHAFT FOR CONVENTIONAL GOLF CLUB
Charles G. Hunter, P.O. Box 92, Yucca Vally, Calif.
Division of Ser. No. 790,602, Jan. 13, 1969, Pat. No. 3,614,101. This application Aug. 19, 1971, Ser. No. 173,114
Int. Cl. A63b *53/12*
U.S. Cl. 273—80 B **5 Claims**



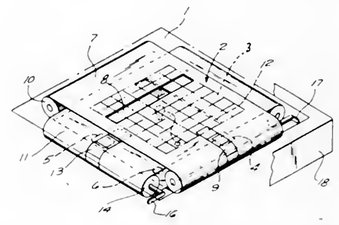
A golf club shaft having an axis, an inner wall and an outer wall, both axial, circular in cross-section, a major portion of it adjacent to the club head tapering so as to narrow toward the head end of the shaft, the wall thickness thereby increasing. The shaft has throughout its entire length a substantially constant cross-section area in planes normal to the longitudinal axis thereby providing uniform linear distribution of the shaft weight throughout its length. The shaft may be expanded beyond an extension of the taper to form a handle, to which a lightweight wrapping may be applied as a grip.

3,809,404
MINIATURE GOLF GAME AND GOLFER
Alfred E. Fikse, 5690 Park Crest Dr., San Jose, Calif.
Filed Oct. 4, 1972, Ser. No. 295,039
Int. Cl. A63f *7/06*
U.S. Cl. 273—87.4 **5 Claims**



A miniature golf course is formed by a selective arrangement of a plurality of panels, each having at least three equally dimensioned marginal edges. A mechanical golfer, having articulated joints, is selectively positionable on the miniature golf course. The golfer advances a miniature golf ball from a tee area and putting positions toward a cup position in response to manual release of a triggering system controlling the golfer.

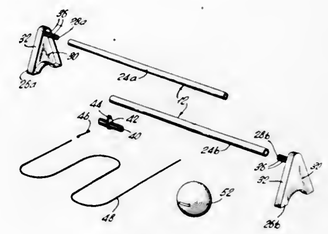
3,809,405
GAME APPARATUS FOR SIMULATING FOOTBALL, BASEBALL AND ANALOGOUS GAMES
Sol Friedman, 10 Ronald Dr., Monsey, N.Y.
Filed May 24, 1973, Ser. No. 363,712
Int. Cl. A63f *7/06*
U.S. Cl. 273—88 **6 Claims**



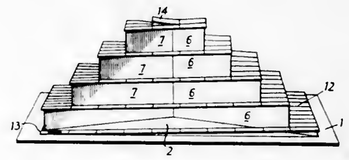
A game board has an upper side and a lower side and is provided with a translucent field and with two viewing windows located adjacent to respective lateral sides of the field which extend at right angles to one another. A grid is provided at the lower side in registry with the field and has a plurality of grid squares each provided with a marking indicative of a play result. A first element is mounted beneath the grid for displacement by one player across the field in a first direction and has a first slot which is elongated over the entire dimension of the field in a second direction normal to the first direction. A second element is also mounted beneath the grid for similar displacement by another player across the field, but in a second direction; the second element has a second slot elongated over the entire dimension of the field in the first direction and crossing the first slot in space so as to define at the point of intersection of the slots therewith a square opening which shifts into registry with different ones of the grid squares in response to relative displacement of the elements. A first and a second series of indicia representative of respective offensive and defensive plays, respectively, are each provided on one of the elements and the indicia of each series are individually viewable in one of the windows in response to incremental displacement of the respective element. A light source is arranged to be energized when each player has displaced his element until a desired one of the indicia of the respective series becomes visible in his window, and when the light source is so energized the grid square with which the square opening is in registry becomes illuminated and the associated play result is viewable at the upper side of the game board.

3,809,406
TETHER-BALL SUPPORT ASSEMBLY
Raymond J. Lohr, and Robert T. Auer, both of Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed June 23, 1972, Ser. No. 265,845
Int. Cl. A63b *71/02*
U.S. Cl. 273—95 A **9 Claims**

A tether-ball assembly where an elongated bar is supported at a given elevation above a supporting surface. An elongated flexible tether element is connected to the bar intermediate the ends thereof and has a ball attached thereto distant from the bar. Thus a player on one side of the bar can propel the ball to the other side thereof. The bar together with the structure for supporting it on the supporting surface and the component for attaching the tether to the bar are all capable of being assembled and disassembled without the use of any tools and occupy a small space when disassembled, so that the structure is easy to set up for use and disassembled for storage.



3,809,407
BOARD FOR A BOARD GAME
Peter J. C. Quigley, 9 Milton Rd., Sussex, England
Filed Apr. 15, 1971, Ser. No. 134,305
Claims priority, application Great Britain, Apr. 16, 1970, 18334/70; Nov. 24, 1970, 18334/70
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 G **6 Claims**

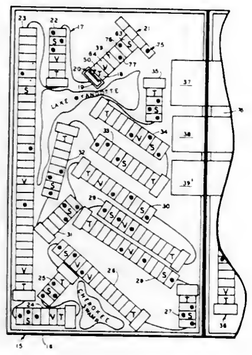


A board for a board game is incised so that it may be expanded from underneath to form a three-dimensional structure. In a preferred form, four hinged flaps are provided which are arranged so that, on lifting two of the flaps, all the flaps swing to expand and support the structure, the flaps being adapted to interengage to lock the structure in its expanded condition. To collapse the structure, the other two flaps are lifted to release the interengagement and allow the parts to return to two-dimensional form under gravity. In another form, the expanded board is supported on steps arranged at different levels on support members disposed in right-angular relationship and extending through slots in a base member.

3,809,408
BOARD GAME APPARATUS
William H. Sheward, Genoa Twsp., Delaware County, Ohio, assignor to Frank H. Foster, Columbus, Ohio
Filed Dec. 30, 1971, Ser. No. 214,012
Int. Cl. A63f *3/00*
U.S. Cl. 273—134 B **7 Claims**

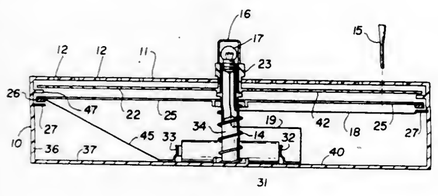
A board game apparatus including a playing board, bearing a plurality of separately delineated playing areas, each of said areas being formed with a plurality of laterally adjacent progress spaces, arranged in sequential array and terminating in a separately defined target space; and a target butt piece,

positionable adjacent said target space and adapted for displaying alternately selectable means for indicating the use of



separately defined rules for regulating the progress of movement of playing pieces upon the playing board.

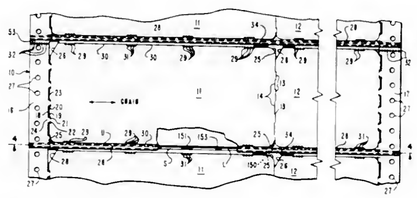
3,809,409
ROTATABLE DISC-PEG PROBE DEVICE HAVING AN ELECTRICAL CONDUCTING RIM SWITCH
Dan Haradyn, Hamilton, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Feb. 13, 1973, Ser. No. 332,065
Int. Cl. A63f *9/00*
U.S. Cl. 273—139 **1 Claim**



A device for the determination of random decisions, in which a peg is inserted into one of many holes in the top surface of the unit. An electric light bulb, or other signal device operated by an internal battery is also mounted on the face of the unit. Manual insertion of the peg through the selected hole may or may not be blocked by a perforated rotatable disc with through passage of the peg resulting in the contacting of a spring supported solid disc switch member which turns the light bulb or other electrical signal to the ON mode to signal a positive decision when an electrically conduction rim on the underside of the solid disc makes electrical contact with an electrically conducting rim supported by the unit.

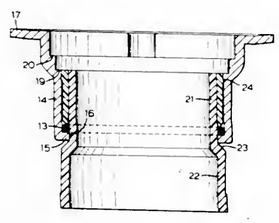
3,809,410
CONTINUOUS CARD FORM
Oliver D. Johnson, E. Brunswick, and Kenneth B. Maynard, Belle Mead, both of N.J., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 16, 1971, Ser. No. 115,448
Int. Cl. B42d *19/00*
U.S. Cl. 281—5 **10 Claims**

Improved folding during manufacture of continuous forms and refolding during runs through a high-speed printer are obtained by a fold score comprising a series of perforations extending across the detachable marginal strips and transversely aligned with, and preferably the same size as, the groups of perforations constituting the ties between the break-out cards and intervening medial strips. Especially in a two-card wide form, the structural strength of each medial strip adjacent a fold score line is suitably reduced, such as by a slot, to prevent toggle-like stiffening at the fold line, and consequent stacking



jams, such as can occur during refolding of the form upon sudden stops following a high-speed line skip in a printer. In grain long forms, the overlapping plies providing the medial strip are heat sealed only at selected areas rather than along the entire strip to reduce medial strip shrinkage and further improve ease of stacking.

3,809,411
DRAIN FITTING
John Ernest Emberson, 25 Dogwood Cres., Scarborough, Ontario, Canada
Filed Feb. 20, 1973, Ser. No. 334,113
Int. Cl. E04b *5/48*
U.S. Cl. 285—42 **6 Claims**

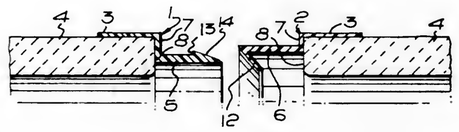


A drain assembly for connecting plastic drain pipes to metal drain structural components comprises a metal body which is secured to a floor or roof structure, with relatively rigid plastic conduit parts attached thereto and making sealing contact therewith. The plastic parts of the assembly include a conduit extending through the metal body, a plastic collar fitting tightly between the metal body and the plastic conduit, and secured thereto e.g. by spot welding. A sealing ring is provided between a lower inward flange on the metal body, the plastic conduit and the lower edge of the plastic collar which bears down on and compresses the sealing ring to effect liquid seal between the metal and plastic parts.

3,809,412
PIPE COUPLINGS
John Benjamin Glover, Stocksbridge, England, assignor to The Hepworth Iron Company Limited, Sheffield, England
Filed Jan. 17, 1972, Ser. No. 218,326
Claims priority, application Great Britain, Jan. 21, 1971, 2835/71
Int. Cl. F16l *17/00*
U.S. Cl. 285—110 **7 Claims**

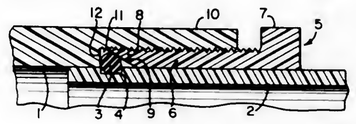
A pipe coupling for plain-end pipes, e.g., of fired clayware, comprises a pair of sleeves of resilient plastics material with cylindrical portions for securing on the pipe-ends and

generally cylindrical joint forming portions adapted to extend beyond the pipe-ends, the joint forming portion of at least one of the sleeves, but preferably of each of the sleeves, being connected to its securing portion by an annular portion for abutting a pipe-end, and sealing means, such as mating tapers,



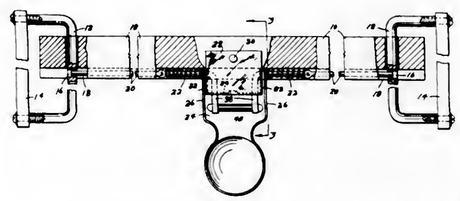
a sealing lip, or a sealing ring, being provided between the joint forming portions, whereby the securing portions can yield to the profiles and diameters of the respective pipe-ends to which they are applied, while the joint forming portions substantially retain their generally cylindrical shapes, so that little tolerance need be allowed for in the sealing means.

3,809,413
DEVICE FOR THE CONNECTION OF CYLINDRICAL MEMBERS
Raymond Boisserand, Le Placyre, 38 Voiron, France
Filed Mar. 16, 1972, Ser. No. 235,285
Claims priority, application France, Mar. 19, 1971, 71.09650
Int. Cl. F16l *17/00*
U.S. Cl. 285—348 **7 Claims**



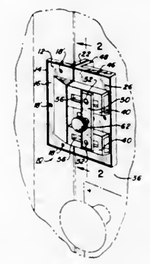
The specification discloses a connecting device comprising an elastic deformable ring and a barrel nut adapted to connect a tubular cylindrical member to a second cylindrical member, the tightening of the barrel nut causing the compression of the ring mounted on a receiving throat of the second member and extending into a blind bore formed on the inner surface of the tubular member, the barrel nut being in free slidable and rotatable relationship with the second member.

3,809,414
TRIP LOCK
Herbert W. Neunherz, and Robert G. Bryant, both of Gardner, Mass., assignors to Gem Industries, Inc., Gardner, Mass.
Filed Dec. 27, 1971, Ser. No. 211,939
Int. Cl. E05c *9/04*
U.S. Cl. 292—4 **2 Claims**



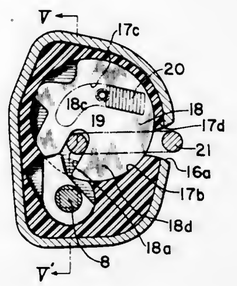
A trip lock for the drop side of an infant's crib comprising a pair of movable lock rods having adjacent ends turned up and in engagement with a trip lever to operate the same, said trip lever bearing upon said ends and rotating the rods through a relatively small angle, said rod ends also being in engagement with a pair of opposed cam surfaces causing the rods to be moved relative to each other to unlock the drop side, wherein said trip lever is provided with a raised or struck-up bearing member for the rod ends to ride on.

3,809,415
LOCK BOLT
Kenneth C. Westcott, 3253 N. Clifton St., Chicago, Ill.
Filed Apr. 5, 1972, Ser. No. 241,233
Int. Cl. E05c *1/06;* **E05b** *9/00*
U.S. Cl. 292—33 **3 Claims**



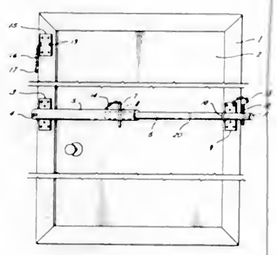
A lock bolt is provided having an L-shaped strike plate and an L-shaped bolt housing. When the strike plate and bolt housing are connected to the respective door and door jamb, one arm of each of the L's will be facing and adjacent to the other. A sliding bolt is provided with knob means for enabling an operator to slide the bolt manually. The bolt housing has a locking recess cooperating with the knob means for retaining the knob means in a fixed, closed position when the bolt has been slid to its closed position.

3,809,416
DOOR LOCK MECHANISM
Kenichi Kazoaka, Kariya, Japan, assignor to Aisin Seiki Company Limited, Kariya-shi, Japan
Division of Ser. No. 4,370, Jan. 20, 1970, abandoned. This application Jan. 17, 1972, Ser. No. 218,439
Int. Cl. E05c *3/26*
U.S. Cl. 292—216 **3 Claims**



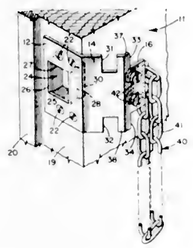
A door lock mechanism, characterized by that a rotatable disk latch having a plurality of recesses each adapted for engagement with a striker when a door fitted with the door lock mechanism less the striker is provided, and a rotatable pawl is provided in close proximity, said pawl being adapted for mechanical cooperation with said recesses or notches successively.

3,809,417
SECURITY DEVICE FOR DOORS
Robert T. Craig, 6506 Belfort, Houston, Tex.
Filed Sept. 5, 1972, Ser. No. 288,877
Int. Cl. E05c *1/04*
U.S. Cl. 292—259 **1 Claim**



A device for securing doors against intruders, having means for mounting to provide instant use and easy storage when out of use.

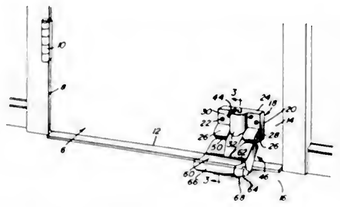
3,809,418
CHAIN-TYPE DOOR FASTENING DEVICE
Russell Canfield, Albuquerque, N. Mex., assignor to Tuflok, Inc., Albuquerque, N. Mex.
Filed Jan. 2, 1973, Ser. No. 320,606
Int. Cl. E05c *19/08*
U.S. Cl. 292—264 **8 Claims**



A chain-type door fastening device mounted on the door jamb and integrated into the strike plate assembly of the conventional door knob and latch. The chain-type door lock comprises a loop of chain that can be slipped over the door knob when the door is closed, allowing the door to be opened a few inches so the occupant can scrutinize a caller. However, there is also provided a chain locking means in the form of a pawl for engaging a link of the chain to shorten the loop of chain when the door is closed, thereby precluding the opening of the door even if the other latch is opened.

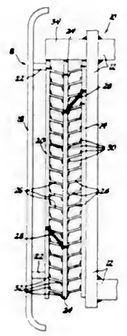
3,809,419
OCCUPANT SAFEGUARDING DOOR STOP
Jimmie A. Chezem, 4210 8th St. Ct. E., Bradenton, Fla.
Filed Aug. 28, 1972, Ser. No. 284,270
Int. Cl. E05c *3/12*
U.S. Cl. 292—338 **4 Claims**

Occupant safeguarding door stop means expressly designed and adapted for protective use on an interior surface near the lower edge and corner portion of a vertically hinged inwardly openable door. It comprises a mounting base or bracket screwed or otherwise fixed, and a complemental leg member hingedly mounted and depending and having a laterally directed contoured foot portion whose underneath side is equipped with a normally elevated anti-slipping floor engaging shoe. Spring means functions to yieldingly lift and release the



foot-equipped leg and permits the leg to be forced down to the desired door stop position. Releasable spring-loaded latching means functions to hold the door stop in its safety door retaining position.

3,809,420
ENERGY ABSORBING BUMPER ASSEMBLY
Peter A. Weller, Dover, N.H., assignor to McCord Corporation, Detroit, Mich.
Filed July 1, 1971, Ser. No. 158,918
Int. Cl. B60r *19/08*
U.S. Cl. 293—70 **16 Claims**



An energy absorbing bumper assembly including an inner member and outer member spaced from the inner member and an elongated central member disposed between the inner and outer members and generally parallel thereto. Energy absorbing means connect the length of the central member to the inner and outer members respectively for absorbing energy along the entire length of the central member while moving the central member longitudinally in response to a force applied to the outer means along only a portion of the predetermined length to move the outer member toward the inner member. The energy absorbing means includes elements extending from opposite sides of the central member at an acute angle relative thereto and generally in the same direction longitudinally of the central member. The assembly may include one or more central members as well as additional yieldable means for absorbing energy.

3,809,421
LEAF AND RUBBISH SHOVEL
Horace A. James, 6662 Blakemore St., Philadelphia, Pa.
Filed May 9, 1973, Ser. No. 358,527
Int. Cl. A01b *1/20*
U.S. Cl. 294—50.8 **12 Claims**

This specification discloses a leaf and rubbish shovel comprising two blades, each of which consists of upper and lower

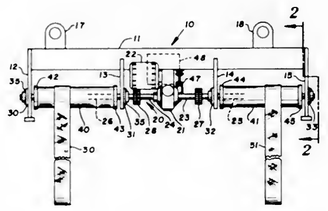
sections that are connected for movement relative to each other by a flexible metallic strip with a leaf spring biasing the sections to a normal relation. The two upper sections are hingedly connected and a handle is anchored at one end to each of these upper sections. The handles are dimensioned to be grasped by the hands of a user with each handle having a laterally and outwardly extending arm that assumes a position under the forearm in the area of the elbow to enable the user to handle heavy masses of material gathered by the shovel.



The sections of each blade may be moved relative to each other by flexing the strip which connects them with stops being provided to limit the flexing movement in each direction.

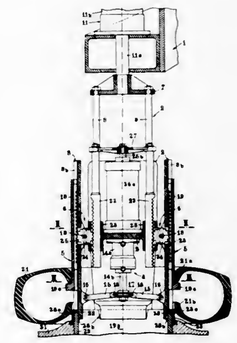
The present invention relates to devices of the shovel type which are intended primarily for gathering and handling leaves and rubbish and is concerned primarily with certain improvements which facilitate handling of heavy masses gathered by the shovel and the dumping of such materials into a receptacle.

3,809,422
APPARATUS FOR TURNING HEAVY LOADS SUCH AS STONE
Thomas L. Schlough, St. Cloud, Minn., assignor to The Gran-A-Stone Co., Park Tool Company Division, St. Cloud, Minn.
Filed Apr. 28, 1972, Ser. No. 248,675
Int. Cl. B66c *1/18*
U.S. Cl. 294—74 **7 Claims**



Load turning sling means for handling heavy loads such as stone slabs and the like, and comprising a frame having brackets suspended therefrom for supporting a drive shaft in journaled relationship therewith. Drums are secured to opposite ends of the drive shaft, with the drums having an outer sling receiving drive surface thereon and a sling retaining head at each end of each drum. A pair of endless loop slings are arranged in captive relationship over the drums, and free to be positioned thereover, thus providing the load turning sling for handling loads suspended therefrom. The slings preferably have a high friction surface for frictionally engaging the sling receiving drive surface of the drum.

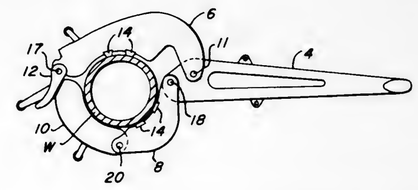
3,809,423
LOADER FOR TIRE CURING PRESS
Georges Gazuit, Chem Chauveau 03, Montlucon, France
Filed Apr. 16, 1973, Ser. No. 351,524
Int. Cl. B66c *1/22*
U.S. Cl. 294—88 **9 Claims**



This invention relates in general to loaders for tire curing presses, of the type comprising means for supplying the press mould with a crude tire to be vulcanized, and has specific reference to an improved loader of this character.

The loader comprises essentially a main frame structure **1**, an auxiliary frame **2** adapted to travel vertically in relation to said main frame, a plurality of segments **3** disposed on a circle and movable radially from an operative position to a release or clearing position, means **4** for moving said segments from their operative position to their release position, and vice versa, gripping means **5** movable vertically on each segment and other means **6** for driving said gripping means vertically along said segments.

3,809,424
ADJUSTABLE TONGS
Charles D. Crickmer, P.O. Box 134E, Houston, Tex.
Continuation-in-part of Ser. No. 739,765, June 25, 1968, abandoned. This application Jan. 5, 1970, Ser. No. 740
Int. Cl. B66c *1/00*
U.S. Cl. 294—113 **8 Claims**

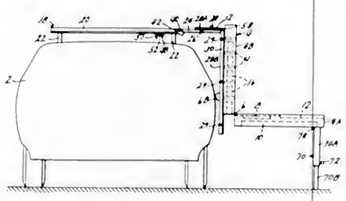


Tongs for oil well drilling and tubing operations wherein the tongs are adjustable to engage various sizes of cylindrically shaped members.

3,809,425
KITCHEN ACCESSORY FOR AUTOMOBILES
Anthony J. Blaschke, 1320 State Fair, Sedalia, Mo.
Filed Nov. 6, 1972, Ser. No. 304,088
Int. Cl. B60p *3/02*
U.S. Cl. 296—22 **4 Claims**

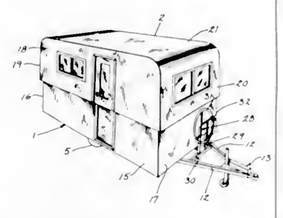
A kitchen accessory for automobiles consisting of a rectilinear case having two hingedly related halves, the case being adapted to be disposed above an automobile in the

manner of luggage in a luggage rack, but connected permanently to the automobile by a track device such that it may be moved to and supported in a position at one side of the automobile, and opened, whereby one half thereof is disposed



horizontally, opening upwardly and may carry a camp stove and fuel supply, and the other half is disposed vertically, rising from the inner edge of the stove half and opening outwardly, and may carry shelves for food supplies and the like.

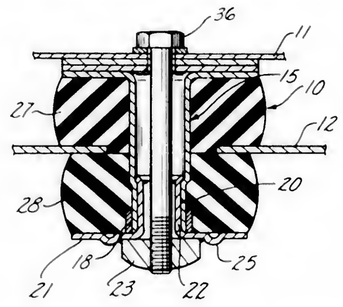
3,809,426
MECHANISM FOR RAISING AND LOWERING TELESCOPIC TRAVEL TRAILER
Rudy J. Ratcliff, Marengo, Ill., assignor to Ratcliff Industries, Inc., Juneau, Wis.
Filed Aug. 28, 1972, Ser. No. 284,341
Int. Cl. B60p *3/34*
U.S. Cl. 296—27 **7 Claims**



A mechanism for raising and lowering a telescopic travel trailer. The travel trailer includes a lower trailer section and an upper trailer section that telescopes vertically with respect to the lower section from a retracted position for transporting to a raised position for camping. The upper trailer section is raised and lowered by a hand wheel connected to a shaft that extends longitudinally of the lower section and the shaft is connected by cables to the upper trailer section. Rotation of the shaft in one direction through use of the hand wheel will cause the cables to wind on the shaft to raise the upper trailer section, while winding the shaft in the opposite direction will permit the upper trailer section to lower. To counterbalance the weight of the upper trailer section, a pair of springs are mounted on the frame of the lower trailer section and are connected by cables to the shaft in a manner such that when the upper trailer section is in the lower position the springs are extended, and as the upper trailer section is raised, the force of the springs acts to aid in raising the upper trailer section.

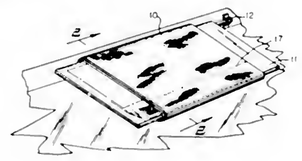
3,809,427
VEHICLE BODY MOUNT
John E. Bennett, Sterling Heights, Mich., assignor to Bennett Equipment Corporation, Detroit, Mich.
Filed Oct. 3, 1972, Ser. No. 294,538
Int. Cl. B62d *27/04*
U.S. Cl. 296—35 R **10 Claims**

A body mount and a method of assembling the same comprising a first sheet metal part having a base and an integral tube extending from the base, a second sheet metal part having a base and an integral tube extending from said base, the tube of said first-mentioned part having a portion adjacent the free end thereof which is of reduced internal diameter thereby forming an intermediate connecting portion between the portion of greater diameter and the portion of lesser diameter which is positioned in spaced axial relationship to the free end of the tube of said first part. The second part has its tubular



part telescopically received in the tube of said first part, the outer diameter of said tube of said second part being less than the inner diameter of the end portion of said first part. A pair of resilient blocks are provided through which the tubular parts extend. The free end of the tubular part of said second part is flared outwardly into engagement with the intermediate portion of said first part to hold said blocks of resilient material and a portion of the vehicle frame in locked position.

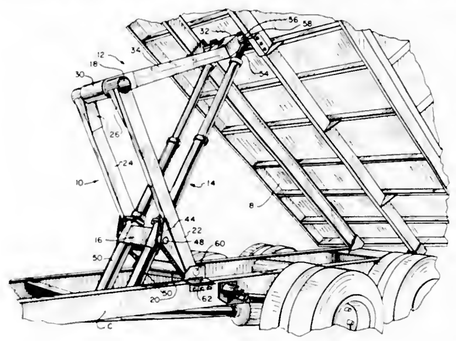
3,809,428
SUN VISOR ACCESSORY
Eli Cohen, 350 Continental Ave., Paramus, N.J.
Filed June 1, 1972, Ser. No. 258,853
Int. Cl. B60j *3/00*
U.S. Cl. 296—97 C **2 Claims**



A stretchable, tubular sleeve-like member provided with means thereon for the reception of various often used articles or objects and which is adapted to be mounted on the sun visor of a motor vehicle to thereby render such articles or objects easily accessible to the driver or passenger of a motor vehicle.

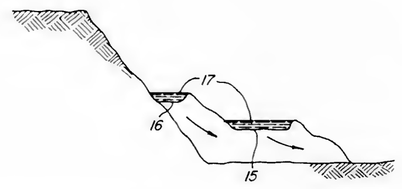
3,809,429
SCISSOR FRAME ASSEMBLY
Glen L. Channell, Loveland, Colo., assignor to Hydraulics Unlimited Manufacturing Co., Eaton, Colo.
Filed Feb. 12, 1973, Ser. No. 331,621
Int. Cl. B60p *1/20*
U.S. Cl. 298—17 S **11 Claims**

A scissor frame assembly for use in dump vehicles especially designed to stabilize the dump bed when elevated in the face of laterally unbalanced loading of the bed. The main and tongue frame of the scissor frame assembly each employ a pair of elongate hollow cylindrical hinge tubes to establish the three pivot axes of the scissor frame assembly. The hinge tubes of each of the tongue and main frames are interconnected to each other by rigid frame members of hollow tubular transverse cross-section which have high resistance to twisting or longitudinal torsional forces and also against lateral bending forces. Each of the tongue frame and the main frame is designed to be an independently rigid frame in and of itself with one hinge tube of the two frames being telescopically and rotatively received on a hinge tube of the other frame to pivotally interconnect the two frames into the scissor frame



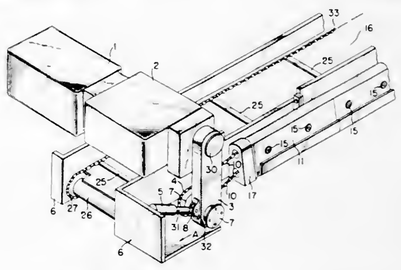
assembly. The resulting construction has substantial rigidity against forces induced by unbalanced loading of the bed which tend to shift the hinge tube axes out of parallelism with each other or to shift the hinge tubes laterally relative to each other in a direction parallel to their axes. The frame assembly is designed to be employed either as a stabilizing frame in which raising and lowering of the bed is accomplished by an independently mounted hydraulic motor system or alternatively as a scissor hoist in which the hydraulic lift system is mounted upon and incorporated in the scissor frame.

3,809,430
SLOPE CAVE LEACHING OF EXPOSED OR NEAR-SURFACE MINERALIZED DEPOSITS
Stanley D. Michaelson, and Carl D. Broadbent, both of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.
Filed May 18, 1972, Ser. No. 254,688
Int. Cl. E21c *41/14*
U.S. Cl. 299—5 **4 Claims**



Metal values are extracted by a combination of slope caving and leaching from mineralized deposits at or near the surface of the earth that are uneconomic to work in normal ways either because of excessively low grade or access difficulties, e.g., areas normally encountered at the fringes of open pit mining operations. Undercutting of a slope to induce caving results in effective mass fragmentation of the mineralized material and the formation of a substantially unstratified and highly porous body of fragmented material at the foot of the slope. Application of a leach solution to such body, either as is or leveled and provided with superficial basins for holding a supply of the leach solution, so such solution percolates downwardly through the fragmented and unstratified material, extracts values therefrom which are recovered by collection and processing of the pregnant leach liquor.

3,809,431
DRIVING DEVICE FOR RANGING-TYPE COAL PLANERS
Shigeo Nakajima, Kushiro, Japan, assignor to Taiheiyo Coal Mining Co., Ltd., Tokyo, Japan
Filed Feb. 12, 1973, Ser. No. 331,481
Int. Cl. E21c *29/16*
U.S. Cl. 299—34 **2 Claims**

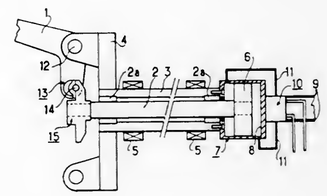


This invention relates to a device for driving ranging-type coal planer as well as to an idler in the return device for said coal planer.

When a coal planer is used in a conveyor system on the coal face, advance and retreat of said coal planer cause the coal planer chain which interlocks with the driving wheel to slacken.

The invention also relates to a driving device for ranging-type coal planers wherein tension is applied to said driving wheel in a fixed direction to prevent the coal planer chain from slackening, and where, the wheel on the coal planer's return side supporting said coal planer chain is freely coupled onto the axis of the face conveyor wheel so as not to be affected by the rotation of said axis.

3,809,432
ROTARY TOOL HEAD FOR A CONTINUOUS BORING MACHINE
Marcel Montacie, Paris, France, assignor to Union Industrielle Blanzy-Ouest, Paris, France
Filed May 17, 1972, Ser. No. 254,123
Claims priority, application France, May 17, 1971, 71.17770
Int. Cl. E21c *37/26*
U.S. Cl. 299—85 **2 Claims**



Tool for a rotating head of a continuous drilling or cutting machine, mounted on a tool-carrier fixed on the said rotating head, driven in a rotating sweeping movement in a plane passing through the axis of rotation of the said rotating head, by the action of hydromechanical means driving a rotating rod coaxial with the said axis in a reciprocating movement; a

knuckle joint with an eccentric axis arranged between the rod and the tool-carrier ensures that the linear movement of said rod is converted into a rotating movement of said tool-bearer.

3,809,433

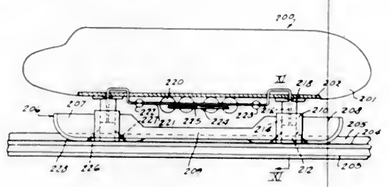
ANTI-FRICTION VEHICLE SUPPORT SYSTEM

Dzemal Mulasmajic, 338 Pleasant Hill Blvd., Palatine, Ill.

Continuation-in-part of Ser. Nos. 175,940, Aug. 30, 1971, Pat. No. 3,719,395, and Ser. No. 210,923, Dec. 22, 1971, Pat. No. 3,734,565. This application Nov. 20, 1972, Ser. No. 308,115

Int. Cl. B60v *3/04*

U.S. Cl. 301—1 **7 Claims**



A magnetic wheel for supporting a vehicle employs a permanent magnet or an electromagnet in the shape of a ring which is journalled for rotation about a shaft. The shaft is loosely coupled to the frame of the vehicle for vertical movement by means of a member which positions a permanent magnet or an electromagnet within the ring which is poled to repel the ring. The wheel is adapted for steering by providing that the loose coupling includes a pivotal coupling and by providing a lever arm for connection to a steering mechanism, such as a rack and pinion mechanism. Another embodiment utilizes a high pressure low leakage piston instead of the magnets within the ring, and a ski-like support utilizes a controlled high pressure air system to support a rail-type vehicle.

3,809,434

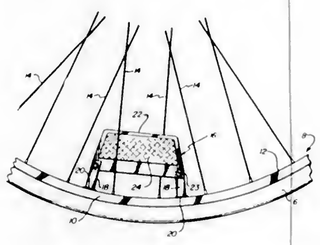
BICYCLE WHEEL WITH RIM AND HUB MOUNTED REFLECTOR

Henry J. Lindner, Wood Dale, Ill., assignor to Beatrice Foods Co., Chicago, Ill.

Filed May 19, 1972, Ser. No. 255,090

Int. Cl. B60b *7/00*

U.S. Cl. 301—37 R **2 Claims**



A bicycle having mounted on a circumferential wheel structure thereof a reflector element to provide side reflections when operating the bicycle. The circumferential wheel structure comprising the hub, or the rim, has a support bracket mounted thereto preferably by spot welds, and the reflector element is mounted to said support bracket either directly or indirectly where a backer plate is provided for the reflector element. A double reflector element may be provided for opposite side reflection, and the support bracket may be variously connected to the reflector alone, to the reflector and the backer plate, or to the backer plate alone.

3,809,435

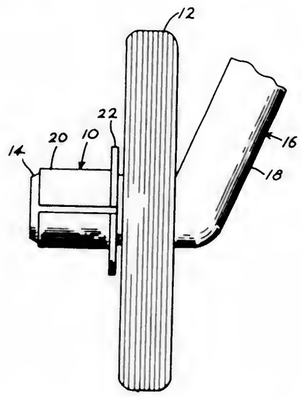
FRICTION KEEPERS FOR WHEELS AND STRUCTURES UTILIZING THEM

James C. Morris, 140 Lincoln, Ashland, Oreg.

Filed Mar. 23, 1973, Ser. No. 344,253

Int. Cl. B60b *37/10*; **F16c** *27/00*

U.S. Cl. 301—112 **8 Claims**



In toy structures such as model aircraft, for example, the problem of quickly, dependably and inexpensively securing and sustaining a wheel in place with freedom for rotation on a fixed bearing shaft in substantially a fixed radial plane of the shaft, is solved by the provision of an integral plate-and-sleeve device which is slit along a radial plane. The internal sleeve diameter is made small enough so that it requires enlarging deformation within its elastic limit in order to be fitted onto the shaft. The expanded sleeve portion firmly grips the shaft for retaining the wheel in place, while the plate portion guides the wheel, being effective, if necessary, to prevent or sharply limit wobbling of the wheel. Two of these devices, placed sleeve to sleeve, may combine not only to retain and guide a wheel, but also to serve jointly as a bearing for it.

3,809,436

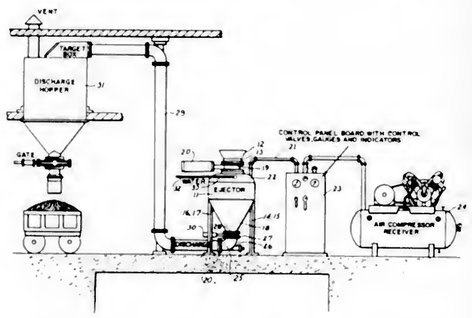
PROCESS FOR CONVEYANCE OF ASH

Charles P. Ciaffone, Sturbridge, Mass., assignor to CPC Engineering Corporation, Sturbridge, Morocco

Filed May 25, 1972, Ser. No. 257,012

Int. Cl. B65g *53/12*

U.S. Cl. 302—20 **1 Claim**



A process for conveying ash which comprises uniformly moistening said ash and thereafter subjecting said moistened ash to pneumatic pressure so as to convey it through a connecting pipe to a receiving means, and an apparatus directed thereto which comprises means for introducing the ash; a pneumatic ejector situated beneath the introducing means, which is a generally cylindrical vessel terminating in a conical bottom section, having an inlet valve suitable for closing off the inlet to make the vessel airtight, an air inlet for admitting compressed air to the ejector, the air inlet being connected by a monitored pressure air line to a source of compressed air, a manifold situated in said ejector and containing a plurality of spray nozzles for introducing water into the ejector, the manifold being connected to a monitored external water source, and a discharge gate also suitable for making the vessel airtight; and a discharge pipe leading from the bottom of the ejector to a receiving means.

3,809,437

ANTI-SKID BRAKE CONTROL SYSTEM

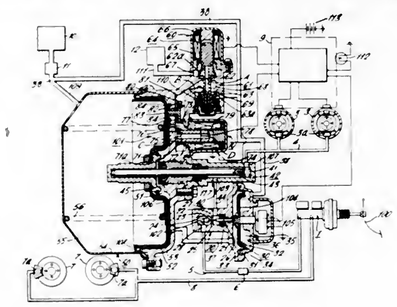
Masami Inada, Kariya, and Masamoto Ando, Toyohashi, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed Sept. 25, 1972, Ser. No. 292,153

Claims priority, application Japan, Sept. 25, 1971, 46-74908

Int. Cl. B60t *8/06*

U.S. Cl. 303—21 F **12 Claims**



An improved anti-skid brake control system of the type comprising a cut-off valve and a hydraulic capacity controller disposed within a hydraulic braking circuit connecting a master cylinder with wheel brake cylinders, wherein in an anti-skid operation, the cut-off valve first blocks passage of pressurized fluid from the master cylinder to the wheel cylinders, and then the capacity controller is conditioned for its pressure decreasing operation for effecting the anti-skid operation. The system further comprises a skid sensor for generating first and second signals therefrom in response to wheel locking conditions, a first servomotor for pneumatically actuating the cut-off valve, a second servomotor for pneumatically actuating the capacity controller, a first pneumatic selector valve electrically operated by the first signal to operate the servomotors, a second pneumatic selector valve electrically operated by the second signal during the activation of the first selector valve to accelerate the operation of the servomotors, and a control valve to regulate the operation of the servomotors.

3,809,438

PNEUMATIC CONVEYING APPARATUS

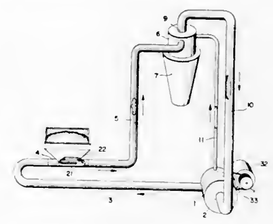
Elbert G. Hubbard, Hillside, Ill., assignor to Arbeck Industrial & Mining Equipment Co. Limited, Scarborough, Ontario, Canada

Filed Mar. 22, 1973, Ser. No. 343,861

Int. Cl. B65g *53/28*, *53/40*, *53/60*

U.S. Cl. 302—22 **6 Claims**

A pneumatic conveying apparatus for particulate materials uses a multi-stage centrifugal fan energizer wherein the first stage has stationary blades of lesser diameter than the impeller, and a vented shroud. The vent is returned to a cyclone separator which is downstream from a material inlet for the particulate materials. The energizer creates a lower pressure in the conduits between the material inlet and separator and between the separator and energizer than in the return conduit between the vented shroud of the energizer and the separator. Any very fine material particles or dust that reach the energizer rather than being separated in the cyclone separator are entrapped in the shroud and returned to the separator therefrom. No filters are required for dust collection. The apparatus may be closed loop or open loop; and if it is closed loop, the pneumatic gas may be other than air.



3,809,439

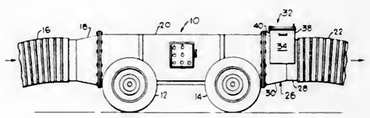
ATTACHMENT FOR DISTRIBUTING ROCK DUST

Albert L. Benedetti, R.D. No. 2, Rayland, Ohio

Filed June 14, 1972, Ser. No. 262,478

Int. Cl. B65g *53/38*

U.S. Cl. 302—53 **6 Claims**



A hopper having a pair of generally rectangular side walls and front and rear walls with an arcuate semi-circular edge portion is positioned in overlying relation with a generally conical exhaust duct portion of a blower. The front and rear wall lower edge portions have substantially the same configuration as the duct outer surface to thus form a substantially fluid tight connection therebetween. The side walls have lower inturned portions abutting the outer surface of the duct portion to thus form a receiver for rock dust positioned on the outer surface of the exhaust duct. A cover member is hingedly secured to the upper edge of the rear wall and is arranged to be locked in place to form a relatively fluid tight enclosure within the hopper. The exhaust duct has an upper air inlet opening with an air directing tube secured thereto through which air from the internal portion of the duct is arranged to flow into the hopper and fluidize the rock dust within the hopper and direct the rock dust toward the lower portions of the hopper. The exhaust duct has a pair of elongated air inlet openings adjacent the lower portions of the hopper. Air flow tubes extend through the inlet opening into the inner portion of the hopper and are arranged to introduce a portion of the air stream flowing through the exhaust duct into the lower portions of the hopper. Outlet openings are provided in the duct adjacent the pair of air inlet openings and guide tubes surround the outlet openings and extend into the duct. The air flow tubes terminate within the hopper adjacent the outlet openings in the duct. The air as it leaves the air flow tubes entrains rock dust in the air stream and the air entrained rock dust flows through the outlet openings into the stream of ex-

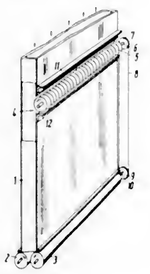
haust air flowing through the exhaust duct. Flow control members are secured to the walls of the duct and are arranged to be positioned in overlying relation with the outlet openings formed in the duct to thereby control the amount of rock dust discharged from the hopper through the outlet openings into the air stream flowing through the duct.

3,809,440

SHAFT FOR DEPOSITING FIBRE FLOCK

Hermann Trutzschler, Rheydt, Germany, assignor to Firma Trutzschler & Co., Rheydt-Odenkirchen, Duvenstr., Germany

Filed Oct. 25, 1972, Ser. No. 300,622
Claims priority, application Germany, Oct. 28, 1971, 2153665
Int. Cl. B65g *53/40*
U.S. Cl. 302—59 **11 Claims**



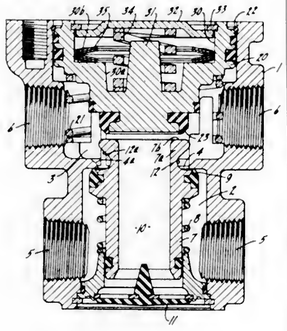
A shaft for depositing fibre flock in reptures for conveying flocks pneumatically to such shafts. The opening to enable the air conveying the flock into the shaft to pass out of the shaft consists of a horizontal opening extending over at least the greatest part of the width of a wall of said shaft. In this opening a roller is disposed which has a plurality of parallel annular surfaces lying in substantially vertical planes, the intervals between these surfaces being smaller than the size of the flock which is to be conveyed.

3,809,441

MODULATING APPLICATION VALVE

Boleslaw Klimek, Des Plaines, Ill., assignor to Berg Mfg. & Sales Co., Des Plaines, Ill.

Continuation of Ser. No. 4,550, Jan. 21, 1970, abandoned.
This application Oct. 12, 1971, Ser. No. 188,479
Int. Cl. B60t *15/06*
U.S. Cl. 303—52 **3 Claims**



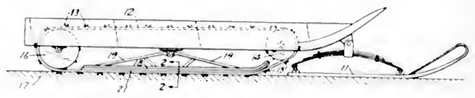
A vehicle brake application valve, wherein a valve opening piston is moved through the mediacy of a first spring at a first force transmitting ratio and thereafter through the mediacy of a second spring at a second force transmitting ratio.

3,809,442

LOW-FRICTION SLIDE BEARINGS

Arthur H. Peterson, and Galen C. Britz, both of Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 4, 1972, Ser. No. 312,190
Int. Cl. B62m *27/02*; **B62d** *55/24*
U.S. Cl. 305—14 **14 Claims**



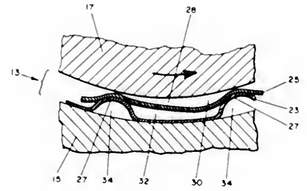
A suspension and driving system for use on moving belts such as snowmobile tracks and conveyer belts comprises a flexible belt which is in sliding contact with support means and driving means to move the belt. The moving belt or its support means is equipped with a hard, low-friction bearing surface comprising isocyanurate resin and a lubricant. The isocyanurate-lubricant bearing surface rides on a metal or polymeric surface providing a replaceable low-friction slide bearing.

3,809,443

HYDRODYNAMIC FOIL BEARINGS

Justin Lawrence Cherubim, Flint, Mich., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Aug. 5, 1971, Ser. No. 169,372
Int. Cl. F16c *17/16*
U.S. Cl. 308—9 **23 Claims**



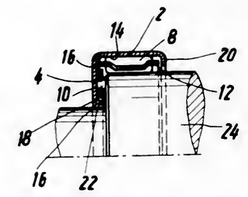
A resilient hydrodynamic bearing wherein a resilient bearing insert made up of two separate bearing element members arranged in laminate relationship and anchored together to allow a limited amount of relative movement therebetween is disposed within the spacing defined by the confronting surfaces of the opening in a supporting structure and a shaft or other movable member received within the opening and anchored to the supporting structure to allow for a limited amount of relative movement and operative under dynamic conditions to establish a hydrodynamic fluid film support for the movable member. One bearing element member is disposed adjacent the movable member and presents a surface area thereto and the other bearing element member includes a plurality of spaced-apart resilient surface elevations formed therein which under dynamic conditions are operative to frictionally contact and resiliently support the said one bearing element member and cause it to deflect between adjacent resilient surface elevations to create the load supporting hydrodynamic fluid film.

3,809,444

COMBINED RADIAL AXIAL BEARING

Hellmuth Eckhardt, Am Stasgen 6, 7512 Herzogenrath, and Reiner Sauerbier, Sebastianusstr. 11, 5102 Wuerselen, both of Germany

Filed Dec. 14, 1972, Ser. No. 314,931
Claims priority, application Germany, Dec. 24, 1971, 2164551
Int. Cl. F16c *19/04*
U.S. Cl. 308—174 **13 Claims**



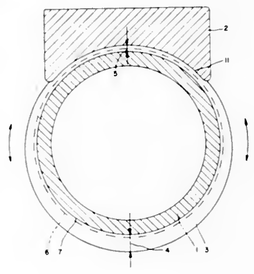
A combined radial axial roller or needle bearing with a drawn outer cup, in which the inner surface serves as a raceway for the roller bodies acting in radial direction and a part integrally formed with the cup and disposed generally normal of the cup serves as a support for the roller bodies acting in axial direction, said cup is formed pot-shaped, the inner surface of the bottom part serving as a support of the roller bodies acting in axial direction.

3,809,445

BEARING UNIT

Stig Lennart Hallerback, Blodboksgatan, Sweden, assignor to SKF Industrial Trading and Development Company B.V., Overtoom, Amsterdam-W, Netherlands

Filed Oct. 30, 1972, Ser. No. 302,174
Claims priority, application Netherlands, Oct. 25, 1971, 7114660
Int. Cl. F16c *33/30*, *27/00*
U.S. Cl. 308—184 **18 Claims**



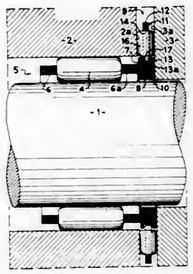
In the roller bearing having a outer race, one or more rings are provided on the outside surface of the outer race, perpendicular to the central axis of the bearing. The rings are made of an elastic material, such as rubber, and each run in the contact surface between the seat and the outer race in a groove or notch in the surface-seat. An open space is provided on both sides in the groove in axial direction, while, at least for part of the outside surface of the outer race, the distance in the contact surface between the part of the outside surface about which the elastic ring fits and the bottom of the groove is smaller than the radial thickness of a ring, such that the surface of an axial cross section through a ring is at most equal to the surface of the space defined by the sides of the groove and by the outer race.

3,809,446

THRUST ROLLING BEARING

Alfred Pitner, Paris, France, assignor to Nadella, Rueil-Malmaison, France, a part interest

Filed July 7, 1972, Ser. No. 269,812
Claims priority, application France, July 7, 1971, 71.24800
Int. Cl. F16c *19/20*, *19/00*
U.S. Cl. 308—217 **15 Claims**



Thrust rolling bearing comprising a cage containing and guiding rolling elements. The cage is in two parts, namely a first part having bars defining apertures for the rolling elements and a second part in the form of a ring which has a plane sliding support face. The two parts are interconnected in such manner that they are relatively rotatable.

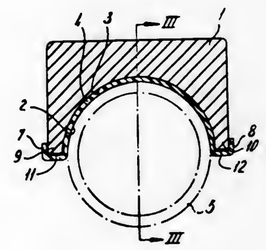
An assembly is disclosed in which the thrust rolling bearing is combined with a coaxial radial needle bearing and the needle ends, or the end of the cage for the needles, bears against the plane sliding support face.

3,809,447

HOLDER FOR AN OUTER RACE OF A ROLLER BEARING

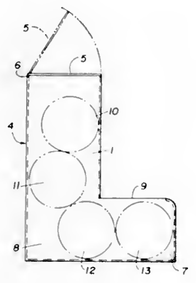
Fernlund Ingemar, Hindas, and Hallerback Stig, Frolunda, both of Sweden, assignors to SKF Industrial Trading & Development Co. BV, Jutphaas, Netherlands

Filed Nov. 10, 1972, Ser. No. 305,381
Int. Cl. F16c *33/30*, *27/00*
U.S. Cl. 308—236 **5 Claims**



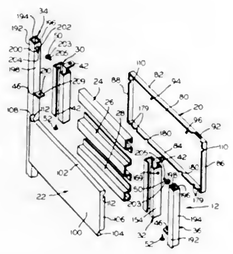
A bearing mount wherein there is provided one or more channels in the contact surface of the holder and/or outer race, with a longitudinal axis situated in a plane which is perpendicular to the bearing axis, while in the place of the channel a strip is fixed on the holder, the said strip being made of an elastic material, which may, for example, be rubber. The thickness of the strip in unstressed condition in a radial direction is larger than the total depth of the channel concerned, while so much space is left in the channel on either side of the strip in axial direction, that the axial cross-section of the strip is at most the same as the surface of an axial cross section of the channel in the particular spot.

3,809,448
TISSUE PAPER ROLL CONTAINER AND DISPENSER
Bertha R. Rakaska, Richmond Hill, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Nov. 13, 1972, Ser. No. 305,702
Int. Cl. B65h *19/00*
U.S. Cl. 312—39 **2 Claims**



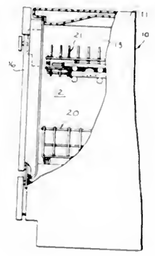
A container and dispenser for a plurality of rolls of tissue paper comprises a substantially L-shaped container having a substantially vertical part adapted to be mounted on a wall and having a substantially horizontal cover hingedly affixed to the top thereof. A substantially horizontal part extends at substantially right angles with the vertical part at the bottom thereof and has a common bottom with the vertical part. The horizontal part has an open top in a substantially horizontal plane whereby a plurality of rolls of tissue paper stored in the vertical part moves the lowermost roll into the horizontal part into accessibility at the open top thereof.

3,809,449
FOUNDATION FRAMEWORK FOR METAL OFFICE FURNITURE
Donald V. Beaver, Brookfield, Ill., assignor to All-Steel, Inc., Aurora, Ill.
Continuation of Ser. No. 80,835, Oct. 15, 1970, abandoned.
This application Sept. 21, 1972, Ser. No. 290,777
Int. Cl. A47b *96/20*
U.S. Cl. 312—194 **4 Claims**



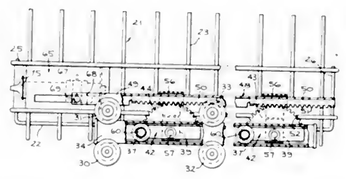
A foundation framework for office furniture desks, tables and the like comprising a torsionally rigid top structure, a pair of torsionally rigid panel leg structures supporting either end of the top structure and disposed in parallel spaced relation adjacent either end of the top structure and extending transversely thereof, a pair of spaced apart brackets on the upper edges of each panel leg structure that are secured by screws to the top structure, and a tie plate, such as a back panel, secured between the top structure and the panel leg structures and extending normally of same, at each end of the top structure to make the panel leg structure resistant to hinging action relative to the top structure. This basic foundation framework may be used as such to provide tables, or augmented by the application to same of standardized furniture forming components to provide desks of various types, bookcases, filing cabinets, and the like.

3,809,450
RACK LEVEL ADJUSTMENT SYSTEM IN A DISHWASHER
Lauren W. Guth, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed Dec. 27, 1971, Ser. No. 212,301
Int. Cl. A47b *88/00, 95/00*
U.S. Cl. 312—351 **4 Claims**



A dish supporting rack is mounted within the wash chamber of a dishwashing machine by connecting means permitting selective manual adjustment of the vertical level of the rack side. The connecting means includes a pair of spaced apart pivotal sectors, preferably formed from a durable plastic, linked to a manual control means at the front corner of the rack such that manipulation of the control means is translated to the sectors whereby the sectors pivot to vary the level of the rack side. Linkage between the control means and the sectors includes an elongated rod that may be formed as a toothed rack wherein plastic tooth sections are retained in a metal channel body portion. The manual control means has visual indicating means in combination therewith whereby the machine operator can ascertain the disposition of the rack side relative to the normal or intermediate level of adjustment.

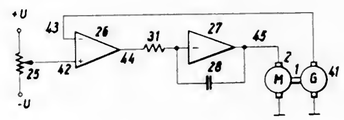
3,809,451
RACK LEVEL ADJUSTMENT SYSTEM IN A DISHWASHER
Martin H. Pitstick, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed Dec. 27, 1971, Ser. No. 212,302
Int. Cl. A47b *88/00, 95/00*
U.S. Cl. 312—351 **7 Claims**



A dish supporting rack is mounted within the wash chamber of a dishwashing machine by connecting means permitting selective manual adjustment of the vertical level of the rack side. The connecting means includes a pair of spaced apart pivotal sectors, preferably formed from a durable plastic, linked to a manual control means at the front corner of the

rack such that manipulation of the control means is translated to the sectors whereby the sectors pivot to vary the level of the rack side. Linkage between the control means and the sectors includes an elongated rod that may be formed as a toothed rack wherein plastic tooth sections are retained in a metal channel body portion. The manual control means has visual indicating means in combination therewith whereby the machine operator can ascertain the disposition of the rack side relative to the normal or intermediate level of adjustment.

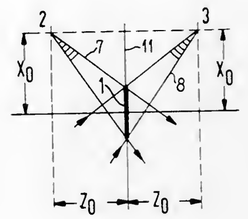
3,809,452
SYSTEM FOR CONTROLLING NUMBER OF REVOLUTIONS OF THE TAPE DRIVE IN A TAPE RECORDING AND REPLAYING APPARATUS
Richard Heinz, Niedergasse 10, 6102 Pfungstadt, Germany
Filed May 18, 1972, Ser. No. 254,400
Claims priority, application Germany, May 19, 1971, 2124921; May 21, 1971, 2125166
Int. Cl. H02p *1/04, 5/16*
U.S. Cl. 318—271 **1 Claim**



A tape recording and replaying apparatus having therein a system for controlling the speed of the tape drive, including a capstan motor, a tachometer for generating a voltage signal proportional to the number of the revolutions of the capstan motor, an integrating type operational amplifier receiving the voltage signal of the tachometer being coupled to the input of the operational amplifier; a circuit including a potentiometer for setting the speed of the capstan motor at a selectively variable predetermined value, a circuit coupled to the speed setting devices and generating a control voltage representative of the set speed and connecting it through the integrator to the energizing circuit of the capstan motor, whereby at sudden changes of the speed setting device the rate of change of the energizing current for the capstan motor remains substantially constant. The invention also discloses as a further aspect the limiting of the above control signal if the tape widing motors are overdriven at excess speeds.

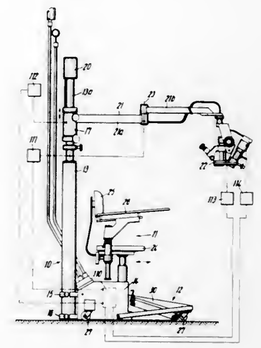
3,809,453
REDUCED POSITIONAL SENSITIVITY FOR HOLOGRAMS OF ELECTRICAL SIGNALS
Hartwig Ruell, Otterfing, and Eckhard Storck, Munich, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Filed May 16, 1973, Ser. No. 360,900
Claims priority, application Germany, May 18, 1972, 2224386
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **7 Claims**

A method directed to the holographic recording of information in the form of electrical signals on a light sensitive tape or storage medium moving in a feed direction and to the retrieval of information therefrom which method enables a high storage density on the storage medium and is less sensitive to translation of the storage medium during recording and retrieval in a direction transverse to the feed direction. The method accomplishes these features either by converging the object wave to a point while diverging the reference wave from a point or by diverging the object wave from a point while converging the reference wave to the point and by locating the two points on opposite sides of the storage medium in mirror symmetry and offset from an axis passing through the hologram center. In one embodiment of the invention, the points are located with respect to the center of the hologram so that an angle formed by a line extending from one of the points to the center of the



hologram and the hologram normal has a tangent which is equal to $\sqrt{2}$. In another embodiment of the present invention, the recording is accomplished with quasi-axially arranged waves utilizing a first wavelength and the reconstruction or retrieval occurs non-axially using a second wavelength which is shorter than the wavelength of the light utilized for recording. In a third embodiment, astigmatic reference and object waves are utilized.

3,809,454
MICROSURGICAL OPERATING UNIT
Dieter Ferdinand Brambring, Koblenz, Germany, assignor to Firma J. D. Moller, Optische Werke GmbH, Hamburg, Wedel, Germany
Filed Sept. 6, 1972, Ser. No. 286,812
Claims priority, application Germany, Nov. 16, 1971, 7143195
Int. Cl. G02b *23/16*
U.S. Cl. 350—84 **10 Claims**

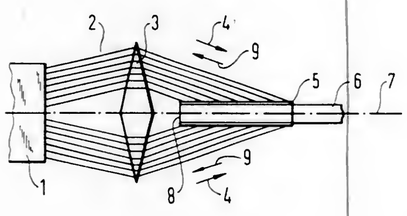


A microsurgical operating unit comprises a mobile chair for the surgeon, a stand fixed to the chair for movement therewith and having a laterally swingable swivel arm adjustable in height thereon for supporting the microscope. A foot control switch means is fixed to the chair in the area of the surgeon's feet to carry out the swivel movements and drive movements of the microscope-bearing swivel arm. By means of this operating unit, the surgeon is enabled to carry out the control of the individual devices and of the microscope with the aid of his feet, and thus to concentrate completely on the operation area.

3,809,455
COUPLING DEVICE FOR OPTICAL WAVE GUIDES

Dietlind Pekau, Krailling, and Horst Kiemle, Munich, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed Sept. 22, 1972, Ser. No. 291,271
Claims priority, application Germany, Sept. 24, 1971, 2147841
Int. Cl. G02b 5/14
U.S. Cl. 350—96 WG 12 Claims

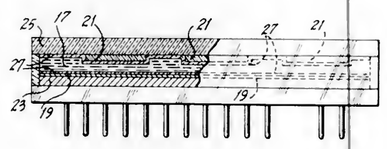


A device for optically coupling a dielectric optical wave guide to another optical device such as a detector, a laser or light amplifier characterized by a coupling element having either a refraction index or surface relief structure which is arranged as a layer extending circumferentially around the surface of the wave guide adjacent one end, and an optical component, such as an axicon, kinoform, a phase hologram or a volume hologram, having an axis of rotational symmetry which is arranged coaxially with the axis of the wave guide between the end and the optical device. To produce the device, the layer is applied on the wave guide and treated by exposing with an amplitude modulated light beam or an intensity modulated electron beam. After completing the treating by developing and fixing the exposed layer, an optical component is arranged on the desired position between the end of the wave guide and the optical device.

3,809,456
LIQUID CRYSTAL DEVICE

Joel E. Goldmacher, West Windsor Township, Mercer County, and Miguelita G. Tayag, East Windsor Township, Mercer County, both of N.J., assignors to Optel Corporation, South Brunswick Township, N.J.

Filed Apr. 10, 1972, Ser. No. 242,467
Int. Cl. G02f 1/16
U.S. Cl. 350—160 LC 6 Claims

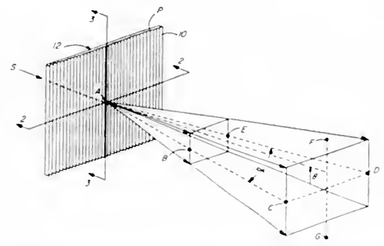


A liquid crystal display device comprises a liquid crystal composition sandwiched between electrodes, at least one electrode being transparent. The liquid crystal device includes an aligning agent to improve the contrast ratio of the display and doping agents to adjust the conductivity of the liquid crystal composition.

3,809,457
RADIATION-REDISTRIBUTIVE DEVICES

Clark Nelson Kurtz, and James John De Palma, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 13, 1972, Ser. No. 297,556
Int. Cl. G03b 21/60
U.S. Cl. 350—128 34 Claims

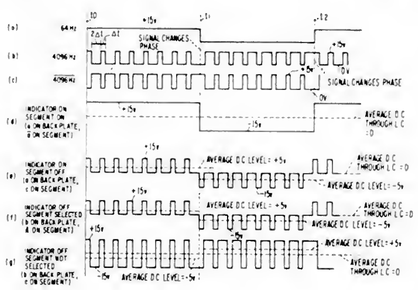


Radiation-redistributive devices, such as front and rear projection screens, including an optical layer wherein the optical path length, measured in at least one plane normal to the surface of such layer, randomly varies in such a manner that radiation normally incident on all small areas of the layer which intersect such plane is redirected by each point on such area which intersects such plane at an angle which is predictable only to the extent that the total redirected radiation from such points of each of such areas produces a common predesired redistribution profile, preferably rectangular in shape, as measured in said plane along a line substantially parallel to the surface of the optical layer. A method and apparatus for fabricating such a device is also disclosed.

3,809,458
LIQUID CRYSTAL DISPLAY

Robert Charles Heuner, Bound Brook, and Stanley Joseph Niemiec, Somerville, both of N.J., assignors to RCA Corporation, Princeton, N.J.

Filed May 25, 1972, Ser. No. 256,717
Int. Cl. G02f 3/16
U.S. Cl. 350—160 LC 17 Claims



Multiplexed operation of a plurality of liquid crystal indicators is achieved with alternating, unipolarity, symmetrical exciting voltages and alternating, unipolarity, asymmetrical erase voltages. The average direct voltage level across any liquid crystal element in the erased condition is zero and the direct voltage level across that element during each half period of the exciting voltage is never greater than a fraction less than one-half of the unipolarity exciting or erase voltage amplitude.

3,809,459
ANTIREFLECTION COATING FOR AN INNER SURFACE OF CEMENTED LENSES

Shunichiro Wakamiya, Tokyo, and Kiyoshi Itoh, Fukuoka-machi, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

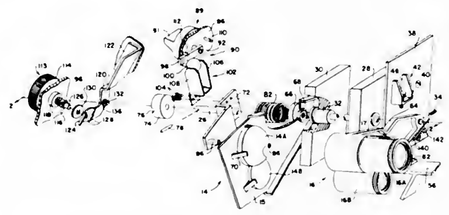
Filed Oct. 13, 1972, Ser. No. 297,356
Int. Cl. G02b 1/10
U.S. Cl. 350—164 4 Claims

An improved arrangement for minimizing reflection of light from the interface between a lens and the adjoining cement has two reflection preventing layers between the lens and the cement. This is of particular value where the difference in index of refraction of the lens and cementing material is greater than about 0.2. The product of the indices of refraction of the two coating layers equals the product of the indices of refraction of the adjacent lens and the cementing material.

3,809,460
OPTICAL CONTROL MECHANISM

Richard H. Lettan, Pittsford, and Robert J. McGuire, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 22, 1972, Ser. No. 308,918
Int. Cl. G02b 7/02
U.S. Cl. 350—254 3 Claims



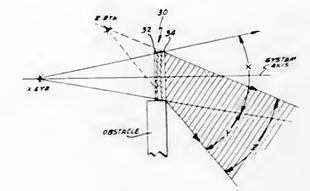
There is disclosed an optical control mechanism for use in a projection device such as a microfilm reader. The optical control mechanism effects selective positioning of one of two lens assemblies on the optical axis of the projection apparatus and locks the selected lens assembly in position. A pair of projection lenses of different magnification are mounted on a bracket which is keyed to a rotatably mounted shaft. The shaft is rotatable about an axis substantially parallel to a portion of the optical axis of the projection apparatus so that one of the projection lenses may be selectively aligned with the optical axis of the projection apparatus by rotation of the shaft. An optical control mechanism includes a control member such as a knob which is mounted for rotation between a first control position and a second control position. The control member is operatively coupled to the shaft by means of a bell-crank connected to the control member, a spherical member secured to the free end of the bell crank and a U-shaped spring member operatively connected to the shaft and projecting radially therefrom. The spherical member is located between the upstanding arms of the U-shaped member and is in substantial operative engagement therewith.

3,809,461
VIEW EXPANDING AND DIRECTING OPTICAL SYSTEM

John D. Baumgardner, and Dorothy J. Ebeling, both of Holland, Mich., assignors to Donnelly Mirrors, Inc., Holland, Mich.

Filed May 12, 1972, Ser. No. 252,611
Int. Cl. G02b 5/08
U.S. Cl. 350—302 9 Claims

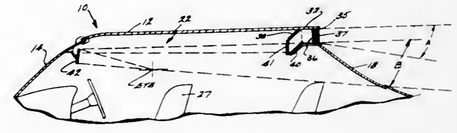
A view expanding and directing optical system for use in viewing around obstacles and the like comprising in combination a negative Fresnel lens and a Fresnel prism disposed in separate planes immediately adjacent one another. In the preferred embodiment, the system is mounted on a vehicle, at the rear thereof, whereby the system provides an expanded and demagnified viewing area to the rear of and below the level of the rear window and/or laterally of the vehicle. In other embodiments, the system may be coupled to means for extending or retracting it at desired times, and may be used in conjunction with vision aiding elements, such as a rearview periscope, for providing an expanded and demagnified viewing area laterally and to the rear of the vehicle.



3,809,462
VIEW EXPANDING AND DIRECTING OPTICAL SYSTEM

John D. Baumgardner, and Dorothy J. Ebeling, both of Holland, Mich., assignors to Donnelly Mirrors Incorporated, Holland, Mich.

Continuation-in-part of Ser. No. 252,611, May 12, 1972. This application July 25, 1972, Ser. No. 274,968
Int. Cl. G02b 5/08
U.S. Cl. 350—302 15 Claims



An optical system for vehicles providing expanded and demagnified fields of view for overcoming blind spots normally encountered with presently known vision systems. The several forms of the invention utilize previously optically nonfunctional areas of the vehicle such as roof areas above the rear window and side areas in the rear roof support posts to provide expanded vision areas laterally and to the rear of the vehicle. The optical systems variously includes negative Fresnel lenses alone or in combination with regular prisms or Fresnel prisms, all of which are viewed via conventionally mounted rear view mirrors adjacent the vehicle driver either alone or in periscopic systems including additional second and third mirrors.

3,809,463
ANIMATION CELLS AND TECHNIQUE

Paul Winchell, 20438 Moberly Pl., Canoga Park, Calif.

Filed June 28, 1972, Ser. No. 267,025
Int. Cl. G03b 19/18, 21/32
U.S. Cl. 352—51 16 Claims

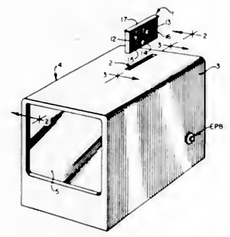
An animation process, and a cell for employment in said process wherein live actors and real, or substitute props used as "space savers," may be used to provide salient features and

points of reference in an animation cell, so as directly to provide information to be displayed in the completed cell, or to



provide dark lines for a painter who applies opacities thereto, and to a director who aligns overlays or underlays relative thereto.

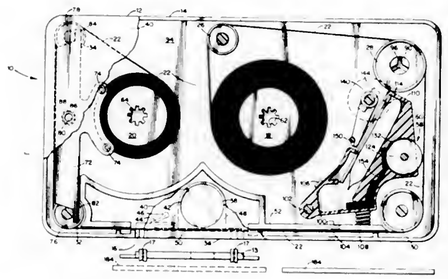
3,809,464
EMERGENCY EJECTION SYSTEM FOR AUTOMATIC TRANSPARENCY PROCESSING AND PROJECTION APPARATUS
Stewart Bennett, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation of Ser. No. 261,152, June 9, 1972. This application Mar. 21, 1973, Ser. No. 343,358
Int. Cl. G03b *23/02*
U.S. Cl. 352—74 **16 Claims**



An emergency ejection system for automatic photographic transparency processing and projection apparatus adapted to receive cassettes of film, each containing a film processor. The apparatus manipulates the film in the cassette to process it, unless it has already been processed, and projects processed film. A cassette is normally latched into the apparatus until the film has been projected and rewound. The system comprises an emergency eject control for causing the apparatus to eject the cassette at any point in the operating cycle, so that a malfunction within a cassette will not render the processing and projection apparatus inoperative.

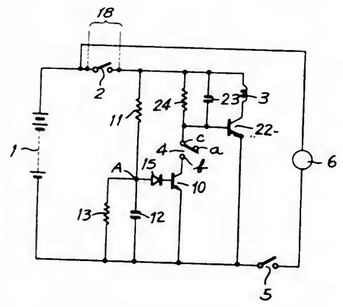
3,809,465
MOTION PICTURE SYSTEM
Paul B. Mason, Magnolia, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Feb. 17, 1972, Ser. No. 227,151
Int. Cl. G03b *17/52*
U.S. Cl. 352—78 R **31 Claims**

A multipurpose film handling cassette mountable in a viewer to perform alternate operational programs on the film strip, one such program involving the application of a processing fluid to the film. The cassette includes an applicator system having a coating roller, a rupturable pod of processing fluid, a reservoir chamber and a wick connecting the reservoir chamber to the coating roller. This applicator system is mounted for displacement between a first position wherein the coating roller is spaced from the film strip and a second position wherein it engages the film strip. A lever arm extends from a pin having a slotted recess accessible to a sensor-actuator pin of the viewer so that it may be rotated thereby



to selectively displace the applicator system into its second position and rupture the fluid pod. The coating roller is adapted to be reverse driven by a film guide roller of the cassette. When the applicator system is returned to its first position, the aforementioned slotted recess assumes an orientation different from its initial orientation.

3,809,466
MOTION PICTURE CAMERA WITH ELECTRONIC CIRCUITRY FOR SINGLE-FRAME PHOTOGRAPHY
Katsumi Kobayashi, Tokyo, Japan, assignor to Kabushiki Kaisha Yashica, Tokyo-to, Japan
Filed Apr. 9, 1973, Ser. No. 349,277
Claims priority, application Japan, Apr. 20, 1972, 47-46155
Int. Cl. G03b *21/38*
U.S. Cl. 352—169 **6 Claims**

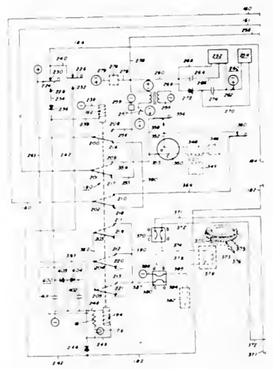


A motion picture camera which has a driving motor capable of being turned on and off through a control switch. The latter is in turn regulated by an electromagnet. A selecting switch is provided for selecting single-frame operation, and when the latter operation is selected by the selecting switch the electromagnet is connected to a timing circuit which is automatically regulated after a given timing interval by the timing circuit so as to bring about opening of the control switch and stopping of the motor when a single frame has been exposed.

ERRATUM

For Class 353—15 see:
Patent No. 3,809,364

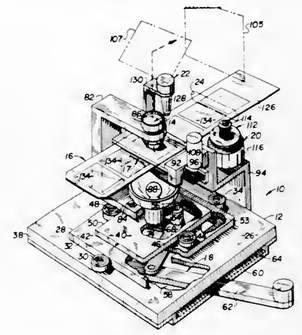
3,809,467
AUDIO-VISUAL PRESENTATION SYSTEM
Leland W. Sprinkle, Springfield, Va., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.
Continuation of Ser. No. 30,396, April 21, 1970, abandoned. This application June 14, 1972, Ser. No. 262,803
Int. Cl. G03b *31/06*
U.S. Cl. 353—15 **5 Claims**



Synchronized and coordinated operation of a slide projector and tape playback mechanism for a programmed performance is effectuated by a directing arrangement which operatively responds to control signals derived from the tape and a signal generator made effective in response to a predetermined slide projector operation. A photo-cell and thyristor component of the arrangement, functioning as a switch in response to tape signals, acts through preset contacts of a latching relay to complete a circuit wherein a slide changer of the projector is activated. The signal generator provides a signal which conditions a further switching component of the arrangement to complete a circuit for repositioning latching relay contacts whereby a program terminating operation of the tape playback and projector ensues in response to an extended control signal from the tape and continues until the tape and slide projector are again conditioned for a program start.

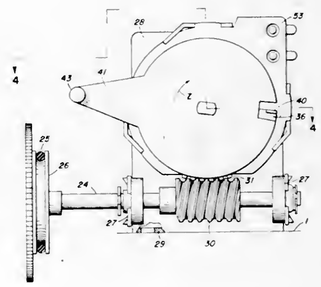
3,809,468
FILM STRIP READER
Jules G. Moritz, Los Altos Hills, Calif., assignor to Microform Data Systems, Inc., Menlo Park, Calif.
Filed Dec. 24, 1970, Ser. No. 101,219
Int. Cl. G03b *23/08, 23/12*
U.S. Cl. 353—26 **5 Claims**

Apparatus for reading recorded informaton on a film strip of the type having a number of end-to-end segments with each segment having a plurality of information-containing image frames. The apparatus operates to move a particular segment of the film strip automatically into a fixed location near an optical system, the latter being movable relative to the fixed location by a pantograph assembly so that the optical path of the optical system can be aligned with any one of the image frames of the film strip segment at the fixed location. The optical system has a lens assembly movable over an optically flat



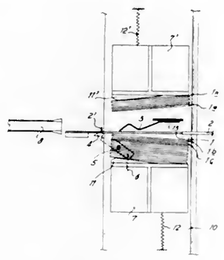
surface of a window at the fixed location and the film strip is releasably clamped to the opposite, optically flat surface of the window to thereby provide for automatic focusing.

3,809,469
SLIDE CARRIER CYCLING MECHANISM FOR OPTICAL PROJECTORS AND THE LIKE
Englebert Denis, Dilbeek, and Leon De Bondt, Hingene-Wintam, both of Belgium, assignors to GAF Corporation, New York, N.Y.
Filed Oct. 27, 1971, Ser. No. 192,880
Claims priority, application Belgium, Oct. 28, 1970, 95683
Int. Cl. G03b *23/02, 23/04*
U.S. Cl. 353—106 **16 Claims**



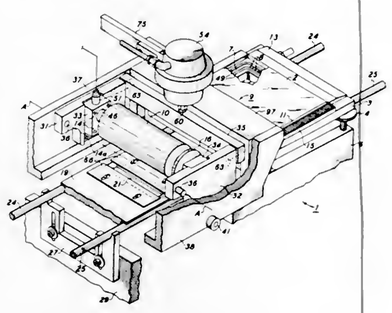
A cycling mechanism including a solenoid actuated clutch for periodically linking a continuously operating drive motor and a reciprocable slide changer is provided. The cycling mechanism comprises a rotatable clutch disk adapted to be continuously driven by a motor, an electromagnetic solenoid fixedly disposed about the hub of the clutch disk, a drive crank having a drive pin adapted to engage a corresponding cam on the slide changer to cyclically reciprocate the same disposed in an axial spaced apart relationship with respect to the clutch disk and mounted for both rotational and axial movement. Upon energization of the solenoid the drive crank is attracted thereto and moved axially into engagement with the clutch disk for rotation therewith, to drive the slide changer. Means are also provided to automatically return the drive crank to a neutral non-rotating position at the end of each revolution of the crank, corresponding to a complete slide changing cycle.

3,809,470
PROJECTOR
Serge Besancenot, 5 rue E. Sylvestre, Sevran, France
Filed June 4, 1971, Ser. No. 150,120
Claims priority, application France, June 5, 1970, 7020813
Int. Cl. G03b *23/02*
U.S. Cl. 353—113 6 Claims



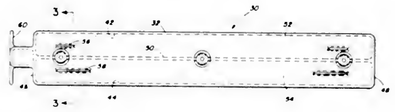
A slide projector in which a magazine for photographic slides is located in a tunnel arranged parallel to the projection axis and a pusher member is transversely movable to displace a slide at the projection station from the magazine to a projection position on the projection axis and vice versa. An elastically deformable leaf spring is positioned in the tunnel such that the stack of slides to be projected is initially therebehind, and the leaf spring shifts the slides one at a time after they have been projected to a position in front of the leaf spring.

3,809,471
PHOTOELECTROPHORETIC IMAGING APPARATUS WITH CORRECTION FOR PARALLAX
Charles Nesta, Rochester; Earl V. Jackson, Penfield; David D. Hoesly; Wayne F. Schoppe, both of Webster; Gino F. Squassoni, Pittsford, and Peter J. Warter, Penfield, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed June 25, 1973, Ser. No. 373,559
Int. Cl. G03g *15/00, 15/04*
U.S. Cl. 355—3 P 11 Claims



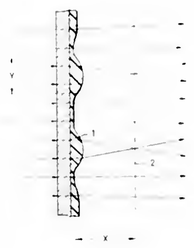
Apparatus for producing images using a transparent electrode, typically a flat plate, over which, a carriage which carries at least one roller, typically a roller electrode, into contact with the transparent electrode. In some embodiments, two or more rollers may be used, one of which may be an image transfer roller. Imaging suspension applied between a roller electrode and the transparent electrode is exposed to electromagnetic radiation under the influence of an electric field to form an image. The roller is rotatably mounted to the carriage by a detachable yoke mounting assembly which enables the ends of the roller to tilt in a vertical plane. The detachable yoke mounting assembly and thus the roller also pivots about an axis parallel to the transparent electrode and perpendicular to the direction of advancement of the carriage and roller. A force is applied to the yoke mounting assembly to maintain a constant force between the roller and the transparent electrode irrespective of any irregularities in contact between the roller and the transparent electrode. Machine drive mechanism is used for propelling the carriage which carries at least one roller over the transparent electrode and also to propel at least one slit aperture plate under the transparent electrode. The carriage and roller are propelled at a greater rate of velocity than the velocity of the slit aperture plate to correct for parallax.

3,809,472
PRE-DEVELOPMENT EXPOSURE ASSEMBLY
Karl E. Liechty, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 30, 1971, Ser. No. 214,244
Int. Cl. G03b *15/00*
U.S. Cl. 355—3 R 5 Claims



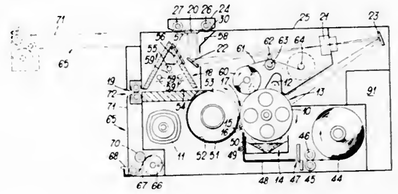
A pre-development exposure assembly is provided within an electrostatic reproduction machine transverse to the photoconductive surface thereof to selectively expose side portions of the photoconductive surface in response to a signal generated by a switch associated with the paper supply assembly responsive to paper size therein.

3,809,473
METHOD OF REPRODUCING A RELIEF IMAGE
Roland Moraw, Naurod, and Gunther Schadlich, Wiesbaden, both of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Dec. 21, 1972, Ser. No. 317,194
Claims priority, application Germany, Dec. 24, 1971, 2164622
Int. Cl. G11b *3/00*
U.S. Cl. 355—9 8 Claims



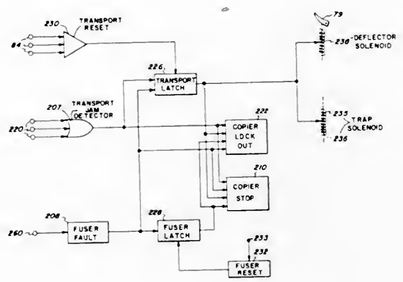
This invention relates to a method of producing a copy image of a transparent relief image on at least one thermoplastic layer which comprises passing light from a substantially point source through a layer containing the relief image, and obtaining the copy image in a plane located at a distance other than zero behind the relief image.

3,809,474
ELECTROSTATOGRAPHIC COPYING APPARATUS
Nandor Mihalik, Geranium, Molesey Rd., Walton-on-Thames, England
Filed Mar. 31, 1971, Ser. No. 129,668
Claims priority, application Great Britain, Apr. 1, 1970, 15349/70
Int. Cl. G03g *15/22*
U.S. Cl. 355—11 16 Claims



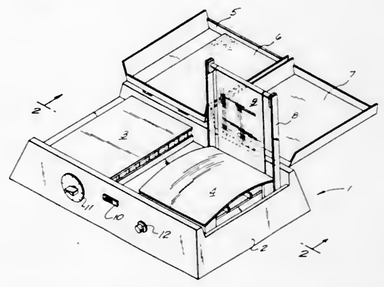
An electrostatographic copying apparatus comprising a combined illumination and fixing unit, a novel original feed employing a flexible transparent transport sheet, a perforated suction drum preferably having a sponge material surface to strip copy sheets from the imaging drum, a developer material applicator comprising a chamber having movable walls to bring the developer into contact with the drum, and a drum cleaner comprising a web in contact with the drum.

3,809,475
COPIER FUSER PROTECTOR
Donald S. Post, Fairport, and Edward G. Reehil, Henrietta, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Dec. 6, 1972, Ser. No. 312,556
Int. Cl. G03g *15/22*
U.S. Cl. 355—3 R 2 Claims



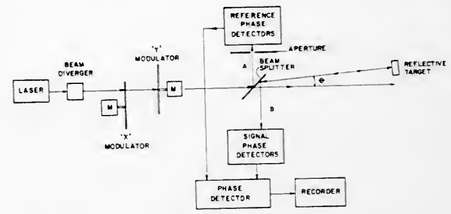
A copying system incorporating means to stop the system in the event of a malfunction, such as excessive temperature in the processor fuser. For this purpose, suitable detection means are provided for monitoring the system fuser and also the system paper transports. These detection means respond to a fault in the associated component to shut down the copying system. At the same time, latching devices are set which prevent restarting of the copying system until the fault has been corrected. A malfunction in the system fuser sets both the fuser latch and the paper transport latch so that, in this circumstance, both fuser and paper transports must be cleared before restarting of the copying system can be effected.

3,809,476
TWO-STAGE COPIER
Seymour Fader, Paramus, N.J., assignor to Robin International, Inc., New York, N.Y.
Filed Aug. 22, 1972, Ser. No. 282,837
Int. Cl. G03b *27/04*
U.S. Cl. 355—113 8 Claims



A two-stage copier has a housing in which there are located side-by-side exposure station and a heating station. The exposure station has a light source and a flat light-transmissive panel over the light source, with a cover member being hinged on the housing so that it can be pivoted onto the exposure station. The heating station has a heating member an upper surface of which is convex from the rear towards the front of the housing, and a frame element which is hinged in the region of the rear of the housing and which can be pushed down towards the convex surface. A relatively stiff web of synthetic plastic mesh is mounted on the frame element.

3,809,477
MEASURING APPARATUS FOR SPATIALLY MODULATED REFLECTED BEAMS
James T. Russell, Richland, Wash., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.
Filed Nov. 1, 1972, Ser. No. 302,960
Int. Cl. G01b *11/26*
U.S. Cl. 356—5 10 Claims



A modulated displacement indicator and its method of use that utilizes unfocused electromagnetic waves, like laser waves, which are spatially modulated. Either an angular direction or linear displacement can be obtained depending on whether the beam is divergent or parallel. In any case, the beam is modulated two dimensionally and then transmitted to a reference phase detector. This may be accomplished by a semitransparent mirror which functions as a beam splitter. One of the segments from the splitter is fed directly into the aperture of the reference detector to determine the phase at the center of the spatially modulated transmitted wave. Another of the beam segments can be transmitted through the beam splitter to a remote reflective target aperture. Part of the reflected beam is detected by a signal detector. The outputs

from the reference and signal detectors then have their phase relationships compared electronically. If the transmitted beam is of a known parallel width, the phase difference may be used to obtain the distance from the center of the beam to the target aperture. Should the beam be divergent, the phase difference can lead to a determination of the angle formed by the beam center line defined by the reference detector as one of its legs and the straight line to the target as the other leg.

In one practical embodiment of my invention several spaced reflective targets are randomly fixed to the surface of a rigid structure, like the interior walls of a mine. A transmitted parallel laser beam modulated and detected as indicated, is sequentially directed by a motor operated deflector to impinge on each of the targets in a predetermined order. Reflected beams from each target are then detected by the signal detector and the phase relationship between the transmitted and reflected beams ascertained to give the distances from the laser beam center line to the target. By comparing reference readings for each target individually and as a group to subsequent readings, variations in the distance between the targets can be noted. The constant monitoring of such minute variations of the targets tells the observer of variations in the attached rigid structure. Should these variations exceed a predetermined safety level, like excess deformation of a inner mine wall, a signal or other indicating device can be triggered.

3,809,478

ANALYSIS AND REPRESENTATION OF THE SIZE, SHAPE AND ORIENTATION CHARACTERISTICS OF THE COMPONENTS OF A SYSTEM

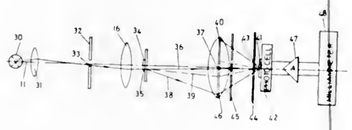
John Henry Talbot, 35 Balvicar Rd., Blairgowrie, Johannesburg, Transvaal, South Africa

Filed May 27, 1971, Ser. No. 147,436

Claims priority, application South Africa, May 29, 1970, 70/3652; Nov. 23, 1970, 70/7901

Int. Cl. G06k *9/08*

U.S. Cl. 356—71 **24 Claims**



The invention relates to a diffractometer for analysing the geometrical characteristics of the components of a system. In such a diffractometer the received diffraction pattern is filtered in accordance with a mathematical equation to yield a spatial period spectrum or a moment, excluding the zeroth moment, of that spectrum. The filtering may be effected by means of suitable optical filters for viewing on a screen or for electronic detection, or electronically in the detector circuits.

3,809,479

SPUTTERING METHOD AND APPARATUS FOR QUANTITATIVE AND QUALITATIVE ANALYSIS OF MATERIALS

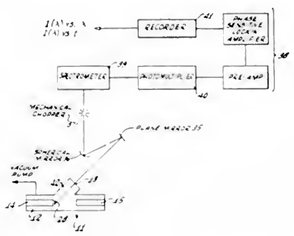
James M. Whelan, 1229-1/2 Flanders Rd., La Canada, Calif., and Joseph E. Greene, 4 Patricia Ct., Champaign, Ill.

Filed Nov. 26, 1971, Ser. No. 202,587

Int. Cl. G01j *3/30*

U.S. Cl. 356—85 **12 Claims**

Method and apparatus for trace analysis and concentration profiling of thin film semiconductor sample layers. The samples are DC sputtered at a constant rate in argon and the cathode glow region of the glow discharge monitored for the maximum electroluminescence of the desired sample constituent.



3,809,480

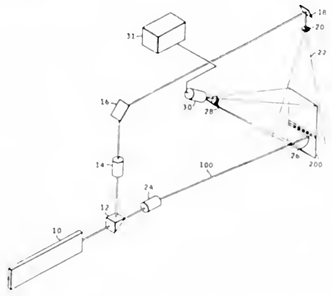
METHOD AND APPARATUS FOR SURVEYING THE VELOCITIES OF A FLOW FIELD

Alvis J. Somerville, and Edwin K. Yager, both of San Diego, Calif., assignors to General Dynamics Corporation, San Diego, Calif.

Filed July 24, 1972, Ser. No. 274,143

Int. Cl. G01n *21/00*; **G01b** *9/02*; **G01p** *3/36*

U.S. Cl. 356—103 **8 Claims**



A technique of flow visualization employing a laser to generate a sheet of light and at least one beam of light, wherein the beam of light is caused to scan or sweep the sheet of light. Receiving optics and one or more photo detectors monitor the interaction and provide as output as a function of the velocity of particulate matter present in the area of intersection of the light beams, thereby generating a velocity picture of the scanned area which may be processed and stored or presented on a cathode ray tube or other display device.

3,809,481

SINGLE REFLECTOR INTERFERENCE SPECTROMETER AND DRIVE SYSTEM THEREFOR

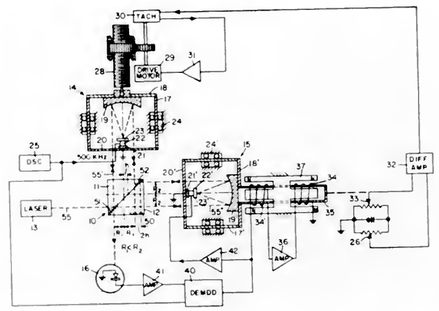
Rudolf A. Schindler, Sierra Madre, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 1, 1972, Ser. No. 311,234

Int. Cl. G01b *9/02*

U.S. Cl. 356—106 S **13 Claims**

In a Fourier interference spectrometer of the double-pass retroreflector type, a single mirror is employed in the path of both split beams of an incoming ray to cause them to double back through separate retroreflectors. Changes in optical path length are achieved by linear displacement of both retroreflectors using a motor driven lead screw on one for large, low-frequency changes, a moving-coil actuator on the other for smaller, mid-frequency changes and a piezoelectric actuator on one of these two for small, high-frequency changes.



3,809,482

SIGNAL-COMPENSATING SYSTEM FOR MEASURING MACHINES, IN WHICH PHOTOGRAPHIC PLATES ARE EXAMINED BY A PHOTO-ELECTRIC METHOD

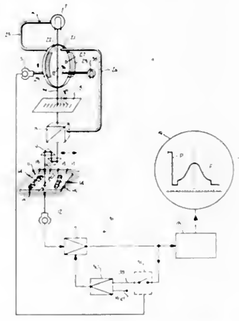
Nils Robert Dahr Aslund, Johanneshov; Sven-Olof Pettersson, and Sten Borje Angelstrand, both of Jonkoping, all of Sweden, assignors to Saab-Scania Aktiebolag, Linkoping, Sweden

Filed Apr. 3, 1973, Ser. No. 347,417

Claims priority, application Sweden, Apr. 5, 1972, 4335/72

Int. Cl. G01n *21/06, 21/22*

U.S. Cl. 356—205 **5 Claims**



An image beam from a constant intensity light source is passed through a small area of an image on a photographic plate, thence through a variable width scanning slot and onto a photoelectric detector. Relative scanning motion between beam and slot is effected in directions transverse to slot length. A second beam from the same source is directed around the plate, through the slot and onto the detector. The beams fall on the detector alternately, in synchronism with scanning, so that the second beam produces calibration pulses. Detector output is so amplified as to maintain amplified calibration pulses at constant magnitude.

3,809,483

POLISHING KIT

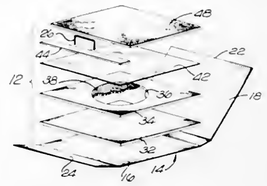
Jesse R. Young, 5302 W. 138th St., Hawthorne, Calif.

Filed Nov. 17, 1972, Ser. No. 307,679

Int. Cl. A46b *11/00*; **B08b** *1/00*

U.S. Cl. 401—123 **1 Claim**

A polishing kit formed of a folder having a plurality of layers superimposed thereon. A base layer forms a support upon which a receptacle layer having a recess therein is positioned. Polishing material is placed in the receptacle layer recess and the receptacle layer is then covered with a protective layer of material such as transparent pressure-sensitive plastic material. A felt applicator may be placed on the top surface of the pressure-sensitive material and the superimposed layers mounted in a match-book type folder.



3,809,484

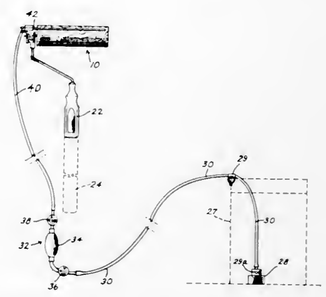
PAINT SUPPLYING APPARATUS FOR PAINT ROLLERS

Jennings H. Bradshaw, 5721 Bryant, Klamath Falls, Oreg.

Filed Jan. 8, 1973, Ser. No. 321,992

Int. Cl. B44d *3/00, 3/28*

U.S. Cl. 401—185 **3 Claims**



A convenient and efficient supply device is provided for delivering paint from a conventional container through a line which includes a first flexible hose, a manual pump, a second flexible hose, and a manifold, to the exterior of a conventional paint roller. The manifold can be used in either of two operating positions at opposite sides of the plane defined by the roller handle and the roller axis, and it can be instantly shifted at will from either one of these positions to the other. The line includes two interchangeable hoses of radically different lengths running, respectively, from source to pump and from pump to manifold. One arrangement disposes the pump for hand operation, the other for foot operation. A faucet attaching fitting at the introductory end of the line enables the line to be quickly and cleanly flushed out under pressure. Adaptation to rollers of different lengths is brought about by selection for use of a manifold corresponding in length to the length of the roller.

3,809,485

LOOSE-LEAF BINDER CONSTRUCTION

Lewis R. Beyer, 1255 W. River Rd., Valley City, Ohio

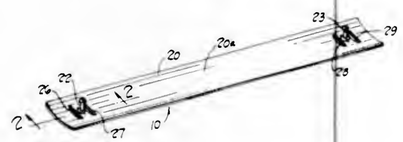
Filed Oct. 20, 1972, Ser. No. 299,302

Int. Cl. B42f *3/04*

U.S. Cl. 402—31 **23 Claims**

A plastic, i.e., synthetic resin, backbone or spine for a loose-leaf binder with integral studs for securing a ring member and separate abutments for inhibiting movement of the ring

member along the backbone. In one embodiment the backbone is insertable as a separate member between plies of a binder cover. In another embodiment it forms an integral portion of a unitary plastic loose-leaf binder cover. The studs



are headed, with a slot to allow deformation and insertion into apertures of a ring member. Upon localized heating of the heads, plastic flows into the slots to prevent removal of the ring member.

3,809,486

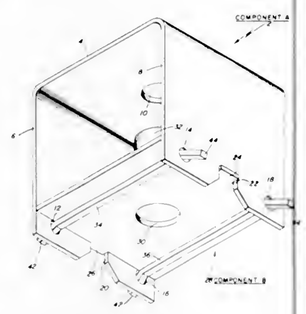
MECHANICAL COUPLING ARRANGEMENT

Richard A. Foerstner, Iowa City, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa

Division of Ser. No. 131,618, April 6, 1971, abandoned. This application Aug. 17, 1972, Ser. No. 281,574

Int. Cl. F16b *1/00*

U.S. Cl. 403—374 **2 Claims**



A mechanical arrangement is disclosed for interconnecting structures by exerting equidistant upward forces to one component and an intermediate downward force to the adjacent component. A twisting motion of rotatably disposed locking members actuates the coupling. In an illustrative embodiment a magnetron energy generator and magnetic field producing means, such as an electromagnet, are coupled together by support and housing structures actuated by rigid elongated metallic bars which provide a positive locking force.

3,809,487

RESILIENT RETAINER SYSTEM FOR PAVEMENT MARKER ASSEMBLY

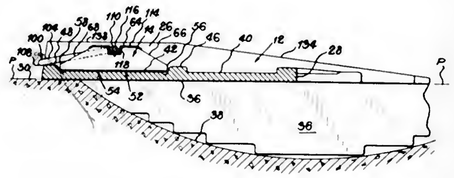
Robert M. Flanagan, Summit, N.J., assignor to Amerace Esna Corporation, New York, N.Y.

Filed Oct. 4, 1972, Ser. No. 294,809

Int. Cl. E01f *11/00*

U.S. Cl. 404—15 **22 Claims**

In a pavement marker assembly in which a signal device is affixed to a base member, a retainer system capable of withstanding the rigors of roadway surface use but easily released for removal of the signal device. The retainer of the system includes elements of U-shaped configuration in which one of the arms of each U-shaped element is resiliently deflected relative to the other and is secured to the base member while the other of the arms of each U-shaped element



secures the signal device to the base member. An improved base member accommodates snowplow blades which are angled laterally with respect to their direction of travel.

3,809,488

SUPERVISORY EQUIPMENT FOR MACHINE TOOLS

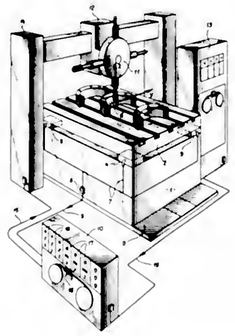
Hans C. Sonderegger, 8413 Neftenbach, Switzerland, assignor to Kistler Instrumente AG, Winterthur, Switzerland

Filed Aug. 8, 1969, Ser. No. 848,416

Claims priority, application Switzerland, Aug. 8, 1968, 12109/68

Int. Cl. B23b *39/00*

U.S. Cl. 408—6 **5 Claims**



A supervisory equipment for automated machine tools, in which certain machining effects on the tool and/or workpiece are determined by sensor devices, and in which the thus sensed and determined values are compared with predetermined values in the course of the cycle of operation to produce a control signal or signals in the event a sensed value exceeds a predetermined value.

3,809,489

PORTABLE GUIDE JIG FOR HAND DRILL

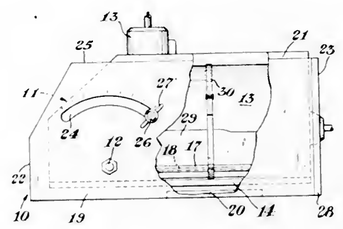
William J. Harwood, 8545 Sand Beach Rd., Harbor Beach, Mich.

Filed Feb. 1, 1973, Ser. No. 328,561

Int. Cl. B23b *49/00*

U.S. Cl. 408—110 **6 Claims**

A universal portable jig adapted to be hand held and to hold and support a portable electric drill at an adjustable predetermined angle relative to a surface to be penetrated by the bit of said drill which comprises: first and second substantially trough-shaped main support members each having open ends, the second support member being nested in the first support member and pivotally supported thereby; pivoted adjustment being possible by virtue of the floor of the first support member being foreshortened; means for locking the first and second support members in predetermined pivotal angle relationship; and means for mounting the drill within and to the second support member, said mounting means being slideable



longitudinally of the support member whereby the drill is advanceable towards an end of the jig to allow the bit to be operatively extended.

3,809,490

COMPRESSOR SURGE SENSOR

Kermit I. Harner, Windsor, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed May 2, 1973, Ser. No. 356,648

Int. Cl. F01d *17/08, 17/20*; **F02c** *9/02*

U.S. Cl. 415—28 **9 Claims**

The disclosure of this invention relates to means for detecting compressor surge by sensing the pressure downstream of the compressor of a turbine type power plant for rapidly opening the compressor bleeds and holding the bleeds open for brief interval after surge disappears. The sensed pressure is admitted to one side of the diaphragm through a laminar flow restrictor for obtaining a lag time constant which increases as pressure decreases.

3,809,491

CENTRIFUGAL PUMP STRUCTURE

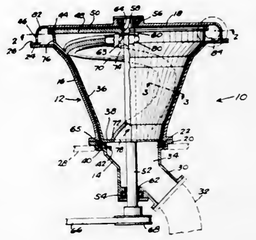
Albert Banyai, 12353 Wyoming, Detroit, Mich.

Filed July 5, 1973, Ser. No. 376,801

Int. Cl. F04d *1/04, 1/12, 1/14*

U.S. Cl. 415—88 **16 Claims**

A tube progressively decreases in sectional area from an inlet to an outlet while spiraling outwardly. The tube is affixed within a bell rotatable on a housing which has an intake chamber adjacent the tube inlet. A shaft journalled on the housing drives the bell. The slope of the tube relative to an axial plane through the shaft progressively increases from inlet



to outlet. The outlet opens into an annular passageway defined by the bell and housing and having a discharge opening for pumped fluid.

3,809,492

REACTION JET HOUSING FOR MARINE PROPULSION SYSTEM

Hisanobu Takaeda, Fukunari, and Atsushi Satomoto, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi Pref., Japan

Filed Aug. 31, 1972, Ser. No. 285,375

Claims priority, application Japan, Sept. 12, 1971, 46-70614

Int. Cl. F01d *15/00*; **B01d** *29/38*

U.S. Cl. 415—121 G **5 Claims**

A marine reaction jet drive having a waterflow passageway including inlet and outlet openings, a propulsion means in the passageway intermediate the inlet and outlet openings, and conduit means separate from the passageway affording communication between the outlet opening or any suitable fluid pressure source and the inlet openings to provide a scavenging waterflow, characterized by a plurality of hollow perforated tubular bars being arranged to provide the inlet openings of the drive in the form of a screen having a series of spaced parallel slots between the inlet openings and the conduit means being connected with the bars to obtain a scavenging injection through the perforations of the bars.

3,809,493

INTERCHANGEABLE COMPRESSOR DRIVE

Karol Pilarczyk, Loudonville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

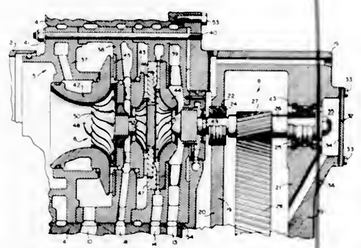
Continuation of Ser. No. 44,403, June 8, 1970. This application Nov. 29, 1971, Ser. No. 202,849

Int. Cl. F04d *25/02, 25/06, 29/44*

U.S. Cl. 415—199 A **1 Claim**

A gear drive and a turbine drive are interchangeably connected to a compressor by means of compatible releasable

fasteners between their respective housings and the compressor casing, and with identical releasable coupling means between the overhung compressor rotor and the output shaft of the gear drive or turbine wheel of the turbine drive. Thus, the sole bearing support for the rotor will be carried by the gear drive and the turbine drive. Accurate axial alignment of the compressor casing with the turbine drive and gear drive is obtained by means of abutting cylindrical surfaces of the drive housing and gear casing in telescopic engagement with an overlapping single cylindrical surface, which is preferably a



fluid guide; for this purpose, the mounting of the drive housing is provided with radial play or radial adjustment. With the overhung rotor and removable barrel assembly comprising the fluid guide elements, the compressor rotor and fluid guide elements may be removed axially from one direction after uncoupling from the respective drive or axially in the other direction with the respective drive. The arrangement and selection of bearings cooperates with the selection of materials for the rotor, turbine wheel, housing and fluid guide elements to balance thermal expansion.

3,809,494

VANE OR BLADE FOR A GAS TURBINE ENGINE

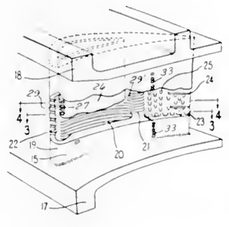
Robert Frederick Redman, Beeston, England, assignor to Rolls-Royce (1971) Limited, London, England

Filed June 26, 1972, Ser. No. 266,508

Claims priority, application Great Britain, June 30, 1971, 30612/71

Int. Cl. F01d *5/08*

U.S. Cl. 416—97 **4 Claims**



A cooled vane or blade for a gas turbine engine comprises a hollow shell with chordwise internal fins which support an air entry tube. The tube receives cooling air from outside the vane and is apertured to allow the air to flow toward the leading and trailing edges of the blade. The trailing edge of the blade is slotted longitudinally to allow the cooling air to escape, and pedestals interconnect the two flanks of the trailing edge portions. Film cooling holes are provided at various locations on the blade.

3,809,495

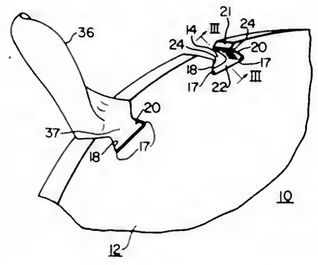
TURBINE ROTOR HAVING CUSHIONED SUPPORT SURFACES FOR CERAMIC BLADES MOUNTED THEREON

William F. Stahl, Media, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 27, 1973, Ser. No. 345,391

Int. Cl. F01d *5/30*

U.S. Cl. 416—135 **7 Claims**



A turbine rotor or disc having ceramic blades mounted thereon. The rotor or disc has a plurality of spaced channels or apertures on its periphery for receiving the roots of the blades. The channels or apertures are serrated to provide compliant or yeildable supports for the roots of the blades.

3,809,496

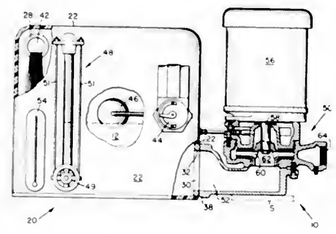
CONDENSATION APPARATUS

Donald J. Hansen, North Aurora, Ill., assignor to General Signal Corporation, Rochester, N.Y.

Filed Aug. 9, 1972, Ser. No. 279,152

Int. Cl. F04b *49/00*

U.S. Cl. 417—40 **8 Claims**



A tank for receiving and storing condensation has walls constructed of a plurality of laminations of fiberglass cloth and epoxy resin. A metallic plate, preferably of an aluminum alloy is molded into one of the walls for supporting a condensate pump. A condensate return opening in the metallic plate is aligned with a supply port in the pump so that condensation may be drawn from the tank by the pump.

3,809,497

CONDUCTION PUMP FOR CONVEYING CORROSIVE METALS

Henri Carbonnel, Antony, and Robert Borie, Sceaux, both of France, assignors to Groupement Atomique Alsacienne Atlantique, Robinson, France

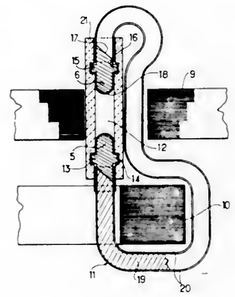
Filed Mar. 16, 1972, Ser. No. 235,278

Claims priority, application France, Mar. 16, 1971, 71.09159; Mar. 30, 1971, 71.11143

Int. Cl. H02n *4/20*

U.S. Cl. 417—50 **11 Claims**

Conduction pump having slight bulk, in which a section of the liquid metal flow subjected to magnetic induction is crossed at the same time by a current, characterized in that the said section of liquid metal flow is limited on two opposite sides by electrodes connected to a current generator circuit, whereas the other sides are made of refractory material. The



electrodes are made of a metal of the VIth group of the periodic classification of elements, protected on the corrosive liquid metal side by a boride or an aluminide, or else the electrodes are made of a refractory material soaked with liquid metal.

3,809,498

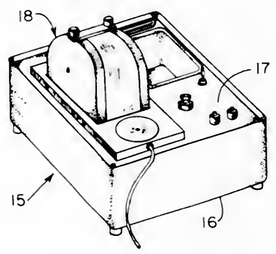
CLOSED WOUND SUCTION SYSTEM

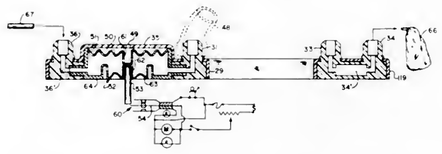
Royce C. Lewis, Jr., 5233 W. 19th St., Lubbock, Tex., and Kelsey Martin, Box 68, Azle, Tex.

Filed Dec. 15, 1972, Ser. No. 315,604

Int. Cl. F04b *21/00, 43/08, 43/12*

U.S. Cl. 417—63 **10 Claims**





Apparatus providing a closed system for moving fluids in post-surgical operations and other instances where cleanliness, sterility, and absence of moving parts are desirable.

The apparatus comprises a pump device having incorporated therein a plate assembly which supports a collapsible looped tube with the tube being flow connected to passageways formed within the plate assembly so that the plate assembly and tube can be discarded after use.

The looped tube is interposed between a removable pressure shoe and a plurality of rollers so that the rollers, when rotating, successively engage and collapse a marginal length of the tube and thereby force fluid contained therein to travel therethrough.

The pressure shoe provides a curved surface against which the rollers may press the looped collapsible tube; provides an attachment means for maintaining the plate member properly positioned relative to the remainder of the apparatus; and, also provides a housing within which the tubing and rollers are protected.

3,809,499

CENTRIFUGAL COMPRESSOR

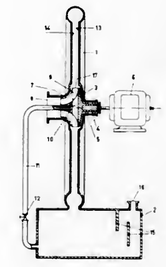
Peter Jacobus Collet, Voorschoten, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzock Ten Behoeve Van Nijverheid, Handel En Verkeer, The Hague, Netherlands

Filed June 7, 1972, Ser. No. 260,662

Claims priority, application Netherlands, June 21, 1971, 7108490

Int. Cl. F04b *23/04*; **F04d** *7/00*

U.S. Cl. 417—78 **3 Claims**



The tendency towards instability of a centrifugal compressor with a rotor with fixed bent-forward vanes is decreased in providing in this rotor jet channels for supply of liquid which on rotation form liquid vanes.

The direction of outflow of the jet openings are perpendicular to the axial direction of the rotor and the angle of outflow in respect to the radial direction are equal to the angle of the section of the fixed bent-forward vanes that is situated at the same diameter in the same plane of revolution.

3,809,500

METHOD AND APPARATUS FOR REGULATING PUMPS

Georg Staudenrausch, Rissegg, Germany, assignor to Albert Handtmann Metalgusswerk, Armaturen- und Fleischereimaschinenfabrik, Biberach, Germany

Filed Sept. 7, 1972, Ser. No. 286,951

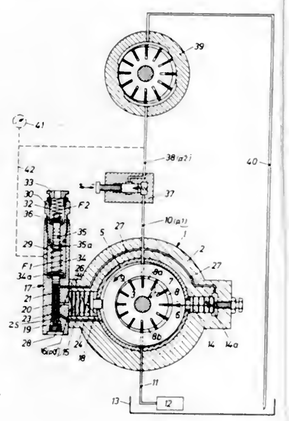
Claims priority, application Germany, Feb. 25, 1972, 2208877

Int. Cl. F04b *1/26*

U.S. Cl. 417—222 **14 Claims**

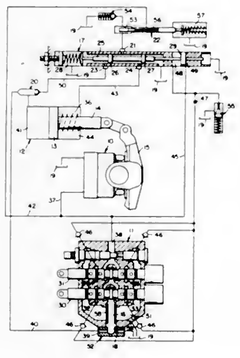
Apparatus for regulating the discharge pressure of adjustable pumps by modifying the discharge capacity by means of a control device which is dependent on consumed load. The control device comprises an element which is positionable in a first direction through the pump discharge pressure and in a second direction opposite thereto in response to a force

formed by the consumed working load pressure and a given spring bias. The control means is further urged in its second



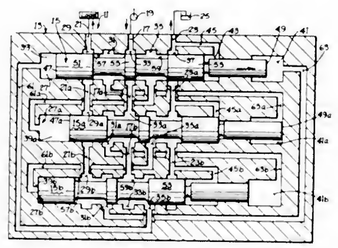
direction by a bias which is removed on reaching a given minimum of discharge pressure so that the first forces are responsive only above such pressure.

3,809,501
HYDRAULIC LOAD SENSITIVE SYSTEM
Charles O. Weisenbach, Watertown, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
Filed Jan. 8, 1973, Ser. No. 321,615
Int. Cl. F04b *1/26*
U.S. Cl. 417—222 **12 Claims**



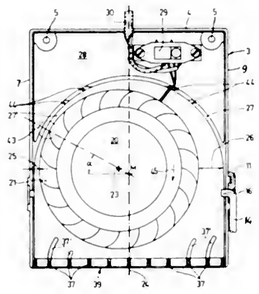
A hydraulic load sensitive system is provided having a variable delivery pump, the output of which is controlled by an open-center control valve. Load sensitive control apparatus is provided including a control cylinder having a piston for operating a control cam of the variable delivery pump. First and second feedback circuits are provided to govern operation of the control cylinder alternately, the first feedback circuit including an open-center position of the control valve and the second feedback circuit including a circuit through a pressure differential valve.

3,809,502
PRESSURE TRANSFORMER
Augustus P. Henry, Irvine, Calif., assignor to Bertea Corporation, Irvine, Calif.
Filed Apr. 6, 1973, Ser. No. 348,861
Int. Cl. F04b *17/00*
U.S. Cl. 417—225 **16 Claims**



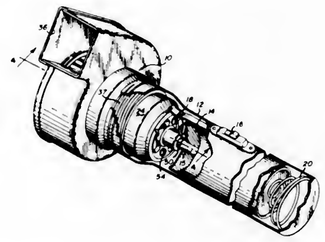
A pressure transformer including a plurality of pistons. Each of the pistons is driven through a working stroke and a return stroke by fluid under pressure and acts as a fluid motor. Each of the pistons is supplied with fluid, and on the working stroke, the piston increases or decreases the pressure of the fluid supplied thereto. Each of the pistons also serves as a valve to control the movement of one of the other pistons.

3,809,503
FAN CONSTRUCTION
Volker Schlicker, St. Georgen, and Gunter Wrobel, Villingen, both of Germany, assignors to Papst-Motoren Ltd., Co., St. Georgen, Germany
Filed July 31, 1972, Ser. No. 276,855
Claims priority, application Germany, Aug. 4, 1971, 2139036
Int. Cl. F04b *17/00*
U.S. Cl. 417—352 **19 Claims**



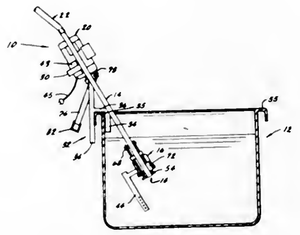
A fan, particularly a portable fan, includes a substantially square flat casing having a top wall with an inlet and substantially parallel side walls and front and rear walls. The front wall is provided with an open front face for the discharge of the air from a radially operating motor driven fan wheel which is positioned within the casing in an eccentric arrangement. The casing is provided with a partition wall on the rear wall side of the fan which is substantially cylindrical and the axis of the fan is located so that the clearance between the periphery of the fan and the adjacent side wall at one side is less than at the opposite side. The fan is also oriented so that its axis is positioned at a greater distance toward the curved partition wall on the closer spacing side than the opposite side so that an inwardly spiralling flow path in the form of a volute is provided from one side toward the other.

3,809,504
BLOWER HEAD FOR FLASHLIGHT
Donald Leonard Goossens, 691 Lakehaven Dr., Sunnyvale, Calif.
Filed Sept. 5, 1972, Ser. No. 286,011
U.S. Cl. 417—411 **5 Claims**



A blower head for attachment to the battery housing of an ordinary flashlight and including a centrifugal blower which is driven by a motor contained within a motor housing which is itself adapted to mate with the battery housing and includes electrical contacts adapted to engage the battery terminal and the switching electrode of the battery housing in substantially the same manner as does the lamp assembly of the flashlight.

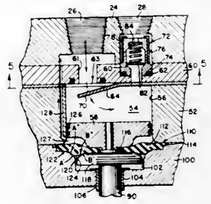
3,809,505
BITUMEN PUMPING APPARATUS
Dobson, Sr., Richard D., and Clyde J. Clifton, both of Wichita, Kans., assignors to Ron J. McGraw, El Dorado, Kans.
Filed Jan. 24, 1972, Ser. No. 220,221
Int. Cl. F04b *35/04*
U.S. Cl. 417—424 **8 Claims**



A pumping apparatus with a pump and driver mounted on a frame and connected to a two-position valve and valve control, and with a conduit through the frame connected to the valve to convey liquid from the tank.

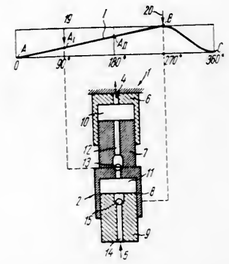
3,809,506
HERMETICALLY SEALED PUMP
Norman D. Malcosky, Columbus, Ohio, assignor to Columbia Gas System Service Corporation, Wilmington, Del.
Filed Dec. 11, 1972, Ser. No. 313,756
Int. Cl. F04b *21/02, 39/00*
U.S. Cl. 417—439 **15 Claims**

A hermetically sealed pump includes a cylinder that defines a piston chamber for a reciprocating piston driven through an eccentric cam member and a cam follower operatively connected between the piston and the cam. A fluid manifold is associated with the piston cylinder and has suction and discharge ports located in communication with the piston chamber for supplying fluid to and discharging fluid from that chamber, and a pair of valves are operatively associated with these ports for simultaneously opening one of the ports and closing the other of the ports, in response to pressure in the



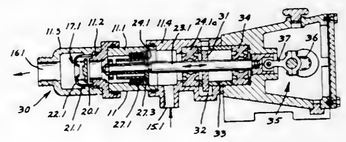
piston chamber. A toroidally shaped rolling diaphragm hermetically seals the piston chamber on the side of the piston opposite the ports, thereby to prevent loss of fluid in the pump through the piston chamber.

3,809,507
NONPULSATING FLUID-FLOW PUMP
Boris Ivanovich Baglai, prospekt Oktyabrya, 133, kv. 32, Ufa, U.S.S.R.
Filed Mar. 1, 1972, Ser. No. 230,751
Int. Cl. F04s *19/00, 37/00*
U.S. Cl. 417—488 **5 Claims**



A pump incorporating consecutive pairs intercommunicating through channels. One element of the first pair is fixed while the other element of said pair is movable and rigidly connected with one of the elements of the next pair, the other element of which is also movable. The number of such pairs may be more than two. All the movable elements of the pairs of kinematically linked with a shaped cam which sets said elements in motion. The pump is provided with a changeover device for communicating the metering volumes of said pairs.

3,809,508
PUMP
Ryoji Uchiyama, Ichikawa, Japan, assignor to Maruyama Mfg. Co., Ltd., Tokyo, Japan
Filed Dec. 6, 1971, Ser. No. 205,146
Int. Cl. F04b *7/00*
U.S. Cl. 417—511 **2 Claims**



A reciprocating pump with a reciprocable rod with a disc valve thereon, a tube loosely knotted on the rod to seat one

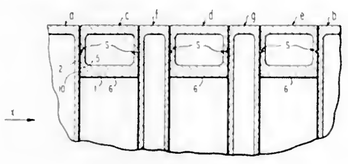
end against the disc valve, a liquid pervious retainer for the tube on the rod and allowing movement of the tube away from the disc valve, and a stationary seal in the pump housing encompassing the tube in sealing relation and preventing longitudinal reciprocation of the tube within the seal.

3,809,509

ROTARY PISTON INTERNAL COMBUSTION ENGINE, ESPECIALLY OF TROCHOIDAL CONSTRUCTION

Heinz Lamm, Esslingen St. Bernhardt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Untertuerkheim, Germany

Filed Apr. 14, 1971, Ser. No. 133,884
Claims priority, application Germany, Apr. 14, 1970, 2017769
Int. Cl. F01c *19/00*; **F04c** *15/00, 27/00*
U.S. Cl. 418—60 **20 Claims**



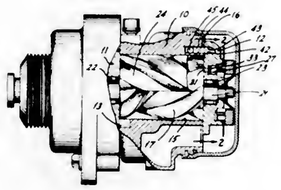
A rotary piston internal combustion engine, especially of trochoidal construction which essentially consists of lateral parts and of at least one casing housing, in case of multi-disk internal combustion engines of one or several intermediate parts, with a gas-sealing element arranged between the end flanks of the lateral part, possibly of the intermediate part, and the casing housing; the end flanks of casing housing and/or of the lateral part, respectively, intermediate part, are provided with a recess, in which are accommodated metallic gas-sealing elements that consist of a material with high heat conductivity.

3,809,510

COMBINATION PRESSURE RELIEF AND ANTI-SLUGGING VALVE FOR A SCREW COMPRESSOR

David A. Gregerson, Richmond, Ind., and Vinod K. Arora, Dayton, Ohio, assignors to Philco-Ford Corporation, Blue Bell, Pa.

Filed Mar. 22, 1973, Ser. No. 343,871
Int. Cl. F04b *23/14*
U.S. Cl. 418—201 **6 Claims**



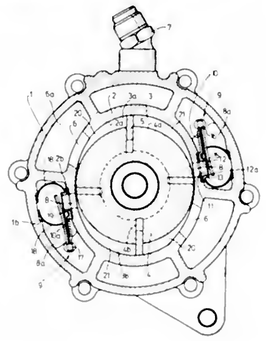
A combination pressure relief and anti-slugging port is so positioned relative to the main discharge port of a screw compressor that, as the screws are rotated, the main rotor lobe first exposes the pressure relief port while the main discharge port remains covered by an adjacent gate rotor lobe, followed by the rotating lobes uncovering both ports simultaneously, and by covering of the relief port by the main rotor lobe as the main discharge port remains uncovered by the gate rotor lobe. A valve is provided in the pressure relief and anti-slugging port so that the compressed gas can be discharged therefrom, in the event the built-in compression ratio exceeds the operating compression ratio, while the relief port alone is uncovered.

3,809,511

VALVE ARRANGEMENT FOR A COMPRESSOR

Ernst Linder, Muehlacker; Gerhard Adalbert, and Juergen Hess, both of Markgroeningen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 24, 1973, Ser. No. 354,135
Claims priority, application Germany, May 3, 1972, 2221541
Int. Cl. F01c *21/12*; **F16k** *25/00*
U.S. Cl. 418—259 **10 Claims**



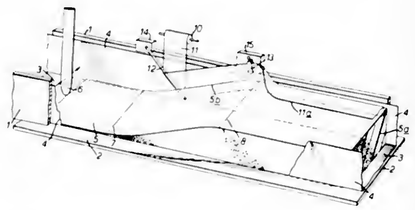
The axially aligned outlet openings in an endless inner housing wall surrounding the vane rotor of a compressor, are connected by valves with a housing space between the inner housing wall and an outer housing wall having a discharge outlet. All valves are mounted on a common valve plate which slidingly engages the inner wall while a pair of springs fixedly abut the common valve plate, and slidingly abut the outer housing wall so that a valve unit is formed by the springs, valve plate and valves, which can be removed from and inserted into the housing in axial direction.

3,809,512

APPARATUS FOR THE CONTINUOUS PRODUCTION OF STRANDS OF POLYMERIC FOAM

James Brian Blackwell; Dennis Killen, and Victor Francis Hodgson, all of Stockport, England, assignors to Uniform A.G., Glarus, Switzerland

Division of Ser. No. 219,645, Jan. 21, 1972, which is a continuation-in-part of Ser. No. 719,957, April 9, 1968, abandoned. This application July 26, 1972, Ser. No. 275,213
Claims priority, application Great Britain, Apr. 12, 1967, 16670/67; June 9, 1967, 26718/67; Dec. 13, 1967, 56762/67
Int. Cl. B29d *27/00*
U.S. Cl. 425—4 C **8 Claims**



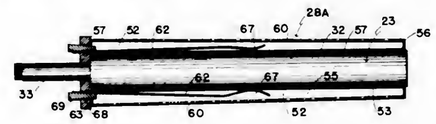
Apparatus for the continuous production of strands of polymeric foam. Strands of foam are produced by depositing liquid foam reactants onto an open-topped continuous trough conveyor and a flat top surface to the foam is achieved by introducing guide sheets between the sides of the trough conveyor and the foam and raising and controlling the guide sheets so that they are always in accurate registration with the rising foam. The guide sheets are introduced downwardly into the trough conveyor and then passed around respective straight fold bars the attitudes of which are adjustable. The guide sheets thereafter follow upwardly inclined paths, corresponding to the rising level of the foam, and are advanced by pull rolls which are also adjustable in attitude. The positions along the trough conveyor of the fold bars and the pull rolls can be adjusted. Preferably, the guide sheets are sheets of thin plastics material, e.g. polyethylene.

3,809,513

MACHINE FOR MANUFACTURING HOLLOW CORE STRUCTURES OF CONCRETE AND THE LIKE

Frederick Sellers; Marvin Thorsteinson, and Ernst Martens, all of Winnipeg, Manitoba, Canada, assignors to Spiroll Corporation Ltd., Winnipeg, Manitoba, Canada

Continuation-in-part of Ser. No. 243,159, April 12, 1972, abandoned. This application Oct. 10, 1972, Ser. No. 296,189
Int. Cl. B28b *21/36*
U.S. Cl. 425—84 **10 Claims**



A mould has a removeable wall so that concrete can be poured therein. A plurality of mould core assemblies are insertable in the mould and are surrounded by the concrete mix. Fluid under pressure expands elastic sleeves surrounding the mould cores and thus compresses the concrete against the walls of the mould. Water extraction members are also insertable in the mould and are also surrounded by concrete. These members may either be separate from or formed part of the mould core assemblies. Filtering material surrounds these members so that free water expressed by the compression of the concrete can drain or be evacuated by these members thus causing the concrete to be compressed into a semi-rigid and relatively dry state so that it can be removed from the mould. Concrete structures formed this way are accurate as to all external dimensions.

3,809,514

MACHINE FOR THE CONTINUOUS MANUFACTURE OF HOLLOW ELEMENTS

Julio De Castro Nunez, Arrieta 7, Madrid, Spain

Filed Nov. 9, 1972, Ser. No. 305,138
Claims priority, application Spain, Nov. 13, 1971, 397.008; July 7, 1972, 404.657
Int. Cl. B29c *3/02*
U.S. Cl. 425—112 **7 Claims**



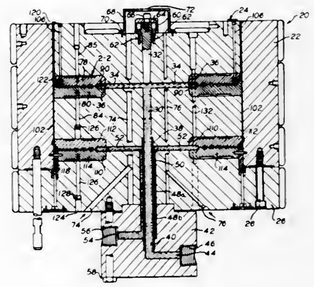
The present invention relates to the moulding of a hollow element which is made on a mould equipped with rotary means on its periphery which impart to a continuous band supported on the said means a helicoidal movement that imparts to the layer of the hollow element on the surface thus formed a continuous longitudinal and rotary displacement, following the said movement.

3,809,515

EXTRUSION DIE FOR BLOWING PLASTIC FILM

John J. Farrell, Greenbrook, N.J., assignor to Farrell Patent Company, Dunellen, N.J.

Filed Mar. 3, 1972, Ser. No. 231,501
Int. Cl. B29f *3/12*
U.S. Cl. 425—133 **20 Claims**



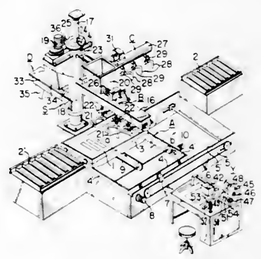
This die for blowing plastic film obtains better mixing of the plastic from different supply lines before extrusion and thus avoids visible "weld lines" in the finished film. The improved mixing results from the use of generally spiral passages leading from the supply passages to the cylindrical clearance that forms the discharge outlet of the die. The spiral passages are formed by grooves in an annular plate located between the core supply passages and the cylindrical clearance through which the plastic flows to the die outlet. The grooved surface of the place touches a confronting surface near the inner edge of the plate but the confronting surfaces diverge slightly as they extend outward so that plastic can leak radially across space between spiral grooves and into the cylindrical clearance that leads to the die discharge outlet. Adjustments of passage cross sections obtain uniform thickness of the blown film.

3,809,516

APPARATUS FOR MANUFACTURING A LIGHT-WEIGHT CONCRETE PANEL WITH PATTERN DESIGNS ON ITS SURFACE

Saiji Komaki, No. 1, Nagayoshi-cho, Kagoshima-shi, Japan

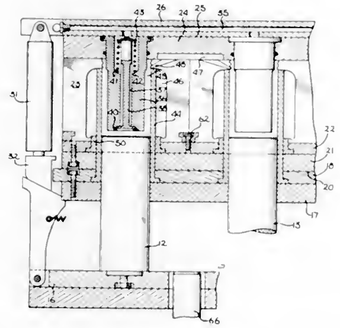
Filed Dec. 8, 1971, Ser. No. 205,819
Claims priority, application Japan, Mar. 30, 1971, 46-18868; Mar. 30, 1971, 46-18869; May 21, 1971, 46-34547; Sept. 10, 1971, 46-70250; Dec. 31, 1970, 45-134896
Int. Cl. B28b *17/00*; **B05b** *7/08*
U.S. Cl. 425—150 **3 Claims**



A light-weight concrete panel, with patterns on its surface, is produced automatically by positioning a mold in operative relation with materail supply devices including a device for supplying a pattern material, a device for directing air against an applied pattern and a device for applying concrete into the

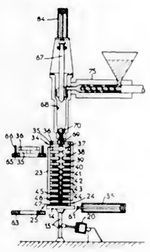
mold. The device for applying the pattern material, and movement of the mold, are controlled by scanning of a master pattern. The pattern material may be dies. The supply devices, including troughs, material feeders, and discharge spouts are mounted on horizontal arms extending from an upright pillar, and the pillar may be rotatable to position the several supply devices in operative relation with the mold.

3,809,517
BLOW INJECTION APPARATUS
Robert F. Schneider, Los Angeles, Calif., assignor to Synthetic Electronic Technology Co., Inc., Los Angeles, Calif.
Filed Feb. 28, 1972, Ser. No. 229,629
Int. Cl. B29d *23/03*
U.S. Cl. 425—242 B **4 Claims**



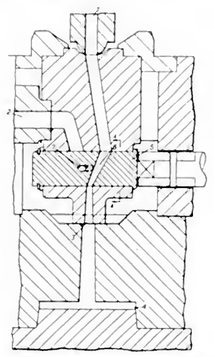
A blow forming apparatus is disclosed herein in which a molten plastic is forcibly injected into the shaped cavity of a closed blowing mold that is supported in a stationary location. A sleeve is movably carried on the ejector assembly of the apparatus so that its cylindrical wall divides the mold cavity into a first chamber occupied by the injected parison and a second outer chamber into which the parison is blown into the desired body shape after removal of the sleeve from the cavity. The sleeve also serves as an ejector sleeve for effecting separation of the blown body from the blowing station or mold once the formation of the body has been completed, then continues to move up into position for the next cycle.

3,809,518
PRODUCTION OF BODIES FROM SYNTHETIC PLASTICS MATERIALS
Brian Edwin Lloyd, Sedgley, and Barry John Marsh, Penkridge, both of England, assignors to GKN Group Services Limited, Worcester, England
Filed Feb. 28, 1972, Ser. No. 229,839
Claims priority, application Great Britain, Mar. 1, 1971, 5736/71
Int. Cl. B29c *1/00*
U.S. Cl. 425—244 **7 Claims**



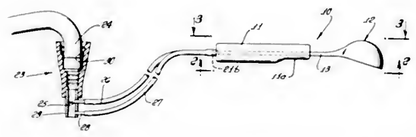
The specification discloses a cyclic method of, and apparatus for, the production of bodies, particularly preforms for further shaping, of synthetic plastics material. There is provided a series of inter communicating mould cavities and plastics material is injected into the cavity at the input end of the series by decreasing the volume of an accumulator chamber to which the material is continuously fed. The volume of the chamber is allowed gradually gradually to increase as more material is fed into it after the cavity at the input end has been filled while the series of mould cavities is still connected to the chamber whereby material is fed into the series from the accumulator chamber to prevent the formation of voids due to shrinkage. The series is only disconnected from the accumulator chamber while an empty mould cavity is being provided at the input end of the series and an article removed from the output end thereof so that the formation of voids due to shrinkage is substantially avoided.

3,809,519
INJECTION MOULDING MACHINES
Paul Johnson Garner, Thorpe Bay, England, assignor to Imperial Chemical Industries, Limited, London, England
Continuation-in-part of Ser. No. 132,971, April 12, 1971, which is a division of Ser. No. 781,763, Oct. 6, 1968, Pat. No. 3,599,290. This application Oct. 19, 1972, Ser. No. 299,123
Claims priority, application Great Britain, Dec. 15, 1967, 57081/67
Int. Cl. B29f *1/03*
U.S. Cl. 425—245 **6 Claims**



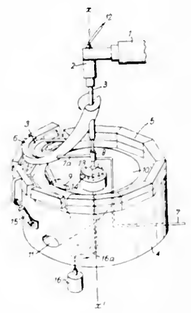
A multiway valve in a "two-shot" injection moulding machine having separate tapered passageways for alternately connecting the sources of material with a single outlet. The valve also has a shut-off position wherein neither source is connected to the outlet.

3,809,520
FLUID HEATED SCOOP
Richard B. Wilk, 4384 Via Presada, Santa Barbara, Calif., and Jack J. Hill, 1056 Latin Way, Los Angeles, Calif.
Filed Feb. 22, 1972, Ser. No. 228,161
Int. Cl. A23g *5/02*
U.S. Cl. 425—276 **4 Claims**



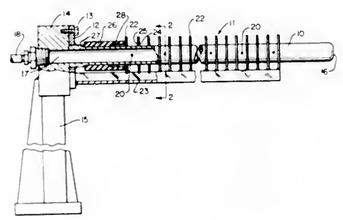
An ice cream scoop bowl contains an interior fluid circulation passage having an inlet and outlet for fluid to circulate therethrough in heat transfer relation to the bowl. The interior passage configuration affords unusual advantages.

3,809,521
APPARATUS FOR BLOW MOULDING
Claude LaFosse, Chalon Sur Saone, France, assignor to Saint-Gobain Carnaud Interplastic, Neuilly-Sur-Seine, France
Filed Mar. 6, 1973, Ser. No. 338,597
Claims priority, application France, Mar. 9, 1972, 72.08177
Int. Cl. B29d *23/03*
U.S. Cl. 425—326 B **9 Claims**



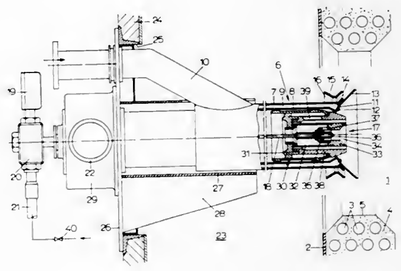
Apparatus for blow moulding of plastics materials has a duct rotatable about a fixed extrusion head to deposit an extruded tube in a series of fixed moulds arranged in a ring. The duct may be supplied with a cooling fluid to adjust the temperature of the tube. Simple operation and high production speeds can be achieved.

3,809,522
APPARATUS FOR MAKING CORRUGATED TUBING
Vance M. Kramer, 402 E. Boundry Rd., Perrysburg, Ohio
Filed Jan. 5, 1972, Ser. No. 215,612
Int. Cl. B29c *17/00*
U.S. Cl. 425—387 **5 Claims**



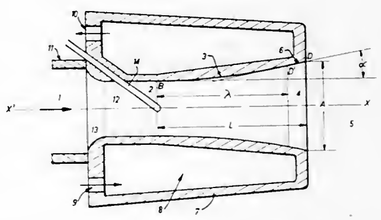
An apparatus for making corrugated rubber tubing in which embryonic corrugations are formed in a sleeve of uncured rubber by sliding the sleeve axially into the annular space between a mandrel and a forming member having no moving parts that surrounds the mandrel and in fixed, concentric relation thereto. The forming member provides immovable edge means and intervening spaces against which the sleeve is expanded by fluid pressure to form the embryonic corrugations. The sleeve is then removed from the annular space, axially collapsed to form the corrugations and then cured to set the corrugations.

3,809,523
METHOD AND APPARATUS FOR COOLING THE FLAME OF AN INDUSTRIAL GAS BURNER
Willem Varekamp, Soest, Netherlands, assignor to Ingenieursbureau Rodehuis & Verloop N.V.
Filed Sept. 1, 1972, Ser. No. 285,857
Claims priority, application Netherlands, Jan. 6, 1971, 7100208
Int. Cl. F23j *7/00*
U.S. Cl. 431—4 **5 Claims**



A method of cooling the flame of an industrial burner for gaseous fuel in which a gas burner is used having a ring-shaped gas-outflow opening and a flow of atomized water is sprayed from the centre of the burner mouth substantially axially into the annular flame burning at the gas-outflow opening.

3,809,524
INJECTION OF LIQUID FUELS INTO SHAFT FURNACES
Paul Bruhlet, Nilvance, and Gerard Quillet, Thionville, both of France, assignors to Compagnie Francaise de Raffinage, Paris, France
Filed July 7, 1972, Ser. No. 269,556
Claims priority, application France, July 8, 1971, 71.25093
Int. Cl. F23c *5/08*
U.S. Cl. 431—181 **18 Claims**



Method and apparatus capable of atomizing and mixing large, even stoichiometric, amounts of liquid fuel (with or without oxygen) in the blast of tuyeres supplying a shaft furnace without ignition of the mixture prior to reaching the furnace, accomplished by atomizing the fuel by injection into a blast having a speed of between mach 0.3 and mach 1 and thereafter reducing the speed of the blast to velocities acceptable for supplying the furnace requirements, before ignition of the fuel can occur, by constantly increasing the cross-section of the tuyere conduit in a smooth curve to give a flow path without recirculation streams. In a further aspect of the invention, any generatrix of the conduit is wholly convex with the tangent at the discharge end forming an angle of at most 15° to the axis of generatrix.

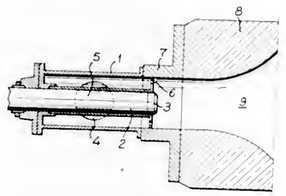
ERRATUM

For Class 431—256 see:
Patent No. 3,808,741

3,809,525
FLAT-FLAME BURNER UTILIZING HEAVY LIQUID FUELS

Robert Wang, Saint-Germain-en-Laye, both of, and Jean-Marie Pariel, Saint-Germain-En-Laye, both of France, assignors to Societe Anonyme Heurtey and Elf Union, Paris, France

Filed Feb. 20, 1973, Ser. No. 333,796
Claims priority, application France, Feb. 23, 1972, 72.06075
Int. Cl. F23d *15/02*
U.S. Cl. 431—353 **4 Claims**

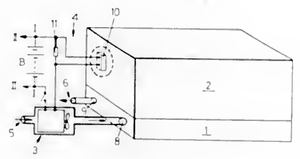


The invention relates to a flat-flame burner in which the special geometrical configuration of the burner components for introducing the fuel and the combustion air ensure proper mixing thereof and the required geometrical shape of the flames over a wide range of operating conditions.

3,809,526
HEATING UNIT

Bjarne Nordli, Hammerstad, 2080 Eidsvoll; Tor Audun Oftedal, Holtegt 24, Oslo 3, and Erik A. Wulvik, Odalsgt 4,, 2000 Lillestrom, all of Norway

Filed May 3, 1973, Ser. No. 356,990
Int. Cl. F27b *17/00*
U.S. Cl. 432—36 **14 Claims**

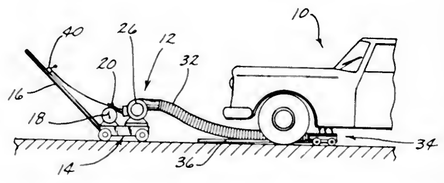


Heating unit suitable for being placed in thermal contact with an object to be heated, that comprises a fuel element substantially consisting of carbon and which is arranged in a box of heat conducting material with a layer of heat insulating material between the fuel element and the box, ignition means and air supply means arranged to supply combustion air during and after ignition, so that the air flow is defined resulting in predetermined heat effect.

3,809,527
PORTABLE HEATER FOR AN AUTOMOBILE

Roger Newman, 517 94th Ave., Omaha, Nebr.

Filed Apr. 16, 1973, Ser. No. 351,604
Int. Cl. F27b *17/00*
U.S. Cl. 432—62 **3 Claims**

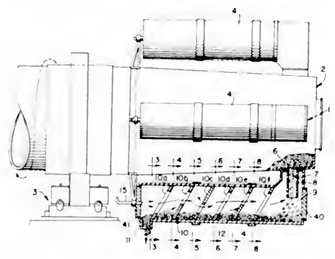


A portable heater for an automobile or the like comprising a first wheeled support having a gas heater mounted thereon. A blower is in communication with the heater and has an elongated flexible tube means extending therefrom. The outer end of the tube means is supported by a second wheeled support having an elongated handle extending therefrom. The outer end of the tube means is adapted to direct the heated air upwardly onto the oil pan of the automobile to assist in starting the automobile during periods of cold weather.

3,809,528
APPARATUS FOR COOLING SOLID PARTICULATE MATERIAL

Douglass J. Kramm, Allentown, Pa., assignor to Fuller Company, Catasauqua, Pa.

Filed Sept. 4, 1973, Ser. No. 394,214
Int. Cl. F27b *7/02, 7/14*
U.S. Cl. 432—80 **6 Claims**



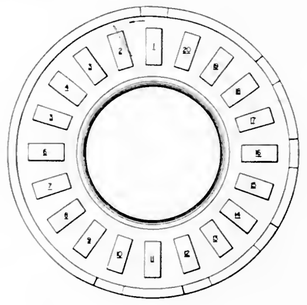
Apparatus for cooling solid particulate material treated in a kiln comprising a plurality of elongated cylinders attached to the periphery of a rotary kiln. Particulate material is discharged from the kiln into the material inlet of the cooler while cooling air is introduced into the cooler countercurrent to the material flow. The particulate material is uniformly advanced from the material inlet to the outlet by means of a helical plate means which is continuous throughout its length. Annularly offset openings in the plate means deflect the cooling air from its initial flow path in order to increase the rate of heat transfer between the cooling gas and the particulate material, plate means and walls of the cooler. The plate means

is easily manufactured and installed. The plate means is designed to prevent clogging by the particulate material. The interior of the cooler and the entire plate means are easily accessible for maintenance or repair by means of access doors near the material inlet and outlet. Spent gas is returned to the kiln to be used as preheated air of combustion.

3,809,529
ENDLESS FURNACE

Henry A. Gornall, Lyndhurst, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 167,002, July 28, 1971, abandoned, which is a division of Ser. No. 853,336, Aug. 27, 1969, Pat. No. 3,649,327. This application Oct. 26, 1972, Ser. No. 301,119
Int. Cl. F27b *9/00*
U.S. Cl. 432—138 **13 Claims**



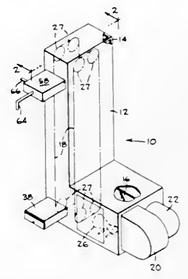
An endless porcelain enameling tunnel furnace having an inner and outer periphery, a plurality of ports positioned along said outer periphery in spaced relationship to each other to permit entry and removal of a work place to be placed in said furnace, an internal radiant heat means, and internal means for continuously advancing work pieces to be enameled.

3,809,530
DRYING APPARATUS

William A. Gerrans, Colusa, Calif., assignor to Carl J. Fusco, Santa Rosa, Calif.

Filed Jan. 3, 1972, Ser. No. 214,578
Int. Cl. F27b *9/24*; **F26b** *11/18*
U.S. Cl. 432—152 **13 Claims**

Drying apparatus which includes a housing forming a continuous closed-loop conduit within which a drying fluid can be recirculated over a product placed within the housing, the housing incorporating means enabling continuing egress of

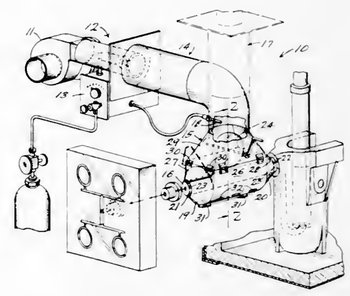


moisture to the exterior environment without substantial heat loss.

3,809,531
DIE CASTING APPARATUS

Melvin A. Jones, Lake Mohawk R.R. No. 1, Tiffin, Ohio

Filed June 4, 1973, Ser. No. 366,645
Int. Cl. F27b *9/36*
U.S. Cl. 432—225 **7 Claims**



The invention relates to heater apparatus for controlling the temperature of the melt within the nozzle or transfer tube of a die casting machine. The apparatus employs thermostatically-controlled heated gases which flow into an enclosure surrounding the nozzle, maintain the nozzle within a predetermined temperature range, and are either exhausted from the enclosure or are recycled back to the heater. The enclosure includes a damper deflector and walls which are readily retractable for access to the nozzle.

CHEMICAL

3,809,532
PROCESS FOR DYEING FIBRE MIXTURES OF POLYESTER AND WOOL

Heinz Abel, Reinach, Basel-Land, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation of abandoned application Ser. No. 849,859, Aug. 13, 1969. This application July 7, 1972, Ser. No. 269,652

Claims priority, application Switzerland, Aug. 16, 1968, 12,364/68

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 C **8 Claims**

Mixture of polyester fibres and wool are dyed simultaneously with disperse dyestuffs and wool dyestuffs in the presence of sodium o-phenylphenolate, a levelling agent, and a wool reserve agent. The sodium o-phenylphenolate promotes the penetration of the disperse dyestuff into the polyester fibres and the other additives prevent demixing of the o-phenylphenolate carrier.

3,809,533
ETHOXYETHANOL, GLYCOL, WATER DYE SOLUTION

Frederic L. Sievenpiper, Alden, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 28, 1972, Ser. No. 248,554

Int. Cl. C09b *67/00*

U.S. Cl. 8—93 **1 Claim**

A liquid solvent composition containing an organic dye, especially suitable for solvent dyeing operations, comprises 40–80 volume percent alkoxyl alkanol, 5–40 volume percent of an alkylene glycol and 2 to 25 volume percent of water.

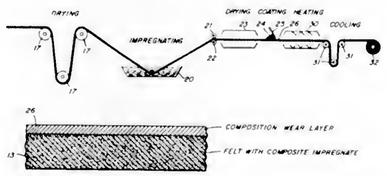
3,809,534
PROCESS OF MAKING INDENTATION RECOVERY POLYVINYL CHLORIDE SURFACE COVERING BY REACTING THE CELLULOSIC FELT BACKING WITH A CROSS-LINKING AGENT AND PRODUCT PRODUCED THEREBY

Leon B. Palmer, Little Falls, N.J., assignor to Congoleum Industries, Inc., Kearny, N.J.

Continuation-in-part of application Ser. No. 786,542, Dec. 6, 1968, which is a continuation-in-part of application Ser. No. 459,518, May 17, 1965, which in turn is a continuation-in-part of application Ser. No. 15,477, Mar. 16, 1960, all now abandoned. This application July 6, 1971, Ser. No. 159,768

Int. Cl. B32b *31/00;* **D06n** *3/06*

U.S. Cl. 8—115.6 **6 Claims**



This invention relates to a process for producing a surface covering having high indentation resistance and recovery from indentation and having in combination a resilient thermoplastic polyvinyl chloride composition wear-resistant surface layer having a thickness of at least 0.003 inch and a fibrous backing having a gauge-to-weight ratio of 0.8 to 1.2 and a thickness of from 0.025 to 0.060 inch which process comprises impregnating a protein-free cellulosic fibrous sheet with a uniformly dispersed resinous water-resistant and strengthening impregnant, incorporating within the cellulosic fibers of the fibrous sheet a difunctional, non-resinous, water-soluble reagent capable of cross-linking at least some of the hydroxy groups of the cellulosic fibers, and an acid catalyst, heating the fibrous sheet to cross-link at least some of the hydroxy groups, and applying a wear-resistant surface layer to the fibrous sheet, thereby crosslinking at least as many of the free hydroxyl groups as is necessary to provide at least about a 50% recovery within the 5 minute period from an indentation produced by applying a 100 pound load through a 0.75 inch spherical pin for 5 minutes to the surface covering. Also, the disclosure relates to the product produced in this manner.

3,809,535
DRY CLEANING OF TEXTILES

Jean Neel, Lyon, and Bernard Papillon, Lyon-la-Mulatiere, France, assignors to Societe Rhone-Progil, Paris, France

No Drawing. Filed Dec. 15, 1971, Ser. No. 208,436

Int. Cl. D06l *1/00*

U.S. Cl. 8—142 **5 Claims**

A method of washing solid, more particularly textile articles, with an organic solvent, improved by adding an intensifier.

The intensifier is a primary or secondary amide of a dicarboxylic aliphatic acid or anhydride wherein one carbon atom in the chain connecting the two acid groups bears an alkyl or alkenyl radical containing at least six carbon atoms.

The method gives better whiteness and more particularly prevents the re-deposition of dirt.

3,809,536
RECIRCULATION BACK TO SOLVENT DYE BATH OF AN AQUEOUSLY SEPARATED HALOHYDROCARBON-ALKYLENE GLYCOL ETHER MIXTURE WITH FURTHER HALOHYDROCARBON REMOVING WATER FROM THE ETHER

Frederick L. Sievenpiper, Alden, N.Y., and Elmore L. Bement, Stanley, N.C., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Mar. 30, 1972, Ser. No. 239,753

Int. Cl. D06p *5/00*

U.S. Cl. 8—173 **6 Claims**

A process for recovering organic liquids used in solvent dyeing operations of textiles is described. The organic liquid solvents comprise a water-soluble component and a water insoluble component which, as residual liquors from the solvent dyeing operation contain a small amount of water accumulated during the dye operation from the textile being dyed and form an azeotropic mixture when recovered by distillation. The mixture is recovered as is components by addition of water to separate the water insoluble components, followed by distillation. The water and the water-soluble component also form an azeotrope from which the soluble organic component is recovered by the addition of an entrainer followed by distillation. Both organic components may then be recycled to the solvent dyeing process.

3,809,537
TEST FOR LEAD

Angela A. Horine, 1675 Clay Drive, Los Altos, Calif. 94022

No Drawing. Filed May 2, 1972, Ser. No. 249,638

Int. Cl. G01n *21/04*

U.S. Cl. 23—230 R **6 Claims**

Lead in concentrations in the range 4–40 p.p.m. in aqueous solution of pH 1–5 is visually detected by adding a solution of a soluble sulfide.

3,809,538
ROTARY COUNTERCURRENT SOLID-LIQUID EXTRACTION APPARATUS

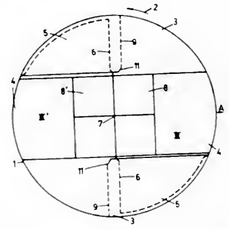
Georges F. Duchateau, Tienen, Belgium, assignor to Raffinerie tirlemontoise, Brussels, Belgium

Filed June 28, 1971, Ser. No. 157,224

Claims priority, application Luxemburg, July 3, 1970, 61,261/70

Int. Cl. B01d *11/02*

U.S. Cl. 23—269 **9 Claims**



A method for extracting, by means of a liquid, products which are part of solids in a partitioned rotating extractor, with the flow of the liquid fraction separated from the solids fraction being slowed down by baffles and said liquid fraction being spread over the length and width relative to the new solids fraction.

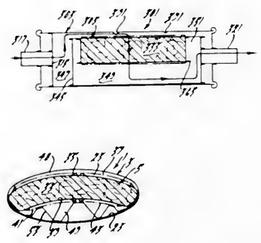
3,809,539
DOWNFLOW CATALYTIC CONVERTER FOR ENGINE EXHAUST GASES

Robert N. Balluff, Rives Junction, and James D. Stormont, Grass Lake, Mich., assignors to Tenneco Inc., Racine, Wis.

Filed Mar. 13, 1972, Ser. No. 234,009

Int. Cl. B01j *9/04;* **F01n** *3/14*

U.S. Cl. 23—288 F **30 Claims**



A catalyst converter for an internal combustion engine exhaust system has a curved downflow catalyst bed in which the inlet wall is provided by a portion of a cylindrical shell inside an outer housing and the outlet wall is provided by a similarly curved plate carried by the shell, there being slip connections to permit relative heat expansion and contraction of the parts.

3,809,540
SINTERED STEEL BONDED TITANIUM CARBIDE TOOL STEEL CHARACTERIZED BY AN IMPROVED COMBINATION OF TRANSVERSE RUPTURE STRENGTH AND RESISTANCE TO THERMAL SHOCK

M. Kumar Mal, Spring Valley, and Stuart E. Tarkan, Monsey, N.Y., assignors to Chromalloy American Corporation, West Nyack, N.Y.

No Drawing. Filed Dec. 29, 1972, Ser. No. 319,151

Int. Cl. C22c *1/05, 29/00*

U.S. Cl. 29—182.8 **4 Claims**

A sintered steel-bonded titanium carbide composition characterized by an improved combination of transverse rupture strength, resistance to impact, and resistance to thermal shock is provided comprising by weight about 20% to 30% of primary grains of titanium carbide dispersed through a steel matrix making up the balance, the composition of said matrix consisting essentially by weight of about 3% to 7% chromium, about 2% to 6% molybdenum, about 0.1% to 1% nickel, about 0.3% to 0.7% carbon and the balance essentially iron. In the heat treated hardened condition, the matrix is characterized by the presence of martensite.

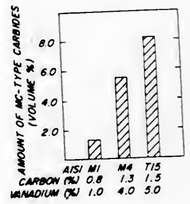
3,809,541
VANADIUM-CONTAINING TOOL STEEL ARTICLE

Gary Steven, 444 Royce Ave., Pittsburgh, Pa. 15216

Filed Oct. 24, 1972, Ser. No. 300,094

Int. Cl. C22c *39/14*

U.S. Cl. 29—192 **2 Claims**



A vanadium-containing tool steel and article compacted from particles thereof and a method for producing said article from a prealloyed powdered charge of the alloy consisting essentially of, in weight percent, carbon 1.5 to 1.6, chromium 3.5 to 4.5, vanadium 2.5 to 3.5, tungsten 9 to 11, molybdenum 4.5 to 5.5, cobalt 8.0 to 12.5, manganese up to 1, silicon up to 1, nitrogen .02 to .08 and balance iron; the article is characterized by the combination of hardness and toughness making it desirable for cutting tool applications.

3,809,542
GLASS CERAMIC MATERIALS

Stanley Lythgoe, Parbold, and Philip Sidney Irlam, Southport, England, assignors to Pilkington Brothers Limited, Lancashire, England

Filed Feb. 15, 1972, Ser. No. 226,482

Claims priority, application Great Britain, Feb. 19, 1971, 5,019/71

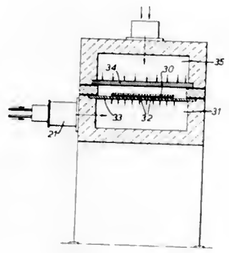
The portion of the term of the patent subsequent to May 7, 1991, has been disclaimed

Int. Cl. C03b *18/00, 29/00*

U.S. Cl. 65—33 **7 Claims**

A method and apparatus for manufacturing glass ceramics from crystallizable vitreous material are disclosed, in which the temperature of the vitreous material is regulated to a value at which uniform dispersion of embryonic centers of incipient crystal growth is generated throughout

the material and the material is supported on a hot gaseous support, and thereafter the material is rapidly heated on its gaseous support to a crystallization range of temperature and held in that range on the gaseous support to transform the material to a glass ceramic by fine-grained crystal growth on those centers. The gaseous support may be provided by hot gas directed through perforated tiles on to the underside of the material. Hot gas may be directed on to both sides of the material to effect the rapid heating of maintenance in the crystallizations range, while the material is supported by the gas directed at it from one side. The thermal processing may be effected in a continuous manner in a furnace divided into a center-generating zone, a gradient zone, a crystallization zone and a cooling zone.

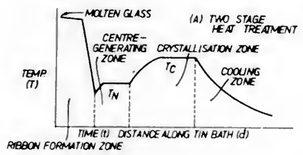


3,809,543

METHOD OF MAKING GLASS CERAMIC MATERIALS ON MOLTEN METAL SUPPORT

Philip Hedley Gaskell, Preston, Stanley Lythgoe, Parbold, Philip Sidney Irlam, Southport, Robert Percy Miller, Sunbury-on-Thames, and Thomas Ian Barry, Hampton Hill, England, assignors to Pilkington Brothers Limited, Liverpool, England

Filed Feb. 16, 1972, Ser. No. 226,857
Claims priority, application Great Britain, Feb. 19, 1971, 5,018/71
Int. Cl. C03b *18/00, 29/00*
U.S. Cl. 65—33 **12 Claims**



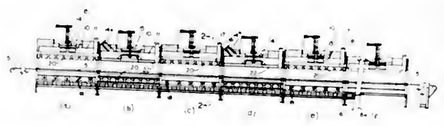
The invention relates to a method of manufacturing a fine-grained glass ceramic material from a thermally-crystallizable vitreous material, which may be an Li_2O—AL_2O_3—SiO_2 composition containing a nucleating agent such as P_2O_5, ZrO_2 or TiO_2, in which method the material is shaped and thereafter supported throughout the subsequent thermal processing, which is preferably effected on a non-wettable support such as a bath of molten metal, e.g. tin. The thermal processing essentially comprises subjecting the shaped material to a temperature/time regime which develops within the material a uniform dispersion of embryonic centers of incipient crystal growth, and then rapidly heating the material at a controlled rate to a predetermined crystallization temperature to effect fine-grained crystal growth on those centers while the viscosity of the glassy matrix of the crystallizing material is at a value which permits rapid stress relaxation.

3,809,544

METHOD AND APPARATUS FOR HEATING, ANNEALING, TEMPERING, DECORATING AND HANDLING GLASSWARE

Edward W. Bowman, Uniontown, Pa., Murial B. Bowman and Michael Edward Bowman, executors of said Edward Woodrow Bowman, deceased, assignors to E. W. Bowman, Incorporated, Uniontown, Pa.

Continuation-in-part of applications Ser. No. 197,302, Nov. 10, 1971, now Patent No. 3,754,885, Ser. No. 201,890, Nov. 24, 1971, now Patent No. 3,741,744, and Ser. No. 238,919, Mar. 28, 1972. This application Feb. 23, 1973, Ser. No. 335,010
Int. Cl. C03b *25/04*
U.S. Cl. 65—119 **12 Claims**



Apparatus for treating and handling bottles, containers, tumblers and other blown and pressed glassware, to heat, anneal, temper, decorate and coat the same in an efficient manner, in minimum time, and with apparatus that occupies minimum space in glass manufacturing plants.

3,809,545

SUPERALLOYS BY POWDER METALLURGY

John Stanwood Benjamin, Suffern, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Application Aug. 25, 1969, Ser. No. 852,861, now Patent No. 3,728,088, which is a continuation-in-part of application Ser. No. 709,700, Mar. 1, 1968, now Patent No. 3,591,362, dated July 6, 1971. Divided and this application Mar. 21, 1973, Ser. No. 343,471
Int. Cl. B22f *9/00*
U.S. Cl. 75—.5 R **3 Claims**

This invention relates to the powder metallurgy of superalloys and, in particular, to dispersion strengthened age hardenable superalloys and wrought products thereof. The invention also relates to a powder metallurgy method for producing wrought metal shapes of age hardenable superalloys, such as dispersion strengthened superalloys characterized metallographically by a uniform distribution of dispersoids in both the longitudinal and transverse directions.

3,809,546

METHOD OF MAKING A HARD ALLOY MATRIX CONTAINING A TUNGSTEN-BORON PHASE

Herbert F. Prasse, Town and Country, and Harold E. McCormick, Ballwin, Mo., assignors to Ramsey Corporation, St. Louis, Mo.

Original application Jan. 7, 1970, Ser. No. 1,187, now Patent No. 3,725,017. Divided and this application Aug. 15, 1972, Ser. No. 280,849
Int. Cl. C23c *7/00*
U.S. Cl. 75—.5 BC **12 Claims**

This invention relates to a method of making an novel alloy containing a tungsten-boron phase. The alloy comprises a matrix such as a nickel-chromium, or other nickel containing matrix, having therein a separate tungsten-boron phase. The alloy is used as a facing or coating

for a number of base materials, and in particular as a piston ring facing for the bearing portion thereof. The invention is particularly directed to a method of making said alloy by utilizing a plasma jet spray technique.

3,809,547

ELECTRIC FURNACE STEELMAKING PROCESS USING OXIDE OF BORON ADDITIVE

Clifford Jackson Lewis, Lakewood, Colo., and Richard Scott Bruski, Walnut Creek, Calif., assignors to The Flintkote Company, White Plains, N.Y.

No Drawing. Filed Dec. 22, 1970, Ser. No. 100,820
Int. Cl. C21c *5/52*
U.S. Cl. 75—11 **17 Claims**

The rate of dissolution of lime in the slag of a basic electric steelmaking furnace is accelerated by charging to the slag a boron-containing compound, particularly one that provides an oxide of boron, especially B_2O_3, under the operating conditions prevailing in the electric furnace. Illustrative of such additive compounds are boron trioxide, boric acid, anhydrous sodium tetraborate (borax), calcium metaborate, calcined and uncalcined colemanite and Rasorite. The additive preferably is delivered to the slag either in intimate mixture with the lime or separately but substantially simultaneously with the addition of the lime.

3,809,548

PROCESS FOR REFINING TECHNICAL GRADE SILICON AND FERROSILICON BY CONTINUOUS EXTRACTION

Helge Håkonsönn Aas, Svelgen, and Jörgen August Kolflaath, Blommenholm, Norway, assignors to Christiana Spigerverk, Oslo, Norway

No Drawing. Filed Apr. 26, 1971, Ser. No. 137,700
Claims priority, application Norway, May 4, 1970, 1,688/70
Int. Cl. C01b *33/02;* **C22b** *3/00*
U.S. Cl. 75—101 R **9 Claims**

A process for refining technical silicon and ferrosilicon having more than about 60% silicon, by leaching continuously in a hydrochloric acidic solution, preferably containing iron chloride, said process being characterized therein that the hydrochloric acidic solution is introduced into the bottom part of a reactor, said reactor being supplied from above with technical silicon or ferrosilicon in the form of lumps, whereby said lumps are leached and disintegrate, said disintegrated material passes upwards in the reactor during continued leaching, partly due to the sinking of lump size raw material and which displaces the disintegrated material, and partly due to the buoyancy caused by the acid flow and by produced or introduced gas, and that disintegrated and practically completely leached crude product together with the hydrochloric acidic solution flows out from the reactor through an overflow or is transported away from the upper part of the reactor by some other means.

3,809,549

ACID LEACHING OF LATERITIC ORE

Vaclav Opratko, 2501 Homelands Drive, Clarkson, Ontario, Canada; James Alexander Evert Bell, 45 Victoria St., Port Colborne, Ontario, Canada; and Roberto Vincenzo Ferrajuolo, 2235 Hurontario St., Cooksville, Ontario, Canada

No Drawing. Filed June 21, 1971, Ser. No. 155,326
Claims priority, application Canada, July 8, 1970, 87,699
Int. Cl. C22b *23/04*
U.S. Cl. 75—101 R **11 Claims**

Nickel values are acid leached from nickeliferous oxide ores by forming an aqueous slurry of ore and pyrites in an autoclave and oxidizing the pyrites at a temperature between about 200° C. and 260° C. to provide a sulfuric acid solution for selectively leaching the nickel values contained in the nickeliferous oxide ore without encountering undue scale formation on the autoclave walls and in auxiliary equipment. Advantageously, the slurry is heated to a temperature above about 250° C. after the leaching reaction is complete to facilitate subsequent liquid-solid separation. Dissolved nickel and cobalt values can be recovered by conventional techniques, such as hydrogen sulfide precipitation.

3,809,550

PROPERLY WELDABLE, CORROSION RESISTANT STRUCTURAL STEEL OF HIGH YIELD POINT

Henrik Giflo, Sandor Enekes, Pal Zambo, Janos Szikla-vari, Istvan Farkas, Geza Ivan, Jozsef Molnar, and Jozsef Vamosi, Miskolc, Hungary, assignors to Lenin Kohaszati Muvek, Miskolc, Hungary

No Drawing. Filed Nov. 27, 1972, Ser. No. 309,910
Claims priority, application Hungary, Dec. 29, 1971, HE–166
Int. Cl. C22c *37/00, 39/02*
U.S. Cl. 75—124 **1 Claim**

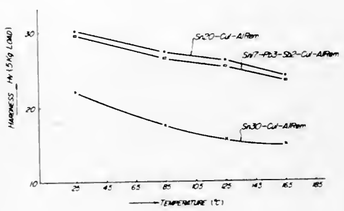
This invention is for corrosion resistant structural steel which has high tensile strength, a high yield point and weldable under any conditions. The steel contains manganese, nickel and silicon in addition to the general contaminates and alloying elements and particularly carbon, copper, aluminum, nitrogen and niobium in amounts that impart the stated properties thereto.

3,809,551

ALUMINUM AND TIN BASE BEARING ALLOY

Nobukazu Morisaki, Nagoya, Japan, assignor to Daido Metal Company Ltd., Nagoya, Japan

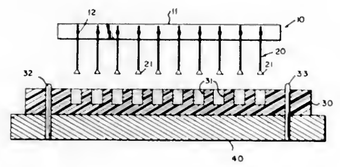
Filed July 16, 1971, Ser. No. 163,249
Claims priority, application Japan, Nov. 28, 1970, 45/105,328
Int. Cl. C22c *21/00*
U.S. Cl. 75—140 **3 Claims**



Aluminum base bearing alloy of this type is suitable for use as internal combustion engine and is superior to conventional aluminum-tin alloys with respect to the surface characteristics such as embeddability and anti-seize characteristics.

This alloy contains 3 to 40 weight percent of tin, 0.1 to 5 weight percent of lead, 0.1 to 3 weight percent of antimony and 0.02 to 2 weight percent of copper, the balance being aluminum, this alloy can be further modified either by omitting copper, or by adding 0.02 to 5% of one or more of nickel, magnesium, iron, silcon and copper in lieu of copper additive or by further adding 0.01 to 1 weight percent of one or more of titanium, vanadium, cobalt and niobium.

3,809,552
METHOD FOR MAKING AN ANODE
Gerhart P. Klein, Manchester, Mass., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.
Filed Nov. 8, 1971, Ser. No. 196,328
Int. Cl. B22f *3/00*
U.S. Cl. 75—208 R **6 Claims**



The process for producing anodes on fixtures comprises the following steps. A stringer with risers of film forming metal welded at right angles to the stringer is lowered into row cavities in an elastomeric mold which have been filled with a film forming metal powder slurry. The risers are centered in the cavities. The powder slurry is frozen with the risers held in registration with the mold pattern. After solidification of the slurry the stringer is withdrawn and the frozen anodes are pulled out of the mold cavities. Predrying preferably with the risers in place prior to freezing removes excess water so that the anodes after thawing will retain their shape and have sufficient strength to withstand the limited handling necessary to transfer them to the sintering equipment. Sintering is preferably done in a horizontal furnace, and preferably special fixtures or a belt to hold the stringer in either horizontal or vertical position so that none of the anodes come in contact with any of the parts of the system while the stringers are carried through the furnace for sintering. The stringers are then removed from the belt for further processing.

3,809,553
METAL FOIL-MAKING PROCESS
Robert L. Peaslee, 217 Linden, Royal Oak, Mich. 48073
No Drawing. Filed Dec. 26, 1972, Ser. No. 318,096
Int. Cl. B22f *3/14, 3/18, 3/22*
U.S. Cl. 75—213 **10 Claims**

A process for making metallic foil consisting of a substantially hard and nondeformable metal or metal alloy which comprises reducing the metal or metal alloy to a powder and thereafter bonding the powder by means of a volatile organic binder into a thin sheet which thereafter is sintered in vacuum at an elevated temperature while disposed between two substantially flat refractory surfaces, forming thereby an integral metallic foil which is substantially devoid of any residual binder constituent.

3,809,554
DRY ELECTROSTATIC TONER COMPOSITION AND PROCESS OF DEVELOPING
Stewart H. Merrill and James R. Olson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Aug. 2, 1971, Ser. No. 168,389
Int. Cl. G03g *9/07, 13/08*
U.S. Cl. 96—1 SD **12 Claims**

Uniformly charging electroscopic toner compositions for use in developing electrostatic charge patterns are described. Dry developer compositions containing a carrier and said uniformly charging toner are also described. The toner compositions contain aromatic resins characterized by a recurring unit containing alternating methylene groups and certain aromatic groups.

3,809,555
METHOD FOR ELECTROPHOTOGRAPHIC EXPOSURE
Brian George Marley, Belair, South Australia, Australia, assignor to Research Laboratories of Australia, Pty. Limited, Eastwood, South Australia, Australia
Filed Dec. 20, 1972, Ser. No. 316,755
Claims priority, application Australia, Dec. 24, 1971, 7,517/71
Int. Cl. G03f *5/00;* **G03g**
U.S. Cl. 96—1 R **4 Claims**

A method for electrophotographic exposure in which a charged photoconductive recording member is exposed twice before development, once using in combination a continuous tone transparency and a screened transparency as an exposure mask, and then using the continuous tone transparency only as the exposure mask.

3,809,556
METHOD OF APERTURE CONTROLLED ELECTROSTATIC IMAGE REPRODUCTION OR CONSTITUTION
Gerald L. Pressman, San Jose, and Thomas D. Kittredge, South San Francisco, Calif., assignors to Electroprint, Inc., Palo Alto, Calif.
Original application Nov. 15, 1968, Ser. No. 776,146, now Patent No. 3,647,291, dated Mar. 7, 1972. Divided and this application July 28, 1971, Ser. No. 167,005
Int. Cl. G03g *13/22*
U.S. Cl. 96—1 R **9 Claims**

The invention basically comprises apparatus and methods relating to the field of electrostatics, and is concerned with electrostatic reproducing or constituting. Apertured screen means carry charge distributions in accordance with a pattern such that particles directed at the screen means pass therethrough under modulation control dictated by the pattern.

The invention further relates to apparatus and methods for constituting or reproducing images through the use of a multi-layered screen consisting of an array of apertures. A propulsion field directs charged particles through the screen to a receiving medium preferably spaced at a distance from the screen. Charge distribution on the screen controls the flow of particles through the apertures, some of which are in effect blocked, partially blocked, unblocked, and enhanced, depending on the local charge level. Thus, it is possible to produce patterns of varying tone without contact with the printed or effected substrate.

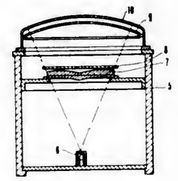
3,809,557
METHOD FOR APERTURE CONTROLLED ELECTROSTATIC IMAGE COLOR REPRODUCTION OR CONSTITUTION
Gerald L. Pressman, San Jose, and Thomas D. Kittredge, South San Francisco, Calif., assignors to Electroprint, Inc., Palo Alto, Calif.
Original application Feb. 18, 1969, Ser. No. 800,236, now Patent No. 3,697,164. Divided and this application July 28, 1971, Ser. No. 167,040
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.2 **3 Claims**

The invention basically comprises methods relating to the field of electrostatics, and is concerned with electrostatic reproducing or constituting in color. Apertured screen means carry charge distributions in accordance with selected color patterns, such that particles directed at the screen means pass therethrough under modulation control dictated by the pattern. The patterns may be determined by the primary or other selected colors applied in sequence, or applied simultaneously.

A multi-layered screen comprising preferably at least an insulative and a conductive layer is characterized by an array of electrostatically sensitive apertures. A propulsion field directs charged particles through the screen to a receiving medium, preferably spaced at a distance from the

screen. Charge distribution on the screen controls the flow of particles through the apertures, some of the apertures being in effect blocked, partially blocked, unblocked, and enhanced, depending on the local charge level. This is true for each color or filter employed to produce the patterns of varying tone for sequential use in reconstituting the image in color, with or without contact with the substrate.

3,809,558
EXPOSURE DEVICES UTILIZED TO MANUFACTURE COLOR PICTURE TUBES
Eiichi Yamazaki, Ichihara, and Koichi Maruyama, Tushio Ueda, and Tomizo Nakamura, Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 2, 1972, Ser. No. 231,219
Claims priority, application Japan, Mar. 5, 1971, 46/11,276
Int. Cl. G03b *27/16*
U.S. Cl. 96—45.1 **4 Claims**



In an exposure device utilized to manufacture a color picture tube of the class comprising a source of light and a correction lens having a discontinuous surface consisting of a plurality of divided regions and portions interconnecting adjacent divided regions, wherein the divided regions and the portions therebetween have different light transmission characteristics and the light emanated from the source of light and transmitting through the correction lens is used to illuminate the phosphor photo-resist coated on the inner surface of the panel of the tube, there is provided a filter integral with or independent of the correction lens. The filter is constructed to have opposite distribution pattern of the light transmission characteristics to that of the correction lens thereby providing a uniform distribution of the light passing through the filter and the correction lens and illuminating the phosphor.

3,809,559
LIQUID AMINE-TYPE DEVELOPER FOR DIAZOTYPE MATERIALS
Henry J. Neuman, Chicago, Ill., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.
No Drawing. Continuation of abandoned application Ser. No. 128,541, Mar. 26, 1971. This application June 8, 1973, Ser. No. 368,169
Int. Cl. G03c *5/34*
U.S. Cl. 96—49 **10 Claims**

A developer liquid containing as the active ingredients at least 20% by weight of morpholine, piperidine, lower alkyl morpholine, lower alkyl piperidine, or an organic amine of the formula:

$$RR'N—C_nH_{2n}—O—X$$

wherein R, R' and X are hydrogen, lower alkyl or lower hydroxy alkyl and n is an integer from 2 to 4, inclusive, and containing a diluent which may be a polyhydric alcohol, a glycol ether or a monofunctional alcohol and a third component which is a carboxylic fatty acid having a carbon chain length of from 16 to 18 carbon atoms such as oleic, linoleic, linolenic, stearic or palmitic and is present in an amount ranging from 1% to 20% by weight.

3,809,560
AMINE-TYPE DEVELOPER FOR DIAZOTYPE MATERIALS
Henry J. Neuman, 5730 Sheridan Road, Chicago, Ill. 60660
No Drawing. Original application Mar. 26, 1971, Ser. No. 128,541, now abandoned. Divided and this application June 8, 1973, Ser. No. 368,573
Int. Cl. G03c *5/34*
U.S. Cl. 96—49 **6 Claims**

A developer liquid containing as the active ingredients at least 20% by weight of morpholine, piperidine, lower alkyl morpholine, lower alkyl piperidine, or an organic amine of the formula:

$$RR'N—C_nH_{2n}—O—X$$

wherein R, R' and X are hydrogen, lower alkyl or lower hydroxy alkyl and n is an integer from 2 to 4, inclusive, and containing a diluent which may be a polyhydric alcohol, a glycol ether or a monofunctional alcohol and a third component which is a carboxylic fatty acid having a carbon chain length of from 16 to 18 carbon atoms such as oleic, linoleic, linolenic, stearic or palmitic and is present in an amount ranging from 1% to 20% by weight.

3,809,561
NEGATIVE UNFOGGED SILVER HALIDE EMULSION CONTAINING A SENSITIZING COMBINATION OF A CYANINE DESENSITIZING DYE AND A SUPERSENSITIZING COMPOUND
Cynthia G. Ulbing, Rochester, and Daniel A. Corretore, Jr., Webster, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed June 1, 1972, Ser. No. 258,770
Int. Cl. G03c *1/28, 1/36, 1/84*
U.S. Cl. 96—84 **15 Claims**

Negative unfogged photographic silver halide emulsions containing a desensitizing carbocyanine dye and a supersensitizing agent are provided. The supersensitizing agent substantially eliminates the desensitizing effect of the desensitizing dyes and renders them useful as sensitizers for negative silver halide emulsions. Also disclosed is the use of desensitizing dyes as filtered dyes in a photographic element in combination with a supersensitizing agent, desensitization by migrated dye molecules being thereby greatly reduced.

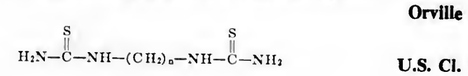
3,809,562
METAL PHOTOGRAPHIC PLATE COMPRISING A PHOTOCONDUCTOR AND PROCESS
Robert F. Gracia, Scituate, Richard A. Laughrey, Woburn, and Paul F. Tuohey, Quincy, Mass., assignors to Itek Corporation, Lexington, Mass.
No Drawing. Continuation-in-part of abandoned application Ser. No. 744,631, July 15, 1968. This application July 13, 1970, Ser. No. 54,626
Claims priority, application Great Britain, July 14, 1969, 35,290/69
Int. Cl. G03f *7/02*
U.S. Cl. 96—33 **17 Claims**

A metallic base photographic plate having images adherently and preferably conductively bonded to the metallic support is produced by exposing a copy medium comprising a particulate photoconductor on a superficially roughened metallic support wherein the photoconductor is substantially photoconductively insulated from the metallic support, and contacting this copy medium with chemically reactive image-forming materials, such as a physical developer. A preferred process is one utilizing a copy medium capable of being rapidly processed and having a layer of a photoconductor-binder emulsion on a

roughened metallic support and a physical developer capable of producing an image adherently and conductively bonded to the metallic support. The plate produced by this invention is useful as a printing plate, name plate, printed circuit and the like.

3,809,563
METHOD FOR PROCESSING LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS
Takao Nimura and Kunio Jin, Tokyo, and Hajime Komatsu, Odawara, Japan, assignors to Konishiroku Photo Industry Co., Ltd.
No Drawing. Filed Mar. 7, 1972, Ser. No. 232,624
Claims priority, application Japan, Sept. 16, 1970, 45/80,512
Int. Cl. G03c *7/16, 5/32*
U.S. Cl. 96—22 **6 Claims**

In the processing of an exposed silver halide color photographic material with a bleach-fixing solution containing a ferric salt of ethylene diamine tetraacetic acid, quick bleach-fixing can be effected by incorporating the below-mentioned compound in a bath which is employed prior to said bleach-fixing solution of a bleach-fixing bath.

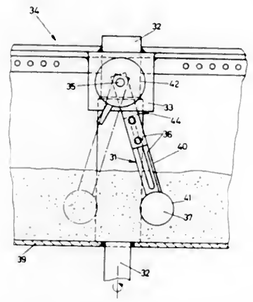


Wherein n is 0 or a positive integer of 1 to 5.

ERRATUM

For Class 96—100 see:
Patent No. 3,808,945

3,809,564
METHOD TO CONTROL THE MOISTURE CONTENT OF GRANULAR SUBSTANCES
Horst Feddern, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland
Filed Dec. 14, 1971, Ser. No. 207,775
Claims priority, application Switzerland, Dec. 16, 1970, 18,683/70
Int. Cl. B28b *7/34*
U.S. Cl. 106—38.9 **5 Claims**

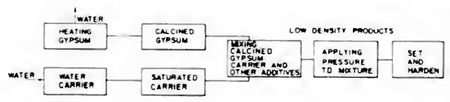


A feeler is introduced into the granular substance which is relatively moved with respect to the feeler with a predetermined force. The feeler can move over a deflection path against a restraining force, for example, a spring, and the extent of deflection of the feeler from a rest position is measured, this extent being a measure of the stickiness, or moisture content of the granular substance. Addition of moisture is controlled by the extent of this deflection.

3,809,565
METHOD OF FORMING MICRON-SIZE, METAL-CARBIDE PARTICLE DISPERSIONS IN CARBON
Eugene M. Wewerka, Richard J. Imprescia, and Robert D. Reiswig, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Apr. 23, 1973, Ser. No. 353,276
Int. Cl. C04b *35/52, 35/56*
U.S. Cl. 106—56 **8 Claims**

Dispersions of micro-size, metal-carbide particles are achieved in carbon matrices by dissolving or dispersing organometallic compounds in carbon precursor materials, e.g., thermosetting resins and coal tar pitch, and subjecting the mixture to a high temperature heat treatment.

3,809,566
GYPSUM-BASED BUILDING PRODUCT AND METHOD OF PRODUCING SAME
Orville J. Revord, Rte. 1, Tawas City, Mich. 48763
Filed May 26, 1972, Ser. No. 257,133
Int. Cl. C04b *11/00*
U.S. Cl. 106—110 **3 Claims**



A method and an apparatus for producing a high density building product with calcined gypsum and a minimum amount of water comprising the step of diffusing the water, under pressure, throughout the calcined gypsum to substantially recrystallize the calcined gypsum.

3,809,567
POLYCHLOROPRENE RUBBERS
George Alexander Rohan, Esher, England, assignor to Kappa Holding A.G., Zug, Switzerland
Filed Jan. 10, 1972, Ser. No. 216,441
Claims priority, application Great Britain, Jan. 12, 1971, 1,521/71
Int. Cl. C09c *1/02*
U.S. Cl. 106—306 **4 Claims**

An additive for incorporation in polychloroprene rubber which comprises a physical mixture of magnesium oxide and an inert diluent powder which is compatible with polychloroprene rubber, the mixture containing 10 to 850 parts by weight of diluent powder per 100 parts by weight of magnesium oxide.

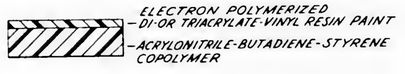
3,809,568
DECORATIVE PLASTIC FINISH
John Thomas Askew, Fountain Valley, Calif., assignor to Flashbacks, Fountain Valley, Calif.
No Drawing. Filed Jan. 19, 1972, Ser. No. 218,953
Int. Cl. B41m *1/28, 1/30*
U.S. Cl. 117—38 **10 Claims**

A decorative plastic finish process and product particularly for use on plastic film and sheeting, especially polystyrene and polybutyrate sheeting. Plastic sheet or shaped articles are first metallized e.g. by vacuum deposition to deposit a thin, adherent layer of metal, for example aluminum, on the plastic surface. The metallized plastic

is then printed in whole or in part, depending on the desired configuration with a transparent ink by means of a silk screen. After passing briefly through a forced air drying oven, the printed surface can be overprinted with additional layers of transparent ink, if desired, by the same method. Each printing of transparent ink is thoroughly dried before each overprinting. By a preferred embodiment, a final coat of clear lacquer is applied and oven dried.

The decorative plastic product is characterized by a plastic substrate, a first thin layer of metal, at least one overlayer of transparent ink covering at least a part of the first metallized layer, and, preferably, a final finish coat of clear lacquer to protect and seal the surface. The resulting surface is highly brilliant and lustrous due to the reflective quality of the metallizing layer penetrating and shining through the applied transparent inks and clear lacquer coat.

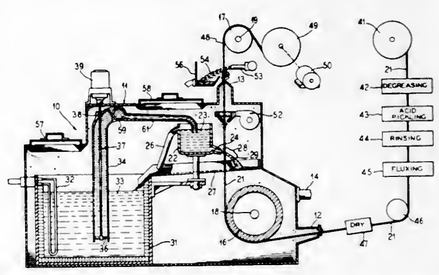
3,809,569
METHOD OF PAINTING POLYOLEFIN SUBSTRATE
Elihu J. Aronoff, 52 Lanewood Ave., Framingham, Mass. 01701, and Ernest O. McLaughlin, 165 Arcola, Garden City, Mich. 48135
Continuation of abandoned application Ser. No. 847,230, Aug. 4, 1969. This application Oct. 4, 1971, Ser. No. 186,545
Int. Cl. B44d *1/50;* **C08f** *3/64*
U.S. Cl. 117—93.31 **6 Claims**



An improved method for coating a solid substrate of polyolefin with an adherent coating of a copolymer of acrylic monomers crosslinked wtih vinyl monomers which comprises applying to the polyolefin substrate a film-forming solution which, on a pigment and particulate filler-free basis consists essentially of (A) about 15 to about 45 weight percent acrylate selected from the group consisting of diacrylates and dimethacrylates of a C_2–C_{12} alkane diol, diacrylates and dimethacrylates of a C_4–C_{12} polyether diol, and triacrylates and trimethacrylates of a C_6–C_{12} triol, and (B) 55 to 85 weight percent of a vinyl resin-comprising component consisting of 0 to about 85 weight percent monovinyl monomers and about 15 to 100 weight percent of an alpha-beta olefinically unsaturated copolymer of acrylic monomers containing between about 0.5 and about 5 units of alpha-beta olefinic unsaturation per 1,000 units molecular weight and crosslinking the liquid coating on the polyolefin substrate by exposing the coating to a beam of polymerization effecting electrons having average energy in the range of about 100,000 to about 500,000 electron volts.

3,809,570
GALVANIZING TECHNIQUE FOR WIRE AND THE LIKE
Joseph L. Herman, Pompano Beach, Fla., assignor to Emily Herman Thompson
Filed May 17, 1973, Ser. No. 360,556
Int. Cl. C23c *1/00*
U.S. Cl. 117—102 M **17 Claims**

A method and apparatus for evenly and uniformly galvanizing wire, strip steel and the like. A descaled, dry wire or the like is passed vertically and upwardly through a transversely flowing stream of molten zinc without touching anything solid while the zinc and the wire are



in an oxygen free atmosphere. The so coated wire is preferably quenched in a flowing water bath.

3,809,571
PROCESS FOR MAKING SILICON METAL
Norman R. Berlat, Vienna, W. Va., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Apr. 4, 1972, Ser. No. 241,085
Int. Cl. C23c *11/06*
U.S. Cl. 117—106 A **5 Claims**

There is described an improvement in making polycrystalline silicon metal, as used for the making of semiconductors, from trichlorosilane which involves providing greater amounts of trichlorosilane in a metal forming reactor then heretofore has been employed. This provides greater Si metal productivity than was heretofore believed possible.

3,809,572
PROTECTING FERROUS BASE METAL ARTICLES AGAINST CORROSION BY TREATMENT WITH NIOBIUM OXIDE
Jerome J. Kanter, 12300 Hobart Ave., Palos Park, Ill. 60464
No Drawing. Continuation-in-part of abandoned application Ser. No. 882,267, Dec. 4, 1969. This application Feb. 7, 1972, Ser. No. 224,229
Int. Cl. C23f *11/06*
U.S. Cl. 117—127 **4 Claims**

Corrosion of iron, steel and other ferrous base metal articles is reduced by a process in which such articles are treated with niobium oxide admixed with a water medium having a basic pH.

3,809,573
METHOD FOR FINISHING WOVEN AND NON-WOVEN FABRICS FORMED OF POLYESTER MATERIALS
Robert D. Feitlowitz, Ridgewood, N.J., assignor to DHJ Industries, Inc., New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 24,372, Mar. 31, 1970. This application Jan. 31, 1972, Ser. No. 222,313
Int. Cl. B44d *5/00*
U.S. Cl. 117—138.8 F **2 Claims**

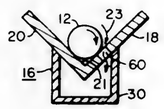
A method of finishing woven and non-woven fabrics formed of 100% polyester material to impart an increased level of stiffness which is durable to laundering and dry cleaning consisting of the steps of (a) preparing a mixture of (A) a combination of poly(butyl acrylate), polystyrene and polyacrylic acid, (B) a melamine selected from the group consisting of hexakis hydroxymethyl melamine and alkylated methylolated melamine (C) a strong acid, (D) an emulsion of a glycol phthalate polyester resin, and water (b) impregnating the 100% polyester material with said mixture, (c) drying, (d) thermally curing, (e) heat setting and (f) modifying the resultant fabric stiffness utilization of a button breaking operation.

3,809,574
ALUMINUM OXIDE FILMS FOR ELECTRONIC DEVICES
Michael Thomas Duffy, Princeton Junction, and James Edward Carnes, Cranbury, N.J., assignors to RCA Corporation
Filed July 15, 1971, Ser. No. 162,888
Int. Cl. B44d *1/18*
U.S. Cl. 117—201 **13 Claims**



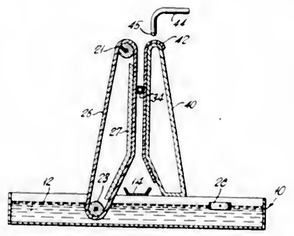
An improved metal-alumina-semiconductor (MAS) device includes an aluminum oxide film formed by chemical vapor phase deposition in the presence of a hydrogen halide. This film, used as a passivating layer or as a gate insulator of an IGFET, exhibits high initial dielectric breakdown strength and other properties which add stability and longer life over conventional devices.

3,809,575
METHOD AND APPARATUS FOR REMOVAL OF SURFACE MOISTURE FROM PELLETS
Denis Yeo, Columbia, S.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 1, 1972, Ser. No. 230,899
Int. Cl. B08b *5/04*
U.S. Cl. 134—21 **9 Claims**



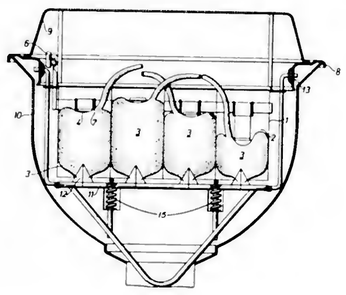
Apparatus for rapidly, efficiently and effectively removing surface fluids from a wetted cylindrical body and in particular nuclear fuel pellets, comprising an elongated trough member in which the cylindrical body moves on its side along the trough with its cylindrical sides in contact with the sides of the trough and in such movement passes adjacent to one or more apertures or slots through which air is drawn at a high velocity so that the fluid along with any dust or particles on the surface of the body is picked up and carried away through the aperture to an evacuating apparatus. The cylindrical body is rotated as it passes adjacent the aperture so that all surfaces of the body are exposed to the high velocity air stream being drawn in through the apertures whereby substantially all the water and surface dusts and loose particles are removed. A process for removing excess surface fluids from a wetted cylinder is also set forth.

3,809,576
METHOD AND APPARATUS FOR MOISTURIZING SHIRRED CASING STICKS
Walter V. Marbach, Palos Heights, Frank J. Acton, Glen Ellyn, Harry P. Eichin, Western Springs, and Louis L. Winokur, Evanston, Ill., assignors to Union Carbide Corporation
Continuation of abandoned application Ser. No. 637,538, Mar. 10, 1967. This application Oct. 22, 1970, Ser. No. 83,219
Int. Cl. A22c *13/00*
U.S. Cl. 134—42 **6 Claims**



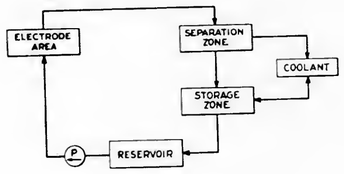
Shirred casing sticks are moisturized after being shirred but prior to being packaged into cartons for subsequent shipment. Apparatus and method are provided for moisturizing shirred casing sticks which comprises, in combination, at least one deformable member capable of absorbing and retaining water and releasing water upon being deformed; means for wetting said deformable member with water; means for maintaining said deformable member wetted with water such that at least a portion of the circumferential surface of a shirred casing stick extending along its longitudinal axis can be placed in frictional engagement with said deformable member and moisturized thereby; and means for removing a moisturized shirred casing stick from the apparatus.

3,809,577
METHOD OF EMPTYING DRAINAGE BAGS AND APPARATUS FOR CARRYING OUT THE METHOD
Lars-Ake Olof Thorsson, Motala, and Erik Borje Jarvenson, Jakobsberg, Sweden, assignors to AB Motala Verkstad, Motala, and Landstingens Inkopscentral, Solna, Sweden
Filed Mar. 6, 1972, Ser. No. 231,999
Claims priority, application Sweden, Mar. 10, 1971, 3,101/71; Aug. 27, 1971, 10,907/71
Int. Cl. B08b *7/04;* **B67b** *7/24*
U.S. Cl. 134—42 **4 Claims**



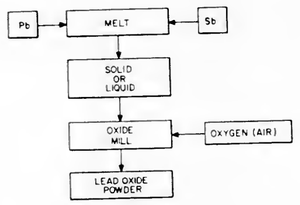
Drainage bags containing body fluids are collected and each placed in a compartment in a bag collecting basket. The basket is then placed in a treatment chamber. The bags have their bottom portions punctured as a result of closing the cover of the chamber either by knives in the chamber or clippers carried by the basket so that drainage of the bags and discharge of the fluids from the chamber occurs. Closure of the cover also initiates a rinsing and disinfecting cycle so that clean and disinfected bags can be removed from the chamber.

3,809,578
PROCESS FOR FORMING AND STORING HALOGEN HYDRATE IN A BATTERY
Philip C. Symons, Birmingham, Mich., assignor to Occidental Energy Development Company, Madison Heights, Mich.
Original application June 26, 1970, Ser. No. 50,054, now Patent No. 3,713,888. Divided and this application Aug. 31, 1972, Ser. No. 282,736
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 E **26 Claims**



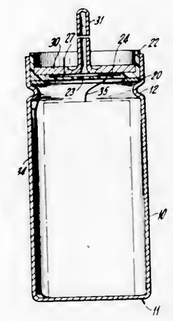
A process for the useful storage of electrical energy employing halogen hydrates is described. The halogen hydrate can be generated during the charging of a secondary battery or may be chemically generated and placed in a primary battery.

3,809,579
METHOD FOR PRODUCING LEAD OXIDE CONTAINING ANTIMONY, LEAD OXIDE MADE BY THE METHOD, AND A STORAGE BATTERY ELECTRODE USING THE OXIDE
C. Joseph Venuto, Philadelphia, Pa., assignor to ESB Incorporated
Original application Oct. 27, 1971, Ser. No. 192,947, now Patent No. 3,723,182. Divided and this application Nov. 16, 1972, Ser. No. 306,981
Int. Cl. H01m *35/02*
U.S. Cl. 136—26 **4 Claims**



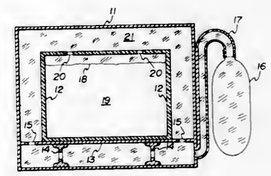
A storage battery positive electrode is disclosed having a grid structure without antimony and a paste containing a small controlled quantity of antimony therein. Methods of preparation of the antimony containing oxide by the use of conventional lead oxide producing equipment is also described.

3,809,580
BATTERY SEALING AND COMPONENT CONNECTING METHOD
Bruce E. Jagid, Whitestone, N.Y., assignor to Power Conversion, Inc., Tuckahoe, N.Y.
Filed June 1, 1971, Ser. No. 148,458
Int. Cl. H01m *1/02*
U.S. Cl. 136—133 **7 Claims**



A non-aqueous hermetically sealed battery cell comprising an electrode assembly and an anhydrous liquid electrolyte is formed by necking a metal casing, closed at one end, a predetermined distance from the other end and seating upon said neck an assembly including a thrust ring, an insulating member, and a metal cap. The open end is then uniformly upset or crimped to bear upon said insulating member and cap, thereby hermetically sealing the assembly. A feature of the invention calls for the passing of an electrode-coupled conductor between the thrust ring and neck prior to upset to thereby form a mechanically and electrically secure electrode contact. The battery is filled with electrolyte through a nipple in the cap which is then cold welded.

3,809,581
LONG-TERM DEEP SUBMERGENCE BATTERY POWER SUPPLY
Williston E. Hutchison, 7945 Michelle Drive, La Mesa, Calif. 92037
Filed Sept. 3, 1971, Ser. No. 177,745
Int. Cl. H01m *11/00*
U.S. Cl. 136—161 **1 Claim**



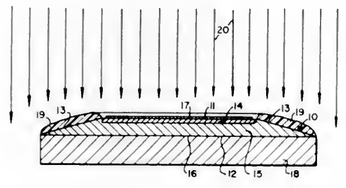
A long-term deep submergence battery power supply utilizing nickel cadmium batteries submerged in a combination of electrolyte and dielectric oil with provision for a pressure equalization.

3,809,582

IRRADIATION FOR FAST RECOVERY OF HIGH POWER JUNCTION DIODES

Krishan S. Tarneja, Pittsburgh, and Frank V. Marcinko, Uniontown, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 8, 1973, Ser. No. 339,242
Int. Cl. H01l 7/00
U.S. Cl. 148—1.5 **3 Claims**



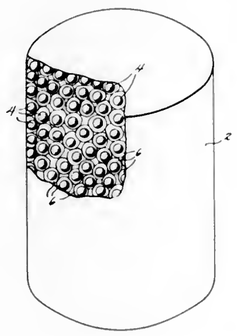
The recovery time of a high power junction diode is substantially reduced and tailored to sepecific specifications while maintaining within nominal ranges other electrical characteristics and particularly the forward voltage drop of the device. The diode is irradiated preferably with electron radiation which preferably has an intensity between about 1 and 3 mev. Further preferred, the electron radiation is applied to a dosage level between about 1×10^{12} and 1×10^{14} electrons per cm.^{2}.

3,809,583

SOLID AGENT FOR BORIDING METALS

Harald Krzyminski, Konigstein, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

Filed May 15, 1972, Ser. No. 253,515
Claims priority, application Germany, June 1, 1971, P 21 27 096.2
Int. Cl. C23c 9/00
U.S. Cl. 148—6.35 **12 Claims**



A solid agent for the boriding of metals, especially steel and iron is made by intimately mixing boron yielding compounds and activators and jointly pressing to a granulate.

3,809,584

METHOD FOR CONTINUOUSLY GROWING EPITAXIAL LAYERS OF SEMICONDUCTORS FROM LIQUID PHASE

Shin-ichi Akai, Hideki Mori, Nobuo Takahashi, and Shin-ichi Iguchi, Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jan. 18, 1973, Ser. No. 324,887
Claims priority, application Japan, Jan. 28, 1972, 47/10,644
Int. Cl. H01l 7/38
U.S. Cl. 148—172 **8 Claims**

Single-crystal epitaxial layers of semiconductors are grown on suitable substrates from the liquid phase.

The substrates are moved consecutively on a plurality of vessels in a reaction furnace from a high temperature region to a low temperature region maintained within the reaction furnace, which is provided with a temperature gradient in the longitudinal direction, all the while the substrates are kept in contact with the liquid solution containing a source material of the epitaxial layers, whereby the epitaxial layers are grown successively and on a continuous basis.

3,809,585

URETHANE PROPELLANT COMPOSITION

Harold L. Greenberg, West Covina, Calif., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Nov. 9, 1966, Ser. No. 594,314
Int. Cl. C06d 5/06
U.S. Cl. 149—19.4 **3 Claims**

A propellant which comprises an inorganic oxidizer such as ammonium perchlorate, a metal fuel such as aluminum, and an improved urethane binder formed by the condensation of polytetramethylene ether glycol with organic diisocyanates or nitrodiisocyanates, crosslinked with polyfunctional hydroxyl compounds and plasticized with phosphate esters, adipate, azelate, and sebacate esters and/or nitroplasticizers.

3,809,586

INCENDIARY COMPOSITION INCLUDING ZINC-MISCHMETAL ALLOY

Hal R. Waite, Rte. 1, Box 52–E, Eldredge Road, Fort Walton Beach, Fla. 32548

No Drawing. Continuation-in-part of abandoned application Ser. No. 840,211, July 9, 1969. This application Aug. 18, 1972, Ser. No. 281,633
Int. Cl. C06d 1/02
U.S. Cl. 149—19.91 **9 Claims**

Incendiary compositions characterized by long-burning qualities and retentive incandescent ash comprise finely divided heavy metal as fuel and oxygen-containing polymer as binder and oxidizer, e.g., mixed rare earth metal of the lanthanide series and acrylic-type polymer. The compositions find particular utility in making incendiary bombs that have identical ballistics with explosive fragmentary bombs.

3,809,587

MERCURY CONTAINING ALUMINUM HYDRIDE COMPOSITION AND PROCESS OF MAKING

Alfred D. Cianciolo and Donald J. Sabatine, Hamden, and Samuel I. Trotz, New Haven, Conn., assignors to Olin Corporation

Filed Apr. 30, 1963, Ser. No. 278,514
Int. Cl. C06b 15/00
U.S. Cl. 149—109 **8 Claims**

1. A mercury-containing aluminum hydride composition comprising aluminum hydride and from about 0.0005 to about 2.5 percent by weight based on the aluminum hydride of mercury.

7. The process for the preparation of a mercury-containing aluminum hydride composition which comprises contacting aluminum hydride with mercury under reduced pressure in a closed system for a period of from about 0.5 to about 35.0 hours at a temperature of from about 40° C. to about 150° C. and recovering the resulting mercury-containing aluminum hydride composition, the quantity of mercury employed being from about 0.001 to about 50 moles per mole of aluminum hydride.

3,809,588

PEROXY CONTAINING COMPOSITIONS

Rudolf J. Zeblisky, 41 Glenwood Drive, Hauppauge, N.Y. 11787

No Drawing. Continuation-in-part of abandoned application Ser. No. 873,636, Nov. 3, 1969. This application Oct. 8, 1971, Ser. No. 187,916
Int. Cl. C23f 1/00
U.S. Cl. 156—18 **35 Claims**

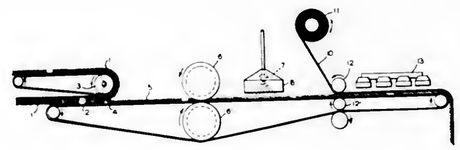
Etching solutions containing a peroxy-containing compound, a complexing agent for copper and an etchant stabilizing agent useful in the etching of copper.

3,809,589

METHOD FOR MAKING PILE FABRIC

Virginia Ann Kerstetter, Chelmsford, and Louis Richard Mizell, Andover, Mass., assignors to I.W.S. Nominee Company Limited, London, England

Continuation of abandoned application Ser. No. 961, Jan. 6, 1970. This application Dec. 8, 1971, Ser. No. 206,150
Int. Cl. B32b 5/08
U.S. Cl. 156—68 **6 Claims**



Flexible pile fabrics are made by bending the end portions of the fibres in a surface of an array of aligned fibres, setting the fibres in the bent state, and securing the bent fibre ends in a layer of adhesive. Suitably aligned fibres arrays may be made by severing the projecting fires of a furred animal skin, such as raw or pickled wooled skins, or of an artificial fabric having projecting fibres of natural or synthetic origin. A fabric backing material may be adhered to the face of the pile fabric carrying the adhesive layer before or after the setting of the adhesive.

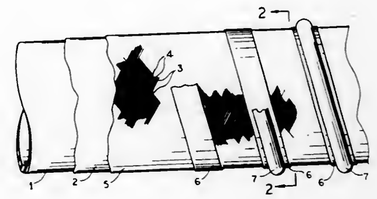
3,809,590

JET ENGINE STARTER HOSE AND METHOD OF MAKING IT

Ralph S. Fantini, Philadelphia, and Robert W. Davison, Pittsburgh, Pa., assignors to H. K. Porter Company, Inc., Pittsburgh, Pa.

Filed Feb. 14, 1972, Ser. No. 226,003
Int. Cl. B32b 1/08
U.S. Cl. 156—149 **1 Claim**

The invention is directed to the provision of a heat and abrasion resistant flexible hose especially adapted for use as jet engine starter hose and consists of polyester-fiber-yarn-reinforced hose having high heat resistance surrounded by a spirally or helically disposed buffer strip having high abrasion resistance at elevated temperatures such as those attained by jet engine starter hoses as well as good abrasion resistance at ordinary temperatures, the invention comprehending also a novel method of making the hose.



3,809,591

POLYAMIDE-METAL STRUCTURE

Elliot A. Vogelfanger, Edison, and Bennett Nathanson, West Orange, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,772
Int. Cl. B32b 15/08, 27/34, 31/22
U.S. Cl. 156—151 **14 Claims**

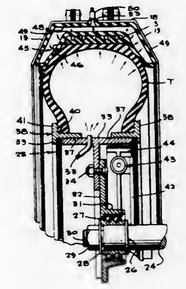
A structure comprising a metal substrate laminated to an aromatic polyamide film layer with no adhesive disposed therebetween. The structure is characterized by its ability to withstand temperatures in the range of 500° F. to 550° F. for up to one minute. In addition, processes are disclosed for forming the structure without requiring the use of an adhesive to bond the metal substrate to the polyamide film.

3,809,592

PROCESS AND APPARATUS FOR RETREADING TIRES

Clement O. Dennis and William Franklin Everhardt, Macon, Ga., assignors to Denbilt Corporation, Macon, Ga.

Filed Apr. 4, 1972, Ser. No. 240,948
Int. Cl. B29h 5/04
U.S. Cl. 156—394 **13 Claims**



A process and apparatus for retreading tires wherein a tire casing with an applied tread rubber strip is mounted

on a rim and encircled with a hollow, inflatable, flexible matrix or curing bag within a rigid housing shell, and heated fluid under pressure is run simultaneously through the interior of the tire casing and through the hollow, flexible matrix bag to apply curing heat and pressure to both the exposed surfaces of the tread strip and the interior of the tire on opposite sides of the bond interface. The apparatus embodies a rotatable rim to mount the tire, with brake means to hold it immovable. The shell which houses or backs-up the flexible matrix or curing bag is of hinged, sectional construction, and means are provided for raising and lowering the open shell to facilitate loading tires on the rim. The generally self-supporting annular flexible matrix or curing bag is molded or formed with a generally hollow, channel-like cross-sectional shape providing a generally flat central inner wall section relatively closely approximating the width of the tread strip cross-section for contact with the tread surface of the strip, and further providing integrally molded annular transversely extending side and adjacent side wall portions of the tire casing.

3,809,593

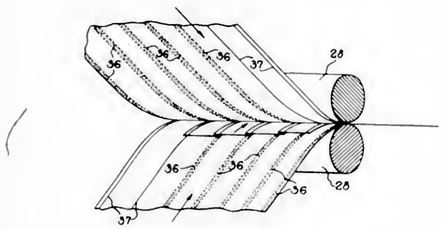
METHOD AND APPARATUS FOR THE CONTINUOUS MANUFACTURE OF COLLAPSIBLE CELLULAR PARTITIONS

William R. Burke and Frank S. McCall, Savannah, Ga., and Kenneth G. Clark, Pennington, Ernest T. De Pass, Bound Brook, and William H. Friend, Edison, N.J., assignors to Union Camp Corporation, Wayne, N.J.

Continuation-in-part of application Ser. No. 739,300, June 24, 1968, now Patent No. 3,580,471, dated May 25, 1971. This application May 14, 1971, Ser. No. 143,391

Int. Cl. B32b *31/00*

U.S. Cl. 156—257 **2 Claims**



The formation of a collapsible cellular partition module by spacing parallel sheets and locating therebetween parallel, longitudinally extending wall sheets, each wall sheet having one longitudinal edge secured to one spaced sheet and the other edge secured to the other spaced sheet. For the continuous manufacture of such modules, the spaced sheets are formed by two moving webs to which longitudinal glue lines are applied. The wall sheets are formed by webs moving between and with the first webs. The wall sheet webs are slit from a single stock roll and are scored to form longitudinal flaps to adhere to the glue lines on the respective first two webs. The first two webs are scored to form the outer wall portions of the partition module. A partition structure of desired size may be built up by assembling the required number of partition modules, the modules being secured to each other by glue areas on their spaced sheets. The partition structure may then be secured in a collapsed position within a collapsed container and both shipped as an integrated package unit for simultaneous setup.

3,809,594

MANUFACTURE OF COMPOSITE PLASTICS STRUCTURES

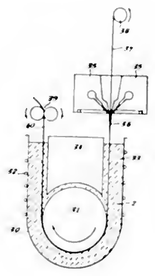
Terence John Taylor-Brown, Ipswich, and James Jack, Manningtree, England, assignors to Bakelite Xylonite Limited, London, England

Filed Oct. 8, 1971, Ser. No. 187,692

Claims priority, application Great Britain, Oct. 9, 1970, 48,141/70

Int. Cl. B29b *27/00*

U.S. Cl. 156—244 **34 Claims**



Manufacture of composite plastics structure in which an unbonded structure comprising a reinforcing layer and at least one thermoplastic layer is passed through a treatment unit in which it is subjected to heat and liquid pressure to bond the structure.

3,809,595

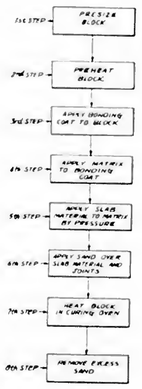
CONCRETE BLOCK OR THE LIKE WITH MULTIPLE BRICK FACING AND METHOD OF MAKING THE SAME

Charles E. Nichols, Jr., North Augusta, S.C., and Gerald T. Howard, Gracewood, Ga., assignors to Merry Companies Incorporated, Augusta, Ga.

Original application Apr. 21, 1969, Ser. No. 817,980, now Patent No. 3,660,214. Divided and this application Jan. 19, 1971, Ser. No. 107,662

Int. Cl. B44c *5/04;* **B44d** *1/44*

U.S. Cl. 156—267 **16 Claims**



A method and resulting structural building unit wherein a cement block, for example, has a portion removed, if necessary, to give it a predetermined vertical height. The presized block is placed upon a continuously moving conveyer and one side of the block is preheated and then

coated with a liquid metal comprising a polyester resin, a styrene monomer, a solvent, and a catalyst. The stored heat in the block quickly evaporates the solvent and polymerizes the resin and monomer so that a strongly adhering bonding coat is formed on the block. A layer of matrix material of relatively thick consistency, comprising a polyester resin, a styrene monomer, finely divided silica, colioidal silica, and a catalyst is applied to the coated block. The layer of matrix may be ⅛" thick or thicker, depending upon the type of building unit that is being made. Slabs of brick or other material are partially embedded in the matrix, in spaced relation, to form a facing for the block with simulated mortar joints. Sand is sprinkled on the facing material and the exposed matrix. The matrix is then cured or polymerized by passing the block through a curing oven. The matrix permanently bonds the facing material to the block, and renders the covered side of the block impervious to moisture. The sand adheres to the matrix, but is readily removable from the facing slabs.

3,809,596

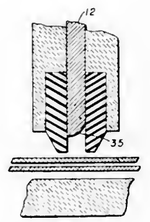
NON-TEAR SEAMS PRODUCED BY RADIO FREQUENCY MEANS

Lester Gidge, Nashua, N.H., assignor to Monsanto Company, St. Louis, Mo.

Original application Sept. 11, 1970, Ser. No. 71,554, now Patent No. 3,725,189. Divided and this application Mar. 14, 1972, Ser. No. 234,490

Int. Cl. B29c *27/02*

U.S. Cl. 156—380 **1 Claim**



Layers of fabric containing thermoplastic fibers are bonded together by radio frequency means along a seam, the seam being comprised of fused thermoplastic fibers with the intensity of fusion varying from a maximum along a maximum bond area to a minimum along the edge of the seam to prevent the formation of a tear line between the fabric and the seam.

3,809,597

ARTICLE FOR THE FINISHING OF LEATHER

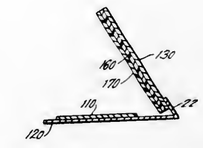
Hugh H. Connett, Wayne, Pa., assignor to Ucote Corporation, Newark, N.J.

Continuation-in-part of abandoned application Ser. No. 163,611, July 19, 1971. This application Mar. 24, 1972, Ser. No. 237,696

Int. Cl. B32b *1/04, 7/12, 27/08*

U.S. Cl. 161—39 **6 Claims**

An improved method of finishing leather by transferring an arcylic, polyurethane, or other film-forming finish coating from a release layer bearing the finish coating to the leather supported on an appropriate backing. The backing or support, the leather substrates to be coated, and the release layer are pressed into a sandwich-like assembly with the concurrent application of sufficient heat and pressure to transfer substantially the entire finish coating to the surfaces of the leathers and the backing or support juxtaposed therewith. The carrier sheet with a permanent release stratum may thereafter be re-coated and re-used in further leather finishing operations. The method may be carried out batch-wise employing discrete blocking and release layers for the transfer of finish coatings to individual leather pieces. Alternatively, the method may be performed continuously with the successive feed of leathers to be coated between a transfer web providing the desired released layer and a supporting web comprising the requisite backing or support.



3,809,598

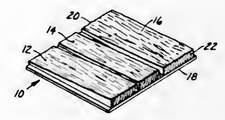
ROOFING MATERIAL

Robert E. Ferguson and Stuart R. Ferguson, both of 1140 San Ysidro, Beverly Hills, Calif. 90210

Filed Feb. 9, 1973, Ser. No. 331,100

Int. Cl. B32b *3/16;* **B27m** *3/02;* **E04d** *1/00*

U.S. Cl. 161—40 **8 Claims**



A roofing material consisting of slabs of bark from trees of the family Pinaceae bonded to a backing sheet of heat dissipating material for structural integrity and fire resistant qualities.

3,809,599

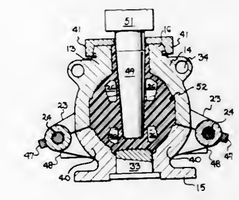
METHOD FOR FORMING GLASS-CERAMIC ARTICLES

Yu K. Pei, Toledo, Ohio, assignor to Owens-Illinos, Inc.

Continuation-in-part of abandoned application Ser. No. 149,650, June 3, 1971. This application June 28, 1972, Ser. No. 267,006

Int. Cl. B44f *1/00;* **C03b** *9/14, 29/00*

U.S. Cl. 161—1 **18 Claims**



A method for making a one-piece, cored glass article of substantial mass and having a complex configuration, by forming a glass-ceramic making material in molten state

in a four-part mold having opposed members in pairs juxtapositioned and cooperating collectively to form a cored molding cavity. The closed and clamped mold includes an upper loading opening into which a pressing plunger is manipulated for pressing the material. The said material is of about 3 poise viscosity or less as it is loaded into the mold. The molten glass is pressed in the cored mold to fill the complex cavity and define the configuration of the article. Thereafter, during cooling the glass, the pressure on the glass is reduced by sequentially withdrawing the plunger and one or more of the mold faces and core sections to compensate for the difference in coefficient of expansion in the heat exchange between the contracting glass (undergoing cooling) and the expanding mold (undergoing heating). The faces of the opposed mold members are backed off from the hardening glass progressively. The formed glass liner article is cooled so as to prevent cracking, removed from the mold and inspected. Surplus inner and exterior segments of the article are then finished by drilling, cutting and grinding. The "green glass" article, partially mechanically finished, is then converted to a glass-ceramic material by heat treatment, and then given final finishing.

In the apparatus, a massive metal bed supports two pairs of opposed mold faces, comprised of a pair of end mold members and a pair of side mold members. The end mold members are movable longitudinally along the bed toward and away from each other and the side mold members are movable laterally of the bed toward and away from each other. The side mold members are pivotably mounted for juxtaposed positioning on the bed; the end molds are movable longitudinally along a track in the bed bottom for juxtaposed positioning cooperating with the side mold members to define a cored mold cavity for forming a one-piece article of glass. A pair of hand cranks and turn screws, mounted on each end of the bed, propels the end mold members on the bed. A closure member positioned about the top of the end members defines the loading aperture for the mold and locks the closed mold members in molding or forming position during the pressing operation.

3,809,600

THERMOPLASTIC SPLINT OR CAST

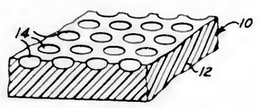
Lester M. Larson, 4619 Bailey Drive, Limestone Acres, Wilmington, Del. 19808

Continuation-in-part of application Ser. No. 683,016, Nov. 14, 1967, now Patent No. 3,490,444. This application Jan. 16, 1970, Ser. No. 3,474

The portion of the term of the patent subsequent to Jan. 20, 1987, has been disclaimed

Int. Cl. A61f *5/40*

U.S. Cl. 161—109 **12 Claims**



Polydiene sheet material useful as a body supporting member such as a cast or splint, heat softenable at a higher than body temperature, but slowly recrystallizable or hardenable below about 40° C., treated by distributing throughout the substance small pores, perforations or surface irregularities as by foaming all or only one surface portion of the sheet material, particularly texturing, knurling, pocking or cratering the surface to be placed adjacent to the body member to be encased to allow moisture and/or air transfer away from the enclosed body surface.

3,809,601

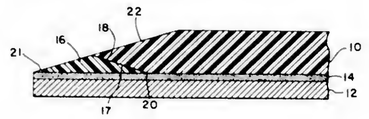
BONDED JOINT AND METHOD

James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of John B. Sainsbury-Carter, Newtown, Conn.

Filed Sept. 18, 1972, Ser. No. 290,021

Int. Cl. B32b *3/02, 3/10*

U.S. Cl. 161—116 **18 Claims**



An improved joint for reducing the peak shear stress in adhesive bonds when adhesives are used to bond two materials which are in a lapped relationship and which differ in value of modulus of elasticity. An insert placed between the adhesive and one of the two materials acts to cushion the discontinuity of material stiffness thereby reducing the peak shear stress in the adhesive bond.

3,809,602

SARAN ADHERED TO BUTADIENE-STYRENE POLYMERS

Victor Monia, Mountain View, Calif., assignor to Guardian Packaging Corporation, Newark, Calif.

Continuation of abandoned application Ser. No. 812,238, Apr. 1, 1969. This application Sept. 8, 1971, Ser. No. 178,814

Int. Cl. B32b *27/08*

U.S. Cl. 161—165 **7 Claims**

A strip of acrylonitrile-butadiene-styrene terpolymer or butadiene styrene copolymer is laminated with a coating of a vinyl chloride-vinylidene chloride copolymer. This lamination is a semi-rigid, flexible packaging material which can be readily drawn in a mold to form a food containing package. The package can be filled with food product at relatively high temperature, and provides, when sealed, a food preserving package of long shelf life.

3,809,603

LAMINATES AND ADHESIVE COMPOSITIONS

Edward Kool, Jersey City, N.J., George Odynski, Woodhaven, N.Y., and Leo J. Stage, Roselle Park, N.J., assignors to Arvey Corporation

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,397

Int. Cl. B32b *15/08, 27/38, 27/40*

U.S. Cl. 161—186 **6 Claims**

The present invention relates to improved laminates and methods of making laminates. In accordance with the invention laminate structures can be made from a preformed polyethylene homopolymer film and a metal sheet with an adhesive composition. The adhesive contains a vinyl chloride copolymer resin, a polyurethane resin, an epoxy resin, and products of in situ reactions of a polyfunctional organic isocyanate and a polyhydric phenol. The adhesive is applied in a solution of the resins in a solvent mixture selected from the group consisting of aromatic hydrocarbons, aliphatic ketones and lower alkyl esters.

3,809,604

PROCESS FOR FORMING A FLUFFED FIBROUS PULP BATT

Phillip Waite Estes, Aiken, S.C., assignor to Riegel Textile Corporation, New York, N.Y.

No Drawing. Filed Aug. 2, 1972, Ser. No. 277,280

Int. Cl. D21d *3/00*

U.S. Cl. 162—100 **2 Claims**

A process for forming a fluffed fibrous pulp batt for use in sanitary products wherein the fluffed fibrous pulp batt has markedly improved strength and integrity with longer, stronger and more uniform fibers for producing greater loft, moisture absorption and strength in the batt. The process includes includes the continuous steps of treating of the wet pulp to effect kinking and interlocking of the fibers, forming the fibers into a wet pressed pulp sheet, drying, mechanically fiberizing the sheet and air-laying the debonded kinked fibers to form a fluffed pulp batt with improved strength and integrity due to the kinked and interlocked fiber formation. Preferably, the process also includes the steps of producing a dilute, aqueous slurry of the kinked and interlocked fibers and incorporating in the slurry a cationic debonding agent, so that minimum breakage of the fibers will result during the mechanical fiberizing step due to the debonding effect of that cationic debonding agent, and a fluffed pulp batt will be produced with minimum fiber breakage therein.

3,809,605

FIBROUS MATS AND SHEETS CONTAINING IMMOBILIZED ENZYMES ENTRAPPED IN THEIR INTERSTICES

Edward Emil Schmitt, Norwalk, Conn., Rocco Albert Polistina, Port Chester, N.Y., and Peter Salvatore Forgione, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Oct. 30, 1972, Ser. No. 302,370

Int. Cl. D21d *3/00*

U.S. Cl. 162—158 **10 Claims**

A liquid laid web comprising cellulosic or other fiber forming material having a carrier bound enzyme dispersed throughout the interstices thereof in an amount of 5–50% by weight.

3,809,606

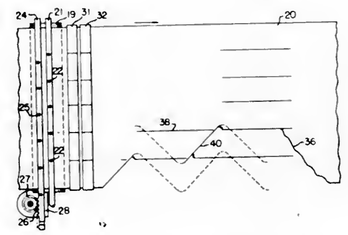
METHOD AND APPARATUS FOR REPAIRING A DIAGONAL BREAK IN A PAPER WEB

John J. Stansbrey, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed July 13, 1972, Ser. No. 271,541

Int. Cl. D21f *7/04*

U.S. Cl. 162—194 **5 Claims**



A mechanism for automatically repairing breaks in a web of paper is disclosed in addition to a method for repairing such breaks. Included in the mechanism is a plurality of banks of sensing devices for determining the location of the break, a control unit for receiving information from the sensing devices and a plurality of banks of water jets selectively operated by the control unit to provide a plurality of longitudinal and diagonal slits in the web of paper for confining and eliminating the tear portion of the web, the longitudinal slits being interrupted when intersecting the diagonal slits.

3,809,607

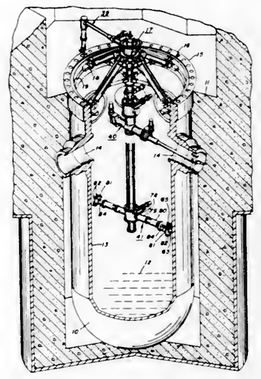
REACTOR VESSEL IN-SERVICE INSPECTION ASSEMBLY

Thomas R. Murray, Munhall, and David C. Burns, Trafford, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 23, 1971, Ser. No. 201,420

Int. Cl. G21c *17/00*

U.S. Cl. 176—19 R **20 Claims**



A nuclear reactor vessel in-service inspection assembly is provided for remotely, accurately positioning the inspection tool within the reactor vessel. The assembly has integral adjustment means whereby the tool is adapted to be used with a wide variety of vessel sizes. The inspection assembly is primarily adapted for ultrasonic, volumetric examination of the weld areas of the reactor vessel.

3,809,608

REACTOR VESSEL ANNEALING APPARATUS

Leonard R. Katz and Edgar I. Landerman, Pittsburgh, and Walter E. Desmarchais, Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

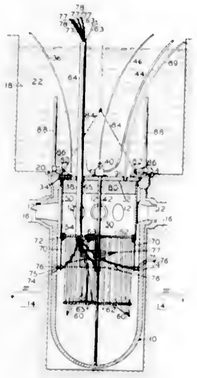
Filed May 10, 1972, Ser. No. 251,962

Int. Cl. G21c *13/00, 17/00*

U.S. Cl. 176—87 **12 Claims**

An annealing apparatus for use with an operational nuclear reactor vessel is disclosed. The apparatus is used for annealing a reactor vessel with the reactor internals, core and the primary system water removed from the vessel. The apparatus includes a support plate sized to be snugly received in the upper section of the vessel, with a seal ring being provided on the plate for forming a water tight seal in the space between the plate and the vessel. Heating means such as elongated resistance heating rods are supported by the plate and are disposed in the vessel in a heat transfer relationship with the section of the vessel immediately adjacent to the reactor core. A pump is supported on the plate for pumping the water out of the vessel after the annealing apparatus is placed in position

within the vessel. The disclosed apparatus also includes reflective heat insulation means secured to the lower surface of the support plate; pressure equalizing tubing for effecting atmospheric pressure within the vessel during operation



of the annealing apparatus; means arranged between the support plate and vessel for guiding the apparatus into and out of the vessel; and extendible and retractible temperature sensors arranged to contact the vessel wall during the annealing operation.

3,809,609

TWISTED TAPE FLOW DEFLECTOR IN A NUCLEAR REACTOR FUEL ASSEMBLY

Donald Michael Krawiec, Enfield, and Frank Bevilacqua, Windsor, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed June 27, 1972, Ser. No. 266,756
Int. Cl. G21c *3/32, 15/24*
U.S. Cl. 176—78 **15 Claims**



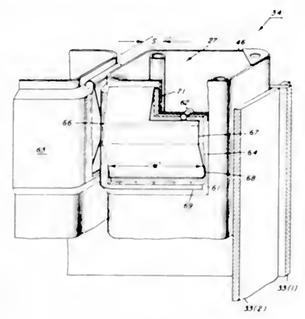
A nuclear reactor fuel assembly containing a plurality of spaced, parallel fuel rods is provided with flow deflector vanes that operate on the liquid coolant flowing along channels between adjacent fuel elements to promote mixing of the coolant and also to produce more effective contact of the fuel rod surfaces with the liquid. The vanes are of particular configuration and are integrally formed on twisted, thin metal ribbon strips. The ribbon strips can be individually disposed between adjacent rows of fuel elements or interconnected to form a grid-like structure through which the fuel elements extend.

3,809,610

NUCLEAR FUEL ASSEMBLY WITH BYPASS COOLANT CONTROL

Bart A. Smith, James L. Lass, and Dominic A. Venier, San Jose, Calif., assignors to General Electric Company

Filed Nov. 26, 1971, Ser. No. 202,407
Int. Cl. G21c *3/34, 15/24*
U.S. Cl. 176—78 **4 Claims**



A structure for limiting the exit area of the bypass coolant flow channels between the fuel assemblies in a nuclear reactor core.

3,809,611

PROCESS FOR PRODUCING CITRIC ACID

Kenichiro Takayama, Machida, and Tomoko Tomiyama, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Filed Jan. 11, 1973, Ser. No. 322,724
Claims priority, application Japan, Jan. 13, 1972, 47/5,524
Int. Cl. C12d *1/04*
U.S. Cl. 195—30 **5 Claims**

Citric acid is produced by culturing *Candida zeylanoides* No. 19–5 ATCC 20347 in a nutrient medium containing acetic acid as the main carbon source. Citric acid and/or isocitric acid is accumulated in the nutrient medium and is thereafter recovered.

3,809,612

PROCESS FOR THE PRODUCTION OF CITRIC ACID BY SUBMERGED FERMENTATION

Adel J. Kabil, Vienna, Austria, assignor to Aktiengesellschaft Jungbunzlauer Spiritus- und Chemische Fabrik, Vienna, Austria

No Drawing. Filed Aug. 23, 1971, Ser. No. 174,152
Claims priority, application Austria, Aug. 21, 1970, A 7,632/70
Int. Cl. C12d *1/04*
U.S. Cl. 195—36 R **12 Claims**

A process for the production of citric acid by submerged fermentation of carbohydrate-containing material by means of the fungus *Aspergillus niger* is disclosed. The process, which is carried out in a nutrient medium containing alkali ions and phosphate ions, involves adjusting the weight ratio of alkali ions to phosphate ions to a value of 1.01 to 3.42:1 by adding sodium chloride to the fermentation medium in an amount such that the weight ratio of sodium ions to potassium ions is 1.46 to 7.30:1.

3,809,613

BIOCATALYTIC MODULE

Wolf R. Vieth, Belle Mead, Shaw S. Wang, North Brunswick, Seymour G. Gilbert, Piscataway, and Kalyanasundram Venkatasubramanian, New Brunswick, N.J., assignors to Research Corporation, New York, N.Y.

Filed May 28, 1971, Ser. No. 148,018
Int. Cl. C07g *7/02*
U.S. Cl. 195—63 **7 Claims**

A biocatalytic module comprising an immobilized enzyme-membrane complex formed into a film having an elongate surface for enzyme-substrate contact; support means maintaining said elongate surface in a predetermined, substantially elongate form; spacing means substantially preventing different portions of said elongate surface from touching each other; and conduit means minimizing dispersion of a fluid substrate by substantially restricting the flow of the substrate to a direction parallel to the axis of the elongate surface. The biocatalytic modules are easily formed into insertable modules having high surface-to-volume ratios, and are useful for a wide variety of applications in enzymology.

3,809,614

PROCESS FOR THE MANUFACTURE OF PROTEIN-CONTAINING SUBSTANCES FOR FODDER, FOODSTUFFS AND TECHNICAL APPLICATIONS

Kaj G. Forss, George Otto Gadd, and Ralf O. Lundell, Helsinki, and Harry W. Williamson, Kauniainen, Finland

No Drawing. Filed Aug. 5, 1971, Ser. No. 169,473
Claims priority, application Finland, Aug. 14, 1970, 2,242/70
Int. Cl. A23j *1/00;* **C12b** *1/00*
U.S. Cl. 195—81 **9 Claims**

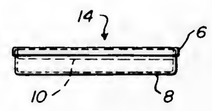
Proteinaceous substances suitable for use as fodder and foodstuffs are manufactured by submerged aerobic culture of a species of mycelium-growing micro-organism of the genus Byssochlamys, Gliocladium, Paecilomyces, Spicaria or Trichoderma.

3,809,615

METHOD AND MEANS FOR NATURAL GAS DETECTION

Donald Leroy Klass, 21 E. Scott Road, Barrington, Ill. 60010, and John Joseph Azukas, 4421 Prescott, Lyons, Ill. 60534

Continuation-in-part of abandoned application Ser. No. 831,000, June 6, 1969. This application Jan. 10, 1972, Ser. No. 216,810
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 R **9 Claims**



Method and apparatus for detecting the presence of ambient gaseous light paraffins with an immobilized enzyme system fraction collected from microorganisms which can oxidize C_1–C_4 hydrocarbons. An immobilized enzyme system separated from a methane-obligate microorganism can be used to advantage for identifying methane in natural gas. A detection means is associated with the method and apparatus which is sensitive to a response of the separated enzyme system fraction to the presence of the gaseous hydrocarbons.

3,809,616

DETECTING ANTI-CHOLINESTERASE MATERIALS

Edward Emil Schmitt and Richard Carl Capozza, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Nov. 15, 1972, Ser. No. 306,780
Int. Cl. C12k *1/10*
U.S. Cl. 195—103.5 R **10 Claims**

A method for detecting the presence of anticholinesterase materials wherein a cellulosic sheet having sulfited polyacrolein bound cholinesterase dispersed throughout the interstices thereof is wetted with a liquid having a pH of 7.0–7.5 and the wetted sheet, after exposure to air or water suspected of containing anticholinesterase materials, is contacted with a solution of N-methyl indoxyl butyrate and the presence of the anticholinesterase materials is determined from the observed color.

3,809,617

DEVICE FOR DETECTING ANTICHOLINESTERASE MATERIALS

Edward Emil Schmitt, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Nov. 15, 1972, Ser. No. 306,972
Int. Cl. C12k *1/10*
U.S. Cl. 195—127 **10 Claims**

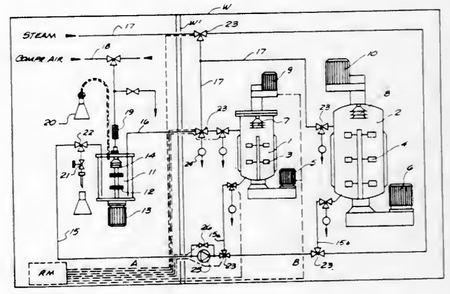
An article of manufacture comprising, in superimposed relationship, (A) a self-supporting layer, (B) a cellulosic element having sulfited polyacrolein bound cholinesterase dispersed throughout the interstices thereof and (C) an active cholinesterase free cellulosic layer having the same physical properties of color and texture as the cellulosic element (B) after both have been wetted with buffer and an appropriate detection solution.

3,809,618

FERMENTATION INSTALLATION

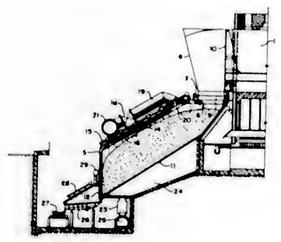
Hans Muller, 415 Alte Landstrasse, 8908 Mannedorf, Switzerland

Filed June 7, 1972, Ser. No. 260,390
Claims priority, application Switzerland, June 8, 1971, 8,578/71
Int. Cl. C12b *1/00*
U.S. Cl. 195—140 **8 Claims**



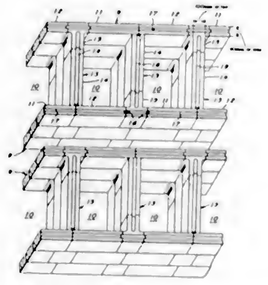
Two enclosed chambers are provided, in one of which a fermentation system is located, including a plurality of vessels. The regulating devices for regulating the operation of the fermentation system are located in the other chamber and operatively associated with the fermentation system. A control unit, including a receptacle, is also located in the other chamber and connected with the fermentation system in such a manner that its receptacle can be selectively connected with the respective vessels of the system.

3,809,619
COMBINED WET AND DRY QUENCHING
Friedrich-Wilhelm Drebes, Bochum-Dahlhausen, and Gunter Birresborn, Bochum, Germany, assignors to Dr. C. Otto & Comp., G.m.b.H., Bochum, West Germany
Filed May 17, 1972, Ser. No. 254,087
Int. Cl. C10b *39/00*
U.S. Cl. 201—39 **5 Claims**



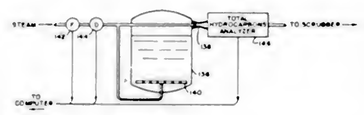
Coke from a horizontal coke oven is pushed into a guide casing, from which it falls into a cooling chamber. After the inlet to the chamber has been closed the coke is sprinkled with water to reduce its average temperature to below about 600° C., following which an inert cooling gas is passed through the coke to further reduce its temperature to about 200° C. and then the quenched coke is discharged from the chamber.

3,809,620
HORIZONTAL COKE OVEN
Folkard Wackerbarth, Bochum, and Kurt-Günther Beck, Essen, Germany, assignors to Dr. C. Otto & Comp., GmbH, Bochum, Germany
Filed July 25, 1972, Ser. No. 274,480
Claims priority, application Germany, Dec. 14, 1971, P 21 61 980.7
Int. Cl. C10b *1/06, 5/02*
U.S. Cl. 202—139 **4 Claims**



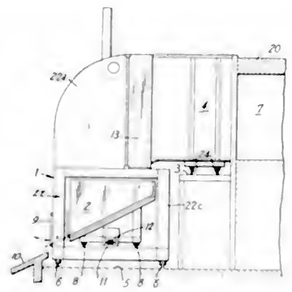
A high capacity coke oven including a battery of horizontally spaced coke oven chambers each having heating walls. Vertical heating flues are formed by a plurality of bondstone walls between the heating walls for adjacent coke chambers. The bondstone walls are constructed from bricks having a thickness between 60 to 80 millimeters. The heating walls are constructed from stretcher bricks having a thickness between 70 to 90 millimeters in the heat transfer direction extending from the heating flue to the coke oven chamber.

3,809,621
COMPUTER CONTROL SYSTEM FOR REFINING AND HYDROGENATION OF UNSATURATED HYDROCARBONS
Richard E. Putman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Original application Dec. 16, 1969, Ser. No. 885,405, now Patent No. 3,653,842, dated Apr. 4, 1972. Divided and this application Dec. 14, 1971, Ser. No. 208,009
Int. Cl. B01d *3/38, 3/40*
U.S. Cl. 202—205 **4 Claims**



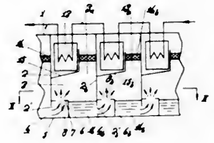
Described is a control system for a refining hydrogenation and deodorizing plant for edible oils and the like wherein various system variables are converted into signals which are fed to a computer which controls the system to optimize performance and reduce oil losses.

3,809,622
APPARATUS FOR EMPTYING COKE FURNACE BATTERIES
Johannes Knappstein and Jan Voges, Recklinghausen, Germany, assignors to Firma Carl Still, Postfach, Germany
Filed May 24, 1972, Ser. No. 256,351
Claims priority, application Germany, June 30, 1971, P 21 32 554.2
Int. Cl. C10b *27/00, 33/00*
U.S. Cl. 202—263 **10 Claims**



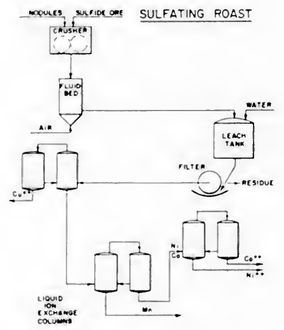
A device for emptying horizontally arranged coke furnace batteries comprises a coke gas emission hood which includes an upper portion with a sealing flap part which is adapted to be aligned with and sealed with a coke guide car which is oriented at the entrance of one of the furnaces which are to be emptied. The emission hood includes a lower part which advantageously has an opening at at least one end to permit entry and passage of a coke car along horizontally extending trackways defined on a lower portion of the hood structure. The hood structure may be moved along a trackway which extends parallel to an operating stage trackway for a coke cake guide car and the upper sealing portion of the hood may be aligned with the guide car which in turn may be aligned with selective coke furnaces to permit discharge of the coke from the furnace through the guide car and into the upper portion of the hood and downwardly into the coke car which is positioned therebelow. The coke car may be shifted along the hood and/or the hood itself may be shifted in order to permit discharge of the coke after quenching in the quenching tower.

3,809,623
EVAPORATING METHOD AND EVAPORATING APPARATUS
Tetsugoro Sasakura and Takashi Kurosaka, Hyogo, Japan, assignors to Sasakura Engineering Co., Ltd., Osaka, Japan
Filed Mar. 5, 1971, Ser. No. 121,449
Claims priority, application Japan, Mar. 9, 1970, 45/19,281
Int. Cl. B01d *3/06*
U.S. Cl. 203—11 **15 Claims**



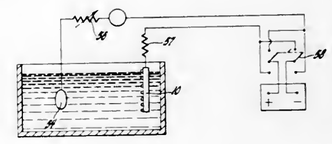
A multi-stage flash type evaporating apparatus and method, in which a series of plural throttles are provided at any or each brine flow passage between adjacent stages and the opening area ratio between the throttles is restricted within a certain range. A part of the throttles may be arranged to form a box with one throttle opened on its upper surface. The box may have a peripheral wall extending thereabove.

3,809,624
MIXED ORE TREATMENT OF OCEAN FLOOR NODULE ORE AND IRON SULFIDIC LAND BASED ORES
William S. Kane, Wicomic, and Paul H. Cardwell, Zanoni, Va., assignors to Deepsea Ventures, Inc., Gloucester Point, Va.
Continuation-in-part of application Ser. No. 260,344, June 6, 1972, which is a continuation of application Ser. No. 40,496, May 26, 1970, now abandoned. This application Nov. 27, 1972, Ser. No. 309,714
Int. Cl. C22d *1/24, 1/14, 1/16*
U.S. Cl. 204—105 M **15 Claims**



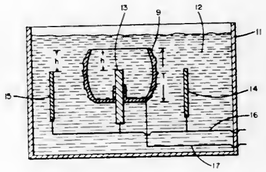
This invention provides a process for simultaneously obtaining the metal values from ocean floor nodule ore and from an iron sulfide mineral. The nodule ore comprises primarily oxides of iron and manganese plus nickel, copper and cobalt compounds. The ore is reacted with the iron sulfide ore, which may also contain desired nonferrous metal values at elevated temperatures in the presence of oxygen to form iron oxide and the water-soluble sulfates of the non-ferrous metals. The mixed reacted ores are then leached with water to obtain a solution and the resultant pregnant leach solution is treated, as by liquid ion exchange processes, to obtain separate streams of the individual metal values of nickel, cobalt, copper and manganese. The metals can be obtained by cathodic reduction of the compounds.

3,809,625
METHOD OF MAKING CONTACT BUMPS ON FLIP-CHIPS
Ronald E. Brown and James A. Oakes, Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Aug. 15, 1972, Ser. No. 280,795
Int. Cl. C23b *5/48;* **H01l** *3/00*
U.S. Cl. 204—15 **5 Claims**



A method of forming integral ohmic leads on a semiconductor device which includes the process of selectively electrodepositing collapsible and noncollapsible contact bumps on a blanket chromium layer without masking the chromium layer.

3,809,626
ELECTROPLATING ON A TRUNCATED BALL SUITABLE FOR USE IN A TYPEWRITER
Ronald M. Stene, Woodville, Wis., assignor to Buckbee-Mears Company, St. Paul, Minn.
Filed Oct. 17, 1972, Ser. No. 298,308
Int. Cl. B44d *5/02;* **C23b** *5/62*
U.S. Cl. 204—20 **2 Claims**

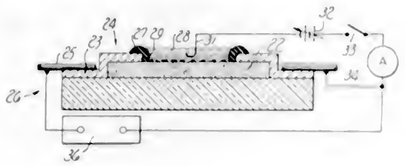


The surface of a plastic typewriter ball is processed in various solutions in order to prepare the surface to receive a uniformly distributed metallic coating.

3,809,627
ANODIZED CERMET FILM COMPONENTS AND THEIR MANUFACTURE
Donald J. Sharp, Trenton, N.J., and Richard D. Sutch, Allentown, Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.
Original application Nov. 19, 1968, Ser. No. 776,962, now Patent No. 3,644,188. Divided and this application July 22, 1971, Ser. No. 165,376
Int. Cl. C23b *5/52, 11/02*
U.S. Cl. 204—37 R **3 Claims**

A film-forming metal and a ceramic are co-sputtered on a glass substrate to form an anodizable cermet film whose resistance, as measured between a pair of conductive terminals deposited thereon, is less than a predetermined value. The film is anodized electrolytically to increase or

"trim" its terminal resistance to the predetermined value. Interaction between the ceramic and the anodically-grown oxide of the film-forming metal during the anodizing step



stabilizes the terminal resistance so that the trimmed value is maintained within close tolerances during subsequent thermal aging and operation.

3,809,628

GOLD ALLOY PLATING PROCESS AND SOLUTION

Gwynne I. Edson, Russell, and Keith R. Reynolds, Warren, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,397
Int. Cl. C23b *5/42*
U.S. Cl. 204—43 G **7 Claims**

A gold alloy electroplating process and solution is disclosed wherein the solution consists essentially of from about 12 to about 38 grams of gold as potassium aurocyanide, from about 10 to about 150 grams of magnesium acetate, from about 0 to about 100 grams of a salt of an organic acid having a cation selected from the group consisting of alkali metal and ammonium ions, said acid being selected from the group consisting of acetic and citric, and from about .005 to about .400 gram of a soluble metal source selected from the group consisting of the sources of cobalt and nickel or mixtures thereof, respectively, per liter of solution.

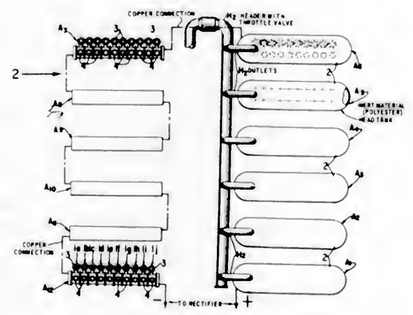
The solution has a pH of from about 3.6 to about 4.2 and can be satisfactorily employed at temperatures within the range of from about 70° to about 120° F.

3,809,629

PROCESS AND APPARATUS FOR THE PRODUCTION OF ALKALI METAL CHLORATES

Georg Messner, Munich, Germany, and Vittorio de Nora, Nassau, Bahama Islands, assignors to Oronzio de Nora Impianti Elettrochimici S.p.A., Milan, Italy

Filed Mar. 28, 1972, Ser. No. 238,804
Int. Cl. B01k *1/00;* **C01b** *11/26*
U.S. Cl. 204—95 **8 Claims**



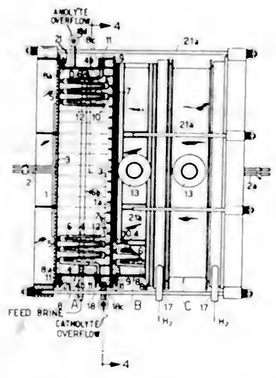
An apparatus and process for increasing percentage yield concurrent with increased current efficiency in electrolytic conversion of alkali metal chloride in an electrolyzer into alkali metal chlorate and formation of the chlorate by chemical disproportionation in separate chlorate formation zones, the use of bipolar electrolyzers is preferred but not necessary.

3,809,630

ELECTROLYSIS CELL WITH PERMEABLE VALVE METAL ANODE AND DIAPHRAGMS ON BOTH THE ANODE AND CATHODE

Oronzio de Nora, Milan, Italy, and Vittorio de Nora, Nassau, Bahama Islands, assignors to Oronzio de Nora Impianti Elettrochimici S.p.A., Milan, Italy

Continuation-in-part of application Ser. No. 51,162, June 20, 1970. This application Feb. 17, 1972, Ser. No. 227,116
Claims priority, application Italy, Oct. 19, 1971, 30,038/71
Int. Cl. C01d *1/06*
U.S. Cl. 204—98 **18 Claims**



Describes an electrolysis cell, and method of operating the cell, having permeable valve metal anodes (preferably titanium or tantalum) and permeable metal cathodes in wave form, each with closed ends and each covered by diaphragms, with the waves of the cathode fingers lying between the waves of the anode fingers to provide a large electrode area in a small cell container. The anodes and cathodes in wave form are intermeshed together and the cell may be unipolar, or bipolar with terminal positive and negative end cell units and a plurality of intermediate cell units. The anolyte and cathoylte discharge means are adjustable in order to control the anolyte and catholyte liquor levels behind each diaphragm.

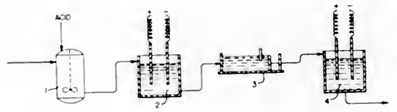
3,809,631

METHOD FOR TREATING OIL-CONTAINING WASTES

Masanori Ohta, 55 Takehana-Nishinokuchi-cho, Yamashina, Higashiyama-ku, Kyoto-shi, Kyoto-fu, Japan

Filed Mar. 8, 1973, Ser. No. 339,131
Claims priority, application Japan, Mar. 9, 1972, 47/23,558
Int. Cl. C02c *5/12*
U.S. Cl. 204—149 **2 Claims**

A method for treating industrial wastes containing oils and surfactants, which comprises adjusting the pH of such wastes to 3 or less, subjecting the wastes to an electrolytic treatment using an anode composed of an acid-resistant electrode material and a cathode composed of an ordinary electrode material thereby separating the oil phase from the aqueous phase having the surfactants dissolved therein, and then subjecting the aqueous phase separated from



the oil phase to an electrolytic treatment using an anode and a cathode composed of aluminum thereby precipitating the surfactants as sludge separated from water.

3,809,632

PROCESS FOR PHOTOCHEMICAL AND THERMAL PRODUCTION OF COBALT COMPLEXES

Giacomo Costa and Giovanni Mestroni, Trieste, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

No Drawing. Continuation of abandoned application Ser. No. 814,854, Apr. 9, 1969. This application June 7, 1971, Ser. No. 150,803
Int. Cl. B01j *1/10;* **C07f** *15/06*
U.S. Cl. 204—158 R **2 Claims**

An improved process is disclosed for preparing compounds of the formula R'COCo(III) salen by reacting RCo(III) salen with carbon monoxide and an active hydrogen compound R'H, wherein R is alkyl and R' is oxyalkyl, said reaction being effected under ultraviolet radiation and in the presence of oxygen.

3,809,633

CHAIN EXTENDED POLYTHIOETHER POLYENE PHOTOCURABLE COMPOSITIONS

Frank Magnotta, Laurel, Arthur D. Ketley, Ellicott City, and Clifton L. Kehr, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Mar. 8, 1972, Ser. No. 232,904
Int. Cl. C08d *1/00;* **C08f** *1/16;* **C08g** *11/54*
U.S. Cl. 204—159.14 **11 Claims**

Novel chain-extended polythioether containing polymer compositions having a multiplicity of reactive unsaturated carbon to carbon functional groups and/or reactive thiol groups within the molecule. These highly reactive polymer compositions are rapidly curable to solid, cross-linked polythioether products in the presence of a free radical generator such as actinic radiation. These non-ionic chain extended photocurable compositions are prepared by polymerizing polyenes and polythiols in the presence of free radical generators such as actinic radiation or oxygen. The chain extended polythioether containing polymers which are solvent soluble, particularly water soluble have a molecular weight in the range of 300 to 250,000 and range from liquid to solid materials which are essentially gel free i.e. having a gel content of not greater than about 1%.

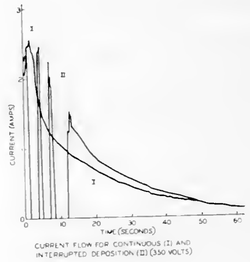
3,809,634

INTERRUPTED CURRENT ELECTRODEPOSITION OF PAINTS

William B. Brown, Birmingham, and Gregory A. Campbell, Romeo, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 29, 1972, Ser. No. 310,328
Int. Cl. C23b *13/00*
U.S. Cl. 204—181 **4 Claims**

Electrodeposition of water dispersible paint resins on a metallic, anodic electrode substrate can be accomplished at voltages above the normal rupture voltage for the particular resin to achieve better throw of the paint coating by measuring the flow of current during the coating process and interrupting the flow of current a few occasions at specific times. In a typical electrophoretic resin deposition process, during the first seconds there is a high current flow which quickly decreases. If one is electrodepositing at a voltage near or above the rupture voltage of the resin employed, the current will then start to increase again. By interrupting the current before or just after the current flow has increased, film rupture may be minimized or



CURRENT FLOW FOR CONTINUOUS (I) AND INTERRUPTED DEPOSITION (II) (350 VOLTS)

avoided and a smoother, more coextensive paint film obtained. Current flow is then soon reinstated and interrupted again, this being repeated up to three to five times, after which there is no further tendency for the current to increase and the deposition may be completed at the relatively high voltage without further current interruptions.

3,809,635

METHOD OF INCREASING THE ADHESION OF A METAL BODY SURFACE TO RUBBER

Jacques Gillot and Benno Lux, Geneva, Switzerland, assignors to Battelle Memorial Institute, Carough, Geneva, Switzerland

No Drawing. Filed Nov. 4, 1971, Ser. No. 195,855
Claims priority, application Switzerland, Nov. 18, 1970, 17,152/70
Int. Cl. C23b *1/00;* **C23c** *15/00*
U.S. Cl. 204—192 **2 Claims**

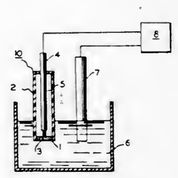
A method of increasing the adhesion of the surface of a metal body, particularly steel wire, to rubber and vice versa by coating the surface of the metal body with a carbon layer firmly adhering thereto. The carbon layer may be applied by evaporation of carbon under vacuum or by subjecting the surface of the metal body to a corrosive treatment to remove the metal from the surface portion while leaving the carbon.

3,809,636

DEVICE FOR MEASURING AN ACTIVITY OF SILVER IONS

Kenji Higashiyama and Hiroshi Hirata, Katano, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 28, 1972, Ser. No. 229,812
Claims priority, application Japan, Mar. 2, 1971, 46/11,124, 46/11,125; Mar. 3, 1971, 46/11,408, 46/11,409
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 M **5 Claims**



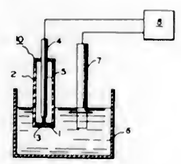
A device for measuring an activity of silver ions comprises a selective electrode and a reference electrode im-

mersed in a solution containing silver ions, said selective electrode including a disc which comprises silver selenide or silver telluride or at least two members selected from the group consisting of silver sulfide, silver selenide and silver telluride.

3,809,637
DEVICE FOR MEASURING AN ACTIVITY OF CUPRIC IONS

Kenji Higashiyama and Hiroshi Hirata, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 28, 1972, Ser. No. 229,911
Claims priority, application Japan, Mar. 2, 1971, 46/11,124, 46/11,125; Mar. 3, 1971, 46/11,408, 46/11,409
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 M **7 Claims**

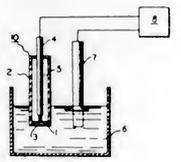


A device for measuring an activity of cupric ions comprises a selective electrode and a reference electrode immersed in a solution containing cupric ions, said selective electrode including a disc in a batch composition which comprises a combination of cuprous chalcogenide and at least one member selected from the group consisting of silver telluride and silver selenide or in a batch composition which comprises a combination of silver sulfide and at least one member selected from the group consisting of cuprous telluride and cuprous selenide.

3,809,638
DEVICE FOR MEASURING AN ACTIVITY OF MANGANOUS IONS

Kenji Higashiyama and Hiroshi Hirata, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 28, 1972, Ser. No. 229,914
Claims priority, application Japan, Mar. 2, 1971, 46/11,124, 46/11,125; Mar. 3, 1971, 46/11,408, 46/11,409
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 M **6 Claims**

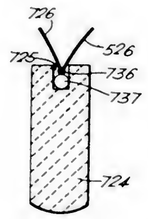


A device for measuring an activity of manganous ions comprises a selective electrode and a reference electrode immersed in a solution containing manganous ions, said selective electrode including a disc in a batch composition which comprises a combination of manganous chalcogenide and silver telluride or in a batch composition which comprises a combination of manganous telluride and at least one member selected from the group consisting of silver sulfide, silver selenide and silver telluride.

3,809,639
SOLID ELECTROLYTE COMPACT FOR PROBE USED IN QUANTITATIVE DETERMINATION OF GAS DISSOLVED IN MOLTEN METAL

Donald K. Faurschou, Kanata, Ontario, and Donald C. Misener and James C. Pope, Ottawa, Ontario, Canada, and Richard Hadden, Paisley, Scotland, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Original application July 15, 1970, Ser. No. 54,937. Divided and this application Apr. 12, 1972, Ser. No. 243,492
Claims priority, application Canada, Dec. 24, 1969, 70,847
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 S **4 Claims**

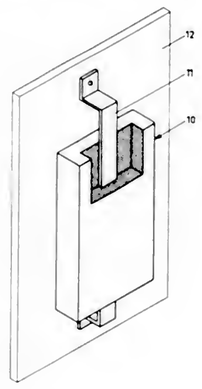


Solid electrolyte compacts are provided for use in a probe tip for the quantitative determination of gas dissolved in molten metal, the electrolyte being an elongated compact formed of solid oxide electrolyte which both retains its ionic conduction properties and which does not exhibit substantial electronic conduction properties at the temperature of the molten metal, said solid electrolyte being, for example, lime-stabilized zirconia. The compact also includes a fugitive binder, e.g., polyvinyl alcohol, and optionally contains a small amount of a suitable high temperature binder. The compact is provided with a beaded wire-accepting depression axially therein.

3,809,640
SACRIFICIAL ANODE

Gernot Jacob, Schaffhausen, Switzerland, assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Apr. 26, 1972, Ser. No. 247,860
Claims priority, application Switzerland, Apr. 27, 1971, 6,141/71
Int. Cl. C23f *13/00*
U.S. Cl. 204—197 **1 Claim**



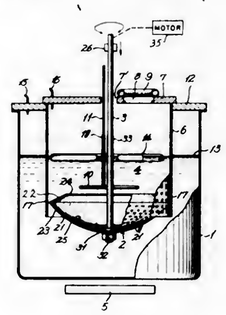
The invention concerns a sacrificial anode, consisting of a finely porous aluminium casting as an anode and an

anode carrier of steel attached thereto whereby between the anode carrier and the casting is provided a diffusion zone of anode or similar material in order to maintain a constant internal resistance of said structure during its operational life.

3,809,641
ELECTROPLATING APPARATUS WITH PLATING VESSEL HAVING PROTRUSIONS AND RECESSES

Akira Miyata, Tokyo, Hideyo Okubo and Chikayoshi Tomita, Yokohama, and Akio Suzuki, Tokyo, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of application Ser. No. 57,865, June 12, 1970, which is a division of application Ser. No. 747,367, July 24, 1968, both now abandoned. This application Sept. 8, 1972, Ser. No. 287,271
Claims priority, application Japan, May 11, 1968, 43/31,518
Int. Cl. C23b *5/78*
U.S. Cl. 204—213 **18 Claims**



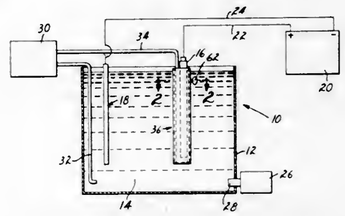
An electroplating apparatus wherein articles to be plated are placed in a vessel and immersed in a fused salt plating bath. The vessel is the cathode and an annular anode is disposed over the articles. The vessel is intermittently rotated during the plating operation to drive the articles towards the periphery and then gather them in the center of the vessel. The vessel is pan-shaped and has protrusions and recesses in the surface thereof to provide better contact with articles to be plated, and has perforations therein to enable the fused salt bath to flow therethrough.

3,809,642
ELECTROFORMING APPARATUS INCLUDING AN ANODE HOUSING WITH A PERFORATE AREA FOR DIRECTING ION FLOW TOWARDS THE CATHODE

Herbert M. Bond, Stillwater, and Charles E. Ring, Lake St. Croix Beach, Minn., assignors to Buckbee-Mears Company, St. Paul, Minn.

Continuation of abandoned application Ser. No. 868,390, Oct. 22, 1969. This application Oct. 28, 1971, Ser. No. 193,528
Int. Cl. C23b *5/68*
U.S. Cl. 204—275 **1 Claim**

A method and device are provided for the precision electro deposition of metals by electroforming. The electroformed product can be made with metal deposition thickness controlled within ±10% on deposits as thin as 0.005 mm. The method comprises directing and controlling the flow of metal ions from the anode ion donor to the cathode ion receptor by means of a unique ion flow directing system comprising an anode and a dielectric nonporous perforate ion-flow directing device which proximately and spacedly surrounds the anode, thereby allowing the flow of the electrolytic solution about the entire area of the anode and directing such flow of ion rich electrolyte in a relatively undiffused path to the cathode.



In another aspect, the invention discloses a precision electrical circuit made by the utilization of the process indicated above.

3,809,643
OXIDATIVE SWEETENING OF HYDROCARBONS WITH A CALCINED CATALYST CONTAINING COPPER, IRON AND OXYGEN

Sun W. Chun, Murrysville, Harry A. Hamilton, Natrona Heights, and Angelo A. Montagna, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

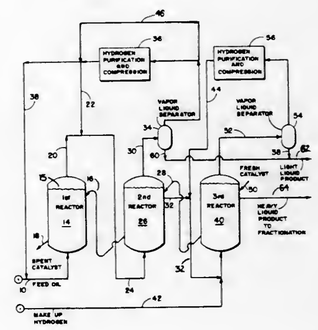
No Drawing. Filed July 15, 1971, Ser. No. 163,068
The portion of the term of the patent subsequent to June 26, 1990, has been disclaimed
Int. Cl. C10g *27/04*
U.S. Cl. 208—191 **14 Claims**

An oxidative sweetening process using a catalyst comprising a copper salt and a Group VIII iron group metal salt, preferably iron. The catalyst can be either supported or unsupported. The unsupported catalyst can be prepared by physically admixing and pelletizing copper chloride and ferric oxide or impregnating gelatinous iron oxide with a solution of copper chloride.

3,809,644
MULTIPLE STAGE HYDRODESULFURIZATION OF RESIDUUM

Axel R. Johnson, North Babylon, N.Y., Ronald H. Wolk, Trenton, N.J., and Govanon Nongbri, Newtown, Pa., assignors to Hydrocarbon Research, Inc., New York, N.Y.

Filed Aug. 1, 1972, Ser. No. 276,907
Int. Cl. C10g *31/14*
U.S. Cl. 208—210 **9 Claims**



The production of low sulfur fuel oil from high sulfur, high metals-containing petroleum residuum stocks is ac-

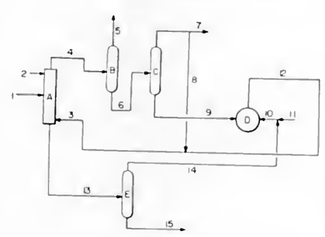
complished by a multiple stage ebullated bed hydrogenation process, wherein fresh catalyst used in the final stage reaction zone is removed and introduced to the preceding reaction zone to materially extend the activity and effective life of the catalyst. All the fresh make-up hydrogen for the process is injected into the final reaction zone, so that the hydrogen sulfide in the gas leaving that reaction zone is maintained below about three mole percent so as to substantially improve the desulfurization reaction rate in that reactor.

3,809,645
RECOVERING METHACRYLIC ACID AND METHANOL

Hideo Matsuzawa and Takashi Tokutomi, Ohtake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Filed Apr. 3, 1973, Ser. No. 347,414
Int. Cl. B01d *11/04*
U.S. Cl. 210—21 **7 Claims**

ONE EMBODIMENT OF PROCESS OF THE PRESENT INVENTION



An aqueous solution (A) containing 3–50% by weight of methacrylic acid, 0.1–14% by weight of acetic acid and a small amount of impurities, if any, a liquid mixture (B) containing 40% by weight or more of methyl methacrylate, 3–40% by weight of methanol, 22% by weight or less of water and a small amount of impurities, if any, and water (C) other than the water contained in said (A) and (B) are supplied to an extractor, thereby effecting a liquid-liquid contact. A liquid mixture containing methacrylic acid and methyl methacrylate as main components and a liquid mixture containing methanol, water and acetic acid as main components are separated by the liquid-liquid contact, whereby methacrylic acid is separated from the solution (A), and methanol from the liquid (B) at the same time.

3,809,646
NOVEL AMMONIOPHENOLATE COMPOUNDS

Thomas William Matches Spence, Warrington, Great Britain, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,415
Claims priority, application Great Britain, Dec. 8, 1970, 58,225/70
Int. Cl. C07c *87/28;* **D06m** *13/46*
U.S. Cl. 252—8.8 **3 Claims**

Novel surface-active compounds able to exist in either cationic or zwitterionic form and to compositions containing them. The compounds are effective as textile softening agents substantive to fabrics at the ordinary pH of fabric rinsing operation and removable from fabrics in a zwitterionic form under succeeding alkaline washing conditions.

3,809,647
GREASE COMPOSITION

Pascal Baudouin, Notre-Dame-de-Gravenchon, France, assignor to Mobil Oil Corporation, New York, N.Y.

No Drawing. Filed Feb. 2, 1973, Ser. No. 329,238
Claims priority, application France, Nov. 7, 1972, 7239361
Int. Cl. C10m *5/12, 5/16, 5/26*
U.S. Cl. 252—28 **10 Claims**

Grease compositions are provided comprising a lubricating vehicle, a grease-forming quantity of a thickening agent and a small amount of a graft copolymer comprising polyethylene modified with a minor amount of an unsaturated aliphatic dicarboxylic acid or its anhydride.

3,809,648
MAGNESIUM PHENOXIDES AND LUBRICANTS CONTAINING THE SAME

Bruce W. Hotten, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed July 12, 1972, Ser. No. 271,324
Int. Cl. C10m *1/48*
U.S. Cl. 252—32.7 E **10 Claims**

Novel magnesium phenoxides are prepared by a two step process wherein an alkylated phenol is reacted with formaldehyde and a dialkanol amine in a first step to form a Mannich base and in a second step, the Mannich base is neutralized with magnesium methoxide. The magnesium phenoxides impart good hydrolytic stability to zinc dihydrocarbyl dithiophosphate containing lubricants.

3,809,649
LUBRICATING GREASE

Guy Camille Van Doorne, Zellik, Belgium, assignor to Labofina S.A., Brussels, Belgium

No Drawing. Filed Jan. 29, 1973, Ser. No. 327,786
Claims priority, application Belgium, Mar. 15, 1972, 115,079
Int. Cl. C10m *5/22*
U.S. Cl. 252—33.2 **5 Claims**

Lubricating greases comprising 5 to 25% by weight, based on the weight of the greases, of thickening metal soap, 1 to 10% by weight of an anionic emulsion of unoxidized polyethylene having a mean molecular weight higher than 10,000, said emulsion having a polyethylene content ranging from 35 to 60% and a metal sulfonate anionic emulsifier content ranging from 8 to 12% based on the weight of the emulsion, the means size of the polyethylene particles being comprised between 0.02 and 0.5 micron, the rest of the composition being an oleaginous vehicle containing usual additives for lubricating greases.

3,809,650
HIGH DROPPING POINT COMPLEX GREASE

Francis S. Sayles, Rocky Hill, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

No Drawing. Filed June 16, 1971, Ser. No. 153,852
Int. Cl. C10m *5/14, 5/16, 7/22*
U.S. Cl. 252—42 **7 Claims**

A two-step process for preparing a high temperature grease is provided, in which a thickening agent is first formed, in the first step, by neutralizing a lower alkyl ester of a hydroxy fatty monocarboxylic acid with an excess of a metal base selected from the group consisting of alkali metal bases and alkaline earth metal bases in an oil vehicle. The reaction is conducted at elevated temperature in the range of 300° to 400° F. in a closed system. In the second step, an alkyl ester of an aliphatic dicarboxylic acid is added to the soap-thickened oil composition of step one. The mixture thus formed is heated to a temperature in the range of 350° F. to 450° F. in a closed system.

3,809,651
LUBRICATING OIL CONTAINING AN ALKYLMERCAPTOSUCCINIMIDE

Wheeler C. Crawford and Arthur W. Godfrey, Fishkill, and Robert E. Reid, Glenham, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Apr. 7, 1971, Ser. No. 132,198
Int. Cl. C10m *1/20, 1/32, 1/38*
U.S. Cl. 252—47.5 **12 Claims**

Lubricating oil composition comprising a major proportion of a mineral lubricating oil and from about 0.005 to 5.0 weight percent of an N-alkylmercaptosuccinimide in which the alkyl radical has from about 12 to 22 carbon atoms and a method of operating an automatic transmission having friction sensitive power transmitting means on a composition comprising a mineral oil and the above-described N-alkylmercaptosuccinimide.

3,809,652
WIDE-TEMPERATURE RANGE ESTER LUBRICANTS

James A. Brennan, Cherry Hill, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Dec. 15, 1971, Ser. No. 208,463
Int. Cl. C10m *1/26*
U.S. Cl. 252—56 R **1 Claim**

Wide-temperature range ester lubricants are provided by preparing an olefin oligomer in the presence of a BF_3-promoted catalyst and subsequently reacting the olefin oligomer thus formed with a combined acid-BF_3 reactant to obtain the corresponding ester.

3,809,653
INHIBITION OF CORROSIVE ACTION OF FIRE RETARDANTS CONTAINING AQUEOUS AMMONIATED SUPERPHOSPHORIC ACID ON ALUMINUM

James Earl Sansing, Chester, and Joseph Novotny, Hopewell, Va., assignors to Allied Chemical Corporation, Morristown, N.J.

No Drawing. Filed Oct. 13, 1972, Ser. No. 297,528
Int. Cl. C23g *1/06*
U.S. Cl. 252—148 **3 Claims**

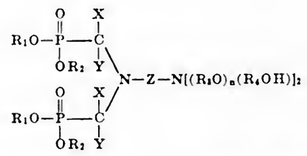
Aluminum metal corrosion by an aqueous solution of ammoniated superphosphoric acid is inhibited by incorporating therein effective amounts of (a) urea plus (b) a water soluble 2-mercaptobenzothiazole compound. The aqueous solution, which is useful as a liquid fire retardant, has a pH of 5–8, a nitrogen content of 9–12%, by weight and a total phosphorus content measured as P_2O_5 of 28–39% by weight.

3,809,654
METHODS OF SCALE INHIBITION

Robert S. Mitchell, Webster Groves, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 17, 1972, Ser. No. 254,246
Int. Cl. C02b *5/06*
U.S. Cl. 252—180 **26 Claims**

The precipitation of scale-forming salts in an aqueous system is inhibited by adding either stoichiometric or substoichiometric amounts to said system of substituted diamines of the general formula



wherein R_1, R_2, R_3, R_4, X, Y and Z are hereinafter defined and n is 0–10.

3,809,655
CORROSION-INHIBITING COMPOSITIONS CONTAINING DIALKYL SULFIDES OR SULFOXIDES

Ralph P. Williams, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Mar. 29, 1972, Ser. No. 239,317
Int. Cl. C23f *11/16*
U.S. Cl. 252—391 **7 Claims**

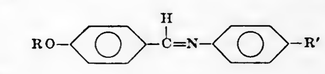
Corrosion of metal surfaces in an acidic environment is reduced by the use of corrosion inhibitor compositions comprising a mixture of at least one compound selected from the group consisting of dialkyl sulfides and dialkyl sulfoxides and at least one surface-active agent.

3,809,656
EUTECTIC MIXTURE OF PARA-ALKOXYBENZYLIDENE PARA-N-ALKYL ANILINES

Elwood L. Strebel, Cincinnati, Ohio, assignor to Vari-Light Corporation, Cincinnati, Ohio

No Drawing. Original application Apr. 17, 1969, Ser. No. 817,143, now abandoned. Divided and this application May 10, 1973, Ser. No. 358,838
Int. Cl. C09k *3/00;* **C07c** *119/00*
U.S. Cl. 252—408 **4 Claims**

A new family of organic thermotropic nematic compounds comprising para-substituted alkoxy benzylideneanilines having also para-alkyl substituents on the aniline ring. These compounds have the following structural formula:



wherein

R is a straight or branched chain alkyl group containing 1 to 8 C atoms; and

R′ is a straight chain alkyl group containing 2 to 8 C atoms.

Synthesis involves combining the desired substituted benzaldehyde and substituted aniline in equimolar proportions in anhydrous ethyl alcohol with glacial acetic acid as catalyst. The resulting homologous series of compounds are useful as optically active (i.e. birefringent) materials which have a mesomorphic phase ranging from about 0° to about 70° C., low viscosity at the nematic range, good heat stability, and substantially no color.

3,809,657
CATALYST SYSTEM FOR THE POLYMERIZATION OF OLEFINS

Heinz Mueller-Tamm, Ludwigshafen, Friedrich Urban, Limburgerhof, Hans Frielingsdorf and Johann Nickl, Bad Duerkheim, Guenther Schweier, Ludwigshafen, and Josef Kohnle, Gruenstadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft

No Drawing. Filed Aug. 14, 1972, Ser. No. 280,477
Int. Cl. B01j *11/84*
U.S. Cl. 252—429 C **7 Claims**

Catalyst system for the polymerization of olefins consisting of (1) a powdered inorganic carrier and, applied thereto, (2) a Zeigler-type catalyst consisting of (2.1) a component selected from the group consisting of chlorides, oxychlorides and alkoxychlorides of titanium, zirconium and vanadium and (2.2) a component selected from the group consisting of saturated metal alkyls, saturated metal alkoxyalkyls and saturated metal alkyl halides of the metals aluminum, magesium and zinc. The characterizing feature of the catalyst system of the invention is that the carrier (1) has been obtained by heating a substance of the formula

$$Mg[Sn(OH)_6]$$

This catalyst system is very efficient and enables the molecular weight of the polymers to be well regulated by means of hydrogen.

3,809,658
PROCESS FOR THE PREPARATION OF RANEY-METAL CATALYSTS HAVING HIGH ACTIVITY
Zoltán Csürös and József Petró, Budapest, Hungary, assignors to Magyar Tudomanyos Akademia, Budapest, Hungary
No Drawing. Filed Feb. 14, 1972, Ser. No. 226,302
Claims priority, application Hungary, Feb. 26, 1971, MA-2,199
Int. Cl. B01j *11/22*
U.S. Cl. 252—472 **3 Claims**

Raney-catalysts of high activity are prepared by subjecting the alloys to decomposition prior to the conventional leaching operations. In the decomposition step the alloys are mixed with 0.1 to 1.8-fold amounts of an alkaline solution or water at a temperature of 20° C. to 150° C., preferably at 50° C. to 130° C., and the mixture is kept at a constant mass.

3,809,659
AMINE OXIDES
John Fred Gerecht, Somerville, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Original application Oct. 24, 1967, Ser. No. 677,723, now Patent No. 3,637,682. Divided and this application July 26, 1971, Ser. No. 166,253
Int. Cl. C11d *3/26*
U.S. Cl. 252—542 **4 Claims**

Hydroxy higher alkyl morpholine oxides, and formulations containing the same. The compounds have many beneficial effects in detergent and cosmetic compositions, particularly desirable for application to the skin and for modification of foaming power of detergent compositions.

3,809,660
EPOXIDE RESIN MIXTURES OF HETEROCYCLIC N,N'-DIGLYCIDYL COMPOUNDS
Jurgen Habermeier, Pfeffingen, Daniel Porret, Binningen, and Dieter Baumann, Birsfelden, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Dec. 26, 1972, Ser. No. 318,319
Claims priority, application Switzerland, Dec. 30, 1971, 19,178/71
Int. Cl. C08g *30/02*
U.S. Cl. 260—2 EP **8 Claims**

New epoxide resin mixtures containing a major proportion of higher-molecular N,N'-diglycidyl compounds of cyclic ureide derivatives are obtained if 1 mol of a cyclic ureide, such as hydantoin or dihydrouracil, is reacted with 1.2–3.0 mols of epihalogenohydrin in a known manner.

The new epoxide resin mixtures are suitable for the manufacture of mouldings and coatings having good mechanical properties and display the advantage, as compared to the low molecular N,N'-diglycidyl compounds of cyclic ureides, that on gelling a slighter exothermic effect occurs and on curing a slighter shrinkage occurs.

3,809,661
MOLDING COMPOSITIONS AND METHOD OF MOLDING
Wallace H. Shapero, El Toro, and Albert Cane, Inglewood, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
No Drawing. Original application July 20, 1971, Ser. No. 164,436, now abandoned. Divided and this application Feb. 21, 1973, Ser. No. 334,426
Int. Cl. C08d *7/16;* **C08f** *45/24*
U.S. Cl. 260—5 **8 Claims**

A two part molding composition and method of forming molded rubber and plastic products therefrom which comprises a latex phase to which is added a gellant phase containing glucono-delta-lactone which serves as a means for providing a delayed gelation of the rubber or plastic material in the latex. In the preferred composition, a material is incorporated in the gellant phase which will imbibe the water present in the latex during gelation and at least a portion of the glucono-delta-lactone is disposed within microcapsules permeable to the latex composition whereby a dry molded product can be readily formed utilizing the aforegoing composition.

3,809,662
EMULSION POLYMERIZATION OF DIOLEFINS AND VINYL COMPOUNDS IN THE PRESENCE OF ALGINATE METAL SALTS TO PRODUCE HIGH POLYMER CONCENTRATION, LOW VISCOSITY LATEXES
Yoshihiko Araki, Naotake Sato, and Mikio Takahashi, Yokohama, Japan, assignors to Nippon Oil Company Limited, Tokyo, Japan
No Drawing. Filed Dec. 28, 1971, Ser. No. 213,167
Claims priority, application Japan, Dec. 29, 1970, 46/121,055
Int. Cl. C08f *1/13, 1/66, 45/18*
U.S. Cl. 260—17.4 BB **6 Claims**

A process is disclosed for the production of synthetic rubber latexes by polymerizing aliphatic conjugated diolefins or mixtures of these diolefins and vinyl compounds in an emulsion polymerization system. A latex of high polymer concentration and low viscosity is made available by the process wherein the polymerization of monomers is conducted particularly in the presence of two typical additives, one of which is a water-soluble metal salt and the other is a water-soluble alginate. Importantly, the metal salt is added first and thereafter the alginate is added to the system to secure a high quality latex.

3,809,663
TEXTILE SIZING, WATER AND OIL REPELLENT COMPOSITION
Vincent T. Elkind, Metuchen, Robert T. Hunter, Piscataway, Herman L. Narder, Plainfield, and Joseph A. Yurko, Bayonne, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed Apr. 17, 1967, Ser. No. 631,167
Int. Cl. C08b *25/02*
U.S. Cl. 260—17.4 ST **3 Claims**

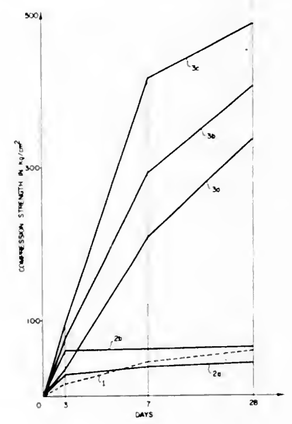
A textile sizing or "starching" composition which also imparts water and oil-repellency and dry soil resistance containing a water-soluble starch and a fluoro polymer latex used, preferably, as an aerosol.

3,809,664
METHOD OF PREPARING STARCH GRAFT POLYMERS
George F. Fanta and Robert C. Burr, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Aug. 16, 1973, Ser. No. 388,853
Int. Cl. C08b *25/02*
U.S. Cl. 260—17.4 GC **10 Claims**

A wide variety of starch graft polymers are prepared from water-soluble ethylenically unsaturated monomers in admixture with selected amounts of starch and water by adding the admixture to a hot, water-immiscible solvent.

3,809,665
PRODUCT AND PROCESS FOR PREPARING IMPROVED BINDERS CONTAINING SLAG
Pierre Allemand, Lyon, and Christian Hovasse, Decines, France, assignors to Rhone-Progil, Decines, France
Filed June 14, 1972, Ser. No. 262,734
Claims priority, application France, June 14, 1971, 7122556
Int. Cl. C08f *45/04*
U.S. Cl. 260—29.6 S **10 Claims**

Binder compositions containing blast furnace slag and building materials, such as concretes and mortars, derived from such binders are significantly improved by the addition thereto of a mixture of metal silicate, for example, sodium or potassium silicate and an acrylic copolymer, such as acrylonitrile and acrylic acid copolymer.



3,809,666
COMPOSITIONS OF POLYMERIC MATERIALS
Orest Nicholas Chick, Sarnia, Ontario, and Graham Neville Means, Petrolia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada
No Drawing. Continuation-in-part of application Ser. No. 204,762, Dec. 3, 1971. This application Nov. 17, 1972, Ser. No. 307,407
Int. Cl. C08d *7/00*
U.S. Cl. 260—29.7 D **6 Claims**

Improved paper coating compositions may be prepared when the latex used therein comprises a blend of a minor proportion by dry weight basis of a latex of a resinous copolymer with a major proportion by dry weight basis of a latex of a polymer consisting of at least four monomer units, namely, a conjugated diolefin and an alkenyl aromatic constituting 90–99.8% by weight of the copolymer and a carboxylic acid comonomer together with acrolein or methacrolein constituting 0.2 to 10 weight percent.

3,809,667
LUBRICATED THERMOPLASTIC RESIN COMPOSITIONS
Antony W. M. Coaker and Elmer E. Cowell, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of abandoned application Ser. No. 721,203, Apr. 15, 1968. This application Jan. 18, 1971, Ser. No. 107,526
Int. Cl. C08f *45/36, 45/38*
U.S. Cl. 260—31.8 R **23 Claims**

This disclosure relates to improved thermoplastic resin compositions which contain an acrylic homopolymer or copolymer as a lubricant.

3,809,668
MEANS FOR DESENSITIZING CARBONLESS PAPERS
Dean R. Yarian, Afton, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Jan. 29, 1971, Ser. No. 110,876
Int. Cl. C08g *51/26;* **C08h** *17/26;* **C09k** *3/00*
U.S. Cl. 260—33.4 UR **8 Claims**

The disclosed desensitizing agents, when combined with a suitable solvent, can be used to desensitize "carbonless" papers of the DTO/metal type wherein the DTO (dithiooxamide) compound is encapsulated and is released for chemical interaction with a coreactant metal salt by rupture of the capsules. The preferred desensitizing agents are partial esters of ethylenediaminetetraacetic acid, which partial esters are soluble in suitable organic media and form stable, substantially colorless complexes with, for example, nickel salts. Various homologs and analogs of these partial ester derivatives are also operative in the invention, as are certain less preferred compounds, i.e. certain diamines, oximes, and vic.-dimercaptans. The preferred densitizing agents are also useful for desensitizing "carbonless" papers of the leuco dye/acidic clay tape.

3,809,669
STABLE VINYL CHLORIDE POLYMER STRUCTURES AND METHOD OF PRODUCING THEM
Norman B. Rainer, 2008 Fon du Lac Road, Richmond, Va. 23229
No Drawing. Filed Feb. 11, 1972, Ser. No. 214,423
Int. Cl. C08f *27/02;* **C08j** *1/14*
U.S. Cl. 260—2.5 R **4 Claims**

A polyvinyl chloride (PVC) structure is formed and then dehydrohalogenated to remove a substantial amount of the chlorine content. The dehydrohalogenated product becomes resistant to solvents normally capable of dissolving PVC and also becomes thermally stable and unmeltable at temperatures which would cause PVC to melt. The process is carried out by first heating a vinyl chloride polymer to the point of sintering to form a microporous polymer shaped structure or a relatively non-porous sheet, film, fiber or coating of the vinyl chloride polymer. The shaped structure is then dehydrohalogenated to remove about 10% to 80% of the chlorine content, resulting in a shaped polymeric structure that is both solvent and heat resistant.

3,809,670
POLYAMIDES
Winston Costain and Vincent Matthews, both % ICI Industries, Ltd., Hexagon House, Blackley, Manchester, England
No Drawing. Continuation-in-part of abandoned application Ser. No. 69,460, Sept. 3, 1970. This application July 25, 1972, Ser. No. 274,953
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 N **13 Claims**

The aqueous dispersion of titanium dioxide added to polyamide-forming ingredients prior to or during polycondensation to give titanium dioxide delustered polyamides is prepared using alkali metal metasilicate as dispersing agent.

3,809,671
METHOD FOR ANTIBLOCKING HIGH PRESSURE PROCESS POLYETHYLENE FILM
Sohei Okawa and Shuhei Doi, Yokkaichi, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan
No Drawing. Filed Aug. 10, 1972, Ser. No. 279,319
Claims priority, application Japan, Sept. 14, 1971, 46/71,995
Int. Cl. C08f *45/04*
U.S. Cl. 260—41 R **2 Claims**

0.01–2% by weight calcium sulfate having an average particle size of 1–10μ is used as an antiblocking agent for high pressure process ethylene polymer films.

3,809,672
HYDRATES AS CURING AIDS
David A. Stivers, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Filed Aug. 21, 1972, Ser. No. 282,032
Int. Cl. C08f *45/04*
U.S. Cl. 260—42.27 **8 Claims**

A hydrated compound releasing water at above about 130° C. is included in a curable vinylidene fluoride elasto-

mer formulation to provide desirable curing characteristics.

3,809,673

COMPOSITES AND METHOD FOR MAKING

Dwain M. White, Schenectady, Howard J. Klopfer, Elnora, and Joseph R. McLoughlin, Burnt Hills, N.Y., assignors to General Electric Company

No Drawing. Filed Mar. 20, 1972, Ser. No. 236,191

Int. Cl. C08f *45/28*

U.S. Cl. 260—42.16 **4 Claims**

Carbon fiber prepregs convertible to carbon fiber-carbon matrix composites are provided and a method for making them. Carbon fiber tows are treated with acetylenic organic resin and thereafter carbonized to high strength composites.

3,809,674

BIS(ALKYLSULFONYL)VINYLBENZENES AS UV-ABSORBERS IN POLYMERS

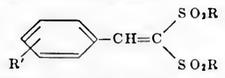
Henry Richmond, Whitehouse Station, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,635

Int. Cl. C08f *45/58;* **C08g** *51/58*

U.S. Cl. 260—45.9 R **9 Claims**

Bis(alkylsulfonyl)vinylbenzenes of the formula



wherein R is alkyl of 1 to 12 carbon atoms or cycloalkyl of 5 or 6 carbon atoms and R′ is lower alkyl, lower alkoxy, or hydrogen are useful as ultraviolet light absorbers or light stabilizers for polymers.

3,809,675

PHENYLHYDRAZONE ANTIOXIDANTS FOR POLYOLEFINS

Ralph Holm Hansen, Short Hills, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed Nov. 8, 1972, Ser. No. 304,642

Int. Cl. C07c *109/12;* **C08g** *51/60*

U.S. Cl. 260—45.9 R **3 Claims**

Oxidative degradation in polymeric hydrocarbon materials such as polyethylene and polypropylene is retarded by incorporation therein of phenylhydrazones.

3,809,676

THERMALLY STABLE FLAME RETARDANT POLYCARBONATE COMPOSITION COMPRISING A POLYCARBONATE AND A STABILIZER

Frank N. Liberti, Mount Vernon, Ind., assignor to General Electric Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 215,105, Jan. 3, 1972. This application Oct. 30, 1972, Ser. No. 302,206

Int. Cl. C08g *39/10, 51/56*

U.S. Cl. 260—45.75 R **10 Claims**

A thermally stable polycarbonate composition consisting of in admixture an aromatic polycarbonate and 0.05 to about 2.0 weight percent of a particular additive. The particular additive employed herein is one that is a mixture of (a) either a barium, cadmium or cerium salt of aliphatic acid of 2 to 16 carbon atoms or a barium or cadmium carbonate and (b) a phosphinite or a phosphonite.

3,809,677

STABILIZATION OF VINYL POLYMERS

Vincent Oakes, St. Helens, and Brian Rodney Iles, Liverpool, England, assignors to Interstab Limited, Liverpool, England

No Drawing. Continuation of abandoned application Ser. No. 193,158, Oct. 27, 1971, which is a division of application Ser. No. 877,857, Nov. 18, 1969, now Patent No. 3,665,024, dated May 23, 1972. This application Nov. 14, 1972, Ser. No. 306,207

Claims priority, application Great Britain, Nov. 22, 1968, 55,523/68

Int. Cl. C08f *45/62*

U.S. Cl. 260—45.75 K **2 Claims**

New organo-tin compounds, suitable for use as stabilizers for vinyl halide resins, are obtained by reacting a dialkyltin oxide, hydroxide, or dihalide with a monoester of a diol or an alkoxy or acyloxy alcohol with a mercapto-acid.

3,809,678

POLYLAURYLLACTAM WITH IMPROVED RESISTANCE TO THE EFFECTS OF HEAT, OXYGEN AND LIGHT

Wolfgang Kriesten, Marl, and Heinz Scholten, Oberhausen, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Continuation of abandoned application Ser. No. 14,624, Feb. 26, 1970. This application Oct. 19, 1971, Ser. No. 190,635

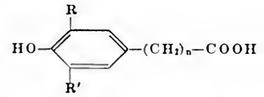
Claims priority, application Germany, Apr. 15, 1959, P 19 19 021.7

Int. Cl. C08f *45/58;* **C08g** *51/58*

U.S. Cl. 260—45.85 R **6 Claims**

Polylauryllactam having improved resistance to the effects of heat, oxygen and light, prepared by conducting the polymerization in the presence of:

(a) 0.4–1.5 percent by weight of a carboxylic acid of the general formula



wherein

n is an integer of from 0 to 4, and

R and R′ are alkyl groups of 1–5 carbon atoms, and

(b) 0.05–0.3 percent by weight of phosphoric acid and/or phosphorous acid—in each case based on the monomeric lauryllactam.

3,809,679

HIGH MOLECULAR WEIGHT LINEAR AROMATIC POLYESTERAMIDES

Günther Lenz and Heinrich Krimm, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of abandoned application Ser. No. 27,093, Apr. 9, 1970. This application Feb. 22, 1972, Ser. No. 228,413

Int. Cl. C08g *20/20*

U.S. Cl. 260—47 CZ **8 Claims**

Novel high molecular weight polyesteramides with outstanding thermal stability and mechanical strengths are obtained by polycondensing an aromatic dicarboxylic acid dihalide simultaneously with from 90 to 10 mol percent of an aromatic or araliphatic dihydroxy compound and from 10 to 90 mol percent of an aromatic or araliphatic diamino compound. The polycondensation products can contain chlorine or bromine and ether, sulphide or sulphone groups. The ratio of ester and amide groups in the polycondensate can be varied in limits between about 1:9 and 9:1.

3,809,680

RESINOUS FORMALDEHYDE REACTION PRODUCT OF VULCANIZED-SCRAP-RUBBER PYROLYSIS OIL AND ITS PRODUCTION

Lynn B. Wakefield, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Mar. 20, 1972, Ser. No. 236,438

Int. Cl. C08g *5/00, 7/00*

U.S. Cl. 260—51 R **4 Claims**

The invention relates to a hard resin prepared by the reaction of formaldehyde and pyrolysis oil obtained by the destructive distillation of scrap rubber vulcanizate, and its preparation. The resins are useful as tackifiers to be used in elastomers.

3,809,681

BROMINATED BISPHENOL A DIETHANOL POLYFORMAL

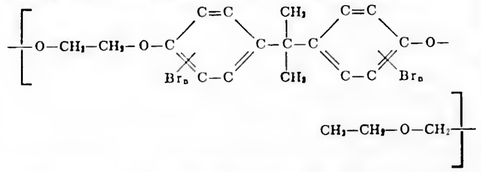
Harry R. Musser and Winston J. Jackson, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 16, 1972, Ser. No. 281,259

Int. Cl. C08g *5/10*

U.S. Cl. 260—52 **2 Claims**

Disclosed is a brominated bisphenol A diethanol polyformal comprised of recurring units of the structure



where *n* is 1 or 2. This polyformal can be formed into a moldable or fiber-forming composition comprising an admixture of from 50 to 95 weight percent polyester and from 50 to 5 weight percent of the polyformal. Molded objects of the moldable or fiber forming composition exhibit desirable flame retardance as one would expect, and, in addition, exhibit advantageous retention of the flame retardant within the polymer matrix during aging, advantageous lack of discoloration during molding and advantageous lack of discoloration upon exposure to ultraviolet light. Fibers of the moldable or fiber-forming composition exhibit desirable flame retardance as one would expect, and, in addition, exhibit advantageous retention of flame retardancy after dry cleaning and washing, advantageous mechanical properties, advantageous lack of discoloration of the textile fibers during melt spinning, and advantageous lack of discoloration upon exposure to ultraviolet light.

3,809,682

POLYETHER AND POLYTHIOETHER FORMATION IN LACTAM SOLVENTS

Josef Studinka, Zurich, and Rudolf Gabler, Uitikon-Waldegg, Switzerland, assignors to Inventa AG fur Forschung und Patentverwertung, Zurich, Switzerland

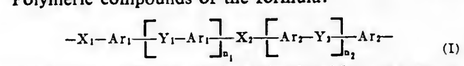
No Drawing. Filed Apr. 11, 1972, Ser. No. 243,083

Claims priority, application Sweden, Apr. 26, 1971, 6,052/71

Int. Cl. C08g *23/09, 25/00*

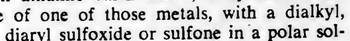
U.S. Cl. 260—61 **15 Claims**

Polymeric compounds of the formula:



(I)

wherein X_1 and X_2 are independently either oxygen or sulphur, Ar_1 and Ar_2 are the same or different aromatic radicals, n_1 and n_2 are independently of one another the numbers 0–2, and Y_1 and Y_2 are independently of one another a simple bond or a divalent radicals, particularly one of the series —O—, —CONH—, —S—, —SO_2—, —CO—, —CH_2—, —$C(CH_3)_2$—, —N=N—, in which each Ar is attached to the adjacent ring member by two carbon atoms which are not adjacent one another, and is characterized in that at least one compound of the formula:



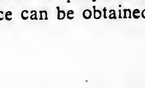
(II)

is treated with at least one compound of the formula:



(III)

in which Hal represents halogen, particularly chlorine or bromine, and X_1, X_2, Ar_1, Ar_2, n_1, n_2, Y_1 and Y_2 have the significance stated in Formula I, in the presence of the quantity necessary for neutralization of hydrogen-halide in particular 1–20% by weight excess calculated on the starting material of an inorganic or organic base as acid acceptor, in a solvent of the formula:



(IV)

in which A is an alkyl radical with 1–4 carbon atoms and *m* represents the numbers 5–11, and in which the hydrogen atoms of the methylene groups can be wholly or partially substituted by alkyl groups with 1–4 carbon atoms at atmospheric pressure at a temperature of 180–200° C.

3,809,683

PREPARATION OF POLYMERS

Edward Emil Schmitt, Norwalk, Conn., and Rocco Albert Polistina, Port Chester, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Feb. 16, 1973, Ser. No. 333,432

Int. Cl. C08g *33/04*

U.S. Cl. 260—78.4 N **7 Claims**

Biodegradable aminotriazole polymers which are produced from dihydrazides are disclosed.

3,809,684

PROCESS FOR THE PRODUCTION OF HOMO-POLYMERS AND CO-POLYMERS OF EPISULPHIDES AND PRODUCT THEREOF

Arnaldo Roggero, Alessandro Mazzei, and Antonio Proni, San Donato Milanese, Italy, assignors to Snam Progetti, S.p.A., San Donato Milanese, Italy

No Drawing. Filed May 24, 1972, Ser. No. 256,250

Claims priority, application Italy, May 24, 1971, 24,896/71

Int. Cl. C08g *23/00*

U.S. Cl. 260—79 **9 Claims**

Episulfides such as ethylene sulfide, propylene sulfide and allyloxy-(2,3)-epithiopropane are polymerized or copolymerized by bringing one or more of those monomers into contact with a catalytic quantity of a hydride of an alkaline earth metal or the product of the reaction of an alkali metal, an alkaline earth metal, a hydride or an alkyl derivative of one of those metals, with a dialkyl, dicycloalkyl or diaryl sulfoxide or sulfone in a polar solvent, at a temperature in the range of —20° to 20° C.

3,809,685

CROSS-LINKED ACRYLONITRILE POLYMER FIBERS

Hideo Sato and Yoshiharu Sugaya, Fujishi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha

No Drawing. Filed Sept. 23, 1971, Ser. No. 183,219

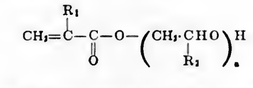
Claims priority, application Japan, Sept. 26, 1970, 45/83,894

Int. Cl. C08f *15/38*

U.S. Cl. 260—80.71 **2 Claims**

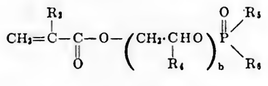
Cross-linked acrylonitrile polymer fibers having an excellent heat resistance can be obtained from a linear co-

polymer comprising acrylonitrile, a comonomer represented by the general formula of



(I)

wherein R_1 is a hydrogen atom, a halogen atom or a specified organic group; R_2 is a hydrogen atom or a specified organic group, and R_2 in numbers of *a* can be same or different; and *a* is a positive integer of 1–100, and a comonomer represented by the general formula of



(II)

wherein R_3 has the same meaning as R_1; R_4 has the same meaning as R_2, except that *a* is changed to *b*; R_5 and R_6 are hydrogen atoms, halogen atoms, specified organic groups, hydroxyl groups or basic salts thereof; and *b* is a positive integer of 1–105, and as an optional comonomer, an ethylenically unsaturated compound copolymerizable with acrylonitrile.

A blend of said copolymer with polyacrylonitrile or other copolymers of acrylonitrile can be also used for preparing said fibers. Further, said copolymer can be used for producing cross-linked acrylonitrile composite fibers having an excellent heat resistance, as their one component.

3,809,686

TRANSPARENT MEDIA CAPABLE OF PHOTO-INDUCED REFRACTIVE INDEX CHANGES AND THEIR APPLICATION TO LIGHT GUIDES AND THE LIKE

Edwin Arthur Chandross, Berkeley Heights, Richard Lynn Fork, Holmdel, Ivan Paul Kaminow, New Shrewsbury, and Walter John Tomlinson III, Holmdel, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Original application Mar. 19, 1970, Ser. No. 21,102, now Patent No. 3,689,264, dated Mar. 19, 1970. Divided and this application Mar. 1, 1972, Ser. No. 230,714

Int. Cl. C08f *3/68;* **G03c** *5/00*

U.S. Cl. 260—89.5 A **3 Claims**

There are disclosed a variety of methods for producing light guides in suitably sensitized samples upon irradiation with focused ultraviolet light and subsequent aging. These methods are based upon the discovery that ultraviolet radiation from a mercury arc at 3650 A. or from an ultraviolet helium-cadmium ion laser at 3250 A. produces readily observable irreversible index of refraction changes in poly(methyl methacrylate) polymerized at low temperatures of around 40–50 degrees centigrade. Upon subsequent aging, the amount and gradient of the index change substantially increase.

3,809,687

HYDROGENATION OF POLYSTYRENE

Birt Allison, Jr., Calvin L. Daniels, and James H. Moss, Jr., Big Spring, Tex., assignors to Cosden Oil & Chemical Company, Big Spring, Tex.

No Drawing. Filed Dec. 20, 1971, Ser. No. 210,146

Int. Cl. C08f *27/24*

U.S. Cl. 260—93.5 A **8 Claims**

A process for the hydrogenation of ethylenically unsaturated aromatic polymeric compositions, which process comprises introducing said polymeric compositions dispersed in a suitable solvent therefor concurrently with hydrogen into a contact with a noble metal containing catalyst at a temperature of 100 to 350° C. and at an LHSV of 0.1 to 10.

3,809,688

PROCESS FOR THE POLYMERIZATION OF AN OLEFINE AT HIGH PRESSURE IN TUBULAR REACTORS

Anacleto Clementi, Saronno, and Roberto Battini, San Donato Milanese, Italy, assignors to Snam Progetti, S.p.A., San Donato Milanese, Italy

Filed Feb. 3, 1972, Ser. No. 223,105

Claims priority, application Italy, Feb. 3, 1971, 20,110/71

Int. Cl. C08f *1/60, 3/04, 1/88*

U.S. Cl. 260—94.9 R **4 Claims**

Ethylene is polymerized under a pressure of 1000 to 5000 atmospheres in the presence of catalyst and polymerization promoter in a tubular reactor having a preheating zone and a reaction zone from which a mixture including polyethylene and unreacted ethylene is continuously fed to an expansion tube whose internal diameter is substantially less than the internal diameter of the reaction zone tube and where the pressure and temperature of the mixture from the reaction zone is substantially reduced, then the polyethylene is separated from unreacted ethylene which is recycled.

ERRATA

For Classes 260—121 and 260—46 see:
Patents Nos. 3,809,782 and 3,809,783

3,809,689

SYNTHETIC POLYOXIN TYPE NUCLEOSIDES AND METHODS OF PREPARING

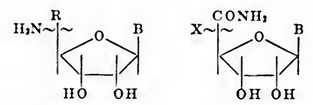
Nandyelath Damodaran, Poona, India, and John Moffatt, Los Altos, and Gordon Jones and George Howarth, Palo Alto, Calif., assignors to Syntex (U.S.A.) Inc.

No Drawing. Filed Feb. 25, 1971, Ser. No. 119,019

Int. Cl. C07d *51/52, 51/54*

U.S. Cl. 260—211.5 R **30 Claims**

Novel polyoxin type nucleosides and methods of preparing such compounds and also a generic process for converting nucleoside-5'-aldehydes or 5'-aldehyde hydrates to the corresponding hexofuranosyluronamide nucleosides. The novel polyoxin type nucleosides can be generally represented by the following formula



wherein

R is the group —CH_2OH, or —COOH; B is selected from pyrimidine or purine bases; X is the group —NH_2 or —OH and the wavy line indicates both the 5'-allo and -talo epimers.

The generic process is characterized by the step of treating a nucleoside-5'-aldehyde or 5'-aldehyde hydrate with an alkali metal cyanide salt and hydrogen peroxide. The compounds exhibit antibiotic activity, antifungal activity and general antimetabolite activity and are useful as antifungal agents such as, for example, agricultural fungicides, and also as sterilization agents.

3,809,690

18-(ALKYL-ACYLAMINO)-14β,16β,20-TRIHYDROXY STEROIDS AND METHODS FOR THEIR PREPARATION

Ulrich Kerb, Rudolf Wiechert, Ulrich Eder, and Hans-Detlef Berndt, Berlin, Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Mar. 20, 1972, Ser. No. 236,241

Claims priority, application Germany, Mar. 23, 1971, P 21 14 646.3; Jan. 14, 1972, P 22 02 409.5; Jan. 27, 1972, P 22 04 359.0

Int. Cl. C07c *169/20, 173/00*

U.S. Cl. 260—239.5 **22 Claims**

A new class of 18-(alkyl-acylamino)-14β,16β,20-trihydroxy steroids is described. These compounds are useful as cardiac agents, diuretics and as intermediates in the preparation of other pharmaceutically active compounds.

3,809,691

NOVEL CYANINE DYES WITH FUSED IMIDAZOLO NUCLEI

James W. Carpenter, John D. Mee, and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application Oct. 23, 1967, Ser. No. 677,058, now Patent No. 3,615,639, dated Oct. 26, 1971. Divided and this application Oct. 7, 1970, Ser. No. 78,909

Int. Cl. C09b *23/10*

U.S. Cl. 260—240 E **12 Claims**

Novel polymethine dyes are provided which feature an imidazole ring joined at the carbon atom in the 5-position of the imidazole ring to a dimethine linkage, the imidazole ring having fused to the [a] side thereof the non-metallic atoms required to complete at least one fused ring, and a second desensitizing nucleus joined at a carbon thereof to the dimethine linkage. The invention also provides novel photographic silver halide emulsions, including direct positive emulsions containing the dyes of the invention.

3,809,692

[1,3,5]-THIADIAZINOBISBENZIMIDAZOLES

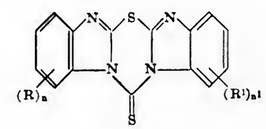
Rudiger D. Haugwitz, Highland Park, and Venkatachala L. Narayanan, Hightstown, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed July 16, 1971, Ser. No. 163,459

Int. Cl. C07d *93/28*

U.S. Cl. 260—243 R **4 Claims**

[1,3,5]-thiadiazinobisbenzimidazoles are provided having the structure



and which are useful as anthelmintic agents.

3,809,693

PROCESS FOR THE TRIMERIZATION OF NITRILES

Gordon H. Miller, Richmond, Va., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,093

Int. Cl. C07d *55/50*

U.S. Cl. 260—248 CS **6 Claims**

Aromatic nitriles, such as terephthalonitrile, isophthalonitrile, benzonitrile, etc., are trimerized to the corresponding 1,3,5-triazine by heating the nitrile in the presence of a catalyst, such as a metal chloride, and afterward the unconverted nitrile is removed overhead from the triazine product by sublimation.

3,809,694

DIHYDROPHENANTHRIDINE PHOSPHONATES

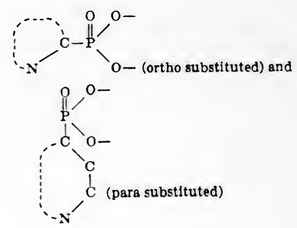
Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, Wilmington, Del.

No Drawing. Original application May 31, 1968, Ser. No. 733,328, now abandoned. Divided and this application Jan. 18, 1971, Ser. No. 107,558

Int. Cl. C07d *39/02*

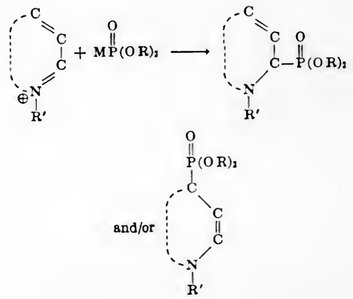
U.S. Cl. 260—286 A **2 Claims**

Nitrogen-heterocyclic phosphonates wherein the phosphonate group is ortho- or para- to the nitrogen heterocyclic group, where the compounds are characterized as follows:



wherein the dotted line represents a cyclic structure which cyclic structure may be the sole cyclic structure, or may be attached to other cyclic groups.

These nitrogen heterocyclic phosphonates are prepared by reacting an aromatic nitrogen heterocyclic compound, wherein the nitrogen atom is in the form of a salt or a quaternary, with a phosphite salt, preferably in the form of esters of the phosphite as exemplified by the following equation:



3,809,695

2,6-DICHLORO-3-NITRO-PYRIDINE

Günter Steinmetz and Kurt Thiele, Frankfurt, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,711

Claims priority, application Germany, Apr. 19, 1967, D 52,843

Int. Cl. C07d *31/26*

U.S. Cl. 260—290 HL **4 Claims**

2,6-dichloro-3-nitro-pyridine and its production by reaction of 2,6-dichloropyridine with a mixture of concentrated sulfuric acid and smoking nitric acid under reflux. The 2,6-dichloro-3-nitro-pyridine is useful as a herbicide and also in view of the selective reactivity of the chlorine substituent, it is useful as an intermediate in the preparation of other useful products, such as compounds having analgesic action.

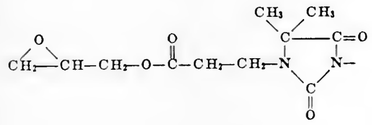
3,809,696
DIGLYCIDYL COMPOUNDS CONTAINING TWO N-HETEROCYCLIC RINGS

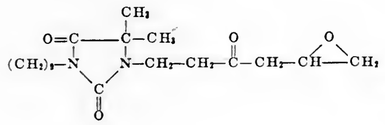
Daniel Porret, Binningen, and Willy Fatzer, Bottmingen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Nov. 9, 1971, Ser. No. 197,145
Claims priority, application Switzerland, Nov. 18, 1970, 17,026/70
Int. Cl. C07d *49/32, 51/30*
U.S. Cl. 260—256.4 C **6 Claims**

Diglycidyl esters are produced by the reaction, in a known manner, of dicarboxylic acids of binuclear N-heterocyclic compounds, e.g. 1,6 - bis[1' - (β - carboxyethyl) - 5',5' - dimethylhydantoinyl - 3']-hexane, with epihalogenhydrin, e.g. epichlorohydrin.

Example: The new compound



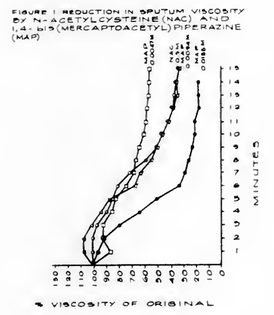


The new diglycidyl esters can be easily cured with all known epoxide resin curing agents, and are suitable for the production of coatings and moulded shapes having good mechanical properties.

3,809,697
1,4-BIS-ACYLPIPERAZINES

Tellis Alexander Martin and William Timmey Comer, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

Filed Oct. 7, 1971, Ser. No. 187,257
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 C **5 Claims**



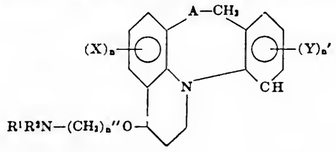
1,4-bis-acylpiperazines in which the acyl group is mercaptoacetyl or α-substituted mercaptoacetyl are potent mucolytic agents which are not only effective topically but also systemically on oral or parenteral administration to animals.

3,809,698
3-(AMINOALKOXY)-2,3-DIHYDROQUINOBENZOXA OR THIA) ZEPINE DERIVATIVES

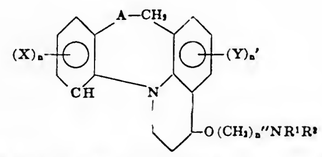
Harry L. Yale, New Brunswick, and Ramesh B. Petigara, Somerset, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,286
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 PC **4 Claims**

3(-aminoalkoxy)-2,3-dihydroquinobenzoxa (or thia) zepine derivatives are provided having the structures



or



wherein A is O or S and X, Y, R^1, R^2, n, n' and n'' are as defined hereinafter. These compounds are useful as anti-inflammatory agents, and central nervous system stimulants or depressants depending on dosage.

3,809,699
PROCESS FOR PRODUCING 6-AMINO-PENICILLANIC ACID

Toshiyasu Ishimaru, Suita, Japan, assignor to President of Osaka University, Osaka, Japan

No Drawing. Filed Dec. 16, 1970, Ser. No. 98,907
Claims priority, application Japan, Dec. 26, 1969, 44/1,002; Feb. 2, 1970, 45/9,139; Feb. 13, 1970, 45/12,378
Int. Cl. C07d *91/14, 99/16*
U.S. Cl. 260—306.7 **15 Claims**

6-aminopenicillanic acid is prepared, with advantage in industrial viewpoint, by (A) reacting 6-acylaminopenicillanic acid or a salt thereof with a halogenated compound such as trihalide of phosphorus, tetrahalide of silicon, phosphorous pentahalide, phosgene or thiophosgene, in the presence of an acid-binding reagent for the purpose of to protect the carboxyl group of the 6-acylamidopenicillanic acid by forming a mixed acid anhydride, (B) converting the resultant mixed acid anhydride into the corresponding imino halide by reacting it with an imino halide-forming reagent such as phosphorus oxychloride, phosphorus pentachloride, phosphorous tribromide, phosgene, oxalyl chloride or protocatechyl phosphorous trichloride to form the corresponding imino halide, (C) converting the resultant imino halide into the corresponding imino-ether by reacting it with an alcohol and finally (D) hydrolyzing the imino ether and removing the protected group of the carboxyl group to form 6-aminopenicillanic acid.

3,809,700
CERTAIN 5,6-DIOXOPYRROLO[2,1-b]THIAZOLES

Henry Rapoport, Berkeley, Calif., assignor to The Regents of The University of California, Berkeley, Calif.

No Drawing. Original application June 22, 1970, Ser. No. 48,550, now Patent No. 3,714,156. Divided and this application Sept. 15, 1972, Ser. No. 289,382
Int. Cl. C07d *99/14*
U.S. Cl. 260—306.7 **3 Claims**

A process for preparing lactams, particularly 1-azabicyclo[4.2.0]octanes, 1-azabicyclo[3.2.0]heptanes, 4-thio-

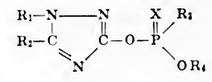
1-azabicyclo[3.2.0]heptanes and 5 - thia - 1 - azabicyclo [4.2.0]octenes, which comprises subjecting a cyclic α-keto amide to an oxidizing agent to form a carboxyl substituted lactam structure. The oxidant is preferably periodate, in an aqueous solution, at pH 5–9 and room temperature. The novel products obtained from the process are useful intermediates in the preparation of antimicrobial agents. The cyclic α-ketoamide starting materials are also novel.

3,809,701
TRIAZOLYLPHOSPHONIC AND -PHOSPHORIC ESTERS

Dag Dawes, Pratteln, and Beat Boehner, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Jan. 12, 1972, Ser. No. 217,251
Claims priority, application Switzerland, Jan. 19, 1971, 774/71; Dec. 7, 1971, 17,788/71
Int. Cl. C07d *55/06*
U.S. Cl. 260—308 R **17 Claims**

Triazolylphosphonic and -phosphoric esters of the formula



wherein R_1 and R_4 represent similar or different radicals such as hydrogen, alkyl, unsubstituted or substituted phenyl or cycloalkyl, R_2 represents the groups —$COOR_1$, —$CO—N(R_4)(R_5)$ or —CN, R_3 represents alkyl, alkoxy or phenyl, R_5 represents hydrogen or alkyl and X represents oxygen or sulphur their manufacture and their use in pest control are disclosed.

3,809,702
N,N'-SUBSTITUTED THIOOXAMIDE, S-OXIDES

Wendell Gary Phillips, Olivette, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Nov. 17, 1971, Ser. No. 199,753
Int. Cl. C07d *27/04, 27/74*
U.S. Cl. 260—326.4 **9 Claims**

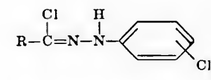
N,N'-substituted thiooxamide, S-oxides are prepared from substituted carbamoyl sulfines by reaction with a primary or secondary amine. The compounds of this invention are pesticidally active and particularly useful as selective herbicides.

3,809,703
THIOPHENECARBONYL CHLORIDE PHENYLHYDRAZONES

Girts Kaugars, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application Oct. 5, 1970, Ser. No. 78,166, now Patent No. 3,699,111, dated Oct. 17, 1972. Divided and this application Aug. 31, 1972, Ser. No. 285,440
Int. Cl. A61k *27/00;* **C07d** *63/12*
U.S. Cl. 260—332.5 **2 Claims**

This invention relates to novel heterocyclic acid chloride phenylhydrazones embraced by the formula



(I)

wherein R is a radical selected from the group consisting of furyl, thienyl and pyridyl, each of which has from zero through three substituents selected from the group consisting of alkyl, halo and nitro, and n is an integer of from zero through three. These compounds are primarily useful as insecticides and miticides and also as herbicides, antiinflammatories and anthelmintics.

3,809,704
PROCESS FOR THE PREPARATION OF 3-(3'-LOWER CARBOALKOXY - 4' - HYDROXY NAPHTHALIDENE)NAPHTHALIDE

Michael H. Feingold, Pinehurst, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Dec. 11, 1972, Ser. No. 313,963
Int. Cl. C07d *7/10*
U.S. Cl. 260—343.2 R **8 Claims**

This invention relates to the synthesis of 3-(3'-lower carboalkoxy - 4' - oxo - 1' - naphthylidene)naphthalides by reacting a 3 - halo - 3 - (3' - lower carboalkoxy-4'-hydroxy - 1' - naphthyl)naphthalide with an acid acceptor.

3,809,705
PROCESS FOR THE DEACYLATION OF AROYL-AMINO-DIANTHRIMIDES

Arnold Wick, Therwil, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed July 15, 1971, Ser. No. 165,761
Claims priority, application Switzerland, July 17, 1970, 10,934/70
Int. Cl. C09b *1/48*
U.S. Cl. 260—367 **4 Claims**

A process for the manufacture of amino-dianthrimides, wherein aroylamino-dianthrimides are acted upon by sulphuric acid in the presence of boric acid.

3,809,706
N-SUBSTITUTED FATTY ACID AMIDE LUBRICANTS

Frank C. Magne, Robert R. Mod, and Gene Sumrell, New Orleans, La., and Winfred E. Parker, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Aug. 31, 1971, Ser. No. 176,734, now Patent No. 3,746,644. Divided and this application Apr. 6, 1973, Ser. No. 348,802
Int. Cl. C07f *9/02, 9/10*
U.S. Cl. 260—403 **1 Claim**

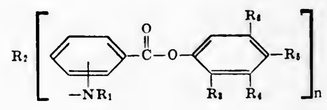
This invention relates to N-acylmorpholines and N-mono and N,N-disubstituted fatty acid amides and to similar derivatives of epithioamides which are useful as base and extreme pressure lubricants and additives.

3,809,707
ULTRAVIOLET LIGHT STABILIZERS

Reginoldus Havinga, Schalkhaar, and Pieter Dirk Swaters, Lochem, Netherlands, assignors to Koninklijke Industrieele Maatschappij Noury & Van Der Lande N.V., Deventer, Netherlands

No Drawing. Filed Aug. 27, 1970, Ser. No. 67,588
Claims priority, application Netherlands, Aug. 28, 1969, 6913138
Int. Cl. C11c *3/00*
U.S. Cl. 260—404 **39 Claims**

Ultraviolet light stabilized polymers having incorporated therein a stabilizing amount of a compound having the general formula:



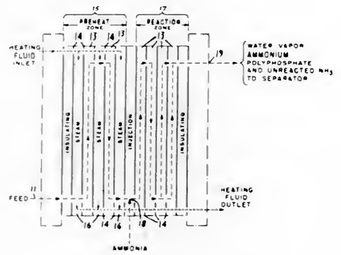
wherein R_1 represents a hydrogen atom, an alkyl group or an acetyl group, R_3, R_4, R_5 and R_6 are the same or different and each represents a hydrogen atom, a halogen atom, a hydroxyl group, an alkyl group or an alkoxy group having up to 12 carbon atoms or an aryl group, n being 1 or 2 and, when $n=1$, R_2 is a hydrogen atom, an alkyl group, an acyl group having up to 20 carbon atoms, a substituted or non-substituted aroyl group, a phenoxy carbonyl group or a substituted or non-substituted benzene

sulfonyl group and, when $n=2$, R_2 is a sulfonyl, carbonyl or dioxaloyl group or a group having the formula

$$-\overset{\overset{O}{\|}}{C}-Z-\overset{\overset{O}{\|}}{C}-$$

where Z represents a phenylene group or an alkylidene group having up to 12 carbon atoms. Many of the compounds within this general formula are novel per se, and accordingly are claimed as such.

3,809,708
CONTROLLED REACTION SYSTEMS
Paul S. Minor, Fort Lauderdale, Fla., assignor to Parkson Corporation, Fort Lauderdale, Fla.
Continuation-in-part of application Ser. No. 9,590, Feb. 9, 1970. This application May 28, 1971, Ser. No. 148,096
Int. Cl. C05b *11/04*; C11c *3/12*
U.S. Cl. 260—409 **11 Claims**



In the particular embodiments of the invention described herein, gas-liquid reactions are carried out by continuously injecting the normally gaseous reactant into a confined stream of the liquid reactant and passing the gas-liquid mixture through a confined tortuous flow path so as to induce turbulence in the mixture. Typical reactions are ammonia-phosphoric acid reactions and chlorination and hydrogenation reactions.

3,809,709
INTERESTERIFICATION OF GLYCERIDES IN THE PRESENCE OF AN ALIPHATIC KETONE
Johannes Jacobus Muller, Rotterdam, and Theodorus Johannes Kock, Heenvliet, Netherlands, assignors to Lever Brothers Company, New York, N.Y.
No Drawing. Filed Dec. 2, 1971, Ser. No. 204,302
Claims priority, application Great Britain, Dec. 4, 1970, 57,648/70
Int. Cl. C11c *3/10*
U.S. Cl. 260—410.7 **9 Claims**

Random and direct interesterification processes of glycerides can be accelerated by effecting such processes at temperatures from −30° to 150° C. in the presence of both an alkali metal or its catalytically active derivative and an aliphatic ketone containing 3 to 32 carbon atoms.

3,809,710
ESTERS OF 9-OXA-2,4-ALKADIENOIC ACIDS
Vaclav Jarolim, Karel Slama, and Frantisek Sorm, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved., Prague, Czechoslovakia
No Drawing. Filed July 3, 1972, Ser. No. 268,427
Claims priority, application Czechoslovakia, July 19, 1971, 5,304/71
Int. Cl. A01n *9/24*; C07c *69/66*
U.S. Cl. 260—410.9 R **10 Claims**

Novel esters of 9-oxa-2,4-alkadienoic acids, intermediates therefor, synthesis thereof, and the control of insects.

3,809,711
PROCESS FOR SYNTHESIZING SPECIFIC COMPLETE MIXED POLYOL ESTERS
Jerry Joseph Yetter, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Apr. 7, 1972, Ser. No. 242,139
Int. Cl. C07c *67/00*
U.S. Cl. 260—410.7 **20 Claims**

Reacting a partial polyol monocarboxylic acid ester with an acidic anhydride in the presence of a perfluoroalkyl sulfonic acid catalyst to produce specific complete mixed polyol esters, especially synthetic cocoa butter, with substantially no ester group rearrangement.

3,809,712
PROCESS FOR SYNTHESIZING SPECIFIC COMPLETE MIXED POLYOL ESTERS
Jerry Joseph Yetter, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Aug. 10, 1972, Ser. No. 279,577
Int. Cl. C07c *67/00*
U.S. Cl. 260—410.7 **19 Claims**

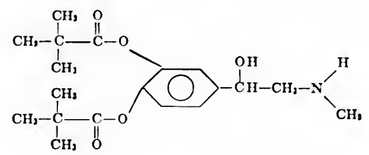
Reacting a partial polyol monocarboxylic acid ester with an acidic anhydride in the presence of a catalytic amount of hydrogen bromide to produce specific complete mixed polyol esters, especially confectioner's hard butter.

3,809,713
PROCESS FOR PRODUCING SILAZANE COMPOUNDS
Robert Paul Boersma, Frank Dominic Medicino, and George Michael Omietanski, Marietta, Ohio, assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Mar. 1, 1973, Ser. No. 337,110
Int. Cl. C07f *7/10, 7/18*
U.S. Cl. 260—448.2 E **11 Claims**

Process for producing silazane compounds by reacting a halosilane with ammonia in the presence of alkylene diamine.

3,809,714
NOVEL ESTER OF [(METHYLAMINO)METHYL] BENZYL ALCOHOL
Anwar Hussain and James E. Truelove, Lawrence, Kans., assignors to INTERx Research Corporation, Lawrence, Kans.
No Drawing. Filed Aug. 31, 1972, Ser. No. 285,235
Int. Cl. C07c *69/18*
U.S. Cl. 260—479 R **3 Claims**

A novel ester of the general formula:



and the pharmaceutically acceptable acid addition salts thereof. The compound of the formula is useful as an antiglaucoma and broncholytic agent.

3,809,715
PROCESS FOR THE PRODUCTION OF ALPHA-NAPHTHYL ESTERS
Jacques Daniel Victor Hanotier and Monique Josephe Simone Hanotier, Brussels, Belgium, assignors to Labofina S.A., Brussels, Belgium
No Drawing. Filed Nov. 13, 1972, Ser. No. 306,041
Int. Cl. C07c *69/14, 39/14, 69/24*
U.S. Cl. 260—479 R **7 Claims**

A process for the production of alpha-naphthyl esters of aliphatic carboxylic acids having from 1 to 4 carbon

atoms which comprises subjecting naphthalene to oxidation in the presence of said aliphatic carboxylic acids and a cobalt salt capable of forming cobaltic ions in a ratio such that $2x-A$ is between 0.2 and 1.5, x and A being respectively the molarity of the cobaltic ions and of said cobalt salt in the reaction mixture, at a temperature from 20 to 150° C. and in the absence of oxygen.

3,809,716
PROCESS FOR THE PRODUCTION OF 1,1,2-TRIACETOXYETHANE
Klaus Udluft, Constance, Wolfgang Weigert, Offenbach, Heribert Offermanns, Grossauheim, and Hans Wagner, Constance, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed Aug. 13, 1973, Ser. No. 387,617
Claims priority, application Germany, Aug. 10, 1972, P 22 39 278.5
Int. Cl. C07c *67/00*
U.S. Cl. 260—491 **5 Claims**

1,1,2 - triacetoxyethane is produced by reacting monochloroacetaldehyde with acetic anhydride and a salt of acetic acid.

3,809,717
SULFONATED PHENOL ETHERS
Manfred Daeuble, Frankenthal, and Norbert Greif and Rolf Fikentscher, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Mar. 29, 1972, Ser. No. 239,382
Int. Cl. C07c *143/42*
U.S. Cl. 260—512 R **5 Claims**

Sulfonated phenol ethers and a process for their production by reaction of sulfonated phenols with alkylene oxides.

3,809,718
CROTONAMIDE DERIVATIVES SUITABLE AS AGENTS FOR CONTROL OF PLANT DISEASES
Ove Henning Mattsson, Taby, and Britt-Marie Elisabeth Bertilsson, Stockholm, Sweden, assignors to KemaNord AB, Stockholm, Sweden
No Drawing. Filed July 6, 1971, Ser. No. 160,196
Claims priority, application Sweden, July 7, 1970, 9,403/70
Int. Cl. C07c *103/60*
U.S. Cl. 260—562 S **3 Claims**

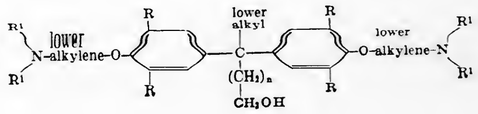
This invention pertains to new chemical compounds that are suitable agents for the control of plant diseases carried by certain seed carrying bacteria. The new compounds are certain crotonamide derivatives.

3,809,719
ORGANIC COMPOSITIONS CONTAINING AMINOGUANIDINE ANTIOXIDANTS
Harry J. Andress, Jr., Pitman, N.J., assignor to Mobil Oil Corporation
No Drawing. Original application May 18, 1970, Ser. No. 38,500, now Patent No. 3,655,560, dated Apr. 11, 1972. Divided and this application May 19, 1971, Ser. No. 145,012
Int. Cl. C07c *129/12*
U.S. Cl. 260—564 F **2 Claims**

Organic compositions are provided containing, as improving agents, compounds selected from the group consisting of ketimines of aminoguanidine, aldimines of ketimines of aminoguanidine and aldimines of amides of aminoguanidines. These compounds act as antioxidants and metal deactivators for fuel oils, lubricating oils and greases.

3,809,720
BIS/PARA(AMINO-LOWERALKYLENEOXY) PHENYL/ALKANOLS AND THE SALTS THEREOF
Josef Fried, Chicago, Ill., and Edward J. Pribyl, Metuchen, and John Krapcho, Somerset, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 793,612, Jan. 23, 1969, which is a continuation-in-part of application Ser. No. 566,245, July 19, 1966, which in turn is a continuation-in-part of application Ser. No. 288,630, June 18, 1963, all now abandoned. This application Sept. 30, 1970, Ser. No. 77,037
Int. Cl. C07c *93/06*
U.S. Cl. 260—570 R **5 Claims**

This application relates to alcohols of the general formula



and to acid addition salts thereof. These substances inhibit cholesterol biosynthesis and aid in the regulation of cholesterol in the blood.

3,809,721
SUBSTITUTED 2-AMINOMETHYL-4,6-DISUBSTITUTED PHENOLS
Everett M. Schultz, Ambler, and Edward J. Cragoe, Jr., Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Dec. 23, 1970, Ser. No. 101,120
Int. Cl. C07c *87/28*
U.S. Cl. 260—570.9 **5 Claims**

2-aminomethyl-4,6-disubstituted phenols and the acid addition salts thereof, wherein the benzene nucleus may be optionally substituted by one or two additional nuclear substituents; which products are useful as diuretics and saluretics. The products may be prepared by treating a nuclear hydroxy (or lower alkoxy) substituted N-(substituted benzyl)carboxamide with an aqueous solution in the presence of an acid or base.

3,809,722
PROCESS FOR PRODUCING ALKOXY ALDEHYDES
Albert Bouniot, Melle, France, assignor to Melle-Bezons, Melle, France
Filed Dec. 20, 1968, Ser. No. 785,575
Claims priority, application France, Jan. 3, 1968, 134,729
Int. Cl. C07c *47/02*
U.S. Cl. 260—602 **16 Claims**

The process for producing a β-alkoxy aldehyde by condensing a lower α,β-olefinic aliphatic aldehyde with a lower alkanol in the presence of a volatile tertiary amine catalyst.

3,809,723
STABILIZATION OF POLYOXYALKYLENE POLYETHERS
Hsien Ying Niu, Southgate, and Eugene A. Welpert, Allen Park, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Filed June 3, 1971, Ser. No. 149,776
Int. Cl. C07c *41/12*
U.S. Cl. 260—611.5 **2 Claims**

Nonionic surfactants are prepared by oxyalkylating an initiator in the presence of an alkaline catalyst which must

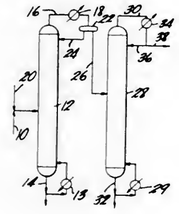
then be removed or chemically inactivated in order to prevent deterioration of the nonionic surfactant as evidenced by the development of color. It has unexpectedly been found that the alkaline degradation may be prevented by diluting the catalyst with from about 5 to about 50 times its weight of water.

3,809,724

PREPARATION AND RECOVERY OF ALKYLENE GLYCOLS

Richard L. Golden, Oradell, N.J., assignor to Halcon International, Inc.

Filed Sept. 8, 1971, Ser. No. 178,587
Int. Cl. C07c *29/28*
U.S. Cl. 260—635 R **13 Claims**



Ethylene glycol or 1,2-propylene glycol contained in mixtures with lower carboxylate esters of the glycol is recovered by azeotropic distillation of the mixtures with an azeotroping agent forming a minimum boiling azeotrope with the ethylene glycol or 1,2-propylene glycol.

3,809,725

REACTION PRODUCT OF 2-VINYL-5-NORBORNENE WITH HEXAHALOCYCLOPENTADIENES

Richard Waldron Davenport, Lincoln Park, N.J., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Apr. 17, 1972, Ser. No. 244,951
Int. Cl. C07c *23/20, 17/30*
U.S. Cl. 260—648 C **6 Claims**

The invention is new halodimethanonaphthalenes, namely 6-(1',4',5',6',7',7' - hexahalonorborn-5'-en-2'-yl)-1,2,3,4,10,10 - hexahalo - 1,4,4a,5,6,7,8,8a - octahydro-1,4:5,8 - dimethanonaphthalenes, especially 6 - (1',4',5',6',7',7' - hexachloronorborn - 5' - en-2'-yl)-1,2,3,4,10,10-hexachloro - 1,4,4a,5,6,7,8,8a - octahydro - 1,4:5,8 - dimethanonaphthalene (hereinafter "ZOR"), a method of synthesizing same by the reaction of 5-vinyl-2-norbornene with hexahalocyclopentadiene, and use of such chemicals for flameproofing organic polymeric materials, especially ABS resins to which the chemicals impart fire resistance with unexpected retention of desirable physical properties.

3,809,726

OLEFIN SEPARATION PROCESS

Hugh H. Horowitz, Elizabeth, and William E. Tyler III, Berkeley Heights, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed June 2, 1972, Ser. No. 259,251
Int. Cl. C07c *11/00*
U.S. Cl. 260—677 A **15 Claims**

An improved olefin separation process is effected by employing solutions of cuprous salts of the formula $CuO_2CC_nX_wX_yX_z$ wherein n is an integer varying from 1 to 6, X_w, X_y and X_z are independently selected from the group consisting of fluorine, chlorine and bromine atoms, w, y and z are integers varying from 0 to $2n+1$ and where $w+y+z$ is $2n+1$, dissolved in aromatic solvent moieties comprising substituted and unsubstituted low volatile aromatics provide a medium, whereby gaseous olefins such as ethylene and propylene, may be selectively absorbed and separated from feedstreams containing them while undesirable side reactions are avoided. The cuprous salts preferably employed are cuprous perfluoroacetate, propionate and butyrate and mixtures thereof.

3,809,727

DEHYDRATION OF 3-METHYL-3-BUTEN-1-OL

Marvin M. Johnson and Donald G. Kuper, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Apr. 24, 1972, Ser. No. 246,587
Int. Cl. C07c *1/24*
U.S. Cl. 260—681 **7 Claims**

A calcined composition comprising iron, phosphorus, and combined oxygen, and preferably also containing a Group 1A metal, is employed in the dehydration of 3-methyl-3-buten-1-ol to isoprene.

3,809,728

CATALYST REJUVENATION

Jacob D. Kemp, El Cerrito, and Bernard F. Mulaskey, Fairfax, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 19, 1973, Ser. No. 324,934
Int. Cl. C07c *5/28*
U.S. Cl. 260—683.68 **6 Claims**

Deactivated, supported hydrogen fluoride-antimony pentafluoride catalyst is rejuvenated by contacting the catalyst with liquid hydrogen fluoride and then with a liquid solution of HF-antimony pentafluoride.

3,809,729

FLAME RETARDANT THERMOPLASTIC COMPOSITIONS

Donald L. Reinhard, Albany, N.Y., assignor to General Electric Company

No Drawing. Filed June 10, 1971, Ser. No. 151,930
Int. Cl. C08f *29/12, 41/12, 45/56*
U.S. Cl. 260—874 **6 Claims**

Self-extinguishing and non-dripping thermoplastic compositions for molding are provided comprising a normally flammable polyphenylene ether resin and styrene resin or an aromatic polycarbonate resin and a flame retardant combination of up to 6 parts of hexabromobenzene per 100 parts of resin and an antimony compound, the weight ratio of antimony to bromine being sufficient to prevent dripping during ignition and before self-extinguishment. Optionally, it is beneficial to include a minor amount of an aromatic phosphate compound.

3.809.730

METHOXYMETHYLATION OF 3-(DIALKYL-PHOSPHONO) PROPIONAMIDES

John Henry Polevy and John Justin Randall, Cumberland, R.I., assignors to Synthron Chemicals, Inc., Pawtucket, R.I.

No Drawing. Filed Aug. 14, 1972, Ser. No. 280,331
Int. Cl. C07f *9/40*
U.S. Cl. 260—968 **9 Claims**

3-(dialkylphosphono) propionamides in which the alkyl groups have from 1 to 2 carbon atoms are heated with at least equimolar proportions of formaldehyde and methanol under strongly acidic conditions, and water together with excess formaldehyde and methanol are removed at reduced pressure to form a product which is primarily N - methoxymethyl - 3 - (dialkylphosphono) propionamide useful as a flame retardant agent.

3,809,731

METHOD OF FABRICATING A NUCLEAR REACTOR FUEL ELEMENT

Charles C. Woolsey, Jr., Calabasas, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Mar. 31, 1961, Ser. No. 99,701
Int. Cl. G26c *21/10*
U.S. Cl. 204—154.2 **7 Claims**

1. A method of preparing a fuel-moderator core of a nuclear reactor fuel element, which comprises forming a uranium-zirconium alloy, enclosing said alloy in a zirconium metal member, bonding together said members, and then hydriding the resulting assembly to yield said fuel-moderator core.

3,809,732

PHOTO-LOCKING TECHNIQUE FOR PRODUCING INTEGRATED OPTICAL CIRCUITS

Edwin Arthur Chandross, Berkeley Heights, Coralie Anne Pryde, Morristown, Walter John Tomlinson III, Holmdel, and Heinz Paul Weber, Middletown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 18, 1972, Ser. No. 315,908
Int. Cl. G03c *5/16*
U.S. Cl. 264—22 **7 Claims**



A technique for the fabrication of integrated optical circuits and related optical devices in which a transparent polymer film, which is doped with a higher index photosensitive monomer, is deposited from liquid solution on a suitably smooth support. Depending upon the particular dopant selected, it attaches to the polymer, dimerizes or polymerizes upon selective exposure to radiation of appropriate wavelength, in each case resulting in substantial reductions or even total elimination of the mobility and volatility of the dopant in the polymer matrix. Selected portions of the dopant are thus photochemically locked in the polymer film. The unexposed portions of the dopant are removed from the film by simple heating. The exposed areas remain as selected regions of increased index and thickness suitable for guiding optical beams.

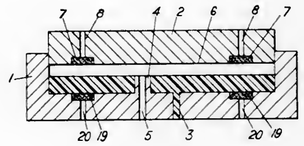
3,809,733

PRODUCTION OF DOUBLE LAYER LAMINATES

Denis James Henry Sandiford, Welwyn, and Alan George Smith, Harrow, England, assignors to Imperial Chemical Industries Limited, London, England

Continuation-in-part of abandoned application Ser. No. 869,859, Oct. 27, 1969. This application Apr. 24, 1972, Ser. No. 246,862
Claims priority, application Great Britain, Nov. 6, 1968, 52,658/68
Int. Cl. B29d *27/00;* **B29f** *1/06*
U.S. Cl. 264—45 **14 Claims**

A laminate of synthetic polymeric materials is produced by an injection moulding process in which the first layer of the laminate is injected through a first sprue to fill the mould cavity which is then enlarged and a second amount of material is injected into the mould through a second sprue which extends through the first layer. One of the charges, preferably the second, may conveniently be of foamable material.



3,809,734

FOAM PLASTIC SHEET FORMING PROCESS AND FOAM PLASTIC SHEET WITH HAIR-LIKE PILES

Tatsuo Watanabe, 5–3 Okuzawa 6-chome, Tokyo, Japan

Filed Nov. 12, 1971, Ser. No. 198,119
Claims priority, application Japan, Nov. 14, 1970, 45/100,337
Int. Cl. B29d *7/20, 9/00, 31/00*
U.S. Cl. 264—51 **12 Claims**

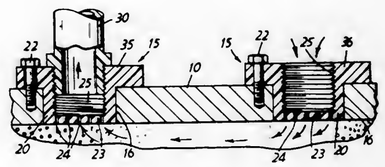
This disclosure relates to a molding process and the plastic sheet produced by said process. The process is characterized by calender pressing a sheet of thermoplastic foam against a heated roll mold having a multiplicity of close-spaced needle-like holes in its surface, pressure-molding the outer layer of the base foam-plastic material sheet into the needle-like holes, by strongly applied external pressure and internal foaming pressure and removing said formed plastic sheet by cooling the sheet just prior to removal and removing the sheet in a hot surrounding atmosphere, thereby stretching the needle-like molded piles to from 3 to 5 times the depth of the needle-like holes.

3,809,735

METHOD OF MOULDING HEAT-EXPANDABLE THERMOPLASTIC POLYMERIC RESINOUS GRANULES INVOLVING ENHANCED DISTRIBUTION OF THE HOT GASEOUS MEDIUM IN THE MOLD CAVITY

Robert Frederick Joseph Cotterell, Caplan House, Barchester St., London E.14, England

Continuation-in-part of abandoned application Ser. No. 860,760, Sept. 24, 1969. This application Nov. 15, 1971, Ser. No. 198,766
Int. Cl. B29d *27/00, 27/08*
U.S. Cl. 264—51 **10 Claims**



Heat-expandable beads of thermo-plastic material such as polystyrene are moulded by steam heating in a metal

mould and venting the interior of the mould through apertures in plugs set into ports in the wall of the mould. The plugs are made of low heat conductivity material, for example nylon, to prevent the apertures being blocked by fusion of the beads in contact with the plugs due to heat condition from the wall of the mould. The steam may be introduced into the mould through apertures in nylon plugs set in ports in the wall of the mould, the low heat conductivity of the nylon preventing the steam raising the plugs to a temperature at which the beads would burn onto the plugs. The same plugs may be used to introduce steam into the mould and then vent the interior of the mould.

3,809,736

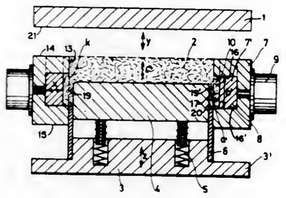
METHOD OF PRODUCING MOLDED ELEMENTS WITH PARTS OF DIFFERENT THICKNESSES FROM FIBROUS MIXTURES

Edmund E. Munk, Oberstenfeld, Germany, assignor to Furnier & Sperrholzwerk J. F. Werk Jr. K.G., Werzalit-Pressholzwerk, Oberstenfeld, Germany

Original application Apr. 28, 1969, Ser. No. 819,880. Divided and this application Oct. 26, 1971, Ser. No. 192,499

Int. Cl. B29 *5/06*

U.S. Cl. 264—120 **6 Claims**



A molding method for producing especially plate-shaped elements each of which is provided with a flange or wall portion projecting from one or more of its lateral edges from a mixture of comminuted fibrous materials and a binder, preferably of hot-setting synthetic resins, wherein the part of the mold chamber in which the thin lateral wall portion or portions are molded has a considerably greater width than the final thickness of this wall portion and thus permits the molding mixture to be easily filled uniformly into the entire mold chamber. The mixture in the lateral downwardly projecting chamber part or parts is then first compressed by lateral, horizontally moving dies to the final thickness of the wall portions, whereupon several lower dies are moved independently of each other to press against the thin lower ends of the precompressed wall portions and against the lower side of the material in the main part of the mold chamber to compress the material in the entire mold chamber to the dimensions and shape of the final product.

3,809,737

PROCESS FOR MANUFACTURE OF A PLASTIC CONDUIT CONNECTOR COMPONENT

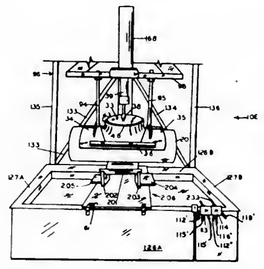
Frank J. Rogers, Waka, and Joe Mac Close, Spearman, Tex., assignors to Rogers Sales & Service, Inc., Waka, Tex.

Application Sept. 13, 1971, Ser. No. 180,023, which is a continuation-in-part of application Ser. No. 55,113, July 15, 1970, now Patent No. 3,654,008, which in turn is a continuation-in-part of application Ser. No. 831,814, May 22, 1969, now abandoned. Divided and this application Dec. 1, 1972, Ser. No. 311,291

Int. Cl. B29c *3/00*

U.S. Cl. 264—154 **4 Claims**

Process for forming a plastic T comprising a hollow conduit with sput projecting laterally from and connected



by a softly curved surface to said conduit, for use with a saddle and/or stem unit.

3,809,738

PRODUCTION OF ACRYLIC COMPOSITE FIBERS

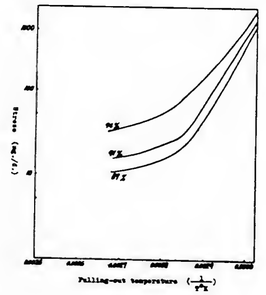
Keitaro Shimoda, Yutaka Kobayashi, and Takehiko Sumi, Okayama, Japan, assignors to Japan Exlan Company, Limited, Osaka, Japan

Continuation of application Ser. No. 879,828, Nov. 25, 1969. This application Dec. 5, 1972, Ser. No. 312,355

Claims priority, application Japan, Nov. 26, 1968, 43/86,839

Int. Cl. D01d *5/22*

U.S. Cl. 264—168 **2 Claims**



An improvement in production of acrylic conjugate fibers having latent three-dimensional coil crimps, which improvement concerns (1) utilizing a high shrinking polymer component containing 85–94% acrylonitrile and a low shrinking component containing a greater amount of acrylonitrile than the high shrinking component, (2) heat-treating the filaments in a relaxed state at 105–140° C. while maintaining a moisture content of more than 150% and (3) pulling the filaments out of said treatment under specific temperature and tension conditions.

3,809,739

HIGH SPEED MOLDING PROCESS

Robert J. Gelin, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

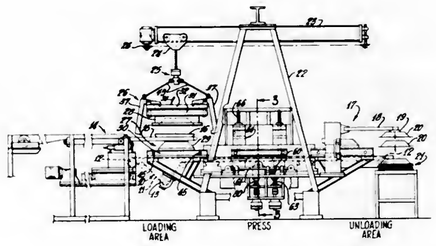
Continuation of abandoned application Ser. No. 883,542, Dec. 9, 1969. This application Mar. 13, 1972, Ser. No. 234,297

Int. Cl. B29g *1/00*

U.S. Cl. 264—297 **6 Claims**

A high speed molding system for forming molded plastic articles which has a plurality of latching molds which

are sequentially presented to a single molding press. After a mold is moved in open position to the press by a conveyor, molding pressure is applied to molding composition between the mold halves and the mold is mechanically latched within the press. An inflatable bag is expanded



within the latched mold to apply and maintain mold pressure after the latched mold is released from the press. The latched mold is then conveyed from the press, while curing, to an unloading station and, after the formed article is removed, is cleaned and returned to the press for subsequent use.

3,809,740

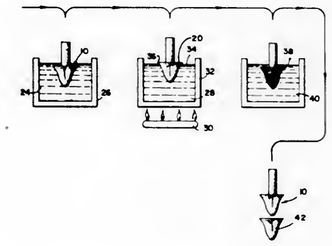
FLOWER CANDLE MOLDING PROCESS

Timothy S. Milonas and Janet O. Milonas, both of 278 Dennis Drive, Daly, Calif. 94518

Filed Jan. 7, 1972, Ser. No. 215,996

Int. Cl. B29c *13/00*

U.S. Cl. 264—306 **8 Claims**



Detailed, finely shaped objects are prepared of relatively thin wax films by introducing a generally conically shaped mold of a porous material into cold water, dipping the wet mold into hot wax, allowing the wax to drain, and rapidly solidifying the wax by introducing the coated mold in cold water, whereby the shaped wax object is freely released from the mold.

3,809,741

METHOD FOR INJECTING MOLDABLE MATERIAL INTO A MOLD

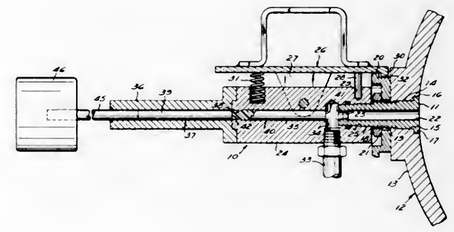
Arthur J. Wiltshire, Cleveland, Ohio, assignor to Structural Fibers, Inc., Chardon, Ohio

Original application July 11, 1968, Ser. No. 744,042, now Patent No. 3,570,069. Divided and this application Sept. 17, 1970, Ser. No. 72,969

Int. Cl. B29f *1/05*

U.S. Cl. 264—328 **1 Claim**

Method for connecting a source of resinous material to be molded to an inlet fitting on a mold and for inserting a plug in the fitting before the source of resinous material is disconnected from the fitting. The method includes the steps of coupling a resin delivery passageway to the inlet fitting, flowing a measured amount of resin



through the passageway and fitting into the mold and, while the resin delivery passageway is coupled to the fitting, closing the resin inlet fitting with a plug.

3,809,742

PROCESS FOR RECOVERING BARIUM FROM BARIUM SULFIDE LEACHING RESIDUES

Hartmut Simoleit, Hannover, and Helmut Schneider, Heilbronn, Germany, assignors to Kali-Chemie Aktiengesellschaft, Hannover, Germany

No Drawing. Filed July 9, 1971, Ser. No. 161,919

Claims priority, application Germany, July 9, 1970, P 20 34 065.2

Int. Cl. C01f *1/00;* **C01b** *17/32, 17/42*

U.S. Cl. 423—155 **4 Claims**

Process for recovering barium from barium sulfide leaching residues which comprises suspending the residues in water, introducing hydrogen sulfide or sulfur into the suspension whereby the barium is converted into readily soluble compounds thereof, separating from the resulting aqueous solution any insoluble residues present and recovering the desired barium compounds from the aqueous solution.

3,809,743

PROCESS FOR TREATING AUTOMOTIVE EXHAUST

Mark L. Unland, Creve Coeur, and George E. Barker, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 7, 1972, Ser. No. 216,224

Int. Cl. B01d *50/00*

U.S. Cl. 423—213.5 **21 Claims**

For use in the treatment of automobile exhaust gases, a catalyst combination having both oxidation and reduction capability is employed in a first converter, the catalyst having a ruthenium containing section followed by a section containing another noble metal, e.g., rhodium. Nitrogen oxides are removed with little production of ammonia.

3,809,744

PROCESS FOR THE REMOVAL OF NITRIC OXIDES FROM EXHAUST GASES

Georg von Semel, Schwanenwall, and Eduard Schibilla, Am Sperrtor, Germany, assignors to Friedrich Uhde GmbH, Dortmund, Germany

Filed Mar. 29, 1972, Ser. No. 239,103

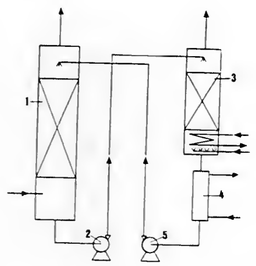
Claims priority, application Germany, Apr. 6, 1971, P 21 17 226.9

Int. Cl. B01d *53/34*

U.S. Cl. 423—235 **4 Claims**

A process for the removal of nitric oxides from tail gases such as are contained in large quantities in nitric acid plants. The tail gases are scrubbed with a nitric vanadium

(V) solution, and the effluent solution is regenerated by heating it to a temperature ranging from 90° C. to the



boiling point and using air as stripping fluid. The regenerated vanadium solution is cooled and then used as scrubbing fluid.

3,809,745

PROCESS FOR THE ENTRAPMENT AND RECOVERY OF SO_2 GAS

Harold W. Wilson, El Paso, Tex., assignor to Golden Cycle Corporation, Colorado Springs, Colo.

No Drawing. Continuation of application Ser. No. 885,612, Dec. 16, 1969, which is a continuation-in-part of application Ser. No. 777,503, Nov. 20, 1968. This application Mar. 10, 1972, Ser. No. 233,785

Int. Cl. B01j *9/04, 9/08, 9/12;* **C01b** *17/00*

U.S. Cl. 423—244 **9 Claims**

Waste stack gases or other gases containing sulfur dioxide gas are passed into a system initially containing 90 to 95% of finely divided metallic oxides and metallic silicates, intimately admixed with an additive comprising not less than 3% or more than 5% water, not less than 2% or more than 5% dissolved alkali hydroxide such as sodium hydroxide or sodium metasilicate and between .01% to 0.1% stannous chloride or stannous hydroxide, all of the above noted percentages being based on parts by weight of each noted ingredient present in every 100 parts by weight of the slag containing system. The system is strongly agitated during the time the waste stack gas is being passed therethrough. The sulfur dioxide constituent of the stack gas is entrapped in the slag system and can be liberated therefrom in essentially pure form by subsequent heat treatment of the entrapment system. The system can thereupon be reused repeatedly for entrapment of further SO_2 gas because it is essentially regeneratable due to the addition of the additives noted above which prevent undue oxidation of the components of the system.

ERRATUM

For Class 423—277 see:
Patent No. 3,809,762

3,809,746

PROCESS FOR PRODUCING POTASSIUM SUPEROXIDE

Satoshi Takahashi, Tokyo, Japan, assignor to Fire Research Institute, Fire Defence Agency, Ministry of Home Affairs, Tokyo, Japan

No Drawing. Filed Feb. 11, 1972, Ser. No. 225,637

Claims priority, application Japan, Feb. 22, 1971, 46/7,999

Int. Cl. C01b *13/00, 15/00*

U.S. Cl. 423—581 **5 Claims**

Potassium hydroxide and a concentrated aqueous hydrogen peroxide solution are mixed under high vacuum the compounds forming potassium peroxide-hydrogen peroxide $K_2O_2 \cdot 2H_2O_2$ which is heat-dried and then dehydrated at an elevated temperature to form potassium superoxide KO_2.

3,809,747

SOLUTION FOR TREATMENT OF HAIR AND SCALP

Catherine M. Toscano, 1657½ E. Santa Clara St., San Jose, Calif. 95113

No Drawing. Filed Apr. 20, 1972, Ser. No. 245,939

Int. Cl. A61k *7/06*

U.S. Cl. 424—70 **2 Claims**

The treatment of the hair and scalp with an extract of chili peppers.

3,809,748

KALLIKREIN ISOLATION AND PURIFICATION

Boen Tie Khouw, Weston, Ontario, and Johan Peter Kesler, Rexdale, Ontario, Canada, assignors to Canada Packers Limited, Toronto, Ontario, Canada

No Drawing. Filed Mar. 6, 1972, Ser. No. 232,203

Int. Cl. A61k *17/00*

U.S. Cl. 424—110 **14 Claims**

Comminuted hog pancreas is extracted with salt solution, a protein-precipitating salt is added to the extract in fractions to first precipitate protein impurities and to then precipitate crude kallikrein. The crude kallikrein is further purified by dialysis, and highly purified kallikrein is recovered from the resulting solution by adsorption on a strongly basic, synthetic, macroreticular, anion exchange resin.

3,809,749

TOPICAL PHARMACEUTICAL COMPOSITION AND METHOD EMPLOYING SAP FROM THE TREE *CROTON LECHLERI*

Georgia J. Persinos, Rockville, Md., assignor to The Amazon Natural Drug Company, Oakton, Va.

No Drawing. Filed Mar. 5, 1971, Ser. No. 121,516

Int. Cl. A61k *7/00, 9/06, 27/14*

U.S. Cl. 424—195 **10 Claims**

A pharmaceutical composition for topical use is provided characterized in that a therapeutically effective amount of the sap obtained from the tree *Croton lechleri,* M. Arg., (Euphorbiaceae) is incorporated in a pharmaceutically acceptable topical base or carrier. The pharmaceutical composition so produced will be found to be of particular utility in the treatment of minor cuts, abrasions, and like skin wounds by the topical application of the composition thereto.

3,809,750

METHOD OF TREATING HYPERTENSION IN ANIMALS WITH AN EXTRACT OF BARKS OF ANACARDIACEAE

Yvonne Thuillier, Paris, and Paulette Giono-Barber, born Michel, Crouy-sur-Ourcq, France, assignors to Albert Rolland S.A., Paris, France

No Drawing. Continuation-in-part of abandoned application Ser. No. 56,002, July 17, 1970. This application Sept. 29, 1972, Ser. No. 293,516

Claims priority, application Great Britain, July 19, 1969, 36,427/69

Int. Cl. A61k *27/00, 27/14*

U.S. Cl. 424—195 **1 Claim**

An anti-hypertensive fraction for treatment of animals is extracted from fresh powdered bark of *Anacardium occidentale* L (the cashew tree) by maceration with water in the dark at 0–5° C.

3,809,751

ANTIBIOTIC-STABLE LIQUID PROTEIN SUPPLEMENTS CONTAINING NON-PROTEIN NITROGEN, PHOSPHORUS AND A TETRACYCLINE ANTIBIOTIC

Anthony Abbey, Milltown, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 802,195, Feb. 25, 1969. This application Sept. 24, 1970, Ser. No. 75,242

Int. Cl. A61k *21/00*

U.S. Cl. 424—227 **6 Claims**

This invention relates to novel antibiotic-stable liquid protein supplements containing a source of nonprotein nitrogen, phosphorus, an antibiotic selected from the group consisting of tetracycline antibiotics and bacitracin and from about 1% to 8% by weight of a physiologically acceptable salt of a divalent or trivalent metal which forms an insoluble or unionizable salt or complex with phosphorus and which metal is selected from the group consisting of nutritionally essential metals and aluminum, said supplement having a pH between about 7.0 and 9.0. This invention also relates to a method for the preparation of the above-mentioned antibiotic-stable liquid protein supplements.

3,809,752

ANTI-OBESITY PROCESS

William H. Fishman, 56 Mason Terrace, Brookline, Mass. 02146, and Wilem G. Linscheer, 1 Kirby Drive, Canton, Mass. 02021

No Drawing. Filed Mar. 24, 1971, Ser. No. 127,824

Int. Cl. A61k *27/00*

U.S. Cl. 424—224 **12 Claims**

The intestinal absorption of fatty acids is inhibited by the administration of specific inhibitors for intestinal alkaline phosphatase. Inhibition is temporary and reversible.

3,809,753

ANTITHROMBOTIC AGENTS

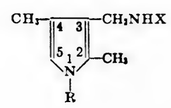
Robert Douglas MacKenzie, Cincinnati, Ohio, and Charles Harmon Tilford, Atlanta, Ga., assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Mar. 8, 1973, Ser. No. 339,147

Int. Cl. A61k *27/00*

U.S. Cl. 424—250 **14 Claims**

Pyrrolemethylamine derivatives useful as antithrombotic agents are compounds having the formula



wherein R is a hydrocarbon radical or a nitrogen-containing hydrocarbon radical and X is a substituted aminoalkyl radical.

3,809,754

METHOD OF TREATING DISEASES OF THE MUCOUS MEMBRANE USING COMPOUNDS OF A THIAZOLIDINE CARBOXYLIC ACID AND PHARMACEUTICAL PREPARATIONS THEREOF

Francois Robert Bertrand, Geneva, Switzerland, assignor to Medial de Toledo & Cie, Geneva, Switzerland

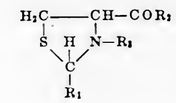
No Drawing. Continuation-in-part of abandoned application Ser. No. 889,293, Dec. 30, 1969. This application Dec. 30, 1971, Ser. No. 214,479

Claims priority, application France, Dec. 31, 1968, 182,571

Int. Cl. A61k *27/00*

U.S. Cl. 424—270 **8 Claims**

Mucolytic and antitussive medicament comprising derivatives of thiazolidine carboxylic acid of the formula,



wherein

R_1 represents hydrogen, an alkyl, aryl, hydroxy, alkyloxy, aryloxy, heterocyclic, amino or carboxylic acid or ester, all of the these groups capable of being substituted, whether substituted or not;

R_2 represents an amino, hydroxy, alkyloxy, aryloxy, heterocyclic, mono- and dialkylamino, —$NHCH_2OH$, or morpholine radical, all of these groups capable of being substituted, whether substituted or not; and

R_3 represents hydrogen, an alkyl, including cycloalkyl, heterocyclic, aryl, carboxylic acid or carboxylic acid ester group.

3,809,755

CERTAIN 2-OXAZOLYLTHIOUREAS AS FUNGICIDES

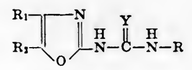
George Crank, Engadine, New South Wales, Australia, assignor to Lilly Industries, Ltd., London, England

No Drawing. Application Nov. 9, 1970, Ser. No. 88,085, now Patent No. 3,705,903, which is a continuation-in-part of abandoned application Ser. No. 53,982, July 10, 1970. Divided and this application July 28, 1972, Ser. No. 275,983

Int. Cl. A01n *9/22, 9/28*

U.S. Cl. 424—272 **4 Claims**

2-carbamido and thiocarbamidooxazoles of the formula



where Y is 0 or S and R is hydrogen, alkyl or aryl and R_1 and R_2 are H, alkyl, aryl, CF_3, carbalkoxy or carboxamido; are prepared by reacting a 2-aminooxazole with an aryl or alkyl isocyanate or isothiocyanate. The carbamido and thiocarbamidooxazoles are useful in alleviating inflammation in warm-blooded mammals and the thiocarbamidooxazoles are particularly useful in method for controlling fungus infections in plants.

3,809,756

LOWER CALORIE CANDY

John W. Bush, Chicago, and Edmund J. Pyrz, Elk Grove Village, Ill., assignors to American Home Products Corporation, New York, N.Y.

Filed Apr. 27, 1971, Ser. No. 137,909
Int. Cl. A23g *3/00*
U.S. Cl. 426—201 2 Claims

A reduced calorie candy is described characterized by the substitution of up to about 27 percent gum arabic, up to about 27 percent of microcrystalline cellulose, and soy protein for a portion of the beet sugar, corn syrup, vegetable fat and nutmeats usually used in such compositions. Calorie reduction up to about 35 percent may be obtained without loss of the texture or flavor of high caloric candy.

3,809,757

FLAVOURING AGENT

Joyce M. Kiley and Roger T. Kiley, Bricktown, N.J., assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

No Drawing. Filed Sept. 17, 1971, Ser. No. 181,623
Int. Cl. A23l *1/26;* C11b *7/00*
U.S. Cl. 426—223 13 Claims

A flavoring agent is prepared by treating orange oil with propylene glycol and a hydrocarbon solvent and recovering a propylene glycol phase substantially free of hydrocarbon solvent.

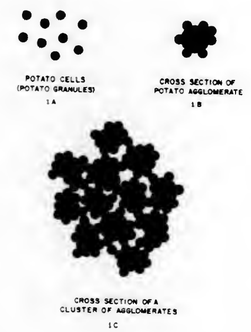
3,809,758

CLUSTERS OF DEHYDRATED POTATO AGGLOMERATES

James J. Mathias and Robert L. Holland, Blackfoot, Idaho, assignors to American Potato Company, San Francisco, Calif.

Filed Nov. 10, 1971, Ser. No. 197,362
Int. Cl. A23b *7/03;* A23l *1/06*
U.S. Cl. 426—285 7 Claims

A fluidized bed of dehydrated potato agglomerates, having been screened to pass a seven mesh screen and to be retained on a 40 mesh screen with a bulk density of about 0.4–0.5 g./ml., is contacted with an aqueous binding solution containing milk solids to form clusters thereof. Said clusters are then dried to a moisture content of about 7% and then screened to isolate those clusters over about



an eight mesh screen with a bulk density of about 0.247 to 0.33 g./ml. The firm low density, porous clusters of the process form mealy mashed potatoes when wetted with 4.5 parts by weight of hot water without mixing or by merely mixing with a fork.

3,809,759

PHARMACEUTICAL COMPOSITION FOR TREATING MENTAL FATIGUE CONTAINING ARGININE-POTASSIUM PHOSPHO CITRO GLUTAMATE AND METHOD OF USING THE SAME

Dominique Bocher, 11 Rue du Moulin Vert, Paris 14e, France, and Robert Faure, 49 Ter, Rue de la Baste, Vaux le Penil, France

No Drawing. Filed Nov. 19, 1970, Ser. No. 91,195
Claims priority, application France, Nov. 21, 1969, 6940125
Int. Cl. A61k *27/00*
U.S. Cl. 424—317 11 Claims

This invention relates to arginine-potassium phospho citro glutamate and its preparation, as well as a pharmaceutical composition containing the same and the use of the latter in the treatment of physical and psychic asthenia.

3,809,760

CALCIUM SALT OF N-ACETYL-6-AMINO-HEXANOIC ACID AND MEDICAMENTS CONTAINING THIS SALT

Maurice H. Thely, Paris, France, assignor to Choay S.A., Paris, France

Filed Sept. 22, 1970, Ser. No. 74,286
Claims priority, application France, Sept. 25, 1969, 6932798
Int. Cl. A61k *27/00*
U.S. Cl. 424—319 4 Claims

The invention relates to the calcium salt of N-acetyl-6-amino-hexanoic acid and new medicaments based thereon. The new salt is prepared by reacting calcium hydroxide or calcium oxide with acexamic acid. It can be used alone or in association with other active substances in treatments favoring tissular repair disturbed by pathological affections of the conjunctive tissue.

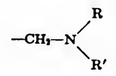
3,809,761

METHOD FOR REDUCING PLASMA LIPID LEVELS

Sidney I. Lerner, Cincinnati, Ohio, assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Continuation-in-part of application Ser. No. 19,080, Mar. 12, 1970, now Patent No. 3,714,365, which is a continuation-in-part of abandoned application Ser. No. 357,777, Apr. 6, 1964. This application Nov. 10, 1972, Ser. No. 305,455
Int. Cl. A61k *27/00*
U.S. Cl. 424—330 1 Claim

Plasma lipid levels are reduced by internally administering a phenol having a nitrogen-containing group bonded to the phenolic nucleus. A typical nitrogen-containing group is



Exemplary phenols are 2,6-di-tert-butyl-α-dimethylamino-p-cresol, α,α'-(methylimino)bis(2,6-di-tert-butyl-p-cresol) and $\alpha^2,\alpha^4,\alpha^6$-tris(dimethylamino)mesitol. Trinuclear phenols are also disclosed as are salts such as hydrochlorides.

3,809,762

SYNTHESIS OF SODIUM HYDROXYTRIFLUOROBORATE

Louis O. Gilpatrick, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Aug. 18, 1972, Ser. No. 281,664
Int. Cl. C01b *7/00, 35/00*
U.S. Cl. 423—277 4 Claims

Sodium hydroxytrifluoroborate is synthesized by reacting bicarbonate of soda with boron trifluoride.

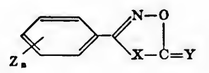
3,809,763

CERTAIN ARYL-DIOXAZOLES USED AS FUNGICIDES

Klaus Sasse, Schildgen, and Paul-Ernst Frohberger, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 26, 1971, Ser. No. 202,668
Claims priority, application Germany, Dec. 5, 1970, P 20 59 990.0
Int. Cl. A01n *9/22*
U.S. Cl. 424—272 3 Claims

Fungicidal compositions of and methods of combating fungi using certain 5-aryl-1,3,4-dioxoazole-(thi)ones-(2) and 3-aryl-1,4,2-oxathiazole-(thi)ones-(5) of the formula



(I)

in which

X is oxygen or sulfur,
Y is oxygen or sulfur,
Z is halogen, methyl or methoxy, and
n is 0, 1 or 2.

ERRATA

For Classes 426—201, 426—223 and 426—285 see: Patents Nos. 3,809,756 thru 3,809,758

3,809,764

LOW CALORIE TOPPING, SPREAD, AND FROZEN DESSERT

John Lester Gabby, Dennis Dale Corbin, and Jack Brunner Lowe, Evansville, Ind., assignors to The Dracket Company, Cincinnati, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 74,211, Sept. 21, 1970. This application June 16, 1971, Ser. No. 153,837
Int. Cl. A23g *3/00*
U.S. Cl. 426—163 13 Claims

Low-fat imitation oleaginous spreads, whipped toppings, or ice cream are prepared by whipping an aqueous dispersion containing from ⅓ to 7.5% by weight of a polyglycerol fatty ester and from 0.2 to 3% by weight of a hydrophilic colloid which acts as stabilizer for the foam. No fat or oil as such is required in the preparation.

3,809,765

METHOD FOR THE PRODUCTION OF FOODSTUFFS IN THE FORM OF POWDERS

Arthur O. T. Bratland, Untere Augartenstrasse 1–3/5/15, Vienna 2, Austria

No Drawing. Filed June 5, 1970, Ser. No. 43,933
Claims priority, application Austria, June 6, 1969, A 5,409/69
The portion of the term of the patent subsequent to Apr. 7, 1987, has been disclaimed
Int. Cl. A23c *9/00*
U.S. Cl. 426—358 15 Claims

A powdered foodstuff is prepared by initially mixing a milk membrane substance concentrate with a milk product and a fat. The mixture is emulsified and thereafter homogenized. The water content of the homogenized emulsion is then reduced and the emulsion dried to obtain the powder. The milk product ingredient is selected from the group consisting of buttermilk, skim milk, whole milk and mixtures thereof while the fat is selected from a group consisting of cream, milk fat, vegetable fat, butter, animal fat and mixtures thereof. The drying can be carried out by freeze drying or spray drying.

3,809,766

METHOD FOR PRODUCING AN ENHANCED FREEZE DRIED COFFEE

Robert P. Stolz, Dumont, N.J., assignor to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed May 12, 1972, Ser. No. 252,773
Int. Cl. A23f *1/08*
U.S. Cl. 426—362 12 Claims

An aromatized glyceride is distributed in discrete particle or droplet form onto the surface of a slab of partially frozen coffee extract which is then completely frozen, comminuted and freeze dried. The aromatized glyceride may be in the form of frozen particles, and the aromatized slab of coffee extract may be covered with an upper layer of extract.

3,809,767

METHODS OF MAKING VEGETABLE PROTEIN CONCENTRATES

Louis Sair, Evergreen Park, and Irving Melcer, Park Forest, Ill., assignors to The Griffith Laboratories, Inc., Chicago, Ill.

No Drawing. Original application May 12, 1969, Ser. No. 823,969, now abandoned. Divided and this application Sept. 7, 1971, Ser. No. 178,464
Int. Cl. A23j *3/00*
U.S. Cl. 426—364 40 Claims

Methods of producing comestible, uniformly palatable, vegetable protein concentrate either (1) having natural structure or natural texture, or (2) not having natural structure or natural texture, which comprise extracting vegetable protein meal having defatted soy protein or defatted peanut protein materials having natural structure or natural texture and having a nitrogen solubility index above 15% by weight (preferably above 40% by weight) in the vicinity of the isoelectric pH of the recovered protein content thereof and substantially removing the soluble, undesired or objectionable, characteristic taste-conferring material and recovering the insoluble, wet protein material, partly drying said wet, insoluble protein material to reduce the moisture content thereof under controlled conditions to moisture content within the range of about 5 to 55% (preferably within the range of about 20–45%) without lowering its nitrogen solubility index to below 15% by weight (preferably not below 40% by weight), selectively raising the pH ("neutralizing") of the protein material of said partly dried, insoluble protein material, in the presence of water, within the pH range of about 5.5 to 10.5, and either drying the protein material having the raised pH under controlled conditions or, in a selected sequence, drying said protein material under controlled conditions and comminuting said protein material, to produce said vegetable protein concentrate which is characterized by

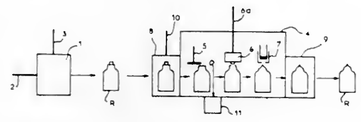
(a) having been substantially freed of undesired or objectionable, characteristic taste-conferring material which characterizes the vegetable protein material from which the concentrate is prepared,
(b) good protein solubility and minimized denaturation characteristics as evidenced by a nitrogen solubility index of at least 15% by weight (preferably at least 40% by weight),
(c) good water-absorption and water-retention properties,
(d) good water-binding properties, and
(e) at least about 60% by weight protein on a dry weight basis (preferably at least about 70% by weight protein on a dry weight basis).

Comminuting (e.g., grinding or subdividing by suitable means) tends to result in the attendant loss of at least some of the natural structure or natural texture of the concentrate, and provides a concentrate having enhanced emulsifying properties.

3,809,768
METHOD OF ASEPTIC PACKING A FOOD PRODUCT

Jean-Luc Berry, Mesnil sur l'Estree, France, assignor to E. P. Remy et Cie, Dreux, France

Filed July 22, 1971, Ser. No. 165,266
Claims priority, application France, July 31, 1970, 7028498
Int. Cl. A23l *3/00*
U.S. Cl. 426—309 8 Claims



The method of the invention consists in introducing containers, while sterilizing them externally, into a packing enclosure which is previously sterilized and maintained sterile together with everything contained therein, without destroying its sterility, the said enclosure containing devices for the transfer, the opening, the filling with the previously sterilized product to be packed into the container and the closing of said container, in opening the said containers, in filling them with the said product, in closing them sealingly, and in discharging them from the said enclosure without destroying the sterility of the latter.

3,809,769
METHOD OF EXTRACTING TEA

Harold Rivkowich, Ossining, N.Y., and Warren C. Rehman, Montvale, William Knapp, Matawan, and Bert Borders, Keyport, N.J., assignors to Tetley Inc., New York, N.Y.

No Drawing. Filed Dec. 31, 1970, Ser. No. 103,276
Int. Cl. A23f *3/00*
U.S. Cl. 426—312 4 Claims

The spent leaf discharge from an aqueous tea extraction step is treated with an oxidizing agent in the presence of water at elevated temperatures.

3,809,770
METHOD FOR PRODUCING ENHANCED SOLUBLE FOODSTUFFS

Michael D. Jolly, Highland Mills, N.Y., and George A. Jasovsky, Bayonne, Rudolf A. Vitti, Dumont, Gaetano J. De Ceglie, Palisades Park, Anthony T. Nacci, Bergenfield, and Harold Schechter, Hewitt, N.J., assignors to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed May 12, 1972, Ser. No. 252,772
Int. Cl. A23f *1/08*
U.S. Cl. 426—362 4 Claims

Soluble foodstuffs, such as soluble coffee, are enhanced by incorporating volatile enhancers into a liquid glyceride carrier, such as an oil, and then blending the enhanced liquid glyceride with a liquid comestible which is maintained at a sufficiently low temperature to congeal the enhanced liquid glyceride. Preferably the liquid comestible is in the form of a slush. The liquid, containing particles of congealed glyceride uniformly distributed throughout, is then dried, preferably by freeze drying.

3,809,771
PROCESS FOR OBTAINING FULL-FAT OILSEED-PROTEIN BEVERAGES

Gus C. Mustakas, Peoria, Ill., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Aug. 8, 1972, Ser. No. 278,845
Int. Cl. A23l *1/20*
U.S. Cl. 426—364 7 Claims

A full fat oilseed beverage is prepared by suspending full-fat oilseed flour in water, inactivating the lipoxygenase, precipitating the lipid-protein, resuspending the precipitate in water at pH of about 9, heating and cooling the suspension, adjusting the pH to about 7 and clarifying.

3,809,772
PROCESS FOR PREPARING A FOOD ADJUNCT FROM COLLAGEN

Howard W. Jones, 49 Pawnee Road, New Britain Borough, Bucks County, Pa., and Robert A. Whitmore, 705 E. Mermaid Lane, Philadelphia, Pa. 19118

No Drawing. Original application Feb. 27, 1970, Ser. No. 15,304. Divided and this application Jan. 5, 1971, Ser. No. 104,173
Int. Cl. A23j *1/10, 3/00*
U.S. Cl. 426—364 1 Claim

Collagen is made stable to heat and water deformation by treatment with glyceraldehyde. The collagen can be treated by mixing glyceraldehyde into a collagen dispersion or by immersing it in an aqueous solution of glyceraldehyde at a temperature of from 0 to 40° C. The concentration of glyceraldehyde varies with the density of the collagen being treated, the length of time the collagen is immersed in the glyceraldehyde and the temperature of the glyceraldehyde.

3,809,773
METHOD FOR PREPARING A LIQUID IRON-FORTIFYING COMPOSITION

George N. Bookwalter, Peoria, Ill., assignor to the United States of America as represented by the Secretary of Agriculture

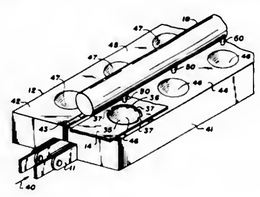
No Drawing. Filed Feb. 25, 1972, Ser. No. 229,581
Int. Cl. A23l *1/30*
U.S. Cl. 426—380 4 Claims

A method for preparing highly stable, liquid, iron-fortifying compositions containing up to 1 percent by weight of ferrous or ferric ions. An aseptic and deaerated aqueous solution of an iron salt is prepared and blended with a high D.E. corn syrup. Food products such as baby formulas, bread and fruit drinks may be iron-supplemented with the iron-fortifying compositions.

3,809,774
LOADING PROCESS FOR ICE CREAM CARRIER STRIP

Edward D. Raitt, 5525 Blenheim St., Vancouver 14, British Columbia, Canada

Filed June 2, 1972, Ser. No. 259,097
Int. Cl. A23g *5/02*
U.S. Cl. 426—393 4 Claims

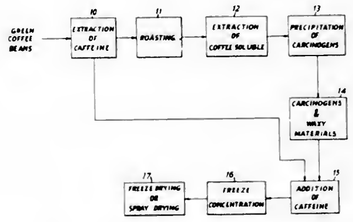


A method of loading a carrier strip with scoops of ice cream including the steps of providing the carrier strip with holes having radial prongs on the side edges thereof, placing the carrier strip between halves of a die each having hemispherical cavities, charging the cavities with ice cream in a fluid state to form scoops within the holes and and with the radial prongs embedded and supporting the scoops, and reducing the temperature of the die to harden the ice cream prior to removal of the carrier strip.

3,809,775
PREPARATION OF COFFEE

Neophytos Ganiaris, Riverdale, N.Y., assignor to Struthers Scientific and International Corporation

Filed July 19, 1972, Ser. No. 273,258
Claims priority, application Great Britain, July 19, 1971, 33,812/71
Int. Cl. A23f *1/04*
U.S. Cl. 426—427 3 Claims



A process for preparation of liquid extract concentrate is described in which carcinogenic elements are eliminated by precipitation from a chilled decaffeinated extract solution which is thereafter dried. Caffein is added to the liquid extract before drying and after removal of carcinogenic elements.

3,809,776
ENZYMIC DEGRADATION OF NUCLEIC ACIDS IN SCP MATERIALS

Kwei C. Chao, Homewood, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Feb. 22, 1971, Ser. No. 117,768
Int. Cl. C12c *11/00*
U.S. Cl. 426—431 8 Claims

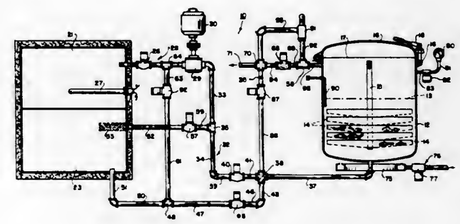
The nucleic acid content of single-cell protein (SCP) materials is reduced to a level acceptable in food products by physiological conditioning of unicellular microorganisms followed by degradation of nucleic acids by endogenous nucleases and leakage of degraded products into the surrounding medium. The treatment is accomplished under conditions of continuous sparging with oxygen, controlled temperature stages and buffered pH control. There is no substantial removal of protein material from the cells.

3,809,777
METHOD FOR COOKING FOODSTUFFS

Neal W. Thompson, 6097 Steubenville Pike, McKees Rocks, Pa. 15136

Continuation-in-part of abandoned application Ser. No. 665,478, Sept. 5, 1967, and a division of application Ser. No. 747,760, July 1, 1968. This application Sept. 30, 1971, Ser. No. 185,183
Int. Cl. A22c *18/00*
U.S. Cl. 426—438 12 Claims

A method for cooking foodstuffs by immersing them in a heated liquid cooking medium contained in a pressure vessel, closing the vessel and relieving the pressure therein when it reaches a predetermined high limit. The pressure is then relieved to a low limit. The cycle is repeated until the foodstuffs are cooked. The cooking medium is then discharged from the vessel under the urging of the pressure



of the steam remaining in the vessel. Upon complete discharge of the cooking medium, the vessel is completely vented of residual steam. The discharged cooking medium, if desired, is filtered of all solid residue and is then ready for reuse.

3,809,778
PROCESS FOR THE COMPLETE UTILIZATION OF COCOA FRUITS

Ulla Drevici and Noe Drevici, both of 100 Central Park S., New York, N.Y. 10019

No Drawing. Filed July 23, 1971, Ser. No. 165,396
Int. Cl. A23l *1/00*
U.S. Cl. 426—481 11 Claims

Valuable products are obtained from Theobroma fruits by preferably removing the peels from said fruits, opening the fruits, separating the seeds from the preferably peeled parenchymatous part of the fruits, and immediately thereafter fermenting the seeds and processing said parenchymatous part. Preferably the fruits are pretreated, for instance, with an alkaline solution and, after peeling, are neutralized, or they are pretreated with a preserving agent. The parenchymatous part of the fruits is expressed to yield the fruit flesh juice containing a hydrocolloid which has proved to be a valuable emulsifying, thickening, stabilizing, suspending agent and protective colloid. The expressed Theobroma fruit flesh is converted into a nutritious animal feed, especially for small animals. Thus the Theobroma fruits are substantially completely utilized.

3,809,779
UREA SUPPLEMENTED PAUNCH CONTENT WITH TRICHLOROACETIC ACID PROTEIN PRECIPITANT

Kyu-Yawp Lee, 766 Leawood Drive, Omaha, Nebr. 68154

No Drawing. Filed Apr. 2, 1973, Ser. No. 346,734
Int. Cl. A23k *1/00*
U.S. Cl. 426—335 3 Claims

The conversion of ruminant paunch content into a valuable and useful product and the reduction of highly undesirable odors therefrom by treating it with trichloroacetic acid and urea.

3,809,780
PREPARATION OF A SEASONING AGENT
Kengo Ishida, Masanobu Kawai, and Noboru Mukai, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan
No Drawing. Continuation of abandoned application Ser. No. 4,107, Jan. 19, 1970. This application Apr. 27, 1972, Ser. No. 248,333
Claims priority, application Japan, Feb. 8, 1969, 44/9,004
Int. Cl. A23l *1/22; C07g 7/02*
U.S. Cl. 426—60 **7 Claims**

A seasoning agent having a meat-like flavor is produced by the steps of subjecting yeast to decomposition by cell lytic enzymes produced by organisms of the genera Coprinus, Daedaleopsis or Irpex to produce a decomposition liquor, filtering the decomposition liquor to produce a filtrate, adjusting the pH of the filtrate to 5 to 6.5 and heating the filtrate at 40 to 85° C. to produce the seasoning agent.

3,809,781
SOLUBLE COFFEE OF IMPROVED STABILITY AND FLAVOR
Robert F. Howland, New City, N.Y., Michael H. Mansky, Upper Montclair, N.J., and Willie J. Richards, Garnerville, N.Y., assignors to General Foods Corporation, White Plains, N.Y.
No Drawing. Filed Apr. 28, 1972, Ser. No. 248,506
Int. Cl. A23f *1/08*
U.S. Cl. 426—384 **7 Claims**

Soluble coffee of improved stability during storage is prepared by removing a portion of the aromatics from an aqueous coffee extract, drying the remaining extract, fixing the removed aromatics by mixing them in solution with a fixative and freeze-drying the resultant solution, and adding at least a portion of the fixed aromatics to the dried remaining extract. The soluble coffee powder so prepared is characterized by its lack of off-flavors normally developed during storage.

3,809,782
TUBOCURARINE ANTIGENS AND ANTIBODIES SPECIFIC THEREFOR
Sidney Spector, Livingston, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Mar. 10, 1972, Ser. No. 233,814
Int. Cl. C07g *7/00*
U.S. Cl. 260—121 **6 Claims**

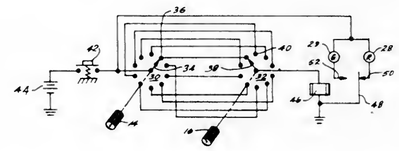
Antigens are prepared by coupling tubocurarine derivatives to immunogenic carrier materials. The coupling is effected via a linking group derived from an amino acid involving an azo link to the tubocurare moiety and an amide linkage to the immunogenic carrier material. In preferred embodiments, proteins are used as the carrier materials. The resulting antigens produce immunological effects when injected into host animals, including the formation of antibodies specific for tubocurarine components in biological fluids.

3,809,783
SILOXANE POLYMERS FOR SOIL-REPELLENT AND SOIL-RELEASE TEXTILE FINISHES
Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, both of Calif., assignors to the United States of America as represented by the Secretary of Agriculture
Division of Ser. No. 38,899, May 19, 1970, Pat. No. 3,639,156. This application June 28, 1971, Ser. No. 157,759
Int. Cl. C08f *11/04*
U.S. Cl. 260—46.5 Y **9 Claims**

Fluorocarbon silanes are copolymerized with silanes which contain two or more alkyleneoxy groups. The copolymers are useful for application to fibrous materials to provide both soil repellency and soil releasability.

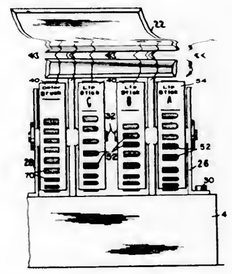
ELECTRICAL

3,809,784
ELECTRICAL APPARATUS PROVIDING SELF-TEACHING ASSISTANCE
Vincent J. Munafo, 19121 Heber St., Glendora, Calif.
Filed Oct. 24, 1972, Ser. No. 299,934
Int. Cl. G09b *7/06*
U.S. Cl. 35—9 B **1 Claim**



There is described an electrical apparatus on which can be mounted any one of a plurality of instructional cards having questions and answers. The apparatus receiving the card has a pair of selector switches arranged to respectively select a question on the card and an answer. After the two switches are set to the selected positions, a push-button is operated lighting one of two lights, indicating whether the correct or a wrong answer has been selected.

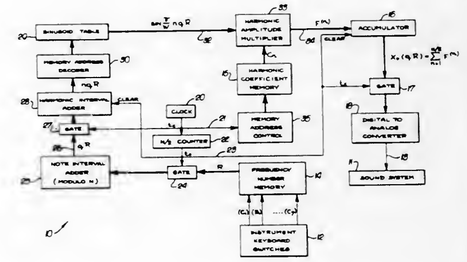
3,809,785
COLOR SELECTOR DEVICE
Anthony J. Calabrese, Malvern; Wayne J. Stettler, and Jan Marie Zwiren, both of Philadelphia, all of Pa., assignors to Menley & James Laboratories, Ltd., Philadelphia, Pa.
Filed Apr. 9, 1973, Ser. No. 349,032
Int. Cl. G09f *11/02*
U.S. Cl. 35—28.3 **4 Claims**



A color selector device has a plurality of drums each mounted for rotation on a substantially horizontal axis and each having a weight fixedly mounted therein to position the drum in a predetermined rotational position and to return the drum to said position from a different rotational position. Each drum carries a plurality of different color indicators on its outer periphery. A mirror is mounted above the drum.

3,809,786
COMPUTOR ORGAN
Ralph Deutsch, Sherman Oaks, Calif., assignor to Deutsch Research Laboratories, Ltd., Sherman Oaks, Calif.
Filed Feb. 14, 1972, Ser. No. 225,883
Int. Cl. G10h *1/06, 5/02*
U.S. Cl. 84—1.01 **29 Claims**

Musical notes are produced in a computor organ or like musical instrument by computing the amplitudes at succesive sample points of a complex waveshape and converting these amplitudes to notes as the computations are carried out. A discrete Fourier algorithm is implemented to compute each amplitude from a stored set of harmonic coefficients C_n and a selected frequency number R, generally a non-integer, establishing the waveshape period. The computations, preferably digital, occur at regular time intervals t_x independent of the waveshape period. At each interval t_x the number R is added to the contents of a harmonic interval adder to specify the waveshape sample point gR, where $g = 1,2,3....$ For each point gR, W individual harmonic component values $\sin C_n \sin \pi/WBngR$ are calculated, where $n=1,2,3...$, W. These values are algebraically summed to obtain the waveshape amplitude, which is supplied to a digital-to-analog converter and a sound system for reproduction of the generated musical note.

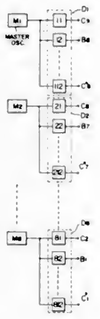


Attack, decay and other note amplitude modulation effects are obtained by programmatically scaling the harmonic coefficients. Foundation and mutation stops are implemented by appropriately scaling the harmonic coefficients associated with each selected stop. In a polyphonic system, time sharing and multiplexing may be used to calculate separately the sample point amplitudes for each selected note, these amplitudes being combined to reproduce the resultant musical sound.

3,809,787
TONE GENERATOR SYSTEM
Yasunori Mochida, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Continuation of Ser. No. 148,746, June 1, 1971, abandoned. This application Dec. 4, 1972, Ser. No. 311,641
Int. Cl. G10h *1/02, 5/06*
U.S. Cl. 84—1.01 **9 Claims**

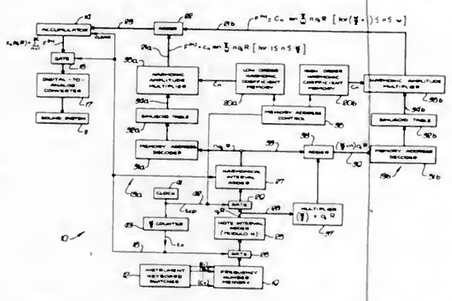
For tone generators in an electronic musical instrument, there are provided a plurality of master oscillators, each for a different octave and each being coupled to frequency dividers having different frequency dividing ratios which ratios are respectively determined to divide down the frequency of the master oscillator to pitches of different notes in the intended octave. The different notes in an octave are obtained by frequency dividing the signal of the single master oscillator, and therefore the number of the master oscillators necessary for the instrument becomes very few. The same lettered notes in different octaves are obtained by frequency dividing the

signals of the respectively different master oscillators and are independent in frequency and phase, and therefore there can



be obtained much more of a sense of plural different tone sources.

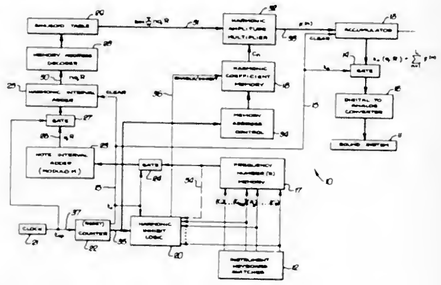
3,809,788
COMPUTOR ORGAN USING PARALLEL PROCESSING
Ralph Deutsch, Sherman Oaks, Calif., assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan
Filed Oct. 17, 1972, Ser. No. 298,365
Int. Cl. G10h *1/06, 5/02*
U.S. Cl. 84—1.01 **10 Claims**



Parallel processing is used in a computor organ of the type wherein musical notes are produced by computing at regular time intervals the amplitudes at successive points of a musical waveshape, and converting the amplitudes to tones as the computations are carried out. Each amplitude is evaluated by concurrently calculating in parallel channels different subsets of the Fourier components for the same point, then combining the components to obtain the waveshape amplitude. In a typical embodiment, low order harmonic components are calculated in one channel and high order harmonics in another channel; in another embodiment, odd and even harmonics are calculated in separate, parallel channels. A recirculating shift register, shifted in unison with successive component calculations, advantageously stores the harmonic coefficients used in the amplitude calculations.

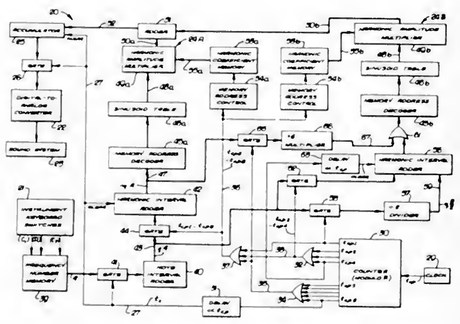
3,809,789
COMPUTOR ORGAN USING HARMONIC LIMITING
Ralph Deutsch, Sherman Oaks, Calif., assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan
Filed Dec. 13, 1972, Ser. No. 314,681
Int. Cl. G10h *1/06, 5/02*
U.S. Cl. 84—1.01 **19 Claims**

Harmonic limiting is employed in an electronic musical instrument of the type wherein notes are produced by computing the amplitudes at successive sample points of a musical waveshape and converting these amplitudes to notes as the computations are carried out in real time. Each amplitude is computed by accumulating as many as W individually calculated waveshape discrete Fourier components. In accordance



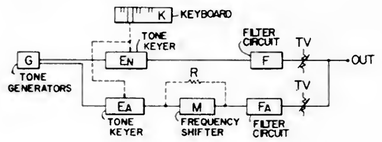
with the present invention, harmonic inhibit means a are provided for limiting the Fourier components included in each amplitude computation only to those having frequencies below a certain value preferably within the normal human hearing range.

3,809,790
IMPLEMENTATION OF COMBINED FOOTAGE STOPS IN A COMPUTOR ORGAN
Ralph Deutsch, Sherman Oaks, Calif., assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed Jan. 31, 1973, Ser. No. 328,302
Int. Cl. G10h *1/06, 5/02*
U.S. Cl. 84—1.01 **12 Claims**



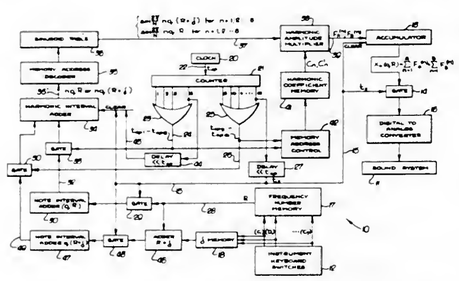
Combined footage stops are implemented in a computor organ of the type wherein musical notes are produced by computing successive sample point amplitudes of a musical waveshape and converting the amplitudes to sound as the computations are performed in real time. Each waveshape amplitude is obtained by evaluating those Fourier components comprising an incomplete set of harmonics for a first footage voice, and the fundamental and several low order odd harmonics of a voice of lower footage. In a preferred embodiment, an incomplete 8-foot harmonic series is employed, together with the first four odd harmonics of a 16-foot series. The 8-foot harmonics correspond in frequency to even harmonics of the 16-foot series. The missing 8-foot components are "reinstated" by the listener's ear. As a result, the combined voice is perceived just as though separate, complete spectra had been used to generate the waveshape. To implement shorter footage stops, certain of the 8-foot harmonics are excluded from the waveshape computation. For combined voices including shorter footage stops, the sum of the harmonic coefficients associated with the concurrently selected stops are used in the component calculations.

3,809,791
ELECTRONIC MUSICAL INSTRUMENT
Yasuji Uchiyama, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed Aug. 21, 1972, Ser. No. 282,038
Int. Cl. G10h *1/04*
U.S. Cl. 84—1.24 **3 Claims**



In a keyboard electronic musical instrument having tone generators of frequency divider systems, every key is associated with and controls a plurality of tone keyers which respectively gate tone signals having frequencies being harmonically related with each other. The tone signal gated by one of the keyers is passed through a frequency shifter, while the tone signal gated by the rest of the keyers is not. Among the tone keyers, the above-mentioned one is a keyer for producing an attack signal, while the remainder are keyers for producing a normal lasting signal. Both signals, now being slightly out of harmonic relation, are mixed together and finally transduced into sound by a loudspeaker. The produced sound has subtly fine musical results with a sense of many different tone sources as in an individual--oscillator system instrument.

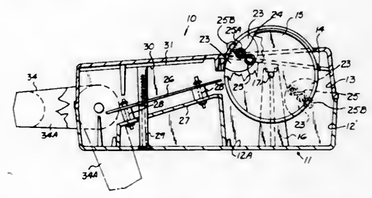
3,809,792
PRODUCTION OF CELESTE IN A COMPUTOR ORGAN
Ralph Deutsch, Sherman Oaks, Calif., assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan
Filed Jan. 5, 1973, Ser. No. 321,231
Int. Cl. G10h *1/02, 5/02*
U.S. Cl. 84—1.24 **16 Claims**



Apparatus is disclosed for producing a celeste effect in a computor organ of the type wherein musical notes are generated by computing the amplitudes at successive sample points of a musical waveshape and converting the amplitudes to notes as the computations are carried out in real time. Each amplitude is computed during a regular time interval t_r by individually calculating and combining at least two sets of discrete Fourier components. The first set includes harmonically related components, generally the true pitch fundamental and overtones of each selected note. Components of the second set are offset slightly higher in frequency from those in the first set. The resultant synthesized sound resembles an organ celeste stop wherein two organ pipes, one tuned slightly sharp with respect to the other, are sounded when a note is played.

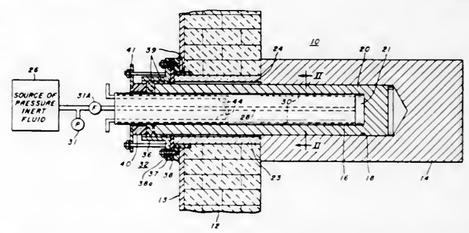
In one illustrative embodiment, each set contains the same number of components, each component in the second set being slightly higher in frequency than the corresponding component of the first set. In another embodiment, the first set includes plural harmonic components, the second set contains only one component slightly offset from the fundamental of the first set.

3,809,793
MUSICAL INSTRUMENT
John V. Joslyn, Bayview Ave., Sag Harbor, L.I., N.Y.
Filed Feb. 5, 1973, Ser. No. 329,436
Int. Cl. G10d *13/08*
U.S. Cl. 84—404 **2 Claims**



A musical instrument of the Xylophone type which includes a housing having a plurality of rotating wheels, each being mounted for independent rotation with respect to one another, and each including a pivotally connected striker which under the influence of centrifugal force extends radially outwardly to strike an adjacent tone bar. The respective wheels may be color or otherwise coded for use with a similarly coded song card so that a player can sequence the rotation of the respective wheels to sound the specified notes of a given song.

3,809,794
FLUID SHEATHED ELECTRODE LEAD FOR USE IN CORROSIVE ENVIRONMENT
Stanley C. Jacobs, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Division of Ser. No. 178,282, Sept. 7, 1971, Pat. No. 3,745,106. This application Dec. 26, 1972, Ser. No. 318,235
Int. Cl. H01b *17/26;* **C22d** *3/02;* **B01k** *3/04*
U.S. Cl. 174—11 BH **7 Claims**

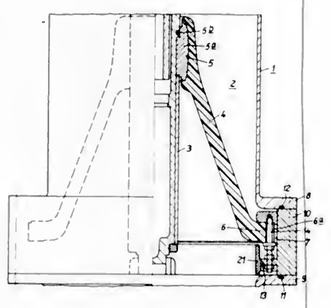


An improved electrode assembly for use in an electrolytic cell perimetrically confining a corrosive fluid environment. Included therein is an electrode element exposed to said environment, at least one low resistance current carrying lead of material susceptible to deleterious attack by corrosive components of such environment having one end traversing a wall of the cell and extending into the electrode element; the other end of the lead is disposed externally of the cell wall, and a plurality of sleeve members are disposed around a portion of the lead traversing the cell wall to inhibit contact of said corrosive components with the exterior shell of said cell and with said lead. Means are provided for maintaining a protective sheath of inert gaseous fluid surrounding the lead member, at a pressure of a magnitude sufficient to repel and thereby prevent contact of approaching corrosive component with the lead member.

3,809,795
MEANS FOR ADJUSTING A CONDUCTOR IN HIGH VOLTAGE ELECTRICAL EQUIPMENT

Willi Olsen, and Dieter Lorenz, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munchen, Germany

Filed Nov. 2, 1972, Ser. No. 303,081
Claims priority, application Germany, Nov. 21, 1971, 2157101
Int. Cl. H01b *9/04*
U.S. Cl. 174—28 **10 Claims**

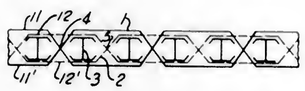


High voltage electrical equipment using a high voltage electric conductor within a substantially cylindrical metal enclosure forming a space around the conductor has an electrically non-conductive annular spacer holding the conductor centrally within the enclosure, the spacer being shaped and connected in an adjustable manner with the enclosure in a manner permitting the conductor to be moved laterally to position it concentrically within the enclosure.

3,809,796
INDUCTIVE RADIO TRANSMISSION LINE

Kenichi Yoshida, and Masataka Kuroda, both of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed June 9, 1972, Ser. No. 261,384
Claims priority, application Japan, June 12, 1971, 46-41936
Int. Cl. H01b *11/02*
U.S. Cl. 174—33 **3 Claims**

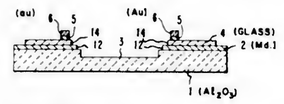


An inductive radio transmission line which is made of a plurality of pairs of two-wire transmission lines, each of which is formed in a plan view configuration upon a series of conductor supports, and each of the conductor supports is made of metal and has a configuration which closely surrounds the conductors of said line. Each pair of conductors of one two-wire line are repeatedly placed on the conductor supports and stretched in parallel therealong with any fixed number of said conductor supports and then transposed. The conductors of the transmission line are thus shielded from the outer field so that they are scarcely affected by the presence of foreign bodies such as rain, snow, soil and others.

3,809,797
SEAL RING COMPOSITIONS AND ELECTRONIC PACKAGES MADE THEREWITH

Charles William McMunn, III, and Takashi Nakayama, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 16, 1971, Ser. No. 199,236
Int. Cl. H05k *1/02*
U.S. Cl. 174—52 S **30 Claims**

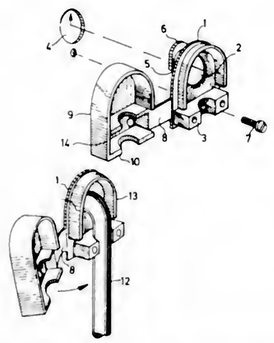


Sealing compositions which can be cofired with dielectric layers to hermetically seal lids over semiconductor devices in electronic packages, said compositions comprising critical proportionate amounts of certain gold powders, certain metal resinates plus an inert vehicle. Optional are certain glass frits. Also electronic packages formed with such compositions and process of forming such packages. Optional features include a second layer of a certain gold powder over that formed from the above resinate-containing composition.

3,809,798
ANGLE TYPE FEEDTHROUGH CABLE CLAMP

Hans Simon, Bruchhausener Strasse, 5463 Unkel (Rhine), Germany

Filed Sept. 6, 1972, Ser. No. 286,842
Int. Cl. H02g *3/02, 3/22*
U.S. Cl. 174—59 **7 Claims**



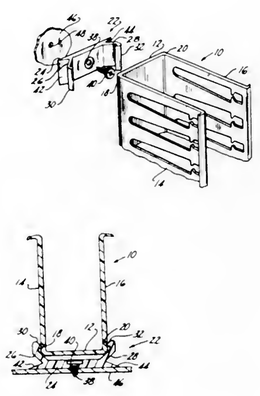
A cable clamp adapted to be made of one piece of synthetic material has a base bearing a feedthrough hole for placing in registry with a knock-out hole in an appliance housing and has a clamp seat onto which the cable issuing out of the hole is bent. A cover connected to the base with a live hinge bears the upper jaw of the clamp and is adapted to be fastened onto the clamp seat and base by screws. The feedthrough opening in the base has a semi-circular flange protruding through the corresponding opening in the appliance housing. The flange has a lip for engaging the rear surface of the housing.

3,809,799
ELECTRICAL WIRING DUCT WITH MOUNTING CLIP

Philip W. Taylor, Howell, Mich., assignor to Taylor Industries, Inc., Howell, Mich.

Filed Sept. 28, 1972, Ser. No. 293,048
Int. Cl. H02g *3/26*
U.S. Cl. 174—68 C **6 Claims**

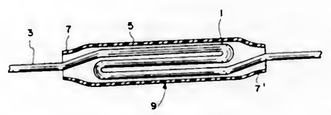
A U-shaped electrical wiring duct with a base and generally parallel side walls is provided with grooves on the exterior of the side walls near the base. A clip, secured to a wall, comprises a bar portion, spaced tab members extending outwardly from the bar portion, and flanges extending one from each of said tab members respectively. The flanges are adapted to snap into the grooves on the wiring duct and thus grip the base of the duct. The tab members are each spaced from an end of the bar portion to define a projection at each end thereof.

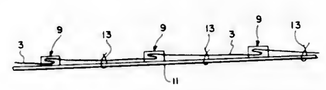


3,809,800
MEANS FOR ACCOMMODATING LARGE OVERSTRAIN IN LEAD WIRES

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Carl V. Rumble, Hampton, and Kendall L. Driscoll, Newport News, both of Va.

Filed Apr. 25, 1973, Ser. No. 354,407
Int. Cl. H02g *11/06;* **H01b** *7/00;* **B64d** *17/30*
U.S. Cl. 174—70 R **10 Claims**





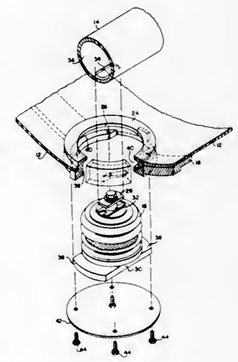
An electrical wire along whose length loops are formed at intervals and retained in a plastic capsule that allows unfolding of the loop when tension is exerted on the opposite ends of the wire. The capsule is formed by encompassing each loop with a sleeve of heat shrinkable synthetic plastic material which overlaps the loop and heat shrinking the overlapping portions.

Thus, a length of electrical wire is formed which stores extra lengths of wire in the quantity needed to match the expected stretching of materials or elements such as ropes, cords and the like of high elongation to which the electrical wire may be attached.

3,809,801
POST-TYPE INSULATOR ASSEMBLY FOR ENCLOSED ELECTRIC BUS

Arthur B. Niemoller, and Fred H. Ford, both of Cincinnati, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 24, 1973, Ser. No. 363,764
Int. Cl. H02g *5/06*
U.S. Cl. 174—99 B **12 Claims**



An improved post-type insulator assembly is provided for supporting an elongated hollow electric bus conductor within a surrounding metal house. Access holes or openings are provided in the outer metal housing through which a post-type insulator can longitudinally pass. A slot is provided in the hollow bus conductor through which a retainer attached to the end of the post-type insulator can pass, when the post-type insulator is being positioned to support the hollow bus conductor. Rotation of the post-type insulator a predetermined angle causes the retainer to engage the inner surfaces of the hollow bus conductor and firmly connects the hollow bus conductor to the post-type insulator. Rotation of the post-type insulator through the predetermined angle also positions a portion of the post-type insulator support assembly in a casting which is attached to the outer housing, and prevents movement of the post-type insulator. The casting has an opening which forms the access opening in the outer housing. An access cover is provided to close the access opening. The access opening provided in the outer housing, through the casting, is only of a slightly larger diameter than the insulator used to support the hollow bus conductors. The mounting hardware used to mount the access cover over the access opening also provides a locking function to prevent rotational movement of the post-type insulator after the access cover is attached.

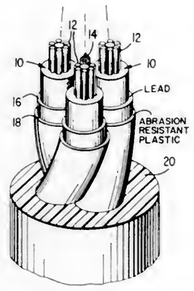
3,809,802
ROUND ELECTRIC CABLE FOR SEVERE ENVIRONMENTAL OPERATION AND METHOD OF MANUFACTURE THEREOF

Stanley Pearson, Trenton, N.J., assignor to Crescent Insulated Wire & Cable Company, Inc., Trenton, N.J.

Filed Nov. 13, 1972, Ser. No. 305,800
Int. Cl. H01b *7/20*
U.S. Cl. 174—103 **5 Claims**

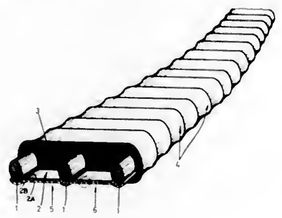
A method is herein provided for making round electrical cable for use under severe environmental conditions including the step of providing a conductor, coated with a layer of insulating material. A lead sheath is applied over the layer of insulating material and a layer of heat resistant, abrasive resistant, protective material, such as a nylon base substance, is extruded onto the outer surface of the lead sheath. The conductor is then twisted with other similar conductors, through a die, and the bundle of mutually twisted conductors is then encased in a nitrile-base jacketing material.

The disclosed round cable generally includes a plurality of mutually twisted, insulated conductors, encased in a nitrile-base jacket. Each insulated conductor generally comprises at least one strand of conductor wire, coated with an electrical



insulating material and a lead sheath enclosing the insulating material. A layer of an abrasive resistant protective material is applied to the outer surface of the lead sheath. Preferably, the protective material consists of a nylon-based relatively pliable substance.

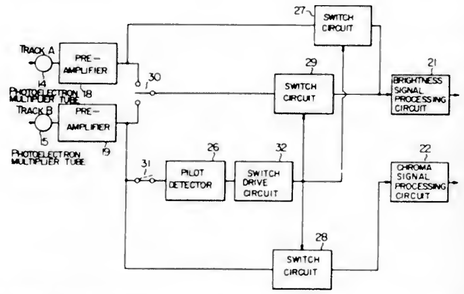
3,809,803
CONDUCTOR FOR CONDUCTING ELECTRIC SIGNALS
Conrad Helmcke, Munchen; Walter Hermann, Weissenfeld, and Peter Kraus, Munich, all of Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany
Filed Aug. 3, 1972, Ser. No. 277,781
Int. Cl. H01b *7/08*
U.S. Cl. 174—114 R **9 Claims**



Electrically conductive line particularly adapted for effecting measurement of linear distances. A plurality of parallel spaced electrical conductors are provided with means providing conductivity between said conductors throughout the full length thereof which conductivity is, however, of substantially less value than the conductivity of any one of the conductors. Due to the impedance of the conductors, this cross leakage attenuates the signal along the line and hence produces a measurable signal drop in a relatively short distance. This makes possible an accurate and progressive linear measurement.

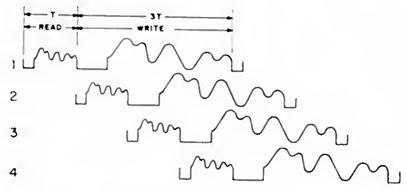
3,809,804
AUTOMATIC SWITCHING DEVICE FOR EVR PLAYERS
Norboru Okuno, Sennan; Toshiro Kamogawa, Hirakata, and Yoshihiro Okino, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd, Osaka, Japan
Filed Sept. 22, 1972, Ser. No. 291,272
Claims priority, application Japan, Sept. 23, 1971, 46-87022
Int. Cl. H04n *5/36*
U.S. Cl. 178—5.2 D **9 Claims**

An automatic switching device for automatically switching demodulation modes of an EVR player, for instance a demodulation mode for color reproduction and a demodula-



tion mode for monochromatic reproduction, accordingly as the recorded information of an EVR tape is disclosed.

3,809,805
VIDEO BANDWIDTH REDUCTION
Vincent Kasprzak, Auburn, Calif., assignor to Arvin Industries, Inc., Columbus, Ind.
Filed Aug. 25, 1972, Ser. No. 283,806
Int. Cl. H04n *5/78, 7/12*
U.S. Cl. 178—6.6 A **28 Claims**

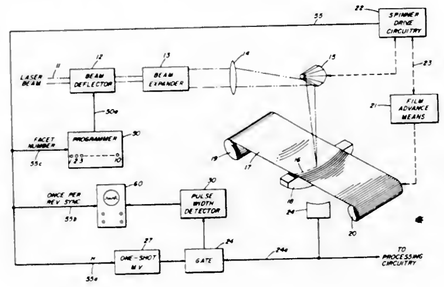


A high frequency signal is periodically applied to one each of a plurality of variable delay lines which receive and store respective portions of the high frequency signal. While one line is receiving and storing a high frequency signal portion the other previously stored portions are retrieved substantially simultaneously from the other delay lines, with the other delay lines operating in a low speed mode. The high frequency signal is thus continuously converted into a multiplicity of related signals each of lower bandwidth. The sequence is reversed for reconstruction of the original high frequency signal.

3,809,806
BANDING CORRECTION SYSTEM FOR FILM RECORDING APPARATUS
Robert Walker, Stamford, and William Harris, Oxford, both of Conn., assignors to Columbia Broadcasting System Inc., New York, N.Y.
Filed Oct. 18, 1972, Ser. No. 298,607
Int. Cl. G02b *17/00*; **H04n** *5/84*
U.S. Cl. 178—7.6 **5 Claims**

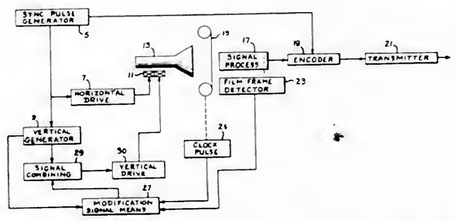
The disclosure pertains to an apparatus for recording an image on a film in a scanned horizontal line pattern with a light beam, the scanned pattern being achieved by reflecting the light beam from a moving surface such as an optical spinner. There is disclosed a subsystem for improving the vertical registration of successive lines in the pattern. Means are provided for sensing the beam position at the beginning of a scanline and for developing a position-indicative signal which varies in accordance with the relative vertical position of the beam. The position-indicative signal is compared to a

predetermined reference signal which is a function of the desired position of the beam and there is generated a cor-



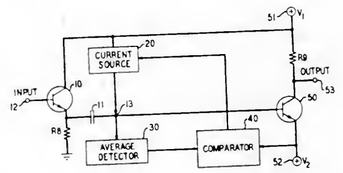
rection signal which depends on the comparison. Further means are provided for vertically deflecting the beam in accordance with the correction signal.

3,809,807
FILM FRAME POSITION DETECTOR
John Francis Bulharowski, Rochester, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.
Filed July 16, 1970, Ser. No. 55,448
Int. Cl. H04n *5/38*
U.S. Cl. 178—7.2 **3 Claims**



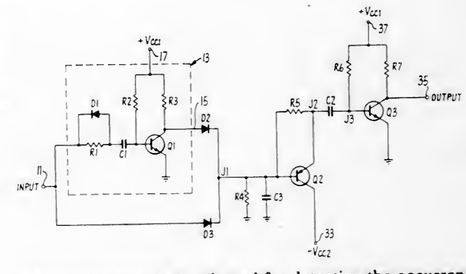
A photographic film scanning system includes an electromechanical transducer contiguous with the film and responsive to the sprocket holes therein for providing electrical signals representative of the positional location of the film frames in a film scanning zone.

3,809,808
VIDEO SYNC SEPARATOR
Lee James Arpin, Lakewood, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 13, 1972, Ser. No. 288,720
Int. Cl. H04n *5/08*
U.S. Cl. 178—7.3 S **2 Claims**



A video signal is coupled by an emitter-follower through a capacitor to the base of a transistor connected in a common emitter configuration with its emitter directly connected to a clamping potential. A potential representing the average magnitude of the video signal is developed by an average detector and coupled to one input of a comparator circuit, a second input of which is connected to the clamping potential. Variations in the average magnitude of the video signal causes variations in a control signal developed by the comparator circuit, which control signal is utilized to vary the amount of current delivered to the plate of the coupling capacitor which is directly connected to the clamping transistor. With the time constant of the average detector set equal to at least one video frame interval, larger currents are provided to the coupling capacitor for larger video signals thereby permitting a wide variation in the magnitude of the video signals that may be coupled to the sync separator.

3,809,809
TECHNIQUE FOR DETECTING LONG DURATION PULSES FROM A TRAIN OF SHORT DURATION PULSES
Nikola Vidovic, Sunnyvale, Calif., assignor to International Video Corporation, Sunnyvale, Calif.
Filed Dec. 13, 1972, Ser. No. 314,734
Int. Cl. H04n *5/10*
U.S. Cl. 178—69.5 TV **8 Claims**

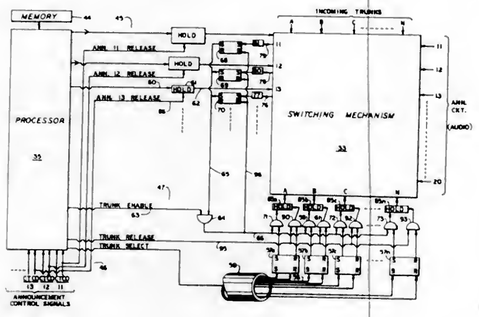


A circuit particularly adapted for detecting the occurrence of vertical sync pulses in a composite television synchronization pulse train. In a first subcircuit horizontal and equalizing pulses are inverted, while the subcircuit acts as a one-shot for the longer pulses in the vertical sync interval. The input and subcircuit output are summed so that cancellation is achieved until the one-shot action has concluded in the vertical sync interval. The remaining portion of the vertical sync interval thus is not cancelled and is used to generate an output pulse that indicates the occurrence of the vertical sync period.

3,809,810
MULTICHANNEL ACCESS SWITCHING SYSTEM
Walter P. Walker, Atlanta; Douglas R. Cobb, Dunwoody, and Frank H. Cofer, Jr., Atlanta, all of Ga., assignors to The Audichron Company, Atlanta, Ga.
Filed Apr. 21, 1972, Ser. No. 246,322
Int. Cl. G09b *5/04*
U.S. Cl. 179—1 B **18 Claims**

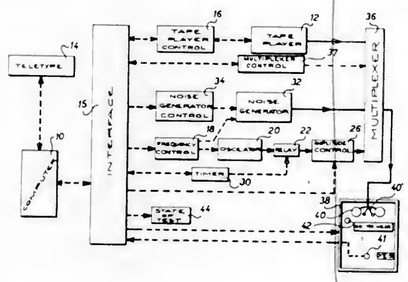
Switching system for selective interconnection of message receiving circuits, such as telephone trunk lines, and message delivery circuits, such as recorded message announcement circuits. The system, which operates in conjunction with a conventional telephone switching system, permits a single set of announcement trunks to be dedicated for shared use with multiple message announcement circuits. A unique number code is provided corresponding to each particular message announcement circuit, and the dialled number codes are decoded and then utilized to control the switching interconnection between the particular message announcement circuit and all announcement trunks which are awaiting connection with that particular announcement circuit. The announcement trunks are not dedicated or otherwise restricted to use with a particular message announcement circuit, and so

several message announcement circuits having message load factors which peak at different intervals throughout the day



may be used in shared relation with a common group of announcement trunks dedicated to a group of message announcement circuits.

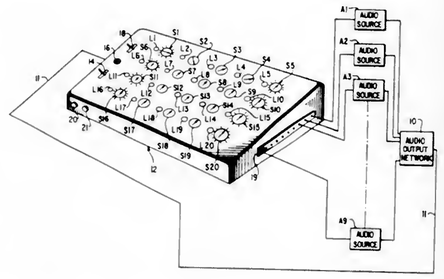
3,809,811
SYSTEM FOR CONDUCTING AUTOMATICALLY AN AUDIOMETRIC TEST
Jules Delisle, and Victor Baillargeon, both of Sherbrooke, Quebec, Canada, assignors to Universite De Sherbrooke, Sherbrooke, Quebec, Canada
Filed Aug. 10, 1972, Ser. No. 279,359
Int. Cl. H04r *29/00*
U.S. Cl. 179—1 N **11 Claims**



The disclosure herein describes a system for conducting automatically an audiometric test using a data processing means, in which are stored a series of tone frequencies, amplitude levels and time periods, and including a circuitry enabling the application of stimuli to a subject. Depending on each response received from the subject in answer to a given tone frequency, the apparatus will (1) continue the test utilizing a different amplitude level for the same tone frequency, (2) register the minimum threshold of the tone frequency, (3) continue the test utilizing a different tone frequency, or (4) register an aberration. The apparatus also enables the application of a vocal test to a subject in which the subject must indicate which word in a series of displayed words was heard.

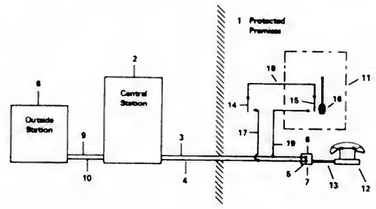
3,809,812
PROGRAMMING SYSTEM
Pryer C. Smith, Sr., P.O. 187, Ulysses, Kans.
Filed Feb. 27, 1973, Ser. No. 336,338
Int. Cl. G09b *5/04*
U.S. Cl. 179—1 B **10 Claims**

A programming system for activating a plurality of audio sources in accordance with a preselected program sequence in which the termination of audio signals from an activated source is detected and, after a predetermined time delay, advances a sequencing network to activate a subsequent audio



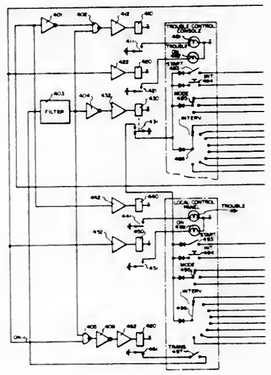
source. This same operation continues in accordance with a preselected sequence which may be rapidly and simply programmed prior to or during operation.

3,809,813
TELEPHONE ALARM SIGNALLING SYSTEM
Preston R. Brown, Box 319, Quogue, N.Y.
Division of Ser. No. 87,267, Nov. 5, 1970, abandoned. This application Dec. 14, 1972, Ser. No. 314,961
Int. Cl. H04q *9/00*
U.S. Cl. 179—5 R **20 Claims**



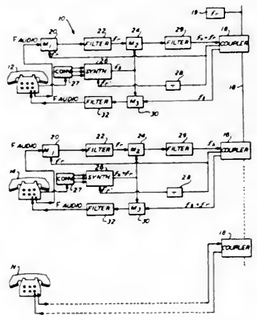
A system for indicating an abnormal condition at premises provided with a telephone subscriber station having a telephone callable from an outside station. The system includes a series connection of (1) a normally open control switch, and (2) a sensor switch which is open when the abnormal condition is not present, but which is closed in response to the presence of an abnormal condition, such as a fire at the premises. The control switch cooperates with the telephone ringer and is closed thereby either intermittently or continuously when the telephone set is ringing. The series connection of the sensor switch and the control switch is connected across the telephone line of the subscriber station to intermittently interrupt the ring back signal heard at the calling station when both switches are closed, without interfering with the ring back signal heard at the calling station when either switch is open. Thus, when the abnormal condition is not present at the premises, and the subscriber station is called, the calling station receives a normal uninterrupted ring back signal, because the sensor switch is open. However, when the abnormal condition is present at the premises, both the control switch and the sensor switch are closed when the ringer at the subscriber station is ringing, and the ring back signal heard at the calling station is interrupted. The interruption may be continuous, as though the receiver of a telephone set at the subscriber station has been picked up.

3,809,814
LOCAL CONTROL PANEL FOR DATA RECORDER
Donald W. McLaughlin, Bolingbrook, Ill., assignor to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.
Filed Dec. 13, 1972, Ser. No. 314,885
Int. Cl. H04m *15/26*
U.S. Cl. 179—8 A **8 Claims**



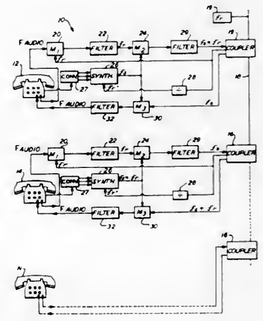
Traffic supervisory equipment for use in a telephone communication system adapted to record call switching data. Control of the recording can be effected by either an associated traffic control console or a local control panel, the two of which are interlocked to provide non-conflicting dual control.

3,809,815
COMMUNICATION SYSTEM UTILIZING FREQUENCY DIVISION MULTIPLEXING TO LINK A PLURALITY OF STATIONS EACH CONTAINING A SWITCHABLE SYNTHESIZER
Joseph Reed, Stamford, and Joseph F. De Lorenzo, Rowayton, both of Conn., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Filed May 4, 1972, Ser. No. 250,228
Int. Cl. H04j *1/06*
U.S. Cl. 179—15 FD **10 Claims**



A switchable communications system utilizing frequency division multiplexing is shown for providing communication between a plurality of stations, each including a synthesizer and each operated from a single reference frequency. Each station is assigned a fixed home frequency at which it transmits information. When calling, the synthesizer within the calling station adjusts the transmit frequency of that station to correspond to the receive frequency of the called station, which automatically adjusts the receive frequency of the calling station to correspond to the transmit frequency of the called station. Full duplex transmission is thus permitted between any and all stations within the communications system through the utilization of a wide range acquisition synthesizer within each station.

3,809,816
COMMUNICATION SYSTEM UTILIZING FREQUENCY DIVISION MULTIPLEXING AND A FREQUENCY PLAN THEREFOR
Joseph Reed; Jonas M. Shapiro, both of Stamford; Athanassious Iliakidis, Norwalk, all of Conn., and Anthony Apostolakis, Santa Monica, Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Filed June 23, 1972, Ser. No. 265,446
Int. Cl. H04j *1/06*
U.S. Cl. 179—15 FD **10 Claims**

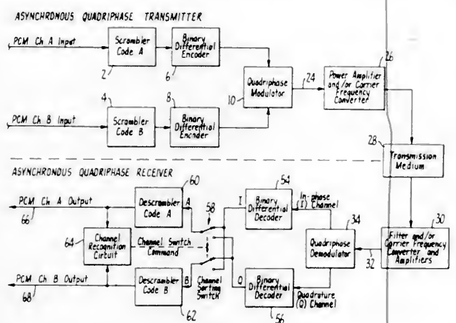


A communications system utilizing frequency division multiplexing is shown for providing switchable communication between any two stations through a frequency plan which uses a single reference frequency throughout the system. Each station is assigned a fixed home frequency at which it receives information and a second fixed home frequency at which it transmits information. When calling, the calling station adjusts its transmit and receive frequencies to correspond to the receive and transmit frequencies of the called station, respectively. Full duplex transmission is thus permitted between any and all stations over a single coaxial cable utilizing a fixed-adjustable paired frequency plan.

3,809,817
ASYNCHRONOUS QUADRIPHASE COMMUNICATIONS SYSTEM AND METHOD
Walter J. Gill, Saratoga, and James A. Mellenger, Sunnyvale, both of Calif., assignors to Avantek, Inc., Santa Clara, Calif.
Filed Feb. 14, 1972, Ser. No. 225,823
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 BS **19 Claims**

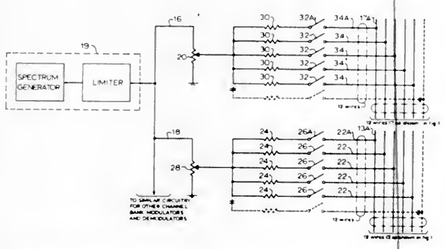
A communications system and method for transmitting and receiving two independently timed (asynchronous) binary data signals on a quadriphase carrier. The four phase ambiguity ordinarily resulting from quadriphase transmission and reception is overcome by uniquely identifying each input channel, for example, by scrambling. In reception each channel is demodulated and applied to a corresponding descrambler. The descrambler outputs are sequentially examined to recognize any non-random characteristic of the data signals; recognition indicates connections from the demodulator to

the descrambler in the correct sense. If there is no recognition, the connections are reversed and the scrambler outputs are



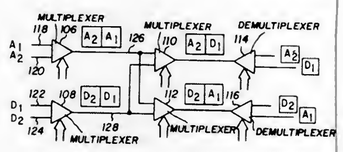
again examined until recognition is achieved thus providing the original binary data signals.

3,809,818
MEANS AND METHOD FOR TELEPHONE LINE DISCONNECTION IN FREQUENCY DIVISION MULTIPLEXING
Walter Daniel Johnston, Pierrefond, Quebec, Canada, assignor to Bell Canada, Montreal, Quebec, Canada
Filed June 5, 1972, Ser. No. 259,458
Int. Cl. H04j *1/14*
U.S. Cl. 179—15 BY **10 Claims**



Transmission failure in frequency division multiplexing connected to telephone systems results in the generation of a disconnect tones, one for each carrier, which are simultaneously superimposed on the multiplex link to achieve disconnection of telephone lines and trunks.

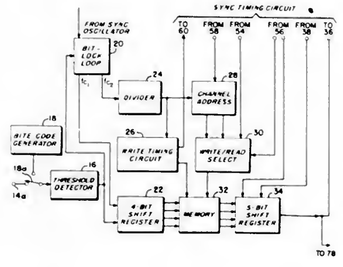
3,809,819
TDM SWITCHING APPARATUS
Raymond A. Stephens, Marion, Iowa, assignor to Collins Radio Company, Dallas, Tex.
Filed Dec. 7, 1972, Ser. No. 313,025
Int. Cl. H0q *11/04*
U.S. Cl. 179—15 AQ **2 Claims**



A non-blocking three-stage switch comprising two stages of multiplexing and a final stage of demultiplexing operations.

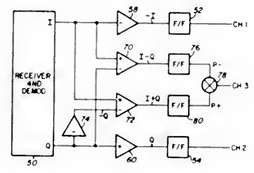
The multiplexing stages utilize devices contacting a plurality of inputs which inputs are connected to a single output in a controlled order. The demultiplexer stage utilizes this operation in reverse to connect a single input to a plurality of outputs in a controlled order.

3,809,820
MULTI-CHANNEL ASYNCHRONOUS TO SYNCHRONOUS CONVERTER
Dean R. Sullivan, Lakeside, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Apr. 3, 1973, Ser. No. 347,515
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 BA **6 Claims**



Multi-channel apparatus for error-free translation of asynchronous data channels into a serial data stream. Independent synchronizing circuitry at each channel performs bit timing recovery to allow incoming bits to be sampled and properly interpreted and also stores bits in a manner to absorb bit difference resulting from incoming data rate differences. Common synchronous timing circuitry provides control signals to transfer data synchronously out of a memory device, to prevent interference between asynchronous write and asynchronous read operations, and to multiplex the individual channel outputs in a serial data stream.

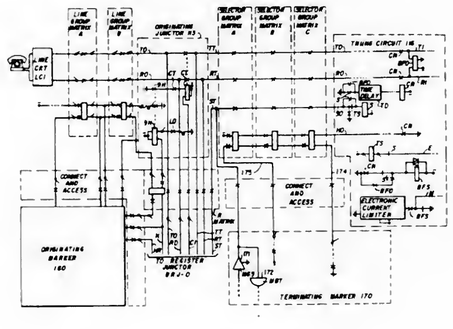
3,809,821
THREE-CHANNEL DATA MODEM APPARATUS
William J. Melvin, 2065 Mandarin St., Costa Mesa, Calif.
Division of Ser. No. 187,675, Oct. 8, 1971. This application May 16, 1973, Ser. No. 360,711
Int. Cl. H04l *27/18*
U.S. Cl. 179—15 R **2 Claims**



Apparatus for and the method of providing three channel, eight phase data modulation and demodulation whereby the

system may be used for either two or three channels with no detrimental effects in either mode of operation due to the additional circuitry. The invention discloses additional apparatus for connection to a conventional two channel, four phase system to produce a three channel, eight phase system. The coding of the eight phase system modifies the basic phase change of a two channel, four phase system by ±22.5° depending upon the inclusive OR result of the first two channels as compared to the binary logic level of the third channel.

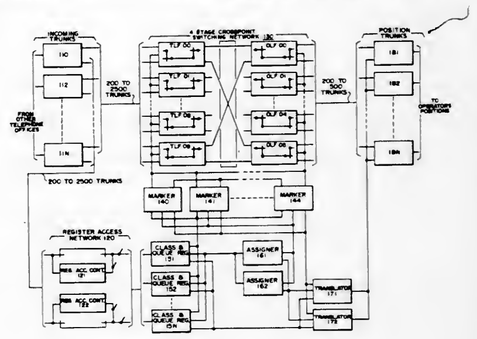
3,809,822
COMMUNICATION SWITCHING SYSTEM INTERLOCK ARRANGEMENT
John W. Eddy, Villa Park, and Sergio E. Puccini, Wood Dale, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Nov. 2, 1972, Ser. No. 303,157
Int. Cl. H04m *3/00*
U.S. Cl. 179—18 E **16 Claims**



An interlock arrangement for a communication switching system having a switching network controlled by a marker for establishing a path through the switching network between a first supervisory unit, such as a register junctor, and a second supervisory unit, such as a terminating junctor or trunk circuit, includes a switching circuit in the marker for applying a first holding signal to a holding control lead of the path for causing the path to be maintained between the two supervisory units, a switching circuit in the first supervisory unit responsive to the first holding signal to apply a second holding signal to the holding control lead for maintaining the path established, a circuit in the marker for removing subsequently the first holding signal from the holding control lead, and a testing circuit in the marker responsive to the removal of the first holding signal and to the presence of the second holding signal for causing the marker to release, whereby the first supervisory unit maintains the path established to enable the marker to release for servicing other connections through the network.

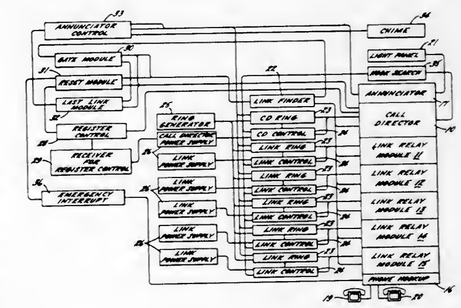
3,809,823
AUTOMATIC DISTRIBUTION OF SUBSCRIBER ASSISTANCE CALLS
Melvin A. Jacobs, Hinsdale, and Jack W. Taugner, Des Plaines, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Apr. 2, 1973, Ser. No. 347,258
Int. Cl. H04q *3/64*
U.S. Cl. 179—27 D **5 Claims**

A technique for automatic distribution of calls to directory assistance operators' positions. Means are provided for effec-



tively equalizing loads among operators and teams of operators and minimizing the effects of load fluctuation.

3,809,824
PRIVATE AUTOMATIC TELEPHONE SYSTEM WITH DIAL AND DIALLESS TELEPHONES
James E. Dahlquist, Elk Grove Village, and Richard J. Medal, Mount Prospect, both of Ill., assignors to Rauland-Borg Corporation, Chicago, Ill.
Filed Mar. 31, 1972, Ser. No. 240,122
Int. Cl. H04q *3/42*
U.S. Cl. 179—37 **26 Claims**



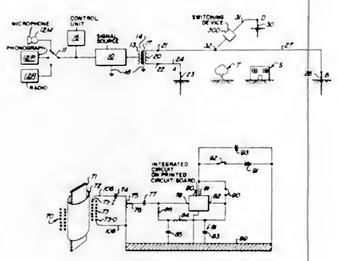
A private automatic telephone system for use in schools and other locations where supervisory control over the use of the telephone system is desired, so that calls between certain telephones cannot be made without the authorization of administrative personnel. The system includes dial and dialless telephones, with the dial telephones being capable of dialing any other telephone within the system in a conventional manner, i.e., the telephone receiver is lifted and the telephone dialed to result in either a ring signal or a busy signal if the called telephone is busy. If a dialless telephone is used to initiate a call, the lifting of its receiver produces a visual indication in an annunciator light panel placed in an area having dial telephones, so that an administrator may respond by dialing the number of the dialless telephone and complete the call. The responding dial telephone may connect one or more additional telephones to the call by momentarily depressing its hook switch, thus enabling the dial telephone to receive dial tone and enable the dialing of the number of the additional telephone and establish a conference call. The administrator may either place his telephone on-hook and occasionally lift the receiver to monitor the call if desired or may permanently disconnect from the conference call by pressing a release but-

ton. The system is capable of providing two or more simultaneous independent calls depending upon the number of links that are provided to connect separate telephones in the system.

3,809,825
RECEIVER FOR INDUCTIVE COMMUNICATION SYSTEM

Howard A. Schaad, Abingdon, Ill., and Richard L. Randolph, Maryland Heights, Md., assignors to William J. Foley, Galesburg, Ill.

Continuation-in-part of Ser. No. 844,047, July 23, 1969, Pat. No. 3,660,760. This application Apr. 26, 1972, Ser. No. 247,548
Int. Cl. H04b *5/00*
U.S. Cl. 179—82 **4 Claims**

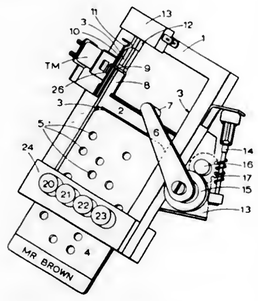


There is disclosed a receiver apparatus for inductive communication systems. A flat high mu metal, core carrying a multi layer coil has an end on the inside layer connected to the input terminal of a low level integrated circuit amplifier and the coil end on the outside layer is connected to ground terminal of the amplifier.

3,809,826
PUNCHED CARD READING TELEPHONE INSTRUMENT

John George Laycock Rhodes, London, England, assignor to Pye Limited, Cambridge, England

Continuation of Ser. No. 122,963, March 10, 1971. This application Apr. 26, 1973, Ser. No. 354,876
Claims priority, application Great Britain, Mar. 10, 1970, 11441/70
Int. Cl. H04m *1/48*
U.S. Cl. 179—90 CS **13 Claims**

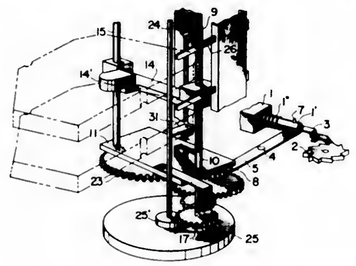


A punched card reading telephone instrument wherein a card is ejected at a substantially uniform rate after insertion into the mechanism and is optically read. The encoded putput of the optical reading mechanism is stored in a known push button telephone until the entire card has been read and the entire telephone number has been stored within the push button telephone. Subsequent to the ejection of the card the stored telephone number is transmitted.

3,809,827
MULTIPLE CARTRIDGE TAPE RECORDER/REPRODUCER HEAD SHIFTING ASSEMBLY

Takashi Oyaba, Yokohama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Dec. 7, 1971, Ser. No. 205,575
Claims priority, application Japan, Dec. 7, 1970, 45-121011[U]
Int. Cl. G11b *21/02, 21/08*
U.S. Cl. 360—106 **9 Claims**



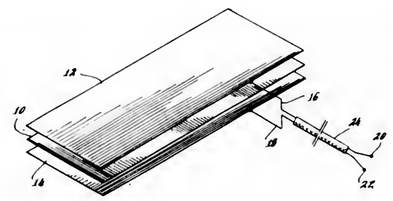
A multiple cartridge tape recorder/reproducer supporting a plurality of independent cartridges has a single transducer fixed to a head plate which is mounted to a rotary plate for rotation about the axis of a feed screw passing through the rotary plate and threadably coupled to the head plate for shifting the head plate and thus the transducer head from transducing position and a second rotary shifted head non-transducing position. A friction wheel mounted to the rotary plate moves into contact with a flywheel to drive the feed screw shaft while axially shifting the transducer head from one cartridge to the other subsequent to simultaneous shifting of the pinch roller from the drive capstan for the tapes and movement of the transducer head to non-transducing position. A lock release cam driven through a gear train from the movable friction wheel pivots the lock plate terminating rotation of the feed screw and permitting pivoting of the rotary plate to a first transducing position allowing the pinch roller to contact the capstan and the transducing head to contact the magnetic tape of the new cartridge.

3,809,828
ELECTRET TRANSDUCING DEVICE

Paul O. Haugsjaa, Plainview, N.Y.; Adam Heller, Sharon, Mass.; William F. Nelson, Port Washington, and Anthony Bocchimuzzo, Bronx, both of N.Y., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Jan. 17, 1972, Ser. No. 218,101
Int. Cl. H04r *23/00*
U.S. Cl. 179—100.41 B **1 Claim**

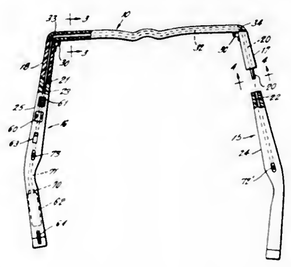
An electret transducer is described which includes an electret formed from a relatively thin elongated body of electrically insulating dielectric material which is polarized for establishing a residual electrostatic field within the body. First and second relatively thin elongated bodies of electrically conductive material are positioned adjacent opposite surfaces of the electret body and extend substantially coextensively with the electret body. The conductive bodies thereby sandwich the electret and provide electrodes for the transducer. This sandwich configuration is formed into a convolute shaped transducer assembly and includes electrical conductors which are coupled to each of the electrodes and between which a transducer output signal is provided upon mechanical excitation of the convolute shaped transducer assembly. The transducer thus provided comprises a displacement transducer which advantageously can be employed in acoustical detection and reproduction systems.



3,809,829
ACOUSTIC CROS HEARING AID

Walter R. Vignini, Peekskill, and Martin Molloy, Ossining, both of N.Y., assignors to Sonotone Corporation, Elmsford, N.Y.

Filed Jan. 16, 1973, Ser. No. 324,102
Int. Cl. G02c *11/06*
U.S. Cl. 179—107 S **7 Claims**



An eyeglass CROS hearing aid having temple bars one of which has the operative elements of a hearing aid and an acoustic passage from the operative temple bar through said temple bar, the eyeglass frame and the other temple bar to either an earpiece mountable on the other temple bar or an acoustic opening for the microphone.

ERRATUM

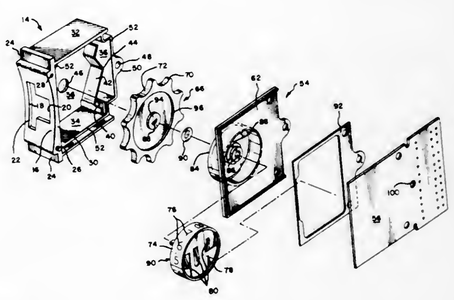
For Class 179—81 see:
Patent No. 3,810,247

3,809,830
SEALED THUMBWHEEL SELECTOR SWITCH

Joseph Larue Lockard, and William Henry Rose, both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of Ser. No. 255,844, May 22, 1972, abandoned. This application Mar. 12, 1973, Ser. No. 340,414
Int. Cl. H01h *19/58, 9/04*
U.S. Cl. 200—11 TW **20 Claims**

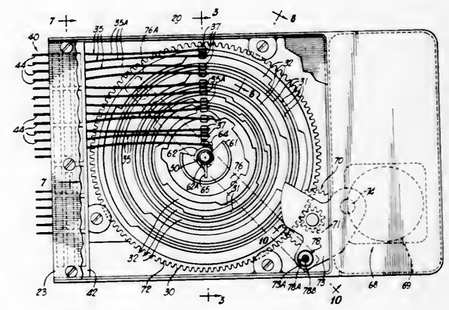
A thumb selector switch structure is disclosed which is particularly suitable for use in corrosive or dusty environments. The selector switch includes a printed circuit panel having an angularly encoded conductive pattern printed thereon. A rotatable contact carrying indicia wheel is rotatably mounted to the printed circuit panel so that the contacts carried by the indicia wheel selectively engage various portions of the angularly encoded printed circuit pattern, thereby producing digital output signals in response to the rotation of the contact carrying wheel. The contact carrying wheel is permanently hermetically sealed to the printed circuit board by means of a clear plastic casing. An actuator wheel is provided for rotating the indicia and contact carrying wheel. A suitable housing having a detent spring mounted therein is provided to enclose the above described structure.



3,809,831
PROGRAM TIMER ASSEMBLY WITH IMPROVED CAM DISC FACE CIRCUMFERENTIAL GROOVES FOR ABRUPT RADIAL DISPLACEMENT

George A. Godwin, and William E. Wagle, both of Bloomington, Ind., assignors to Sarke & Tarsian Inc., Bloomington, Ind.

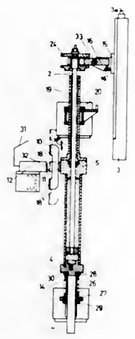
Filed Mar. 1, 1973, Ser. No. 336,959
Int. Cl. H01h *43/10*
U.S. Cl. 200—38 C **9 Claims**



There is provided a timing device of the type suitable for controlling the cycling of appliances and the like. The timing

device includes an axially restrained cam disc having a plurality of circumferential cam tracks a plurality of switch blades is provided having cam follower means adapted to engage selected ones of the cam tracks. A drive is provided which may be ratcheted to provide for manual overdrive or advance of the cam disc. Moreover a line switch is provided controlled by axially translation of the control shaft. Switching means may be provided for automatically disengaging the line switch upon completion of an operating cycle.

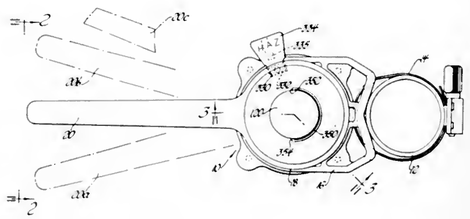
3,809,832
TENSION SUPERVISORY APPARATUS FOR CONVEYOR TRANSPORT SYSTEMS DETECTING BREAKAGE OR MALFUNCTION IN A CABLE OR THE LIKE
Hans Burger, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland
Filed Nov. 1, 1972, Ser. No. 302,981
Claims priority, application Switzerland, Nov. 12, 1971, 16469/71
Int. Cl. B61b *11/02*
U.S. Cl. 200—61.18 **13 Claims**



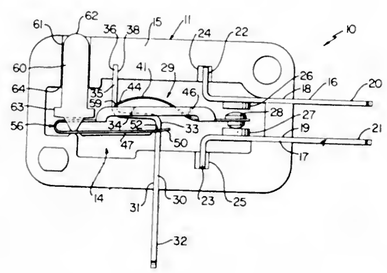
The cable or chain of a suspension-type conveyor is guided around a tension sheave, which is movable under influence of a suspended weight, spring or the like with change in loading on the cable to maintain the tension constant. A fluid cylinder-piston arrangement is provided, the piston being connected to the movable sheave, for example by being connected to the weight, and the cylinder being filled with hydraulic fluid, on both sides of the piston, the end of the piston being connected together by a bypass, return line which preferably contains a flow constriction. Upon slow movement of the tension sheave, pressure will always equalize on both sides of the piston over the bypass line; sudden jolts, however, cannot be rapidly equalized and also move the fluid cylinder which is connected to operate a switch upon excursion thereof to control operation of the transport system.

3,809,833
DIRECTIONAL SIGNAL WITH CAM SWITCH ACTUATORS
Gerald K. Miller, and Norman A. Rautiola, both of Reed City, Mich., assignors to Nartron Corporation, Reed City, Mich.
Filed Aug. 2, 1972, Ser. No. 277,226
Int. Cl. H01h *21/50, 21/80, 3/42*
U.S. Cl. 200—61.27 **16 Claims**

A switch assembly has an outer housing containing a rotatable detent carrying body, a rotatable cam-carrying body, a relatively fixed electrical contact plate assembly; an outer end cover-like member fixedly secured to the detent body and cam-carrying body also carries an actuator handle which when rotated either clockwise or counter-clockwise causes selective closure of electrical contacts carried by the contact plate assembly to thereby close associated electrical circuitry; the detents carried by the detent-carrying body serve to maintain the components in any selected operating position as well as in a neutral position.

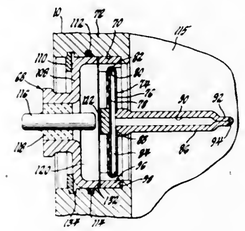


3,809,834
SNAP SWITCH CONSTRUCTION AND SNAP BLADE THEREFOR OR THE LIKE
George M. Hipple, Columbus, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 17, 1972, Ser. No. 244,792
Int. Cl. H01h *13/36*
U.S. Cl. 200—67 D **22 Claims**



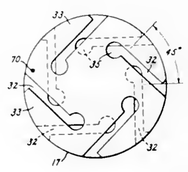
A snap switch blade construction for a snap switch having a housing provided with a fixed contact, the snap switch blade comprising a one-piece switch blade having opposed ends. One of the ends of the blade carries a contact to be movable relative to and cooperate with the fixed contact, the other end of the blade being reversely bent to define an elbow of the blade and cooperating with the housing to provide a pivot for the blade. The one end of the blade has a part thereof cooperating with the housing to provide a compression member of the blade that causes the blade to snap between the operating positions thereof. The ends of the blade are rigid adjacent the elbow of the blade so that the elbow and the compression member define the only operating flexible parts of the blade. An actuator engages the part of the elbow of the blade that is defined by the reversely bent end of the blade to place such elbow under tension when causing movement of the blade from one position thereof to another position thereof.

3,809,835
COMPRESSOR SUPERHEAT SWITCH WITH BELLOWS MOUNTING RING
Roy E. Watt, Brookville, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed May 7, 1973, Ser. No. 357,593
Int. Cl. H01h *35/32*
U.S. Cl. 200—83 N **3 Claims**



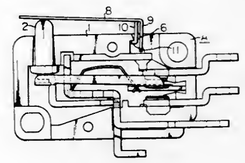
A simple and easily assembled pressure and temperature responsive switch having a bellows type actuator and especially adapted to be used in an automobile air conditioning system. The switch assembly includes a sealed bellows supported within an annular mounting ring which is adapted to be inserted within a recess in the head of the compressor. A cup-shaped housing member is inserted in the recess over the mounting ring and sealed with respect to the surrounding wall of the recess to prevent refrigerant leakage therefrom. The housing member supports an insulated electrical contact which is supported adjacent the mid portion of the bellows to complete an electrical indicator circuit when the bellows expands in response to a predetermined high temperature or low pressure of refrigerant.

3,809,836
VACUUM-TYPE ELECTRIC CIRCUIT INTERRUPTER
Donald W. Crouch, Newtown Square, Pa., assignor to General Electric Company, Philadelphia, Pa.
Filed Dec. 21, 1972, Ser. No. 317,222
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 B **7 Claims**



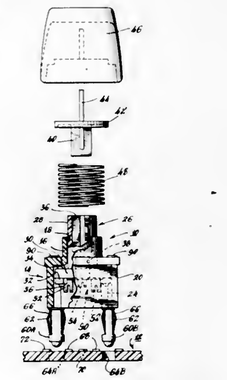
A high current vacuum interrupter (rated to interrupt currents greater than 16,000 amperes r.m.s.) comprises (1) a pair of large disc-shaped contacts slotted to provide an arc-revolving action and (2) a tubular metal shield closely surrounding the contacts. Localized melting of the shield by an inter-contact arc is reduced by angularly displacing the contacts with respect to each other so that the starting points of slots in the contacts are angularly offset by substantially the maximum possible amount.

3,809,837
MICROSWITCH WITH READILY REMOVABLE LEAF SPRING ACTUATING MEANS
Hideoki Yoshioka, Osaka, Japan, assignor to Matsushita Electric Works, Ltd., Osaka, Japan
Filed Sept. 25, 1972, Ser. No. 291,896
Claims priority, application Japan, Sept. 30, 1971, 46-89995; Nov. 25, 1971, 46-110782
Int. Cl. H01h *3/02, 3/04*
U.S. Cl. 200—153 T **6 Claims**



A push button switch including an actuator made up of an operating leg and a mounting leg in "L" formation, the mounting leg being insertable into a recess in the switch body. The mounting leg is longitudinally slit to define separate spring portions which press snugly against opposed walls in the recess. One of the spring portions is formed into a hook which engages a presented edge on the corresponding wall of the recess to keep the actuator captive, but it can be easily removed by pressing the spring portions toward one another. The presented edge is preferably sharp so as to provide a fulcrum for bodily rocking movement of the actuator. The opposed wall surface is preferably crowned to accommodate the rocking movement and the crown preferably has a flat top opposite the sharp edge so that the actuator is resiliently detented into a central reference condition.

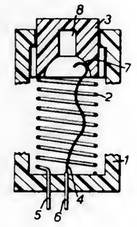
3,809,838
MODULAR PUSH BUTTON SWITCH ASSEMBLY MOUNTED ON PRINTED CIRCUIT BOARD
John Coppola, Trumbull, Conn., assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Nov. 1, 1971, Ser. No. 194,741
Int. Cl. H01h *3/12, 9/02*
U.S. Cl. 200—159 R **9 Claims**



A key switch consisting of a switch mounted on a circuit board. The switch has at least three contact elements mounted on a plunger which is normally biased away from the circuit board. When pressure is applied to a key mounted on the side of the plunger opposite the contacts, the contact elements are lowered into engagement with corresponding contact points on the circuit board permitting a coded output to be

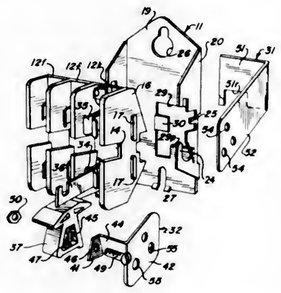
generated. If one of the contact points on the board is a common point and the contact element on the plunger adapted to engage the common point is recessed, a simple and effective means is provided for preventing spurious outputs from the switch.

3,809,839
MOMENTARY SWITCH WITH SERPENTINE MOVABLE AND COIL SPRING STATIONARY CONTACTS
Stanley Beddoe, Fareham, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland
Filed Jan. 26, 1973, Ser. No. 323,012
Claims priority, application Great Britain, Jan. 19, 1972, 2682/72
Int. Cl. H01h *13/50*
U.S. Cl. 200—160 **1 Claim**



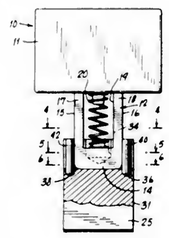
An electric switch of the push-button type affording a momentary switching action comprising a spring-biased push-button which in response to the depression thereof causes a cam surface to bear against a springing moving contact member initially to produce bowing of the member so that it makes electrical contact with a fixed contact member in the form of a coil spring and thereafter during the depression of the push-button to permit the compressive forces in the contact member to be released suddenly by snap deflection of the member as it rides over the cam surface thereby to interrupt electrical contact with the member by the straightening of the moving contact member.

3,809,840
MOUNTING BRACKET AND LOCKING MEANS FOR ELECTRICAL TERMINAL BLOCK DEVICES
C. Allan Schurr, Shaker Heights, Ohio, assignor to Square D. Company, Park Ridge, Ill.
Division of Ser. No. 253,753, May 16, 1972. This application June 6, 1973, Ser. No. 367,605
Int. Cl. H01h *9/22*
U.S. Cl. 200—321 **4 Claims**



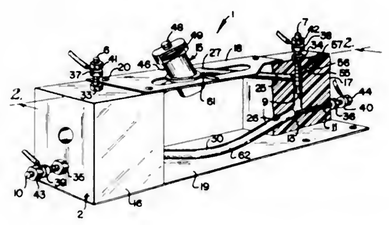
A mounting bracket holds one or more standard electrical terminal block devices for mounting on a wall or panel without requiring use of a mounting or terminal strip. Cooperating handle lock-off means may be used for locking a terminal block knife switch in its open position.

3,809,841
BUTTON FOR ELECTRICAL SWITCH OR THE LIKE
Luis Edgar Rico, 98-17 Horace Harding Exwy., Rego Park, N.Y.
Filed June 27, 1973, Ser. No. 374,258
Int. Cl. H01h *3/12*
U.S. Cl. 200—329 **6 Claims**



For use with an electrical switch having a manually movable actuating blade, a button comprising a solid metal block having a slot in one end for receiving the blade, and cylindrical nylon insert members press-fitted into recesses formed in the block along the sides of the slot for engagement with the side edges of the blade, the insert members being compressed by the blade so as to hold the button securely on the blade.

3,809,842
LEVEL SENSITIVE SWITCH
Emmet G. Slusher, c/o Hydral Ladder, Inc., P.O. Box 472, Higginsville, Mo.
Filed Feb. 26, 1973, Ser. No. 336,037
Int. Cl. H01h *29/00*
U.S. Cl. 200—221 **5 Claims**

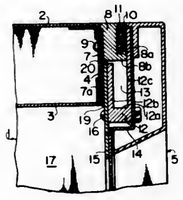


A level sensitive switch comprised of a body member having a closed loop flow channel filled with two immiscible liquids, one being electrically conductive and the other being electrically non-conductive. First terminals are mounted in the body and have ends extending into the channel at opposite ends thereof and are adjustable in relation to the level of the conductive fluid and a second terminal is mounted in the body member and has an end in electrical contact with the conductive liquid whereby tilting of the body member effects an electrical circuit between a first terminal and the second terminal. The speed of the liquid movement through the channel is adjustable by a dampening apparatus associated with the channel. An expansion chamber communicates with the channel and compensates for volume changes of the liquid to assure that the channel is maintained full of the liquids.

ERRATA

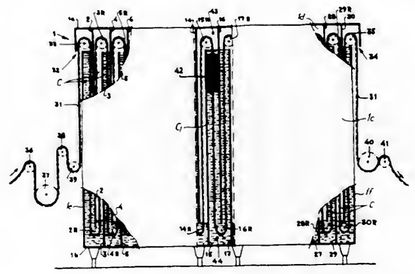
For Classes 219—10 and 219—279 see:
Patents Nos. 3,810,248 and 3,810,249

3,809,843
MICROWAVE HEATING APPARATUS
Takeshi Takayama, Kawasaki, Japan, assignor to The General Corporation, Kawasaki-shi, Japan
Filed May 28, 1971, Ser. No. 147,974
Claims priority, application Japan, June 1, 1970, 45-53825
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **9 Claims**



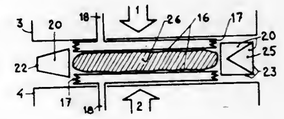
A microwave oven is disclosed having an electromagnetic energy seal constituted by the oven enclosure and its associated door, each of which comprises a complementary stepped structure defining a pair of planes. One of the stepped structure is formed with a cavity therein having a plurality of walls and a terminating wall and which has an opening opposite to the step portion of the other stepped structure. The terminating wall of the cavity is spaced substantially ¼ wavelength from the middle point intermediate the step portion and the opening and is spaced an integral multiple of ½ wavelength from the boundary of the oven interior.

3,809,844
METHOD AND APPARATUS FOR TREATING HEAT-SENSITIVE PRODUCTS
Lennart Arvid Stenstrom, Huddinge, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Sept. 1, 1971, Ser. No. 176,967
Claims priority, application Sweden, Sept. 8, 1970, 12154/70
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **9 Claims**



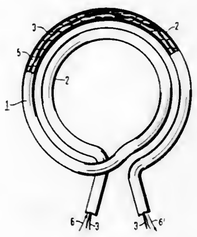
Each unit of a heat-sensitive product is contacted directly or indirectly with a cooling medium so that the unit acquires a condition in which a surface layer thereof has a lower temperature than its inner portions. The product unit is then heated, by electro-manetic energy of at least microwave frequency, from this condition to substantially the desired sterilizing or pasteurizing temperature in a medium having a temperature which will permit such heating. In this way, a substantially uniform heat treatment effect is obtained in the product units.

3,809,845
HEATING OF PRODUCTS IN ELECTRO-MAGNETIC FIELD
Lennart Arvid Stenstrom, Huddinge, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Sept. 1, 1971, Ser. No. 176,968
Claims priority, application Sweden, Sept. 8, 1970, 12155/70
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **15 Claims**



Each product unit, enclosed in a casing which is transparent to electro-magnetic energy, is heated by passing it through an electro-magnetic field of at least microwave frequency while closely surrounding the unit (at least along its boundaries as seen in a plane perpendicular to the main direction of applying the field against the unit) with a fluid medium having a dielectric constant which is at least one-half the dielectric constant of the product unit in the field. The electro-magnetic heating of each unit is terminated when its interior reaches a predetermined temperature; and the temperature of the surrounding medium is controlled to provide the product unit near its surface with a temperature which, upon such termination, is substantially said predetermined temperature.

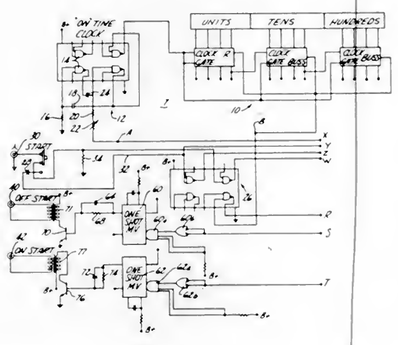
3,809,846
INDUCTION HEATING COIL FOR A ZONE HEATING PROCESS
Werner Baumgartner; Wolfgang Keller, and Manfred Schnoeller, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Mar. 22, 1973, Ser. No. 343,882
Claims priority, application Germany, Apr. 11, 1972, 2217407
Int. Cl. H05b *5/08*
U.S. Cl. 219—10.79 **12 Claims**



An induction heating coil which is detachably mounted on a holding member of an induction heating device having a chamber receiving at least a portion of the coil, which device is adapted for use in a process of zone melting of a rod of material, characterized by the coil comprising a tube of insulating glass-like material, such as glass or quartz, which is both heat resistant and vacuum-tight, receiving a metal conductor therein. Each end of the coil is provided with an intermediate member of a good conducting material which member is electrically connected to the conductor and is sealed in a vacuum-

tight relationship with both the tube of the coil and the holding member of the device. Preferably, a cooling agent such as water is circulated through the tube to cool the metal conductor during a heating operation. To form the seal with the intermediate member, the tube is either provided with a metalized end that is soldered to the intermediate member or the intermediate member is provided with a ring of silicon rubber which is compressed between the tube and intermediate member by an appropriate clamping device.

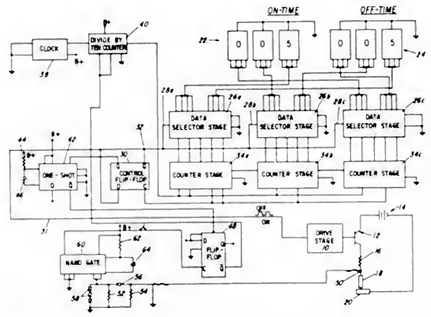
3,809,847
METHOD AND APPARATUS FOR ELECTRICAL DISCHARGE MACHINING
Oliver A. Bell, Jr., Mooresville, N.C., assignor to Colt Industries Operating Corp., New York, N.Y.
Filed Dec. 14, 1972, Ser. No. 314,997
Int. Cl. B23k *9/16*
U.S. Cl. 219—69 P **50 Claims**



Method and apparatus of the digitally controlled type for providing machining power pulses of predetermined on-off time duration. Included in the circuit are separate on-time generators and off-time generators, together with counter means for presetting incrementally the time of operation of each generator. Included in the circuit is a means for providing a start pulse to enable the operation of the on-time generator in accordance with the time of initial gap breakdown.

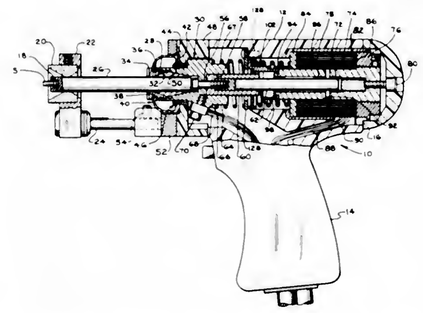
3,809,848
DIGITALLY CONTROLLED POWER SUPPLY FOR ELECTRICAL DISCHARGE MACHINING APPARATUS
Oliver A. Bell, Jr., Mooresville, N.C., assignor to Colt Industries Operating Corp., New York, N.Y.
Continuation-in-part of Ser. No. 314,997, Dec. 14, 1972. This application Mar. 16, 1973, Ser. No. 341,981
Int. Cl. B23k *9/16*
U.S. Cl. 219—69 C **24 Claims**

A digitally controlled power supply for providing machining power pulses of predetermined ON-OFF time duration. Included in the power supply circuit are separately presettable ON time and OFF time switches. A single counter is used for controlling in a precise manner the duration of both ON time and OFF time. Intermediate the ON-OFF time selection switches and the counter there is provided a data selector stage for enabling the connection and countdown of either the ON time or OFF time switches. Also included in the control circuit is the means for providing a pulse responsive to gap



break-down at the beginning of each individual machining power pulse to enable the operation of the ON time switch and the associated ON time counter stage.

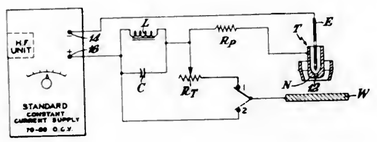
3,809,849
WELDING TOOL
Steve Spisak, Elyria, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed June 7, 1973, Ser. No. 367,853
Int. Cl. B23k *9/20*
U.S. Cl. 219—98 **9 Claims**



An improved welding tool for welding studs to workpieces by a drawn-arc welding technique is provided. A lifting mechanism for the welding tool provides a stronger grip and a more uniform amount of over-travel of the chuck assembly. This is made possible by the design of a lifting hook and ring which enables the use of a larger spring for the lifting mechanism with the spring engaging the lifting ring near its periphery.

3,809,850
PLASMA ARC POWER SYSTEM FOR WELDING
John F. Saenger, Jr., Yorktown Heights, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Filed May 17, 1972, Ser. No. 254,093
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 P **4 Claims**

A plasma arc power supply system for work-in-circuit welding over an extended current range of between .1 amperes to at least 100 amperes wherein the main arc current control circuit includes a variable potentiometer independent from the



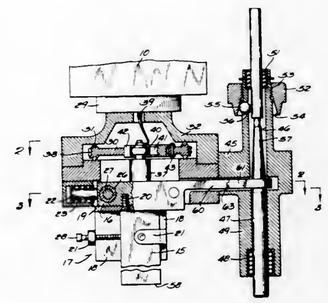
pilot arc current control circuit such that the main arc current may be varied, particularly below 15 amperes, without affecting the pilot arc.

3,809,851
ELECTRIC IRONING PRESS
Pierre Aeschlimann, Geneva; Marcel Fresard, Petit-Lancy, and Antonio Jimenez, Geneva, all of Switzerland, assignors to Mefina S.A., Fribourg, Switzerland
Filed Dec. 8, 1972, Ser. No. 313,441
Claims priority, application Switzerland, Feb. 24, 1972, 2630/72; Mar. 8, 1972, 3489/72
Int. Cl. H05b *1/00*
U.S. Cl. 219—243 **6 Claims**

An ironing press wherein the heating plate suspended to a pivoting arm is adapted to be lowered onto and raised above the ironing area, and wherein a hand-operable lock may be rocked into a position wherein a bolt carried by it engages a groove in the arm so as to lock the lever in the position it assumes inside the groove when it urges the arm downwardly. Furthermore, the lowering of the arm acts mechanically through the lever or through said lock on an electric circuit so as to disconnect the latter from the heating means which it energizes inside the heating plate and to connect it with an alarm circuit. A delay system is advantageously incorporated with said circuit to delay said switching operation a few seconds after the lowering of the arm and plate.

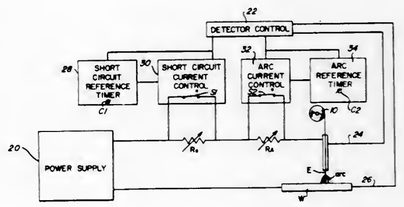
3,809,852
ELECTRIC DISCHARGE MACHINE WITH MECHANISM FOR ORBITING THE ELECTRODE ON A POLYGONAL PATH
John M. Weber, 630 Colgate Rd., Colgate, Wis.
Continuation-in-part of Ser. No. 138,888, April 30, 1971, abandoned. This application Nov. 16, 1972, Ser. No. 307,323
Int. Cl. B23k *9/16*
U.S. Cl. 219—69 V **9 Claims**

Electrical discharge machine electrode holder, drive and control mechanism for orbiting the electrode on a regular polygonal path with straight sides and angular corners transverse to its path of advance with respect to a workpiece. The control apparatus gradually reduces the size of the orbit path in the course of electrode advance. This eliminates the need for more than one electrode as the workpiece cavity deepens.



All rough and finished cuts may be made with the same electrode. The electrode is mounted on a shuttle block with drive means for intermittently driving the block and electrode with rectilinear motion along the straight sides of the polygonal path and with intervening dwell in the corners of the polygonal path.

3,809,853
METHOD FOR SHORT CIRCUIT METAL TRANSFER ARC WELDING
August Frederick Manz, Union, N.J., assignor to Union Carbide Corporation, New York, N.Y.
Filed Aug. 24, 1972, Ser. No. 283,343
Int. Cl. B23k *9/10*
U.S. Cl. 219—137 **3 Claims**

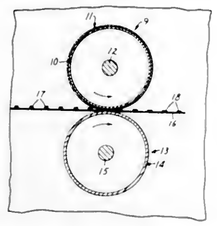


The method and system of the present invention minimizes weld spatter through control of the short circuit current and through control over the short circuit and arc time intervals.

3,809,854
ELECTRICALLY CONDUCTIVE FUSER BLANKET
James F. Sanders, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Mar. 22, 1973, Ser. No. 343,702
Int. Cl. H05b *1/00*
U.S. Cl. 219—216 **9 Claims**

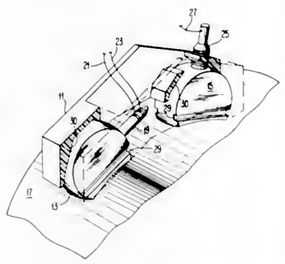
A composite article suitable for use as a fuser blanket comprising a dimensionally stable substrate having bonded to one

surface thereof, in ascending order, a resiliently compressible electrically conductive elastomer layer and a thin resiliently



compressible silicone elastomer layer. The blanket is especially well suited for use in copier systems wherein electrostatic charging of photoconductive coated paper is utilized.

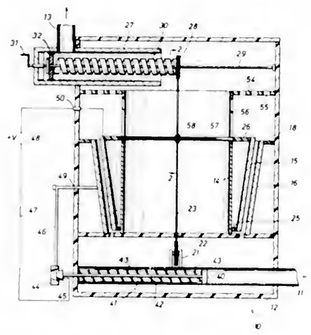
3,809,855
THERMAL SENSING APPARATUS
Danny Marvin Neal, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 12, 1973, Ser. No. 369,369
Int. Cl. H05b *1/00*; **G03g** *15/70*
U.S. Cl. 219—216 **7 Claims**



A contact type thermal sensing apparatus for a hot roll fusing unit includes a fail-safe detector to insure intimate contact between the thermal transducer and the monitored roll surface. The fail-safe detector also insures intimate contact between an over temperature sensing device and the monitored roll surface. The thermal transducer includes a thermally and electrically conductive contact which is held against the surface of the rotating conductive fuser roll. The output of the transducer is utilized to control the amount of heat supplied to the roll. A second thermally and electrically conductive contact is held against the surface of the rotating conductive roll and includes a thermal fuse which prevents further heat application to the roll should the surface thereof become overheated. The fail-safe detector comprises an electrical continuity circuit which includes the two contacts and the conductive roll. If either of the contacts becomes separated from the roll, electrical continuity therebetween is broken and the detector output prevents further heat application to the roll. The fail-safe detector thus insures that the transducer and thermal fuse contacts are intimately contacting the roll thereby preventing excessive overheating of the roll occasioned by the loss of such contact.

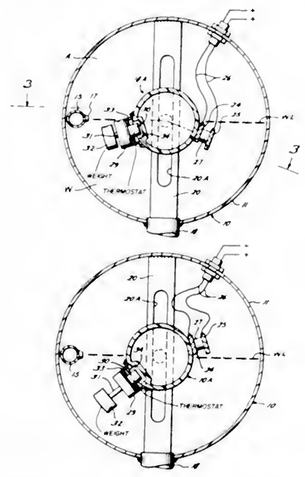
3,809,856
WATER HEATER
Robert E. Wills, San Antonio, Tex., assignor to Richard R. Wynn, Palm Beach, Fla.
Filed Oct. 20, 1972, Ser. No. 299,296
Int. Cl. H05b *3/60*
U.S. Cl. 219—286 **8 Claims**

A demand type water heater incorporates a closed chamber having a water inlet and a water outlet. The chamber houses a pair of concentric conical electrodes arranged in spaced relation to define a water flow path therebetween. One electrode is fixed while the other is arranged for axial movement relative to the first to adjust the spacing therebetween. A rotary thermostat coil is arranged adjacent the chamber outlet for measuring the temperature of the water flowing from the outlet



and manipulates a mechanism for automatically adjust the electrode spacing to control the termperature of the water delivered from the chamber. The mechanism includes a pulley rotated by the thermostat and connected to the movable electrode by a flexible linkage which converts the rotary motion of the pulley into linear axial movement of the movable electrode.

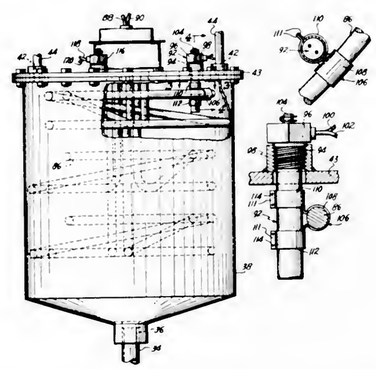
3,809,857
TEMPERATURE CONTROL SYSTEM FOR AN ELECTRODE TYPE LIQUID HEATER
Andrew H. Muhl, 2109 Huldy, Houston, Tex.
Filed Jan. 26, 1973, Ser. No. 326,959
Int. Cl. H05b *3/60*
U.S. Cl. 219—286 **9 Claims**



An electrode type liquid heater is disclosed which, in one embodiment, includes a tank through which a liquid to be heated, such as water, is passed. A heating assembly including heating electrodes for heating the liquid is placed in the tank and such assembly is movable to move the electrodes into and out of the liquid responsive to shifting of the center of gravity

of the assembly. Such shifting is accomplished by a thermostat moving a mass carried by the assembly. The thermostat responds to the temperature of the liquid in the tank to move the mass in one direction to cause movement of the heating electrodes into the liquid for heating, and in another direction to cause movement of the electrodes out of the liquid when a desired liquid temperature is reached. In another embodiment, means are also provided to change the spacing between the electrodes including a thermostat which functions to move an outer electrode farther away from an inner electrode in response to an increase in liquid temperature after liquid flow through the heater stops. This causes the electrodes to move deeper into the body of water to a cooler zone to reduce current flow.

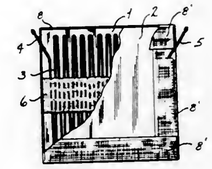
3,809,858
LIQUID HEATING TANK WITH SAFETY CONTROL
Weldon C. Boggs, Tampa, Fla., assignor to Food Research & Equipment Company, Tampa, Fla.
Division of Ser. No. 41,327, May 28, 1970, Pat. No. 3,688,683.
This application Apr. 17, 1972, Ser. No. 244,701
Int. Cl. H05b *1/02, 3/82*
U.S. Cl. 219—331 **5 Claims**



A liquid heating tank contains a convoluted heating element or grid having a portion extending transversely to the cylindrical housing of a safety thermostat switch mounted in the tank. A unitary metallic thermal cut-out clip mechanically and thermally connects the heating element the thermostat switch housing to assure rapid heat transfer from the heating element to the thermostat switch. The clip includes an H-shaped sheet metal stamping bent to form a pair of spaced substantially cylindrical portions which engage the thermostat switch housing an a U-shaped portion between the spaced cylindrical portions which engages the heating element. The thermostat switch is connected in series with the heating element to interrupt current flow to the grid in the event the liquid in the tank is overheated, or to quickly open the circuit to the grid in the event that no liquid or insufficient liquid is present in the tank.

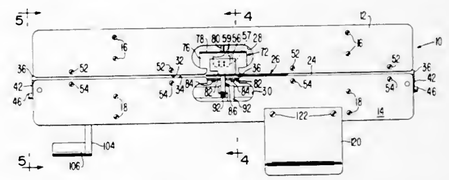
3,809,859
INFRARED EMITTER
Harold D. Wells, St. Louis, Mo., assignor to Black Body Corporation, Fenton, Mo.
Filed Jan. 8, 1973, Ser. No. 321,929
Int. Cl. H05b *3/28*; **H01c** *1/00*
U.S. Cl. 219—345 **5 Claims**

An infrared emitter constituting a panel comprising a pair of sheets of refractory material, a heating element in the form of a continuous wire presented between said sheets and secured thereto by a narrow anchoring strip extending preferably across the central zone of said element. The remaining portions of said wire being unencumbered for expansion and contraction. A dielectric woven mesh-type refractory cover is



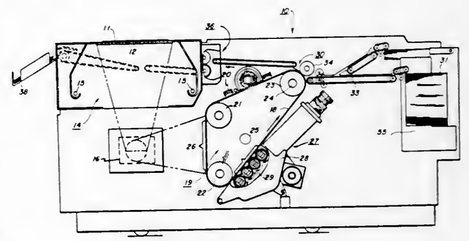
provided for tying the components into a flat panel and with the end portions of the heating element extending rearwardly through said panel for engagement to a convenient source.

3,809,860
DIE FRAME SUPPORT WITH HEATER ELEMENT
John C. Diepeveen, 1737 Kimberly Dr., Sunnyvale, Calif.
Filed Mar. 16, 1973, Ser. No. 342,012
Int. Cl. F27d *11/02*; **H01t** *43/00*
U.S. Cl. 219—385 **12 Claims**



A support for positioning a die support frame for movement in a generally vertical plane past a heater element carried by the support. A generally horizontal rail is adjustably mounted on the support below the path of travel of the frame so that the support is suitable for use with frames of different heights. The support has a clamping finger shiftably mounted thereon and biased toward the heater element for clamping a portion of a die frame against the heater element to thereby heat the frame portion so as to allow a semiconductor chip to be bonded thereto.

3,809,861
REPRODUCTION MACHINE FUSER ASSEMBLY
Oskar J. Bruan, Williamson, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Feb. 26, 1973, Ser. No. 335,983
Int. Cl. B21b *27/06*; **G03g** *15/20*
U.S. Cl. 219—469 **3 Claims**



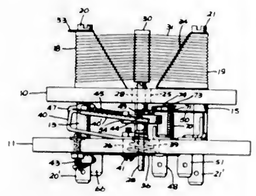
An electrostatographic type reproduction machine having a fuser for fixing developed images on the copy material, the fuser having cooperating heated and pressure rollers. The

pressure roller is supported for movement away from the other roller to permit the rollers to be separated and the fuser unloaded. For this purpose, the pressure roller is carried in a pivotable frame driveable by cams into physical contact with the heated roller. A spring type return driver, which is loaded on movement of the pressure roller into contact with the heated roller, serves, when unlatched, to rapidly drive the fuser rollers apart. To reduce noise and shock on the fuser and related parts occasioned by release of the latch and unwinding of the spring drive, a viscous dampener is provided to retard separating movement of the fuser rollers.

3,809,862
OVEN TEMPERATURE CONTROL

Russell T. Simmons, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.

Division of Ser. No. 182,453, Sept. 21, 1971. This application Oct. 16, 1972, Ser. No. 297,977
Int. Cl. H05b *1/02*
U.S. Cl. 219—512 **28 Claims**



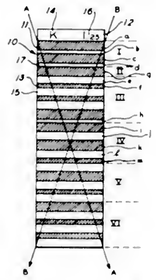
A system for controlling the temperature of air in an oven. The system has heater means for heating the oven air, switching means for energizing and de-energizing the heater means, and a thermal-to-mechanical transducer including a spring biased taut wire disposed within the oven in thermal contact with the air. Coupling means connects means for coupling the thermal-to-mechanical transducer with the switching means whereby the heater means may be energized and de-energized in response to changes in the temperature of the air within the oven about the thermal-to-mechanical transducer. An electrical circuit for controlling the temperature of the oven and a method for operating the oven within a predetermined temperature range are also disclosed.

3,809,863
ARTICLE CODING SYSTEM

Anders B. Oberg, Jakobsberg, Sweden, assignor to Svenska Dataregister AB, Solna, Sweden

Filed Oct. 22, 1965, Ser. No. 500,814
Claims priority, application Sweden, June 14, 1965, 7790/65
Int. Cl. G06k *7/10, 19/06*
U.S. Cl. 235—61.11 E **14 Claims**

An article coding system is provided which includes, in its preferred embodiment, a light sensing pen used in conjunction with a record bearing media. The article coding is such that there are indicia thereon having first and second dimensions and first and second reflectivity. These indicia are combined such that the wider dimension indicia form signals of two types, indicating two binary states, and the narrow dimension indicia are combined with opposite polarity indicia of larger

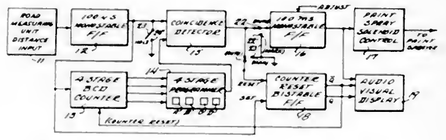


dimension to provide a third signal, when used in combination with a light sensing device, for timing purposes.

3,809,864
DISTANCE EVENT MARKER

Harry R. Sampey, Vanderbilt, Pa., assignor to Pentron Industries, Inc., Vanderbilt, Pa.

Continuation-in-part of Ser. No. 194,401, Nov. 11, 1971, and a continuation-in-part of Ser. No. 245,432, April 19, 1972. This application July 10, 1972, Ser. No. 270,300
Int. Cl. G06m *3/02*
U.S. Cl. 235—92 DN **20 Claims**



The recording apparatus shown herein periodically records events as a function of distance traversed from a selected starting point. The system generates a plurality of input pulses, each one of which indicates the traverse of a selected unit distance, while a programmable counter periodically produces an output upon the occurrence of a selected programmable number of pulses thereby indicating a desired interval of traversed distance. A recording device such as a paint sprayer responds to the output of the programmable counter for recording the occurrence of the output at the desired interval of traversed distance.

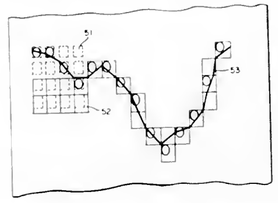
3,809,865
COMPUTER TERMINAL PLOTTING APPARATUS AND METHOD

Frank N. Dimeo, Philadelphia, Pa., assignor to Academic Associates, Inc., Audubon, Pa.

Continuation-in-part of Ser. No. 79,907, Oct. 12, 1970, abandoned. This application Jan. 27, 1972, Ser. No. 221,237
Int. Cl. G06f *15/20*
U.S. Cl. 235—151 **7 Claims**

In a conventional computer terminal device for printing out data from a digital computer, a type vehicle having straight line characters of varying slopes and intercepts which is easily adapted to replace or fit over the conventional alphanumeric ball, cylinder or type-track vehicle, for printing a straight line approximation of graphical information. The information from which the graph is derived, already available in the computer, is operated upon by a stored program to cause the type

vehicle to print, for each data point, a straight line segment conveying optimum information with respect to the position

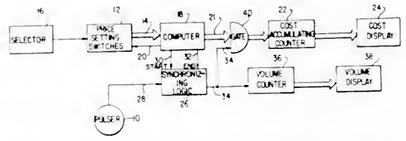


and waveform derivatives to provide a continuous plot of output data.

3,809,866
COMPUTING SYSTEM

John Tregay Scoville, Greensboro, N.C., assignor to Gilbert & Barker Manufacturing Company, Greensboro, N.C.

Filed June 6, 1973, Ser. No. 367,476
Int. Cl. G06f *15/56, 7/52*
U.S. Cl. 235—151.34 **17 Claims**



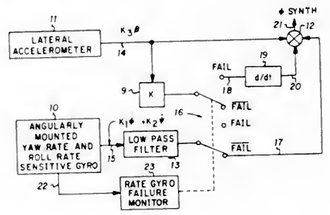
Embodiments of a computing system are disclosed which have particular utility in computing the cost of fuel, such as gasoline, as a function of the fuel volume dispensed. Specifically, the computer is designed to be free-running in that its cyclic generation of pulses representative of the established unit volume price of the fuel is independent of the volume of fuel which is actually dispensed or the rate of dispensing.

A pulser is used which generates a pulse for each incremental volume of fuel dispensed, and a synchronizing circuit receives and synchronizes each of the asynchronous pulses from the pulser with a cycle of the computer. Once synchronization occurs, the price pulses generated during that single computer cycle are passed to an accumulating counter and display device.

3,809,867
SYNTHESIS OF BANK AND PITCH SIGNALS UTILIZING RATE AND ACCELERATION INPUT PARAMETERS

Edwin R. Hattendorf, Mission Viejo, Calif., assignor to Collins Radio Company, Dallas, Tex.

Filed Dec. 18, 1972, Ser. No. 316,214
Int. Cl. G06g *7/78*
U.S. Cl. 235—150.2 **7 Claims**

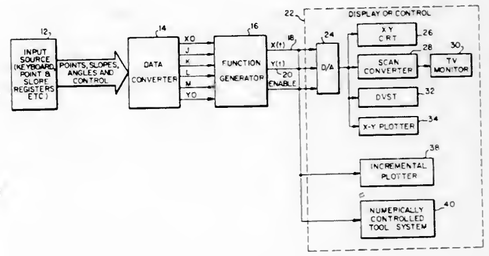


A signal development means for synthesizing bank and pitch attitude signals from rate gyro and accelerometer inputs.

3,809,868
SYSTEM FOR GENERATING ORTHOGONAL CONTROL SIGNALS TO PRODUCE CURVILINEAR MOTION

Luis F. Villalobos, Waltham; Allen A. Harano, Watertown, and Richard H. Breininger, Concord, all of Mass., assignors to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 106,108, Jan. 13, 1971. This application May 16, 1972, Ser. No. 253,891
Int. Cl. H01j *29/70*
U.S. Cl. 235—151 **31 Claims**

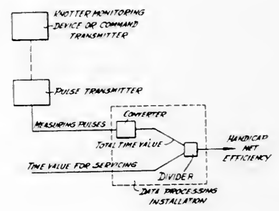


A system for producing orthogonal control signals for display or tool control purposes. The orthogonal control signals are generated in response to received point and slope data for each of a plurality of curve sections. The generated control signals produce curve strokes which are a variable geometric portion of an ellipse that is constrained by the received point and slope data. In generating the orthogonal control signals a set of four parameters are generated as intermediate controls. The four parameters are readily transformed to produce rotation, scaling or other operations, or are economically stored in memory as part of an instruction set for producing general or predetermined characters, symbols and graphic images from linked curve sections. A sequence of curve sections may be pieced together with smooth transitions free of slope discontinuities.

3,809,869
METHOD AND DEVICE FOR MONITORING THE PRODUCTION PROCESS OF AUTOMATIC YARN WINDING MACHINES

Gregor Gebald, Rheydt, Germany, assignor to W. Schlofhorst & Co., Monchengladbach, Germany

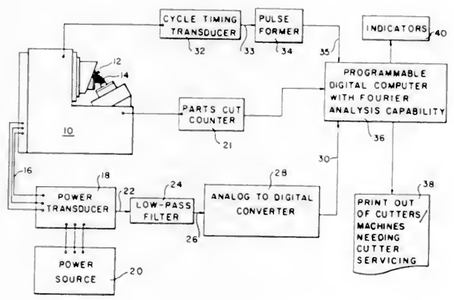
Filed June 29, 1970, Ser. No. 50,124
Claims priority, application Germany, June 27, 1969, 1932549
Int. Cl. G06f *15/36;* **D01h** *13/32*
U.S. Cl. 235—151.3 **4 Claims**



Method of monitoring the production process of automatic winding machines includes forming and indicating, in predetermined time intervals, a handicap net efficiency from action of at least one of the winding stations of the winding

machine, and an actual net efficiency actually resulting from running and shutdown of the winding machine, and system for carrying out the foregoing method.

3,809,870
METHOD AND APPARATUS FOR MONITORING CONDITION OF CUTTING BLADES
Ronald E. Auble, West Henrietta, and Gary J. Kimmet, Rochester, both of N.Y., assignors to The Gleason Works, Rochester, N.Y.
Filed June 8, 1972, Ser. No. 260,875
Int. Cl. G01n *3/58*; **G06f** *15/20*
U.S. Cl. 235—151.3 **31 Claims**

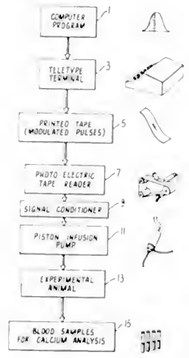


Method and apparatus for monitoring the condition of a cutter on a cutting machine while it is being used and for indicating when the cutter wear rate has increased sufficiently to economically require removal for replacement and/or servicing. During at least a portion of an actual cutting operation on the machine, the power being consumed by the cutting machine drive motor is monitored and a frequency spectrum of the monitored power consumption is obtained therefrom. At least part of this power consumption frequency spectrum is then integrated to provide a wear rate index value (called a "wear number") which, when compared with previous wear rate index values, may be used as an indication of the relative wear rate for the corresponding cutter. Both an analog embodiment and a combination analog and digital embodiment of apparatus are disclosed for performing the method. To minimize statistical fluctuations, provisions are also made for averaging over several different measurement or sampling periods. An exemplary set of rules is given for processing the wear index values and determining whether or not cutter wear is sufficient to warrant removing the cutter for re-sharpening and/or other servicing.

3,809,871
PROGRAMMABLE PHYSIOLOGICAL INFUSION
Wayne H. Howard, Mountain View; Donald R. Young, Los Altos Hills, and Richard R. Adachi, Menlo Park, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Dec. 1, 1972, Ser. No. 311,175
Int. Cl. G06f *15/42*; **A61m** *5/14*
U.S. Cl. 235—151.3 **5 Claims**

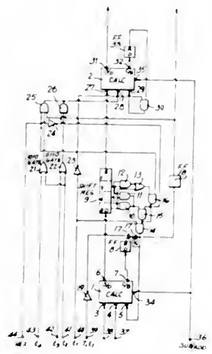
A programmable physiological infusion device and method are provided wherein a program source, such as a paper tape, is used to actuate an infusion pump in accordance with a desired program. The system is particularly applicable for dispensing calcium in a variety of waveforms.

The invention described herein was made by employees of the United States Government and may be manufactured and



used by or for the Government for Governmental purposes without the payment of any royalties thereon or therefor.

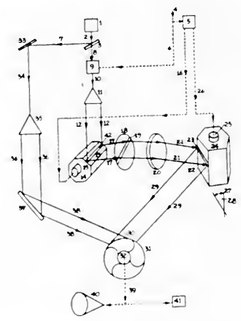
3,809,872
TIME CALCULATOR WITH MIXED RADIX SERIAL ADDER/SUBTRACTION
Katsumi Yamamura, and Mitsuhiro Goto, both of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Feb. 16, 1972, Ser. No. 226,921
Claims priority, application Japan, Feb. 17, 1971, 46-6891
Int. Cl. G06f *7/50*
U.S. Cl. 235—170 **3 Claims**



A time calculating device characterized in that hours and minutes and perhaps seconds are directly set, times are added or subtracted, and the result of this calculation is obtained in hours, minutes and seconds. The times may also be multiplied or divided by an arbitrary figure, the result being obtained in hours, minutes and seconds or in other units. The time calculating apparatus comprises first and second calculators, the first calculator being adapted to receive and add or subtract two time figures and produce a result. The second calculator is adapted to receive and combine this result with a further figure. A means is provided coupling the first calculator to the second calculator for the transfer of the result to the latter. This means is responsive to the result and to a hexadic-decimal control signal for generating a decimal or hexadic correction signal which is transmitted to the second calculator as the aforesaid further figure for combination with the result.

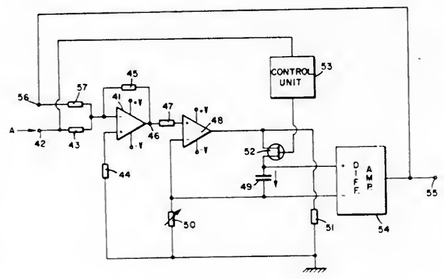
The time figures can be expressed as series of pulses and the aforesaid means includes a shift register to convert the result to parallel signals, there being provided a plurality of gates coupled to the shift register to detect when hexadic and decimal corrections are necessary and to generate an indicating signal for indicating the same.

3,809,873
OPTICAL PROCESSOR FOR CONVOLUTION FILTERING
Carl N. Klahr, 678 Cedar Lawn Ave., Lawrence, N.Y.
Continuation-in-part of Ser. No. 157,445, June 28, 1971, abandoned. This application Nov. 3, 1972, Ser. No. 303,313
Int. Cl. G06g *7/19, 9/00*
U.S. Cl. 235—181 **11 Claims**



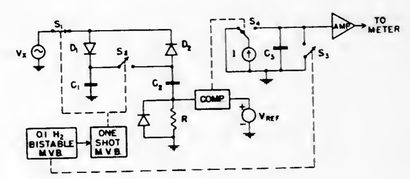
This invention comprises apparatus for optical processing of two dimensional convolution integrals of a signal function with a filter function. It makes use of specific adaptations of an optical processor not requiring input storage medium, denoted OPWISM. When the filter function is available as a two dimensional spatially varying optical filter, a specific category of OPWISM apparatus is utilized to produce the convolution integral. When the filter function is available as an electronic signal, the convolution integral can be produced from a specific combination of OPWISM apparatus.

3,809,874
DEVICE FOR CALCULATING THE MEAN VALUE OF A SUCCESSION OF DATA
Mario Pozzetti, and Claudio Mordini, both of Bologna, Italy, assignors to Finike Italiana Marposs- Soc. In Accomandita Semplice di Mario Possati & Co., Bentivoglio, Italy
Filed July 21, 1972, Ser. No. 273,712
Claims priority, application Italy, July 30, 1971, 3490/71
Int. Cl. G06g *7/18*
U.S. Cl. 235—183 **5 Claims**



A device for calculating the mean value of a succession of data including a storage capacitor memory element for storing the mean value of a succession of input data, and a control element connected to the storage capacitor for controlling the charging and discharging of the capacitor, the control element also applying a predetermined percentage of the last data piece to the memory element and discharging the same percentage of the mean value previously stored in the memory element.

3,809,875
FAST RESPONDING ALTERNATING CURRENT VOLTMETER HAVING AN OUTPUT THAT IS LINEAR IN DECIBELS
James A. Sprowl, 141 Greenbay Rd., Wilmette, Ill.
Division of Ser. No. 34,772, May 5, 1970, Pat. No. 3,676,661. This application July 3, 1972, Ser. No. 268,535
Int. Cl. G06g *7/24*
U.S. Cl. 235—197 **11 Claims**

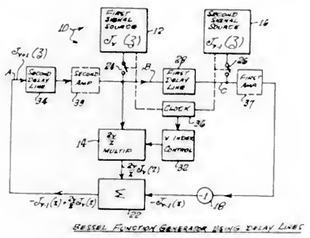


A series of variable gain amplifiers connect an alternating current signal input to a rectifier and log conversion circuit. The rectifier portion of the circuit charges one capacitor to a level which corresponds to the signal positive peak level and charges another capacitor to a level which corresponds to the signal negative peak level. The log conversion portion periodically interconnects the capacitors and a resistor into a loop circuit and measures the time it takes for current flow through the resistor to decay down to a predetermined reference level. This time measurement is proportional to the logarithm of the peak-to-peak signal level and may therefore be displayed on a meter or other suitable output display device that is linearly calibrated in decibels. The gain of the variable gain amplifiers is varied as is necessary to handle varying input signal magnitudes, and the meter reading is corrected to compensate for such changes in gain. The resulting voltmeter may be designed to have a flat frequency response down to 20 cycles per second and may still accurately depict rapid changes in signal amplitude, such as the fluctuations of a human speech signal waveform.

3,809,876
APPARATUS FOR THE GENERATION OF BESSEL FUNCTION SIGNALS
George W. Byram, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Aug. 31, 1973, Ser. No. 393,685
Int. Cl. G06g *7/26*
U.S. Cl. 235—197 **5 Claims**

Apparatus for the generation of Bessel function signals $J_\nu(z)$ of the first kind, of constant argument z and successive integral order ν, comprising a first signal source capable of generating signals of arbitrary amplitude $J_\nu(z)$, where z is a constant. Means are connectable to the signal source for multiplying the values of $J_\nu(z)$ by the quantity $(2_\nu/z)$. A second signal source is capable of generating signals of amplitude $J_{\nu-1}(z)$. An inverter is connected to, and inverts a signal at, the output of the second signal source. The transit time of the $J_\nu(z)$ signal traversing the multiplying means is substantially equal to the transit time of the $J_{\nu-1}(z)$ signal traversing the inverter. The apparatus further comprises a summing circuit, whose two inputs are the output of the mul-

tiplying means, $(2\nu/z)\,J_{\nu}(z)$, and the output of the inverter $-J_{\nu-1}(z)$, the output of the summing circuit thereby being $(2\nu/z)\,J_{\nu}(z)-J_{\nu-1}(z)$, which is equal to $J_{\nu+1}$.

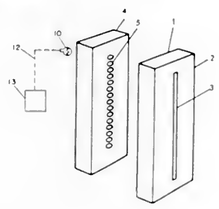


After the first and second signal sources are once energized, means are provided so that the action becomes automatically recursive, without the necessity of again energizing the signal sources.

ERRATUM

For Class 240—51 see:
Patent No. 3,810,085

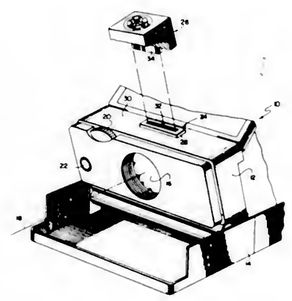
3,809,877
INDICATOR POINTER
Michael Kwong, Montreal, Quebec, Canada, assignor to Canadian Marconi Company, Montreal, Quebec, Canada
Filed Feb. 16, 1973, Ser. No. 333,405
Claims priority, application Canada, May 31, 1972, 143813
Int. Cl. G01d *11/28*
U.S. Cl. 240—1 LP **3 Claims**



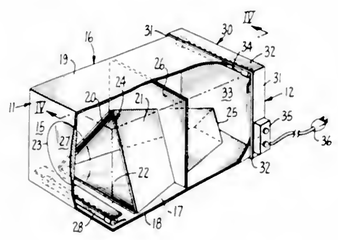
Apparatus for providing an expanding or contracting line of light for use as a pointer in an analog display device. The apparatus comprises a strip of fused fibre optic material housed in an opaque plate, and a light plate, comprising a series of light bulbs in intimate contact with the back side of the opaque plate. In one embodiment, the light bulbs are directly behind the strip of fibre optic material, while in another embodiment the light bulbs are off-set in alternating arrangement with respect to the fibre optic material. An embodiment wherein only every second bulb is activated, to thereby give a dotted effect, is also taught.

3,809,878
NOVEL FLASH CUBE ADAPTER
Edison R. Brandt, Boca Raton, Fla., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation-in-part of Ser. No. 246,807, April 24, 1972, abandoned. This application Feb. 23, 1973, Ser. No. 335,170
Int. Cl. G03b *15/02, 15/03*
U.S. Cl. 95—11 L **14 Claims**

A flash adapter for use in conjunction with a photographic camera including a flash unit entrance slot having a plurality of electrical contacts contained therein. The adapter includes a connector blade which, when inserted into the flash unit entrance slot instructs the camera's exposure control circuit to change from its ambient mode to its flash mode. When inserted, the blade makes electrical connection between the electrical contacts and a source of illumination mounted upon the flash adapter.



3,809,879
MACHINE FOR CREATING AND VIEWING KALEIDOSCOPE IMAGES
Hector Gonzalez, 745 Hillcrest Dr., Felton, Calif.
Filed Nov. 24, 1972, Ser. No. 309,467
Int. Cl. F21p *5/04*
U.S. Cl. 240—3.1 **10 Claims**

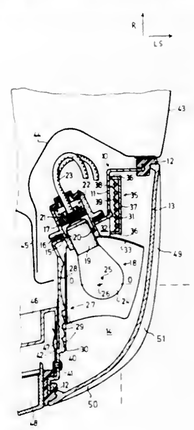


Equipment for creating illuminated images in kaleidoscopic form from a miscellany of materials whether arranged at random or geometrically, whether presented statically, continuously changing or intermittently moving, where the subjects are viewed through a mirrored truncated pyramidal tunnel having a wider opening at the viewing end than at the gathering end, where galleries present the objects to be viewed, and in which such objects are directly illuminated, stopped or moved in accordance with the control of the viewer or the operator.

ERRATUM

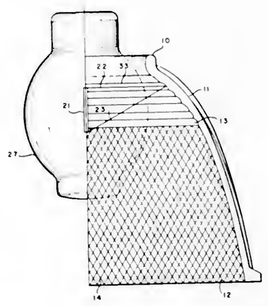
For Class 240—6 see:
Patent No. 3,810,250

3,809,880
ILLUMINATING UNIT FOR USE ON MOTOR VEHICLES
Hans Daumueller, Marbach, and Heinz Kretschmer, Hofen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Mar. 20, 1973, Ser. No. 343,144
Claims priority, application Germany, Mar. 23, 1972, 2214161
Int. Cl. F21v *21/00*; **B60g** *1/00*
U.S. Cl. 240—8.2 **12 Claims**



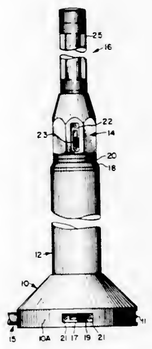
An illuminating unit which is particularly adaptable for use on motor vehicles has a housing including a wall which is at least partly transparent. Reflectors in the housing reflect light to the transparent parts of the wall, the reflected light then travelling to the exterior of the housing. A single filament in the housing is so positioned that light emitted thereby impinges on the reflectors and is reflected to all transparent parts of the wall.

3,809,881
PRISMATIC REFLECTORS
Dale E. Welty, Newark, Ohio, assignor to Holophane Company, Inc., New York, N.Y.
Filed July 17, 1972, Ser. No. 272,312
Int. Cl. F21v *7/00*
U.S. Cl. 240—106 R **12 Claims**



Prismatic reflectors for use with clear light sources in which spiral flutes are disposed over at least a lower portion of the interior surface. The flutes run in two directions to form a plurality of diamond shaped areas for spreading light incident thereon in both horizontal and vertical directions. Double faced prisms are provided over a top portion of the interior surface of the reflector for the purpose of causing a predetermined amount of light to be reflected to the nadir of the reflector.

3,809,882
LIGHTING DEVICE
Harold B. Wetmore, Needham, Mass., assignor to Unique Devices Engineering & Consulting Corp., Waltham, Mass.
Filed Jan. 20, 1971, Ser. No. 107,960
Int. Cl. F21l *9/00, 15/08*
U.S. Cl. 240—10.6 CH **12 Claims**



The device is portable, may be comfortably held in the hand, and employs a screw-in fluorescent light source that is powered from one or more conventional rechargeable batteries through a drive circuit. The batteries and drive circuit are housed within the device and a slide switch or the like on the device is actuable to electrically connect and disconnect the batteries to the drive circuit. The fluorescent source has a protective tube extending thereabout. The device also includes a base upon which the device normally rests. Two receptacles are provided in the base for receiving an AC and DC plug for the purpose of recharging the batteries, respectively, from a conventional AC outlet or from an automobile battery, for example. A second slide switch is provided on the base for selecting either a "charge/on" condition or an "off" condition.

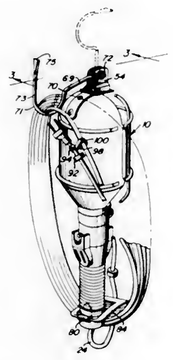
ERRATUM

For Class 240—40 see:
Patent No. 3,809,321

3,809,883
UNIVERSAL TROUBLE LIGHT SUPPORT
Charles M. Goodwin, Rt. No. 2, Mount Vernon, Ohio
Filed June 12, 1972, Ser. No. 261,679
Int. Cl. F21v *15/00, 21/00*
U.S. Cl. 240—54 A **12 Claims**

A trouble or drop light construction is provided and includes an elongated handle having an endwise outwardly opening electrical socket at one end for receiving the base of an electric light bulb therein and an elongated laterally opening shield supported from one side of the socket end of the handle opening toward the opposite side. The outer end of the shield includes a transverse end wall as is conventional and the end wall has a mount supported therefrom for angular displacement about an axis generally aligned with the longitudinal axis of the handle and a suspension hook has its base end oscillatably supported from the mount for angular displacement about an axis extending transversely of the hook and

disposed generally normal to the axis of rotation of the mount. The hook is swingable between a laterally opening position and a laterally projecting position with the hook opening endwise outwardly of the end of the shield remote from the handle. Further, the end of the handle remote from the shield includes a laterally outwardly projecting member extending outwardly from the handle in a direction opposite to the direction in which the laterally projecting hook extends and the laterally outwardly projecting member and hook may be utilized as members spaced longitudinally of the trouble light about which the cord of the trouble light may be wrapped when not in use.

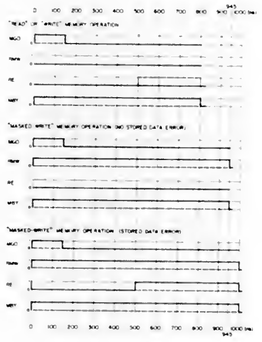


3,809,884

APPARATUS AND METHOD FOR A VARIABLE MEMORY CYCLE IN A DATA PROCESSING UNIT

Chester M. Nibby, Billerica; John C. Manton, Marlboro, and John L. Curley, Sudbury, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Nov. 15, 1972, Ser. No. 306,757
Int. Cl. G06f *11/00, 13/00*; **G11c** *7/00*
U.S. Cl. 340—172.5 **20 Claims**



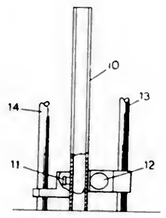
Apparatus and method for providing a variable memory cycle in a memory module connected to a data processing unit. The operation being performed in the memory module causes a clock to establish a memory cycle interval determined by the particular memory module operation. The memory module is inaccessible to the data processing unit only for a period of time necessary for completion of the operation.

3,809,885

SEDIMENTOMETER

Terence Allen, 2 Strickland Cl., Shadwell, Leeds 17, Yorkshire, England

Filed Jan. 13, 1971, Ser. No. 106,013
Claims priority, application Great Britain, Jan. 14, 1970, 1764/70
Int. Cl. G01n *23/12*
U.S. Cl. 250—357 **5 Claims**



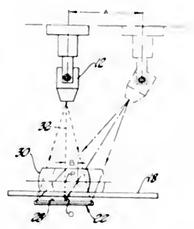
The invention provides an X-ray sedimentometer which uses an isotope X-ray source, both the X-ray source and detector being adapted to be driven relative to the sedimentation tank to take readings at different depths.

3,809,886

DYNAMIC TOMOGRAPHY WITH MOVABLE TABLE

Gary D. Cochran; David A. Crosby, and Peter A. Franken, all of Ann Arbor, Mich., assignors to CFC Products, Inc., Ann Arbor, Mich.

Filed Nov. 26, 1971, Ser. No. 202,494
Int. Cl. G01n *23/00*
U.S. Cl. 250—323 **11 Claims**



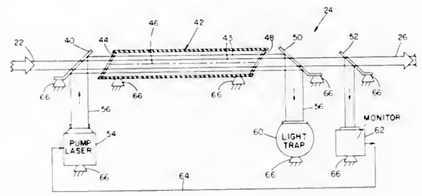
Method and apparatus are disclosed for producing a set of radiographs for use in dynamic tomography. The radiographs in a set are produced by using a stationary holder for the recording medium, such as a rapid film changer. The source of radiation is disposed opposite the stationary holder and the object to be radiographed is disposed on a movable support member in the path of the beam of radiation. An axis of the beam intersects a selected point in the object and a selected point in the holder on the surface of the recording medium for each position of the source of radiation and the support member. The source is energized at each succeeding position to expose the medium and the radiation falls on the same area of the holder in each such position. In the preferred embodiment the support member is moved in synchronism with the source and the source is energized at time intervals which define the several successive positions. With this arrangement, a fixed film holder may be used and a minimum of film area is required for the set of radiographs.

3,809,887

APPARATUS AND METHOD FOR CONTROLLING DIRECTION OF RADIATION

Ali Javan, Cambridge, and Michael S. Feld, Newton Center, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Sept. 5, 1972, Ser. No. 286,091
Int. Cl. H04b *9/00*
U.S. Cl. 250—199 **7 Claims**



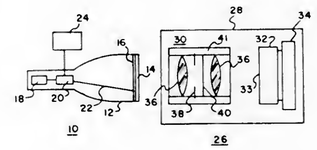
The invention features the use of atomic systems resonant in one or more Doppler broadened transitions which are biased by a radiation field having a frequency within the range of one transition to produce anisotropic radiation transmission properties through the atomic systems. Embodiments of the invention feature an isolating amplifier operating in a communication system and an isolation cell preventing reradiation into a radiation source.

3,809,888

PHOTOGRAPHIC APPARATUS

W. Riley Stock; Melvin M. Balsiger, both of Portland, and William G. Beran, Beaverton, all of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Sept. 13, 1971, Ser. No. 179,995
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 R **7 Claims**



A photographic apparatus including an image intensifier for increasing writing speed and resolution for preferably recording light information displayed on a cathode ray tube is disclosed. The image intensifier intensifies the light image received at the input end thereof through optical lens and also converts the spectrum of the output light into a preferable range in which the photographic film is most sensitive.

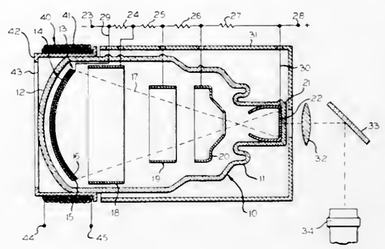
3,809,889

IMAGE INTENSIFIER COMPENSATED FOR EARTH'S MAGNETIC FIELD

Robert C. McBroom, Franklin, Wis., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,176
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 VT **14 Claims**

The earth's magnetic field influences the electrons emitted from the photocathode of a radiation image intensifier tube such that the optical image formed on the output screen of the tube is often distorted and rotated. The invention involves locating an electromagnet coil in the vicinity of the photocathode of the image tube where emitted electron energy is low, to nullify the effects of the earth's magnetic field. Means are provided for adjusting the field strength of the coil for various orientations of the image tube.

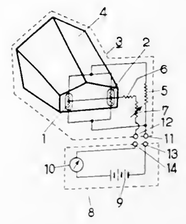


3,809,890

CAMERA FINDER

Kaneo Saito, Tokyo, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Apr. 13, 1972, Ser. No. 243,785
Claims priority, application Japan, Apr. 14, 1971, 46-27883
Int. Cl. H01j *39/12*
U.S. Cl. 250—214 P **3 Claims**



A novel camera assembly of the type comprising light receiving photoelectric means and a removable finder is provided. The light receiving means includes compensating means and other parts of a photometric device, all of which are mounted in the finder and removable from the camera. An ammeter and power supply for the light receiving photoelectric means is located in the camera body itself.

3,809,891

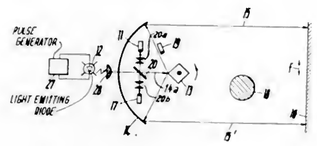
BEAM SCANNING OBJECT DETECTION SYSTEM

Jurgen Erdman, and Hartmut Knappe, both of Waldkirch, Germany, assignors to Erwin Sick, Waldkirch, Germany

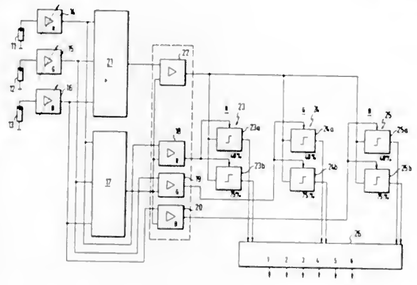
Filed Nov. 21, 1972, Ser. No. 308,589
Claims priority, application Germany, Nov. 22, 1971, 2157815
Int. Cl. G01p *3/68*
U.S. Cl. 250—222 R **17 Claims**

A detection system and method of operation for detecting the presence of an object in a predetermined zone. The detection system includes a pulsating light-emitting device, a lens apparatus for directing the pulses of light into a beam, and a scanning device for sweeping the pulsating beam of light across the detection zone. The detection system also includes at least two photocells, one of which is positioned to receive pulses of light directly from the light-emitting device and the other is positioned to receive light after being transmitted

across the detection area. The signals developed by the photocells take the form of trains of electrical signals and are correlated with appropriate electronic circuitry for detecting the absence of pulses in one of the trains of signals during the presence of pulses in the other train of signals to thereby provide an indication of the presence of an object in the detection area. The electronic circuitry also digitally processes the received signals for developing an output indication representative of the size of the object, as well as the position of the object in the detection area.



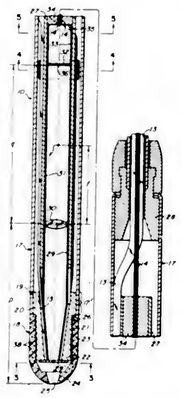
3,809,892
ARRANGEMENT FOR HUE EVALUATION
Helmut Schober, Taufkirchen, Germany, assignor to Erwin Sick Optik-Elektronik, Waldkirch, Breisgau, Germany
Filed Feb. 8, 1973, Ser. No. 330,576
Claims priority, application Germany, Feb. 11, 1972, 2206633
Int. Cl. G01j *3/34*
U.S. Cl. 250—226 **6 Claims**



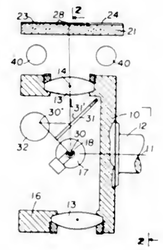
The present invention relates to a system for hue evaluation to be used with reading devices for example in identifying colour rings on ampoules or on packages. Three photoelectric receivers are utilized, each of which receives one of the three primary colours of the hue to be evaluated, and supplies to an evaluating circuit an electric signal corresponding to the proportion of the respective primary colour in the hue, the evaluating circuit forming from the three signals a hue output signal characteristic of the hue. The invention further provides for the primary colour signals to be applied to a maximum formation stage the output of which serves as a reference signal for the primary colour signals.

3,809,893
OPTICAL READER
Bruce W. Dobras, Dayton, Ohio, assignor to The Monarch Marking Systems Company, Dayton, Ohio
Continuation of Ser. No. 104,894, Jan. 8, 1971, abandoned. This application Feb. 9, 1973, Ser. No. 330,937
Int. Cl. G02b *5/14*
U.S. Cl. 250—227 **2 Claims**

There is disclosed an optical reader for reading a record. The user can hold the reader in his one hand and scan a binary coded record. The reader has an elongated housing for mounting a record illuminator, a lens for gathering light reflected or diffused from the record, a mask having an aperture, and a light receptor spaced from the aperture which receives light passing through the aperture. The housing carries a removable, replaceable, tip which is composed of plastic material having a low coefficient of friction and which preferably contains electrically conductive material for rendering the tip electrically conductive to retard the accumulation of dust, lint and the like on the tip.

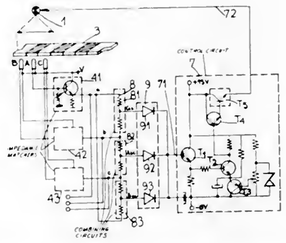


3,809,894
OPTICAL SCANNER
Peter C. Renzo, Saddle River, N.J., assignor to Creative Logic Corporation, Paramus, N.J.
Continuation of Ser. No. 73,380, Sept. 18, 1970, abandoned. This application Jan. 30, 1973, Ser. No. 327,926
Int. Cl. G08c *9/06*
U.S. Cl. 250—236 **9 Claims**



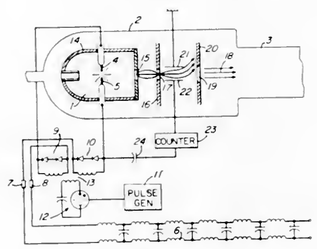
This optical scanner contains a rotor having a plurality of lenses arranged in a helix coaxial with the rotor and having a single convolution. A light source is positioned to emit light appearing to come from the rotor axis. Each lens in turn projects an image of said light source to a record, lighting a narrow area thereof. This lighted area scans a character line of the record as the rotor turns. The axially displaced lenses successively scan different lines of characters without any motion additional to said rotation. The lighted area is projected towards the rotor axis to a region common to all area positions, and a photocell receives the light projected to said region.

3,809,895
SYSTEMS FOR MEASURING DISPLACEMENTS
Jean Talsne, 81 Residence Delphine, 94120 Fontenay-sous-Bolse, France
Filed Oct. 5, 1972, Ser. No. 295,126
Claims priority, application France, Oct. 13, 1971, 71.36756
Int. Cl. H01j *3/14*
U.S. Cl. 250—237 G **7 Claims**



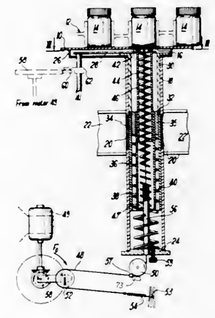
A displacement measuring system has an energy source, a displacement sensor including spaced energy detectors and a measuring scale between the source and the sensors movable with respect to the sensors. The detectors provide phase displaced undulatory signals from movement of the scale. The energy provided by the source is controlled by comparing with a reference signal a continuous energy signal attained by linearly combining the measuring signals provided by the detectors. The energy signal has at all times a level substantially equal to the mean amplitude of the measuring signals.

3,809,896
METHOD FOR THE MASS SPECTROMETRIC ANALYSIS OF SOLIDS
Klaus Dieter Schuy, Am Dobben, and Jochen Franzen, Witten/Ruhr, both of Germany, assignors to Varian Mat GmbH, Bremen, Germany
Filed May 25, 1971, Ser. No. 146,693
Int. Cl. B01d *59/44*
U.S. Cl. 250—286 **7 Claims**



There is disclosed a method for the mass spectrometric analysis of solids using a spark ion source. In one embodiment a plurality of spark discharges are provided for each exposure of an ion sensitive layer, resulting in a corresponding plurality of ion pulses wherein a predetermined number of successive ion pulses out of a given number thereof are suppressed. For example, only one in every one hundred pulses may be used for exposure, whereas the other ninety nine pulses are suppressed. In an alternate embodiment, a predetermined major proportion of the ions constituting each pulse are suppressed, the remainder being allowed to pass to an analysis part of the spectrometer.

3,809,897
SAMPLE CHANGING AND LIGHT SEALING DEVICE FOR LIQUID SCINTILLATION SPECTROMETER
Edward W. Thomas, Rockaway; Walter Oscar Scherzer, Andover, both of N.J., and Fernand Sicard, Saint-Etienne, France, assignors to Intertechnique S. A., Plaisir, France
Filed Mar. 26, 1968, Ser. No. 716,213
Claims priority, application France, Mar. 27, 1967, 67.100706
Int. Cl. G01t *1/20*
U.S. Cl. 250—288 **13 Claims**



The sample changer is for automatically moving samples from a conveyor into a counting chamber and back to the conveyor and for preventing access of light to the counting chamber. It comprises two shutter assemblies so controlled that they alternately open. One of them comprises a plunger carrying the sample to be moved and which, when lowered, successively clears the way for the other shutter assembly to close and forces down the movable component of an abutment type light seal against the return action of a spring.

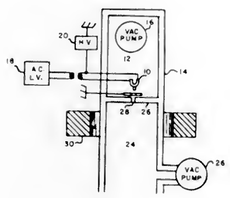
3,809,898
METHOD OF DETECTING AIRCRAFT FUEL LINE LEAKS WITH RADIOACTIVE GAS TRACERS
Bernard A. Fries, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Filed Aug. 4, 1971, Ser. No. 169,060
Int. Cl. G21h *5/02*
U.S. Cl. 250—303 **3 Claims**

A method of detecting aircraft fuel line leaks by dissolving trace amounts of a radioactive gas such as krypton-85, tritium, etc., in the fuel and measuring the level of radioactive emanations along the fuel system. An increase in the intensity of such emanations is noted in the vicinity of the leak.

3,809,899
ELECTRON-BEAM TUBE INCLUDING A THERMIONIC-FIELD EMISSION CATHODE FOR A SCANNING ELECTRON MICROSCOPE
Thompson A. Baker, Beaverton; Melvin M. Balsiger, Portland; Kevin T. Considine, Portland, and Herbert E. Litsjo, Portland, all of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.
Filed Aug. 17, 1972, Ser. No. 281,375
Int. Cl. H01j *37/26*
U.S. Cl. 250—311 **22 Claims**

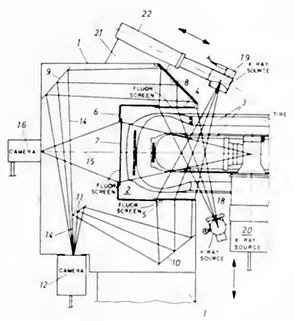
An electron-beam tube for a scanning electron microscope employs the use of a TF built-up field emission cathode which

can be operated from preferably the 100 plane in a substantially continuous mode to provide a stable electron beam having high current density, high resolution, and very high electron optical brightness from a source of very small proportions. The tube, which comprises an evacuated envelope having chambers of different vacuums, is designed to facilitate either quick-change cathode replacement or attendance to the



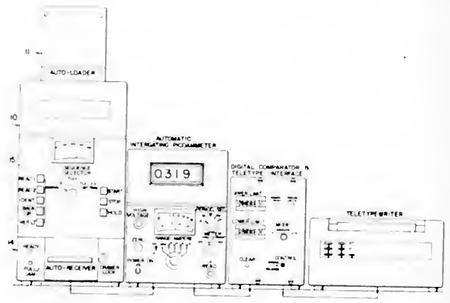
specimen with minimum loss of operating time since the vacuum of the entire tube need not be released. Also, the chamber containing the field emission cathode can be separable from the tube to allow replacement by a new preprocessed cathode in a pre-evacuated chamber. In this case, the mounting means includes a device for puncturing a seal in the cathode chamber to allow the electron beam to pass therethrough.

3,809,900
APPARATUS FOR THE CONTINUOUS, OVERALL X-RAY EXAMINATION OF A MOTOR VEHICLE TIRE
Horst Steffel, Lubeck-Gothmund, Germany, assignor to Collmann GmbH & Co. Spezialmachinenbau KG
Filed Dec. 12, 1972, Ser. No. 314,322
Claims priority, application Germany, Aug. 8, 1972, 2239003
Int. Cl. G01t *1/00*
U.S. Cl. 250—321 **12 Claims**



This invention relates to apparatus for the continuous, overall X-ray examination of a driven motor vehicle tire which is rotatably supported in an expanded state and comprising X-ray apparatus for irradiating the tire from its interior and utilising a sensing camera arrangement having a monitor to reproduce the X-ray picture appearing on at least one fluorescent screen. The invention provides one lateral X-ray tube adjacent each side of the tire to irradiate the side-wall of the tire remote therefrom. An external fluorescent screen is associated with each of the areas of the tire to be irradiated, and the sensing camera apparatus is arranged subsequent to the fluorescent screens. Preferably, but not necessarily, a further X-ray tube is provided for irradiating the tire tread.

3,809,901
AUTOMATIC THERMOLUMINESCENCE DOSIMETRIC SYSTEM WITH CODED CARD
Andras Szalanczy, Oakwood Village; Erwin F. Shrader, East Cleveland; Bruce M. Shoffner, Shaker Heights, and James D. Chamberlain, Solon, all of Ohio, assignors to Kewanee Oil Company, Bryn Mawr, Pa.
Filed Nov. 30, 1971, Ser. No. 203,281
Int. Cl. H01j *39/00*
U.S. Cl. 250—337 **7 Claims**



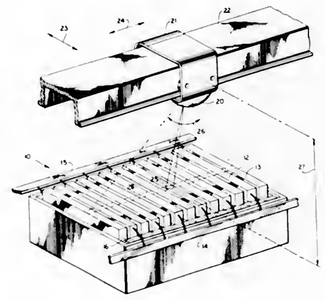
A precision machine is provided which automatically senses the thermoluminescence emanating from a dosimeter which has previously been exposed to radiation, particularly X-rays, gamma rays, electrons and neutrons, wherein the dosimeters are mounted in uniform, rectangular cards adapted to be stacked in a cartridge. The cartridge is horizontally disposed near the top of the machine. A single card is selectively transferred from the cartridge into a vertical gate with a plurality of sequential light locks. Each card is automatically positioned for activation of the dosimeter by contact with a cyclically heated, hot element. After a reading of disseminated luminescence has been made, the cards are automatically discharged from the vertical chute into a receiver where they are serially stacked in another cartridge. Readings with less than 1 percent error can be made reproducibly.

A laminated card with at least one aperture adapted to peripherally seal an encapsulated dosimeter is formed by bonding a foraminous, code-adaptable, rigid rectangular sheet of low-Z material with a codedly transparent sheet of low-Z material in light-transmitting registry with particular code-holes of the rigid sheet. The laminated card may be coded to identify the person, circumstances, or location related to its radiation exposure and the identification is printed out, without error, using a "parity checking" system which permits "auto-correction.' Alternatively, where the correction cannot be made automatically, the machine stops to permit visual examination of the rejected card. The card is also coded for identifying the type of card and whether or not it is correctly present at any position during its sequential progress through the machine.

3,809,902
METHOD AND APPARATUS FOR DETECTING INCIPIENT SHORT CIRCUIT CONDITIONS IN ELECTROLYTIC CELLS
Daniel B. Cofer, and Bruce E. Betterton, both of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.
Filed Dec. 15, 1972, Ser. No. 315,411
Int. Cl. G01t *1/00*; **G01n** *21/30*
U.S. Cl. 250—338 **18 Claims**

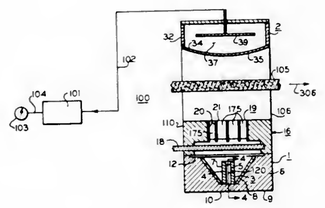
Method and apparatus for detecting the existence of short circuit conditions between adjacent electrodes positioned in

an electrolytic cell. Electrolytic cells of the type characterized by an anode and a cathode, both of which are substantially immersed in a suitable electrolyte, not infrequently develop short circuit conditions caused by physical contact between adjacent electrodes. Incipient short circuit conditions in an electrolytic cell are detected prior to the earliest time of detectability by using prior-art measurements, by scanning the



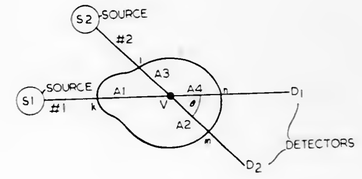
surface of the cell with an infrared sensing apparatus at conditions of scan which permit detection of the thermal abnormality created by the existence of the short circuit condition. The present method and apparatus is useful to scan a large number of electrolytic cells as found in a production facility, so that each of such cells can be rapidly evaluated to determine the possible existence of incipient short circuit conditions.

3,809,903
RADIATION GAUGE
Boong Y. Cho, Columbus, Ohio; Elmer W. Sturkol, Wakefield, Mich., and Keith E. Wier, Columbus, Ohio, assignors to Industrial Nucleonics Corporation, Columbus, Ohio
Filed Dec. 1, 1971, Ser. No. 203,757
Int. Cl. H01j *39/28, 37/20*
U.S. Cl. 250—358 **6 Claims**



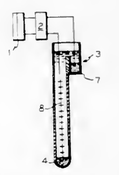
A radiation transmission gauge to measure during manufacture the low atomic number, non-homogeneous, large thickness materials, such as fiberglass, using primarily the radiation photoelectric effect. The gauge source-detector geometry provides monoenergetic X-rays in the 14–30 KEV range, produced by a primary source of gamma radiation of higher energy, through fluorescence of a target. The radiation detector uses Krypton gas and the target material is selected to produce a fluorescence radiation that is above and substantially close to the K-edge of the Krypton gas. Other features of the source-detector geometry minimize the presence of the primary source radiation, to improve gauge accuracy.

3,809,904
METHOD FOR NON-DESTRUCTIVE DENSITOMETRIC MEASUREMENT OF SMALL VOLUMES INSIDE IRREGULARLY SHAPED NON-UNIFORM OBJECTS
Robert Lee Clarke, and Gerk Gerry Van Dyk, both of Ottawa, Ontario, Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
Filed Oct. 5, 1972, Ser. No. 295,097
Claims priority, application Canada, Nov. 24, 1971, 128434
Int. Cl. G01n *23/02*
U.S. Cl. 250—358 **6 Claims**



In determining the electron density of a small selected volume inside an irregularly shaped non-uniform body using radiographic techniques there has always been a dependence on the absorption of radiation in the medium surrounding the selected volume. The present invention allows the measurement of the electron density of a small volume within a non-homogeneous medium by manipulation of the apparatus. This manipulation removes the dependence of the measurement on the absorption of the X-ray or gamma-radiation in the surrounding medium.

3,809,905
TEMPERATURE COMPENSATING ULTRAVIOLET RAY DETECTOR
Shigeru Suga, Yoyogi 5-20-2, Shibuyaku, Tokyo, Japan
Filed Feb. 7, 1973, Ser. No. 330,245
Int. Cl. G01t *1/24*
U.S. Cl. 250—370 **1 Claim**



A device in which an electrical current flowing through an electrolyte indicates a true value proportional to the intensity of ultraviolet rays, regardless of the ambient temperature. A positive characteristic heat sensing resistor is combined in series with an ultraviolet responsive semiconductor element in a circuit for measuring ultraviolet energies. This circuit includes a scale for indicating the amount of deposited mercury produced by electrolyzing mercury iodide solution with the photocurrent from said ultraviolet responsive semiconductor element. The positive characteristic heat sensing resistor is connected in parallel with the mercury electrolyte and the electrical circuit thereof.

3,809,906

RADIOGRAPHIC COLOUR MATERIAL

Marcel Karel Van Doorselaer, 's-Gravenwezel, Belgium, assignor to AGFA-Gevaert, N.V., Mortsel, Belgium

Filed Nov. 3, 1972, Ser. No. 303,385

Claims priority, application Great Britain, Nov. 5, 1971, 51628/71

Int. Cl. G03b 41/16

U.S. Cl. 250—472 11 Claims

A radiographic silver halide colour emulsion for the production of a radiographic monochromic dye image by the steps of radiographic exposure and colour development, said exposure proceeding in contact with an X-ray intensifying screen emitting for at least 50 percent light of the wavelength region beyond 410 nm and having a main emission maximum in the green region of the spectrum, the said emulsion comprising a mixture of a silver halide emulsion capable of producing a visible image upon said exposure and colour development, and a relatively low speed silver chloride-containing emulsion, the speed of which is insufficient to produce a visible image by the said exposure and development, and incorporating at least one colour coupler producing by coupling with an oxidized aromatic primary amino colour developing agent a monochromic dye image, characterized in that said emulsion is spectrally sensitized for the wavelength region comprised between 480 and 600 nm.

3,809,907

CALENDER ROLL APPARATUS WITH DEVICE FOR CONTROLLING THE THICKNESS OF THE BANK OF MATERIAL IN FRONT OF THE ROLLING GAP

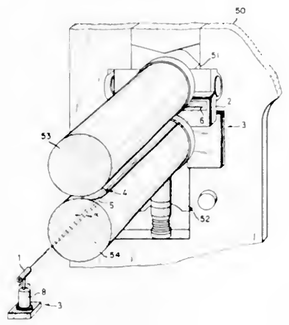
Reinhard Schuller, and Heinz Kopsch, both of Munich, Germany, assignors to Krauss-Maffei AG, Munchen, Germany

Filed Aug. 7, 1972, Ser. No. 278,438

Claims priority, application Germany, Aug. 20, 1971, 2141741

Int. Cl. G01b 7/04

U.S. Cl. 250—219 TH 10 Claims



A device for controlling the bank of viscous material in front of the nip of a pair of calender rolls comprises a source of coherent radiation which is trained, across a surface of the rolling bank turned away from the nip, toward a receiver sensitive to such radiation so that a growth of thickness of the rolling bank obstructs the receiver and produces one signal condition while excessive reduction in the size of the bank creates a second signal condition whereby the calendering operation is regulated. The source of coherent radiation is preferably a laser beam while the receiver is a photocell arrangement juxtaposed with the source which is oscillated to sweep the beam angularly or is reciprocated at high frequency to reciprocate the beam in a plane generally perpendicular to the plane of the roll axes.

3,809,908

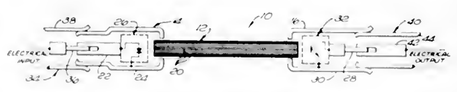
ELECTRO-OPTICAL TRANSMISSION LINE

John S. Clanton, Alexandria, Va., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 29, 1973, Ser. No. 375,158

Int. Cl. G02f 1/28; H01p 1/32

U.S. Cl. 250—217 S 7 Claims



An electro-optical transmission line for use in an interconnection system wherein an electrical signal is converted to an optical output signal by a light-emitting diode and the optical light signal is transmitted by an optical fiber bundle to a light receiving diode which converts the optical signal back to an electrical signal. The optical bundle is terminated at its ends with coaxial electrical contact assemblies which mount the diodes. The contact assemblies may be mounted in standard electrical connector members.

3,809,909

SYSTEM FOR THE AUTOMATIC READING OF CURVES

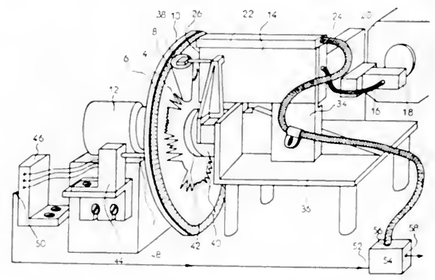
Simone Salet, Montrouge, and Arnaud De Montgolfier, Paris, both of France, assignors to G.I.T.A.C., Levallois Perret, France

Filed June 29, 1973, Ser. No. 375,290

Claims priority, application France, June 30, 1972, 72.23727

Int. Cl. G05b 1/00

U.S. Cl. 250—556 6 Claims



A system for the automatic reading of curves plotted on a chart or graph, more particularly tachograph curves of a vehicle as plotted on a tachograph disc. The system may read one or more curves simultaneously. It enables the curve or curves read off to be converted into the form of trains of electrical signals.

3,809,910

MICROFILM FRAME SELECTION CIRCUITRY

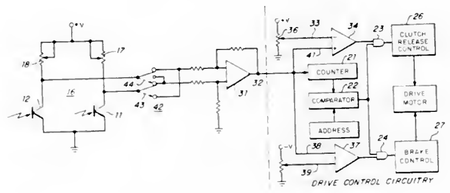
David C. Nellis, Victor, N.Y., assignor to Itek Corporation, Lexington, Mass.

Filed Sept. 13, 1973, Ser. No. 396,918

Int. Cl. G08c 9/06

U.S. Cl. 250—561 5 Claims

First and second photodetectors positioned within a bridge configuration are optically coupled to a control track of a roll of microfilm having optically readable control indicia positioned therein. A differential amplifier is coupled across the bridge to produce a positive and negative going signal as each frame passes through the viewing gate. When a selected frame approaches the viewing gate, a first unbalanced condition of the bridge actuates a clutch release control circuit to de-energize the film drive motor. Shortly thereafter, the indicia in the control track produces a second unbalanced condition which actuates a brake control device to stop the drive motor, thereby to position the selected frame within the viewing gate station.



3,809,911

METHOD OF MEASURING OPTICAL DENSITY

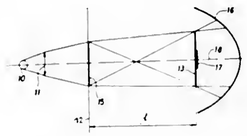
Luc Yves Natens, Berchem, Belgium, assignor to Agfa-Gevaert N.V., Mortsel, Belgium

Continuation of Ser. No. 174,469, Aug. 24, 1971, abandoned.

This application May 1, 1973, Ser. No. 356,067

Int. Cl. G01n 21/06

U.S. Cl. 250—571 3 Claims



A photoelectric device for measuring variations in the optical density of a moving web. The device comprises a lamp at one side of the web path, a photoelectric detector at the other side of the web path, and a screen between the web and the detector which intercepts part of the radiation transmitted by the web to the detector.

The device is largely insensitive to vibrations of the web.

3,809,912

LIGHT SCATTERING MEASUREMENT INSTRUMENT

Michael Laurence Henning, Shepton Mallet, England, assignor to Plessey Handel und Investments AG, Essex, England

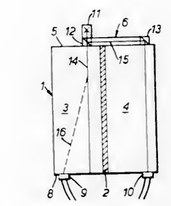
Filed June 21, 1972, Ser. No. 265,017

Claims priority, application Great Britain, June 29, 1971, 30372/71

Int. Cl. G01h 21/26

U.S. Cl. 250—574 3 Claims

An instrument for measuring light scattering coefficients in a fluid comprises a beam splitter which splits a lightbeam from a light source into two beams of different intensities, each beam passing through the fluid in separate chambers respectively, photocells are positioned in the chambers one being aligned with the beam of lowest intensity and the other out of alignment with the other beam so that it is only sensitive to scattered light. A second light source and beam splitter is also incorporated to enable the operative relationship of the photo cells. Also applicable to turbidimeters where light beams have different path lengths.



3,809,913

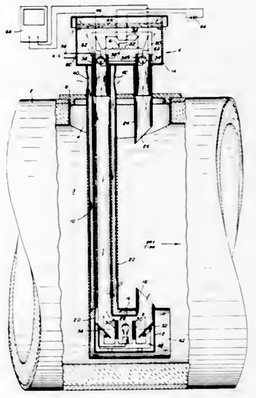
DETECTOR FOR PARTICULATE MATTER IN FLOWING GAS STREAMS

Samuel B. Prellwitz, Pittsburgh, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Oct. 20, 1972, Ser. No. 299,534

Int. Cl. G01n 21/26

U.S. Cl. 250—575 4 Claims



Apparatus is an air-cooled and air-cleaned photoelectric smoke or particulate matter detector that can be installed into a gas flue or other gas passageway using only one entry into the flue through a single aperture.

3,809,914

STARTING SYSTEM FOR POWER PLANTS

Lee A. Kilgore, Export; Robert E. G. Ratcliffe; Henry L. Smith, both of Monroeville, and Bernard S. Stralt, Jr., Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

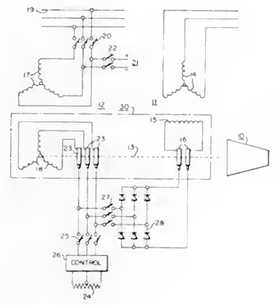
Filed July 13, 1972, Ser. No. 271,427

Int. Cl. F02n 11/08

U.S. Cl. 290—38 5 Claims

A starting system for power plants having a prime mover which is not self-starting, such as a gas turbine, or for other

synchronous machines which are not self-starting. The generator or other synchronous machine has an exciter which is

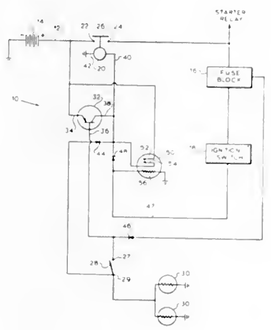


designed to operate as a wound rotor induction motor for starting and as a normal exciter thereafter.

ERRATUM

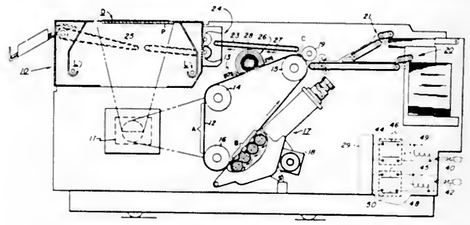
For Class 290—40 see:
Patent No. 3,810,251

3,809,915
ELECTRICAL POWER DELAY AND CUTOUT CIRCUIT
Charles H. Bost, Winter Haven, Fla., assignor to BK & K Enterprises Inc., Orlando, Fla.
Filed Dec. 8, 1972, Ser. No. 313,455
Int. Cl. H02g *3/00*
U.S. Cl. 307—10 AT **16 Claims**



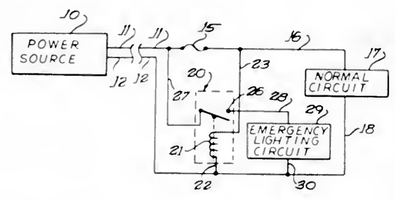
A circuit interrupting means is adapted to be interposed along a circuit line from a current source. Means are included for actuating the circuit interrupting means to interrupt the circuit line only during the absence of current flow therethrough, and means for re-establishing the circuit line coincident with a current demand upon the source through an auxiliary circuit coupled thereto.

3,809,916
DUAL CORD INTERLOCK
Arthur T. Crane, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 11, 1972, Ser. No. 314,219
Int. Cl. H01h *47/00*
U.S. Cl. 307—18 **4 Claims**



A xerographic reproduction machine employing dual power input lines to divide the machine power load between two electrical circuits to prevent overload of either circuit.

3,809,917
EMERGENCY AUXILIARY CIRCUIT SWITCH AND LIGHTING SYSTEM
Richard E. Vore, R.R. No. 1, Eaton, Ind.
Filed June 27, 1973, Ser. No. 373,988
Int. Cl. H05b *37/04*
U.S. Cl. 307—39 **5 Claims**

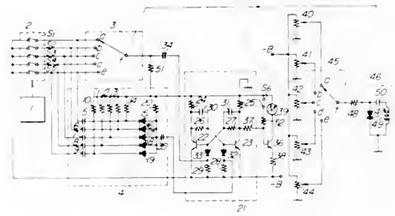


An emergency auxiliary circuit switch and lighting system for use in the home and the like wherein both the normal circuit and the emergency circuit are supplied from the same main power source with the emergency switch connected so that in the event of an overload in the normal circuit resulting in the opening of the fuse or circuit breaker protecting the circuit then the emergency switch will automatically connect the emergency lighting circuit to the power source in a manner to provide limited illumination in a selected area, and when the emergency is over and the fuse restored so that the normal circuit is again operation, then the emergency switch will automatically disconnect the emergency lighting circuit and return the same to a standby condition.

3,809,918
PROGRAM APPARATUS
Tsuneo Okubo, Osaka; Shoichi Nakamura, Tondabayashi, and Eizo Mori, Uji, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Continuation of Ser. No. 12,640, Feb. 19, 1970, abandoned.
This application Feb. 11, 1972, Ser. No. 225,654
Claims priority, application Japan, Feb. 28, 1969, 44-16025; Apr. 25, 1969, 44-32964; Apr. 25, 1969, 44-32965; May 22, 1969, 44-41230; May 22, 1969, 44-41231; May 22, 1969, 44-41232; May 23, 1969, 44-41247
Int. Cl. H01h *43/00*
U.S. Cl. 307—41 **9 Claims**

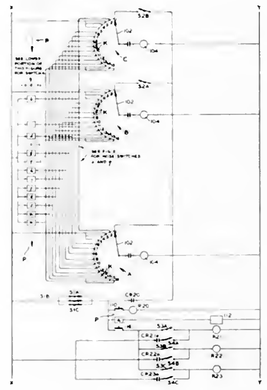
A programming apparatus capable of sequentially and automatically switching a preset information sources at preset

times, comprising a time signal generator generating time signals at least at two preset times respectively for predetermined periods of time, a memory device having its operation inverted by the time signals obtained by means of said time signal generator and holding a driving device such as a motor



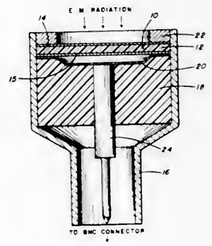
in the driven state, a first change-over switch driven by said driving device and in which the respective information sources to be set are connected to a group of fixed contacts thereof, and a second change-over switch interlocked with said first change-over switch and having its group of fixed contacts connected to said time signal generator.

3,809,919
CONTROL SYSTEM FOR AUTOMATIC VEHICLE WASHING INSTALLATION
Albert Glenn Aaron, Chesterfield, Mo., assignor to Passpoint Corporation, Maryland Heights, Mo.
Filed Nov. 24, 1972, Ser. No. 309,101
Int. Cl. B60s *3/04*
U.S. Cl. 307—41 **11 Claims**



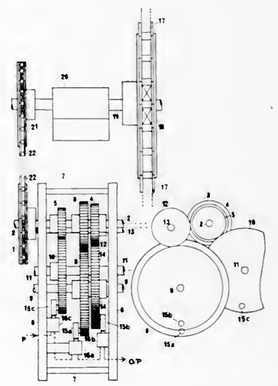
A control system for an automatic car wash installation includes position switches which are operated in sequence by vehicles passing through the installation. The position switches are connected to at least two programmers, which are actually stepping switches, and these programmers are interconnected such that one programmer is stepped by the first vehicle entering the wash installation and closing the position switches therein and the other programmer is stepped by a subsequent vehicle which enters the wash installation while the first vehicle is still in it. Thus, the different programmers track different vehicles through the wash installation. The programmers have switches which are opened and closed according to a predetermined schedule, and corresponding switches on the programmers are connected to various components of the car wash installation to operate those components in accordance with the predetermined schedule as the position switches are tripped. One of the components is a wax applicator which is in circuit with corresponding programmer switches as well as with the contacts of a relay which may be closed only when the car enters the installation, so that the condition of the relay determines whether or not the vehicle will be waxed near the end of the installation. Thus, the relay provides the circuit with memory logic.

3,809,920
POLYMERIC PYROELECTRIC DETECTOR
Julius Cohen; Seymour Edelman, both of Silver Spring, Md., and Carol F. Vezzetti, Arlington, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Aug. 25, 1972, Ser. No. 283,867
Int. Cl. H01g *7/02*
U.S. Cl. 307—88 ET **3 Claims**



A polymer pyroelectric detector made by selecting a film of polymeric material which has dipoles in its molecular structure, physically treating the film so that the dipoles have a net orientation and coating the upper and lower surfaces of the film with thin films of conductive material to act as electrodes. Detectors made from PVF or PVF_2 are sensitive to a wide range of electromagnetic radiation, especially radiation in the IR region.

3,809,921
PHASE IDENTIFIER ASSEMBLY FOR ENDLESS CONVEYOR CONTROL APPARATUS
John Albert Formby, Moseley, England, assignor to John Formby & Company, Limited, Birmingham, England
Continuation of Ser. No. 747,561, July 25, 1968, abandoned.
This application Sept. 23, 1970, Ser. No. 74,933
Int. Cl. H01h *35/00, 43/00*
U.S. Cl. 307—116 **7 Claims**



A phase identifier for the purpose of identifying an arbitrarily chosen phase of the cyclical movement of a conveyor, as

represented by a loop of chain or the like, comprises a plurality of wheels positively driven by the loop at different speeds, but such that the speed of one wheel is a non-integral multiple of the speed of the slowest, so that any set of orientations of the wheels repeats periodically to define a cycle, greater than the cycle of any individual wheel, which cycle is made equal to the conveyor loop cycle by adjustment of the length of the loop. Associated with each wheel is a dowel adapted to operate a switch, and power is applied to the switches in series to give rise to an electrical signal at one phase of the phase identifier cycle and, consequently, at any arbitrary phase of the loop cycle. Two such identifiers in relation to one loop cause on-loading of a consignment at any prescribed point of the conveyor and off-loading of the same consignment at any other prescribed point. A multiplicity of phase identifiers are adapted to effect multiple conveyance of consignments from a set of on-loading points to a set of off-loading points within one cycle of the conveyor movement.

3,809,922

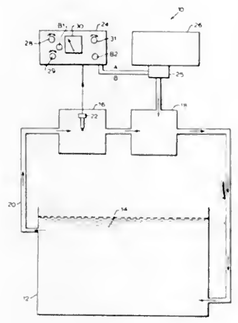
SYSTEM FOR MONITORING AND CONTROLLING SUBSTANCES IN FLUID BODIES

Donald R. Emmons, and William C. Beverly, Jr., both of 11222 Astronaut Blvd., Orlando, Fla.

Filed Nov. 10, 1972, Ser. No. 305,309

Int. Cl. H01h *35/18*

U.S. Cl. 307—118 **12 Claims**



The addition of substances, such as chlorine, to fluid bodies is controlled and the concentration of such substances is monitored by a system including a temperature compensated probe for measuring the concentration, and electronic means responsive to outputs of the probe for adding the substance, as needed, to the desired level.

3,809,923

TRANSVERSAL FILTER

Leonard Jan Maria Esser, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

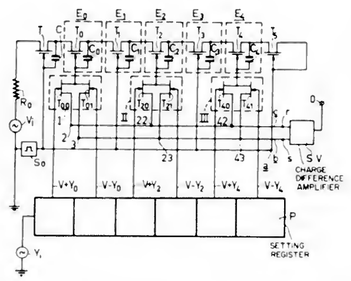
Filed Jan. 29, 1973, Ser. No. 327,474

Claims priority, application Netherlands, Feb. 17, 1972, 7202070

Int. Cl. H03k *5/159*; **G11c** *11/40*

U.S. Cl. 307—221 D **4 Claims**

Transversal filter having adjustable weighting factors and including a bucket-brigade store as a shift register. The bucket-brigade store comprises a sequence of capacitors which are connected to each other by the main current paths of transistors. Each of the circuits comprising the series combination of a main current path and two capacitors includes a current dividing device the outputs of which are connected to a summing device. The values of the said weighting factors are



determined by the current dividing ratios of the current dividing devices.

3,809,924

METHOD AND APPARATUS FOR CONTROLLING THE DRYING OPERATION IN AN APPLIANCE SUCH AS A DRYER, WASHER-DRYER OR THE LIKE

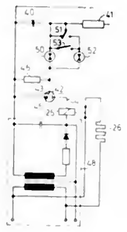
Peter Grunow, and Georg Sarukhanian, both of Berlin, Germany, assignors to Siemens Electrogerate GmbH, Munchen, Germany

Filed Nov. 2, 1972, Ser. No. 303,070

Claims priority, application Germany, Nov. 5, 1971, 2155710; Sept. 15, 1972, 2245778

Int. Cl. F26b *13/10*

U.S. Cl. 307—125 **8 Claims**



A method of controlling the drying operation of laundry in dependence upon the moisture content thereof in an appliance such as a dryer, washer-dryer or the like is disclosed. The appliance has a program control device and is of the tumbler type wherein an electrostatic charge occurs on the laundry when the laundry becomes dry. The method includes sensing the electrostatic charge occurring on the laundry when the laundry becomes dry to provide an electrical signal indicative of the field intensity developed by the electrostatic charge, and then transmitting the electrical signal to an operational amplifier connected to the program control device whereby the operational amplifier operates on the control device in response to the voltage signal.

An apparatus for carrying out the above method is also disclosed and includes a structure arranged in the appliance so as to be in contact with the laundry tumbled during the drying operation; this structure thus receives an electrostatic charge thereon in response to the electrostatic charge occurring on the laundry when the laundry becomes dry. An electrically conductive sensing member is connected to the structure for sensing the electrostatic charge collected thereon to provide a voltage signal indicative of the electric field intensity developed by the electrostatic charges on the laundry and the

structure. An electronic operational amplifier having an input control electrode is also provided and a glow discharge device is connected between the sensing member and the control electrode. The glow discharge device transmits the voltage signal to the control electrode after the voltage signal has attained a predetermined value corresponding to the laundry in the appliance. The operational amplifier is connected to the program control device of the appliance whereby the operational amplifier operates on the program control device in response to the voltage signal of pre-determined value.

3,809,925

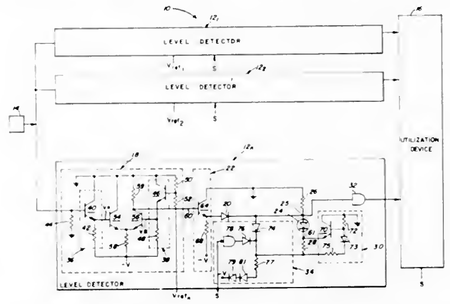
ANALOG-TO-DIGITAL CONVERTER LEVEL DETECTOR

Daniel Hertz, Framingham, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Aug. 31, 1972, Ser. No. 285,176

Int. Cl. H03k *5/20*

U.S. Cl. 307—235 **1 Claim**



An improved analog-to-digital (A/D) converter is disclosed wherein each one of a number of level detectors includes a tunnel diode buffered from an input signal through a differential amplifier and a hot carrier diode. The differential amplifier hot carrier diode buffering arrangement provides, inter alia, isolation between the tunnel diode and the other level detectors used in the A/D converter. The hot carrier diode switches from a low current quiescent condition to a high current quiescent condition as the tunnel diode switches between its pair of quiescent conditions. The gain provided by the differential amplifier, together with the current gain effect produced in switching the quiescent condition of the hot carrier diode, results in a level detector having a relatively high gain-bandwidth product.

3,809,926

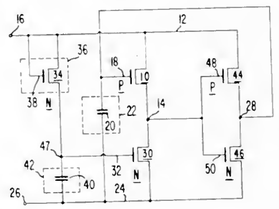
WINDOW DETECTOR CIRCUIT

Alexander Wilson Young, High Bridge, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 28, 1973, Ser. No. 345,707

Int. Cl. H03k *5/20*

U.S. Cl. 307—235 R **24 Claims**



The circuit includes an MOS transistor for transmitting the applied voltage wave to the output signal terminal during the interval that applied voltage is between two voltage limits and circuit elements responsive to the applied voltage wave exceeding the higher of these limits for disabling the MOS transistor and for clamping the output signal terminal to a reference level such as ground.

3,809,927

DELAY TIMING CIRCUIT

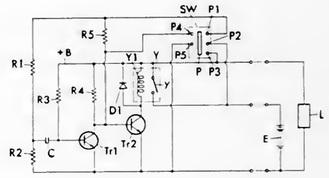
Katsuyuki Takagi, Gifu, and Haruo Miwa, Minokamo, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi Pref., Japan

Filed Mar. 30, 1972, Ser. No. 239,572

Claims priority, application Japan, Mar. 31, 1971, 46-19153

Int. Cl. H03k *17/26*

U.S. Cl. 307—293 **6 Claims**



A timer apparatus includes a timer circuit utilizing the charging and discharging of a capacitor. The timer circuit comprises a timing capacitor adapted to charge in the direction for cutting-off a transistor at the setting time, a switch adapted to apply the voltage in the direction for discharging of said capacitor, and a transistor adapted to be turned conductive after a given time from the commencement of discharging. Said timer has excellent temperature and voltage characteristics without employing a Zener diode and FET, is hardly affected by the D.C. current amplification factor of said transistor and the open-circuit voltage of a relay and can determine a set time to be several seconds through dozens of minutes.

3,809,928

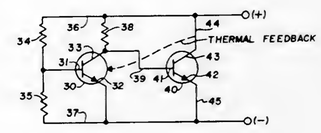
INTEGRATED STRUCTURE AMPLIFIER WITH THERMAL FEEDBACK

Lee L. Evans, Santa Clara, Calif., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 222,235, Sept. 7, 1962, abandoned. This application Aug. 1, 1966, Ser. No. 569,533

Int. Cl. H03f *1/30*

U.S. Cl. 307—303 **15 Claims**

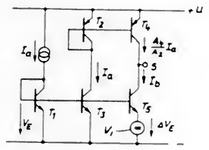


A high gain A.C. transistorized amplifier circuit is fabricated into a single body of semiconductor material. The negative feedback circuit to stabilize the amplifier connected between the output and input of the amplifier and the temperature compensating means connected to the output of the amplifier are both thermally connected to the input stage but also isolated from said stage through said body. Therefore heating effects on the amplifier is minimized and the need for large values of capacitors and inductors in the feedback circuit are avoided.

3,809,929
TEMPERATURE SENSING DEVICE

Eric Andre Vittoz, Cernier, Switzerland, assignor to Centre Electronique Horloger SA, Brequet, Neuchatel, Switzerland

Filed June 19, 1972, Ser. No. 264,339
Claims priority, application Switzerland, June 21, 1971, 9065/71
Int. Cl. H03k *3/295*; **G01k** *7/00*
U.S. Cl. 307—310 **5 Claims**

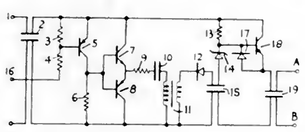


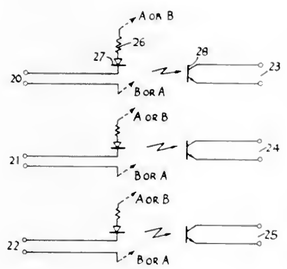
A digital output temperature sensing device comprises identical first and second n-p-n transistors manufactured together in an integrated circuit and across which different base-emitter voltages are applied. The non-saturated collector-emitter current of the second transistor, which is a function of the collector-emitter current through the first transistor and of the absolute temperature, is "compared" with a temperature-independent current provided as a function of the collector-emitter current of the first transistor and of the ratio of the effective injection surface areas of the base-emitter junctions of a pair of otherwise identical p-n-p transistors, a temperature dependent digital output signal being provided according to whichever of the "compared" currents is greater.

3,809,930
STATIC RELAYING CIRCUIT

Christopher Robert Brown; Terence Malcolm George, and David John Norton, all of London, England, assignors to Westinghouse Brake and Signal Company Limited, London, England

Filed Sept. 23, 1971, Ser. No. 183,162
Claims priority, application Great Britain, Oct. 29, 1970, 51334/70
Int. Cl. H03k *17/00*
U.S. Cl. 307—311 **18 Claims**



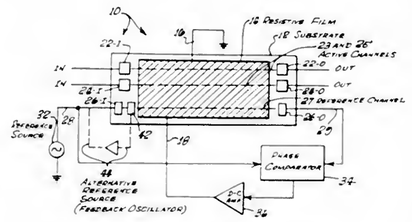


A system of fail-safe static logic is proposed which uses circuit elements closely analogous to conventional electromechanical relays. The d.c. feeds found in conventional relay circuitry are replaced by pulsating feeds originating from a multivibrator. The coil of a conventional relay becomes a simple electronic circuit, which normally gives a positive d.c. output (corresponding to the release condition of the relay), changing in polarity to a negative d.c. output (equivalent to pick-up of the relay) when a pulsating feed is applied to the input. Each conventional relay contact is replaced by an insulated signal coupler which is capable of passing on a pulsating feed signal provided it is also enabled by a d.c. voltage of correct polarity obtained from the output terminals of the 'coil' circuit, the sense of the connexions determining whether the contact acts as a 'front' or a 'back.'

3,809,931
TEMPERATURE-STABILIZED TRANSDUCER DEVICE

Richard M. White, Berkeley, Calif., and Ramesh Chandra Goyal, Edmonds, Wash., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 19, 1973, Ser. No. 342,348
Int. Cl. H01v *7/00*
U.S. Cl. 310—8.1 **8 Claims**



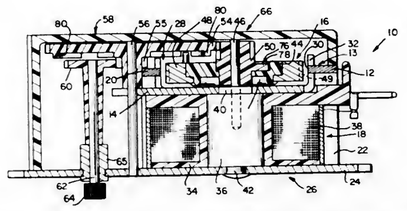
A transducer device comprising a substrate capable of propagating an elastic wave on its surface. A resistive film is disposed generally centrally upon the substrate, the film having a grounded lead on one side of the film and an ungrounded lead on the other side of the film. At least one active-channel transducer is disposed on the substrate, for processing a surface-elastic wave, each transducer comprising an input active-channel transducer, disposed on one side, the input side of the resistive film, and an output active-channel transducer, disposed on the other side, the output side, of the resistive film. A reference-channel transducer, also disposed on the substrate, comprises an input reference-channel transducer, disposed on the input side of the film, and connectable to a reference signal source, which causes an elastic surface wave to propagate across the substrate including the area occupied by the resistive film; and an output reference-channel transducer, having an output lead, and disposed on the output side of the film. The combination comprises a surface-wave transducer device which may be temperature-stabilized.

3,809,932
MEANS PREVENTING CONTINUED ROTATION IN A WRONG-WAY DIRECTION OF ROTATING MEMBER

Robert Dale Erwin, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed Apr. 13, 1973, Ser. No. 350,721
Int. Cl. H02k *7/10*
U.S. Cl. 310—41 **24 Claims**

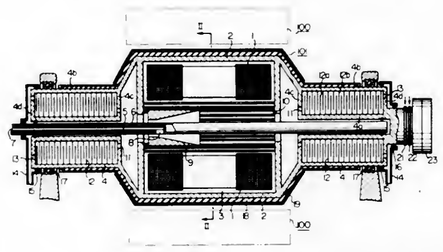
A rotating member includes stop means engaging an engagement means carried on an accompanying gear upon rotation in a wrong-way direction of the rotating member. The accompanying gear further includes a channel means through which the stop means passes uninhibited upon continued rotation in a correct direction of the rotating member.



3,809,933
SUPERCOOLED ROTOR COIL TYPE ELECTRIC MACHINE

Hiroyuki Sugawara, and Kooji Kuwabara, both of Hitachi, Japan, assignors to Hitachi Ltd., Chryoda-ku, Japan

Filed Aug. 25, 1972, Ser. No. 283,649
Claims priority, application Japan, Aug. 27, 1971, 46-65110
Int. Cl. H02k *9/00*
U.S. Cl. 310—52 **19 Claims**



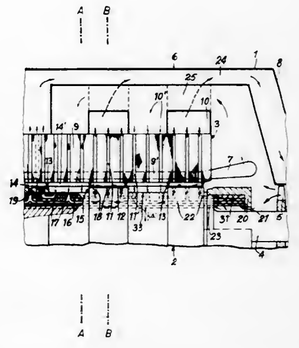
An electric rotary machine having an armature coil at ambient temperature disposed on the stator and a supercooled field coil disposed on the rotor and enclosed in a container which is integral with said rotor, a major part of the outer surface of said container being coated with a thermal insulation layer, the supercooling liquid being introduced into the rotor along the rotational axis of the rotor, and the evaporated gas of the supercooling medium being discharged through a labyrinthine path or a series of partitioned compartments provided at each axial end of the container to establishing a uniform temperature gradient along the shaft of the rotor between the inside of the supercooled rotor and the axial ends thereof which are at ambient temperature.

3,809,934
GAS-COOLED ELECTRICAL GENERATOR

Jurgen Baer, Magenwil; Dieter Sommer, Untersiggenthal, and Ernst Toplak, Lupfig, all of Switzerland, assignors to Brown Boveri & Company Limited, Baden, Switzerland

Filed Apr. 20, 1973, Ser. No. 353,081
Claims priority, application Switzerland, May 9, 1972, 6810/72
Int. Cl. H02k *9/00*
U.S. Cl. 310—53 **6 Claims**

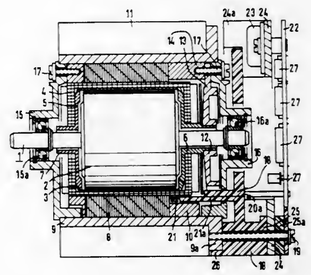
A gas-cooled dynamo-electric machine such as a turbo-driven generator includes cooling channels extending radially through the stator to the gap between it and the rotor, and also cooling channels extending both axially and radially through the rotor, for the circulation of a cooling gas. The rotor is stepped longitudinally into a series of successive stages alternating in diameter thereby to establish corresponding zones alternating in gap width. The radially inner ends of those cooling channels in the stator component carrying gas radially inward and axially correlated with the zones having the larger gap width are provided with vanes profiled to effect a reduction in the impact losses at the gas entrance ends of the axially correlated radial channels in the rotor component, and the radially inner ends of those cooling channels in the stator component carrying gas radially outward and axially correlated with the zones having the smaller gap are provided with vanes profiled to recover the velocity energy of the cooling gas discharged into the gap from the radial channels in the rotor component functioning as the flow channels of a radial compressor.



3,809,935
ELECTRIC MOTOR CONSTRUCTION

Reiner Kristen, and Manfred Liska, both of Nurnberg, Germany, assignors to Siemens Aktiengesellschaft, Munchen, Germany

Filed Sept. 15, 1972, Ser. No. 289,550
Claims priority, application Germany, Sept. 20, 1971, 2146893
Int. Cl. H02k *11/00*
U.S. Cl. 310—68 **5 Claims**

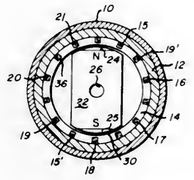


A DC motor of the type commutated by Hall generators and solid-state switching elements is made with a construction at its end through which the motor's field winding conductors extend, comprising a stack of parts connected together to that end of the motor and including a mounting for the Hall generators, a heat sink mounting the switching elements, and a circuit board for the various circuitry components.

3,809,936
BRUSHLESS GENERATOR

Enrique J. Klein, 848 Boyce Ave., Menlo Park, Calif.

Filed May 18, 1972, Ser. No. 254,414
Int. Cl. H02k *19/24*
U.S. Cl. 310—171 14 Claims

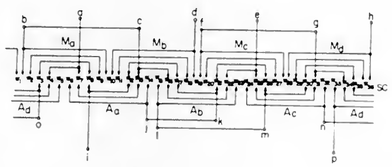


Apparatus for indicating velocity of rotation by developing an alternating voltage signal which when rectified provides a unidirectional voltage having a low ripple content and a magnitude proportional to the angular velocity of the rotation. A magnetic rotor mounted on a shaft is driven within a stator including an annular magnetic return path and a number of coils mounted within a constant width non-magnetic gap. The rotor, magnetic return path and coils form a geometrical arrangements such that the electromotive forces induced in each coil upon rotation of the rotor have trapezoidally shaped wave forms. The currents produced by these electromotive forces are summed using a full-wave rectifier circuit to obtain a low ripple DC signal.

3,809,937
STATOR FOR SINGLE-PHASE INDUCTION MOTOR

Toshio Koike, Funabashi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 14, 1972, Ser. No. 306,385
Claims priority, application Japan, Feb. 28, 1972, 47-19690
Int. Cl. H02k *3/00*
U.S. Cl. 310—184 11 Claims

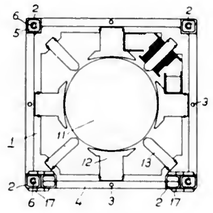


A stator for single-phase induction motors, in which a main winding consists of the same number of coil units as that of the poles of the motor to form the poles, each of the coil units is divided into two, first and second coil groups, the first and second coil groups are connected in series and the ends of this series combination are connected across a single-phase AC voltage source, and an auxiliary winding is connected in parallel with the first group only. When arranged in this way, the magnitude and phase of a current that flows in the first coil group tend to differ from those of a current that flows in the second coil group with a resultant increase in the harmonic components included in the electromotive forces generated by the coil groups. Therefore, the magnetomotive forces of auxiliary poles which are equal in number to the main poles are made dissymmetrical so as to reduce such harmonic components.

3,809,938
STATOR FOR A DIRECT CURRENT MACHINE

Sven Sjoberg; Herlov Fagerstad, and August Weng, all of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed June 28, 1973, Ser. No. 374,377
Claims priority, application Sweden, Aug. 11, 1972, 10423/72
Int. Cl. H02k *1/12*
U.S. Cl. 310—254 3 Claims



A stator for a direct current machine includes a laminated stator ring with four salient poles. There are a plurality of layers of lamination arranged side by side. Each layer is formed of four substantially L-shaped magnetic sheet-metal segments. Each segment has an external indentation at its corner, in which fit four longitudinal beams. Four pairs of cross beams are welded to the longitudinal beams and are directed perpendicularly thereto, with each pair positioned in the planes of the resulting rectangular frame. The stator ring is clamped in the stator support between the two rectangular frames formed by the cross beams. The ends of the longitudinal beams extend beyond the frames and support bearing shields which form spaces for a commutator and a ventilator.

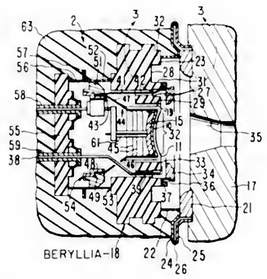
ERRATUM

For Class 313—7 see:
Patent No. 3,809,957

3,809,939
GRIDDED ELECTRON TUBE EMPLOYING COOLED CERAMIC INSULATOR FOR MOUNTING CONTROL GRID

George V. Miram, Daly City, and Yosuke M. Mizuhara, San Francisco, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Nov. 8, 1972, Ser. No. 304,703
Int. Cl. H01j *1/02*
U.S. Cl. 313—39 8 Claims

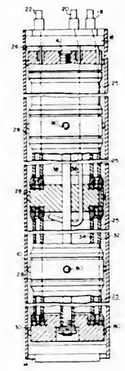


The gridded gun of an electron tube includes an annular high voltage beryllia insulator body having good thermal conductivity. The thermionic cathode emitter is mounted within the central bore in the annular beryllia insulator in thermally insulative relation relative to the insulator body. The control grid and focus electrode for the gun are mounted from the surface of the annular insulator facing the anode. The outer periphery of the annular insulator is mounted to the body of the electron tube in heat exchanging relation therewith, such that the control grid is cooled by thermal conduction through the beryllia insulator body to the cooled main body of the electron tube.

3,809,940
RADIATION DETECTOR OF ELONGATED LENGTH WITH ELECTRODE SUPPORT ASSEMBLY THEREFOR

Youston M. Sekella, Elmira Hgts., N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 25, 1972, Ser. No. 300,619
Int. Cl. H01j *39/32*
U.S. Cl. 313—61 R 6 Claims



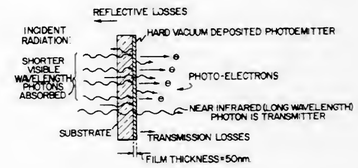
A radiation detection device having a plurality of tubular concentric electrode assemblies positioned end to end within a housing wherein the tubular electrode assemblies are supported by an electrode support assembly comprised of a plurality of electrode support members positioned at the ends of the tubular electrode assemblies so as to space the concentric electrodes and also provide insulation therebetween. The electrode supports are also provided with a plurality of extending ball-like members from the outer periphery of the electrode supports resiliently mounted within the electrode support to accurately position the electrode assemblies within the housing, provide good electrical contact between the housing and the electrode support and also permit ease of removal of the entire assembly from the housing without damage to the components or casing.

3,809,941
PHOTOEMITTER STRUCTURE INCLUDING POROUS LAYER OF PHOTOEMISSIVE MATERIAL

Haden J. Bourg, Jr., Glen Burnie, Md.; James F. Nicholson, deceased, late of Arnold, Md., and Roy D. Cromwell, administrator, Arnold, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 110,057, Jan. 27, 1971, abandoned. This application July 11, 1972, Ser. No. 270,774
Int. Cl. H01i *39/00*
U.S. Cl. 313—94 8 Claims

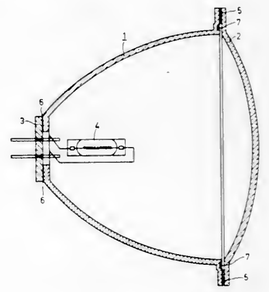
A photoemitter of improved quantum efficiency is formed by smoke or low density deposition of photoemissive materials on a substrate. Significantly, the photoemissive layer is deposited in the presence of a low pressure gas to form a layer whose density is not greater than 20% and preferably not greater than 5% of the photoemissive material in its bulk form. Individual particle size is controlled and deposited particles are isolated, affording greater surface contact area with the subsequently deposited constituent materials of the photoemissive surface, thereby enhancing interaction and increasing the photoelectron emission. The low density, random oriented smoke deposits provide a photosensitive surface characterized by high absorption, low reflective losses, and low transmissive losses. The spectral response curve of smoke photoemitters peaks further into the red or near infrared region than prior art devices, rendering the smoke photoemitters of the invention ideally suited for use as near infrared sensors in low light level imaging system.



3,809,942
CLOSED REFLECTOR PROVIDED WITH INCANDESCENT LAMP

Anton Boekkooi, and Willem Westerveld, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed June 16, 1972, Ser. No. 263,415
Claims priority, application Netherlands, June 21, 1971, 7108536
Int. Cl. H01k *1/56*; H01j *5/16*
U.S. Cl. 313—113 4 Claims



A closed reflector unit provided with an incandescent lamp in which a transparent face plate is secured to the reflector housing by means of an adhesive. The reflector accommodates a drying agent.

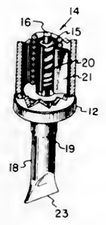
3,809,943
HIGH INTENSITY DISCHARGE LAMP ELECTRODE

Byron R. Collins, Euclid, and Charles I. McVey, Shaker Heights, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 19, 1973, Ser. No. 352,607
Int. Cl. H01j *61/06*
U.S. Cl. 313—217 9 Claims

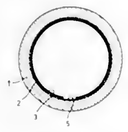
In horizontally operated high pressure sodium vapor lamps using alumina ceramic envelopes, spotting and blackening of the envelope has been traced to loose emission material released from the electrodes. Loss of emission material from a

double layer wound tungsten electrode is prevented by wrapping a foil of refractory metal such as tungsten or molybdenum around the inner coil after the emission material has



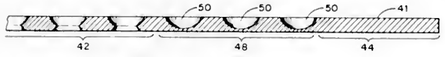
been applied, and then winding or screwing the outer coil over the foil. The outer coil holds the foil in place and the foil in turn holds the emission material in place.

3,809,944
LOW-PRESSURE MERCURY VAPOUR DISCHARGE LAMP
Hermanus Maria Jongerius, and Rein Willemse Van Der Wolf, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.
Filed Aug. 25, 1972, Ser. No. 283,843
Claims priority, application Netherlands, Aug. 28, 1971, 7111885
Int. Cl. H01j *61/20*
U.S. Cl. 313—227 **7 Claims**



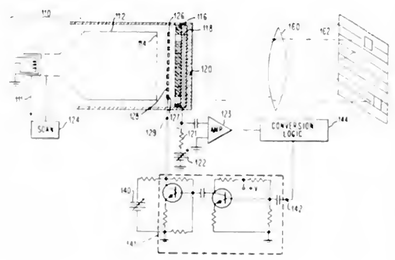
An aperture lamp, especially for phototype purposes in which the glass in the aperture is coated with a conducting transparent coating having a resistance of between 5 and 200 kOhms. This coating does not only reduce blackening of the glass in the aperture but also decreases the ignition voltage considerably.

3,809,945
SHADOW MASK FOR COLOR CATHODE RAY TUBE AND METHOD OF MANUFACTURE THEREOF
Neil M. Roeder, Villa Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Mar. 2, 1973, Ser. No. 337,339
Int. Cl. H01j *29/06*
U.S. Cl. 313—85 S **14 Claims**



This disclosure depicts novel aperture masks for rectangular color cathode ray tubes which are constructed such that hole enlargement, distortion or tearing which may be introduced in a mask-forming operation is minimized. In each embodiment depicted, a mask blank from which a mask is formed has an interior portion containing a pattern of electron-transmissive apertures, a peripheral portion adapted to be permanently deformed into a rigid mask skirt, and a transition structure between the interior and peripheral portions. The transition structure is caused to have a yield strength which is between that of the interior portions and said peripheral portion such that at least a part of the stretching forces and stretch deformation introduced in the mask-forming operation which would otherwise act upon and distort the aperture pattern in the interior portion of the mask is absorbed by the transition structure. In a preferred embodiment, the transition structure is provided by the formation of a plurality of additional rows of mask apertures etched part-way-through on the periphery of the aperture pattern which cause the transition structure to have the said intermediate yield strength. Alternative transition structures and methods for fabricating masks as described are also depicted.

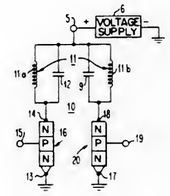
3,809,946
MULTIPLE FUNCTION VIDICON TUBE INCLUDING A TRANSMISSION GRID
Niel Myron Poley, Kingston, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 28, 1971, Ser. No. 213,082
Int. Cl. H01j *31/48*
U.S. Cl. 315—11 **4 Claims**



An improved vidicon tube is produced by adding a transmission grid to a standard vidicon tube. The improved tube serves as an image buffer which is compatible with broadband and narrowband transmission lines and can be written electrically at high or low data rates as well as optically. Information optically impressed on the photoconductor can be transferred to storage on the transmission grid. The improved vidicon, when built with a standard T.V. compatible photoconductor, is used as an intrusion alarm. When the improved vidicon is built with a storage photoconductor, information which is electrically written on the transmission grid is converted to conductivity storage in the photoconductor. Appropriate supporting apparatus and methods of operating this versatile tube are discussed.

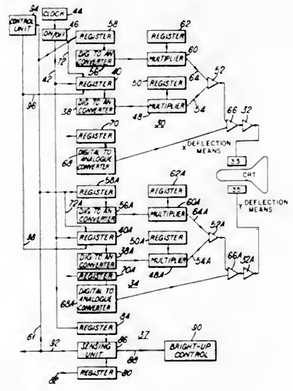
3,809,947
SINE WAVE DEFLECTION SYSTEM FOR CORRECTING PINCUSHION DISTORTION
Louis Edward Ambrico, Hyde Park; Stavros George Katsafouros, Saugerties; Bergert George Kleen, and William Roger Lamoureux, both of Kingston, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 17, 1971, Ser. No. 209,234
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 GD **4 Claims**

A capacitor and a deflection winding form a parallel resonant tank circuit for providing a steady state sinusoidal current flow in the deflection winding. When used for deflection of the electron beam of a cathode ray tube, a substantially linear portion of the waveform of the sinusoidal current flowing in the deflection winding may be used to move the electron beam from left to right across the screen during the "trace" interval. The remainder of the waveform of the sinusoidal current may be used for "retrace." Since the tank circuit requires only periodic energization to sustain steady state sinusoidal current flow, current consumption is held to a minimum. An S



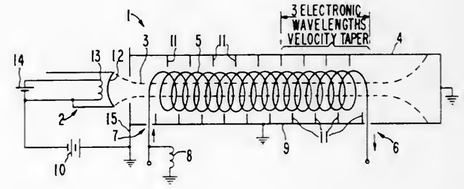
portion of the waveform of the sinusoidal current may be used during the trace interval to correct for the pincushion distortion that would otherwise occur when cathode ray tubes having large deflection angles are used.

3,809,948
DISPLAY SYSTEMS
John Norman Chubb, Oxford, and Ernest Kennedy Sinton, Wantage, both of England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed May 31, 1972, Ser. No. 258,445
Claims priority, application Great Britain, June 10, 1971, 27365/71
Int. Cl. H01j *29/70*
U.S. Cl. 315—27 GD **17 Claims**



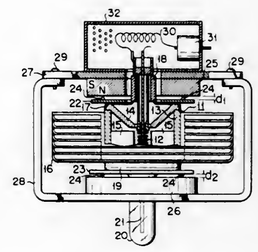
A display system is disclosed, which is particularly suitable for character display on a cathode ray tube. Two analog signals are digitally generated and respectively and simultaneously applied to the X and Y deflection means of the tube. The magnitudes are progressively and linearly adjusted so that the beam spot moves over the screen along a predetermined raster of lines which is exactly predetermined and can be based on two accurately orthogonal axes. In this way, distortion due to the non-orthogonality of the *x* and *y* axes of the tube can be corrected for. The tube is associated with a data store which, for each character to be displayed, stores data indicative of the beam intensity at each point in the raster.

3,809,949
APPARATUS FOR INCREASING RF CONVERSION EFFICIENCY OF A TRAVELING WAVE TUBE
Allan W. Scott, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Feb. 20, 1973, Ser. No. 333,844
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.5 **12 Claims**



The RF conversion efficiency of a vane loaded helix derived slow wave circuit, such as a ring and bar, meander line, double meander line, helix, cross wound helix, double ring and bar or a ladder line circuit, is increased while maintaining broad band operation; in a first embodiment, by increasing the degree of penetration of the vanes into the slow wave circuit at the output end of the tube for introducing a frequency dependent velocity taper and, in a second embodiment, by electrically isolating the aforementioned loading vanes for d.c. potential at the output end of the tube and applying a higher beam voltage to these circuit loading vanes.

3,809,950
MAGNETRON
Tokujo Koinuma, Kawasaki, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Feb. 14, 1973, Ser. No. 332,499
Claims priority, application Japan, Feb. 18, 1972, 47-19424[U]
Int. Cl. H01j *25/50*
U.S. Cl. 315—39.71 **4 Claims**

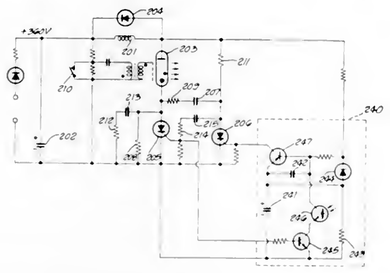


A magnetron includes an oscillating section having an electron radiating cathode and a cylindrical anode; an output section having an antenna inserted therein; and a pair of doughnut-shaped magnets disposed one on the end surface of the anode and one on the other end surface thereof in a manner to be coaxial with the anode. Between the end surfaces of the oscillating section and the magnets a pair of shim plates are arranged. The shim plate has a plurality of projections point-contacted with the magnet.

3,809,951
ELECTRONIC PHOTOFLASH

Zoltan Vital, Brussels, and Jean Orban, Clabecq, both of Belgium, assignors to Ponder & Best, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 244,279, April 14, 1972, which is a continuation-in-part of Ser. No. 799,554, Feb. 13, 1969, abandoned, and a continuation-in-part of Ser. Nos. 17,634, March 9, 1970, and Ser. No. 174,096, Aug. 13, 1971.
This application Sept. 11, 1972, Ser. No. 287,638
Int. Cl. H05b
U.S. Cl. 315—149 **16 Claims**

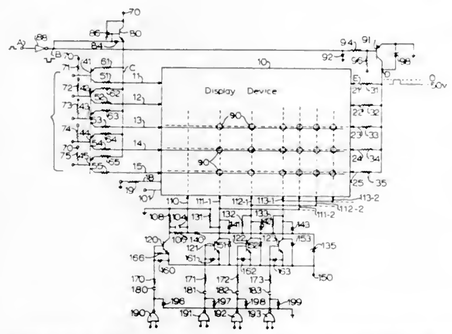


There is disclosed herein an electronic photoflash circuit including means for rapidly and accurately terminating a light flash and/or blocking discharge of a photoflash energy storage capacitor. The circuit involves use of a switching device connected in series with a photoflash tube wherein the beginning of ionization of the photoflash tube affects turn on one of the series switching device. Additionally, the circuit includes means for activating a light sensing circuit, and there is disclosed a novel form of optical attenuator useful in conjuction with the light sensing circuit.

3,809,952
APPARATUS REDUCING THE POWER REQUIRED FOR SCANNED DISPLAY DEVICES

Mark F. Eisenberg, North Plainfield, and William J. Harmon, Jr., Middlesex, both of N.J., assignors to Burroughs Corporation, Detroit, Mich.

Filed June 21, 1971, Ser. No. 154,731
Int. Cl. H05b *39/00*
U.S. Cl. 315—169 TV **4 Claims**



Apparatus is disclosed reducing the power dissipated internally and externally during the scanning of display devices having a plurality of gas-filled cells and including gas communication channels extending between adjacent columns of cells. In the illustrated display device, internal scanning of the display cells is accomplished by causing a preferential transfer of gaseous discharges from column to column in the device. The operating apparatus includes a sequential three-phase cathode driving circuit having a pre-biasing circuit which dissipates less power in its operation and is not interfered with during resetting of the panel. A pulse-operated control circuit is provided for controlling the current in scan anodes in the device in synchronism with the cathode control signals. The current and power applied to the cells each cycle is reduced after initial activation of the cells to a lower sustaining level.

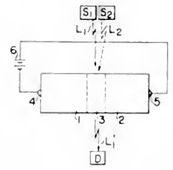
ERRATUM

For Class 315—241 see:
Patent No. 3,809,954

3,809,953
METHOD OF AND DEVICE FOR CONTROLLING OPTICAL CONVERSION IN SEMICONDUCTOR

Jun-Ichi Nishizawa, Sendai, Japan, assignor to Semiconductor Research Foundation, Kawauchi, Japan

Continuation-in-part of Ser. No. 46,445, June 15, 1970, abandoned. This application May 1, 1972, Ser. No. 249,013
Claims priority, application Japan, June 18, 1969, 44-48119
Int. Cl. H01l *15/00*
U.S. Cl. 317—235 N **20 Claims**

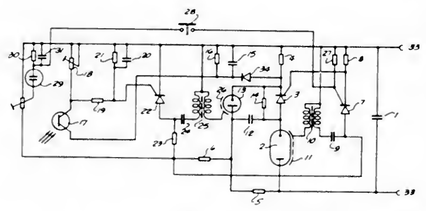


A method of and device for controlling optical conversion in which the electric charge distribution of a deep level impurity in the depletion layer of a semiconductor device is varied by directing light to the depletion layer or by injecting an elecric current in the depletion layer. As a result the width of the depletion layer and/or the electric field in the depletion layer are varied which lead to the variation in light transmission, photovoltaic power or photocurrent.

3,809,954
ELECTRONIC FLASH UNIT WITH AUTOMATIC FLASH TERMINATION OF INCREASED RELIABILITY

Heinz Engelstatter, Bad Soden, Germany, assignor to Braun Aktiengesellschaft, Frankfurt, Germany

Filed June 15, 1972, Ser. No. 262,972
Claims priority, application Germany, June 23, 1971, 2131057
Int. Cl. G03b *15/05*
U.S. Cl. 95—10 CE **10 Claims**

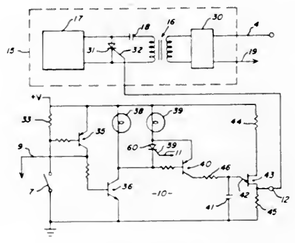


To a conventional electronic flash unit having a flash tube, a release contact, an exposure measuring circuit furnishing an exposure control signal and a terminating switch connected in series with the flash tube for automatic flash termination under control of the exposure measuring circuit, is added a first auxiliary switch connected in parallel with the capacitor storing the flash energy and connected to the release button for switching the terminating switch to the conductive state upon activation of the release button, and a second auxiliary switch connected to the output of the exposure measuring circuit for switching the terminating switch to the blocked state when the exposure control signal signifies a predetermined exposure.

3,809,955
SAFETY CIRCUIT FOR ELECTROSTATIC SPRAY GUN

Ronald F. Parson, St. Paul, Minn., assignor to Graco Inc., Minneapolis, Minn.

Filed Mar. 26, 1973, Ser. No. 344,685
Int. Cl. H02h *3/08, 7/12*
U.S. Cl. 317—3 **17 Claims**

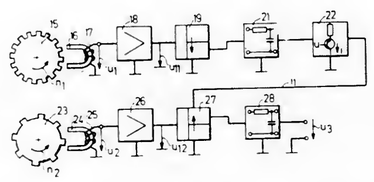


An improved high voltage sensing and disabling circuit having a desensitizing feature to compensate for initial turn-on of an electrostatic spray gun is disclosed. The circuit provides a safeguard against excessive electrostatic spray gun ionizing currents, but automatically compensates for current surges caused by line charging during turn-on.

3,809,956
APPARATUS FOR ELECTRICAL DETERMINATION OF DIFFERENTIAL SPEED OF TWO ROTATING MEMBERS

Rainer Burkel, Schwieberdingen, and Hans Scheyhing, Hofingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 10, 1972, Ser. No. 295,861
Claims priority, application Germany, Nov. 26, 1971, 2158602
Int. Cl. H02p *5/16*
U.S. Cl. 317—6 **11 Claims**

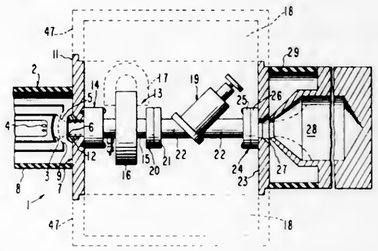


A steady voltage is generated which is proportional to the quotient of the rotational rates of the two members for which it is desired to determine the slip rate. The apparatus may be used to effect coupling of the two members when the slip rate falls to or very near zero, particularly in a motor vehicle transmission. The control voltage is generated by first generating, through electrical sensors and circuits, a train of pulses having a repetition rate proportional to the rotational rate of one of the members and having a pulse width inversely proportional to the rotational rate of the other of the members, and then integrating the pulse train to provide a steady control voltage.

3,809,957
METHOD FOR PRESERVING ELECTRON GUN ASSEMBLIES

George V. Miram, Daly City, and Samuel W. Woolsey, Los Altos, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Division of Ser. No. 803,774, March 3, 1969, Pat. No. 3,585,445. This application Mar. 4, 1971, Ser. No. 121,117
Int. Cl. H01j *7/14*
U.S. Cl. 313—7 **4 Claims**

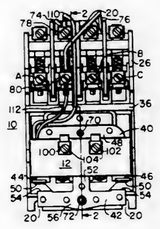


A method for preserving electron gun assemblies is disclosed. In the method, an electron gun assembly, including a thermionic cathode emitter, is assembled in a vacuum envelope structure. The envelope is evacuated, baked out, and the cathode processed in the conventional manner to activate the cathode. Beam voltages are applied to draw beam current from the gun to test proper operation thereof. These tests may include a test of beam diameter and perveance in the presence of a beam focusing magnetic or electric field. The processed and tested electron gun is then valved off from the rest of the envelope by means of a valve connected to the envelope portion including the electron gun. The valved off gun is then detached from the vacuum envelope for preserving the electron gun in an operable condition for subsequent use in a second vacuum envelope structure.

3,809,958
DIRECT CURRENT ELECTROMAGNETIC SWITCH

Charles F. Meyer, and Kenneth W. Retzer, both of Wauwatosa, Wis., assignors to Square D Company, Park Ridge, Ill.

Filed Nov. 6, 1972, Ser. No. 304,166
Int. Cl. H02h *7/22*
U.S. Cl. 317—11 E **10 Claims**



An electromagnetically operated device having an alternating current magnet structure operated by direct current. The electromagnet includes a laminated magnet iron armature, a laminated magnet iron stationary magnet, and a coil winding which is positioned to induce a magnet flux in the armature and the magnet which causes the armature to be picked up

and move from a position where it is spaced from the magnet to a sealed position where it engages the magnet when the coil is energized from a direct current source by a pick-up current. A pair of closed contacts which open as the armature moves toward the sealed position, cause a resistor to be included in the coil circuit to reduce the current flow through the coil when the armature is in the sealed position. The resistor, which is of the thick film type, is mounted between the rear side of the device and a panel on which the device is mounted so the panel aids in dissipating heat generated in the resistor when the coil is energized. A capacitor in a control circuit for the device is charged by the pick-up current and supplies current energy to the coil when the contacts initially open to assure movement of the armature to the sealed position.

3,809,959

CIRCUIT INTERRUPTING MEANS FOR HIGH-VOLTAGE DIRECT CURRENT

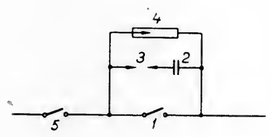
Walter Pucher, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Mar. 14, 1973, Ser. No. 341,059

Claims priority, application Sweden, Mar. 21, 1972, 3619/72

Int. Cl. H02h *7/22*

U.S. Cl. 317—11 E **5 Claims**



A high voltage direct current interrupting arrangement consists of two electrical switches connected in series. One of the switching devices is a commutating circuit breaker which is connected in parallel with a series connection of a capacitor and a spark gap. A surge diverter is also connected in parallel with the commutating circuit breaker. The surge diverter takes over the current and breaks it during a breaking operation whereafter the other switching device is opened to isolate the circuit.

ERRATUM

For Class 317—12 see:
Patent No. 3,810,252

3,809,960

HEATING INDICATING DEVICE OF AN ELECTRIC MOTOR

Alain Francois Jossic, Belfort, France, assignor to Societe Honeywell Bull., Paris, France

Filed Mar. 6, 1973, Ser. No. 338,491

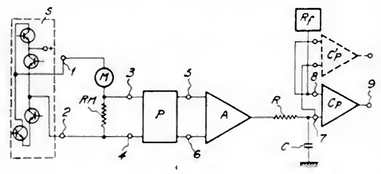
Claims priority, application France, Mar. 13, 1972, 72.08659

Int. Cl. H02h *7/08*

U.S. Cl. 317—13 B **10 Claims**

Heating indicating device for the rotor of an electric motor notably using direct current.

According to the invention, this device is characterized in that it comprises a resistor mounted in series with said rotor, means reading the voltage across said resistor and supplying an output voltage corresponding to the square of the input voltage, means simulating the thermal exchange time constant between said rotor and its environment and causing progression, in time, of said output voltage in accordance with said time constant, means for emitting a reference voltage representative of the maximum allowable temperature that must not be exceeded for the rotor and means for comparing



this reference voltage and the output voltage of the means simulating the time constant.

Supervision of motor, notably in printing machines.

3,809,961

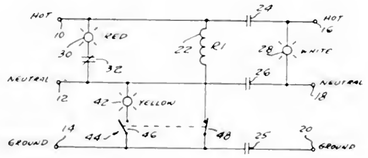
ELECTRIC OUTLET SENTINEL

Thomas N. Kershaw, West Coxsackie, N.Y., assignor to Albany International Corp., Albany, N.Y.

Filed May 25, 1972, Ser. No. 256,763

Int. Cl. H02h *3/20*

U.S. Cl. 317—18 B **1 Claim**



A relay coil is connected across the hot and ground wires of a single phase three wire AC circuit for establishing a current flow through the ground wire when the ground is continuous. The coil senses the current and causes pairs of normally open relay contacts to close. Said pairs of contacts are connected in series with each of the wires of the AC circuit for connecting the circuit to a load. The contacts remain closed so long as the ground wire of the three wire AC circuit remains continuous and connected to ground. If a ground fault occurs, that is the ground wire of the circuit ceases to be connected to ground, the current through the coil ceases and the contacts open. Appropriate indicators are controlled by additional relay contacts or switches to indicate the existence or nonexistence of a ground fault. Should the polarity of the AC circuit be reversed, current will not flow through the coil and the contacts will remain open rendering the circuit inoperative.

3,809,962

GROUND CURRENT POWERED GROUND FAULT PROTECTOR

William Keith Brown, and Harris I. Stanback, both of Lexington, Ky., assignors to Square D. Company, Park Ridge, Ill.

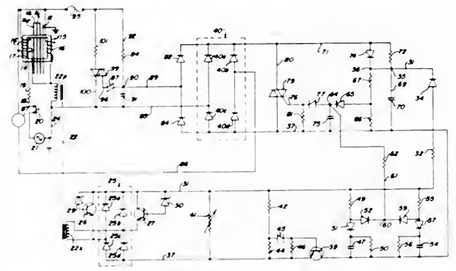
Continuation of Ser. No. 224,107, Feb. 7, 1972, abandoned. This application Apr. 13, 1973, Ser. No. 351,068

Int. Cl. H02h *3/26*

U.S. Cl. 317—18 D **13 Claims**

An equipment protection system uses a differential transformer to detect ground faults and energizes a shunt trip coil of a circuit breaker solely with energy induced in secondary windings of the differential transformer by the fault current. Uniform time delay is provided regardless of the magnitude of the fault current and means are provided to prevent partial timing out of the time delay circuit at fault currents below the minimum tripping point. The system provides instantaneous

tripping of the circuit breaker upon occurrence of large ground fault currents. A switching triac avalanches into con-



duction upon occurrence of a relatively large ground fault current to protect circuit components from damage while still permitting energization of the shunt trip coil.

3,809,963

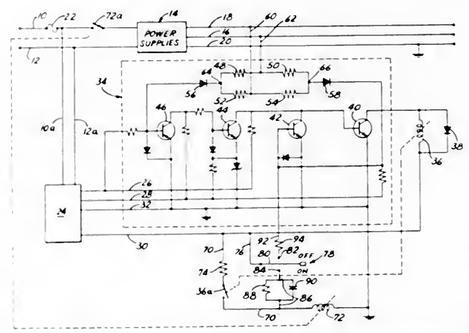
POWER SUPPLY SYSTEM CONTROL CIRCUIT

Homer F. Hutchinson, Wheaton, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed June 4, 1973, Ser. No. 367,076

Int. Cl. H02h *5/00*

U.S. Cl. 317—22 **15 Claims**



A power supply system is disclosed which includes a control system that utilizes a sensing circuit to monitor the output load values and to automatically turn off the system if the values are outside of a predetermined range. The control system includes a manually operable switch which will initially immediately turn the power supply on as well as off, and incorporates a delay network which prohibits repeatedly turning the power supply on and off within a predetermined time period. Attempts to again turn the system on within the time period will result in resetting the delay network, causing the operator to wait the entire time period before the system can be again turned on.

3,809,964

ELECTRICALLY ACTUATED PRIMING DEVICE

Bernard Ceyrat, Bourges, France, assignor to Etat Francais represente Par le Ministre Charge de la Defense Nationale Delegation Ministerielle pour l'Armement, Paris, France

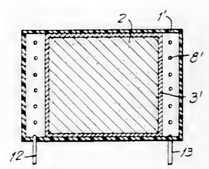
Filed Nov. 10, 1972, Ser. No. 305,582

Claims priority, application France, Nov. 12, 1971, 71.4568

Int. Cl. C06c *5/06*

U.S. Cl. 102—28 R **2 Claims**

A priming device actuated by electrical induction and comprising a primer containing a pyrotechnical substance, an armature placed in contact with or proximate to the pyrotechnical substance and an inductor for producing an alternating



magnetic field which causes electrical heating of the armature by induction. The armature can be separate from or formed of all or part of a casing containing the pyrotechnical substance.

3,809,965

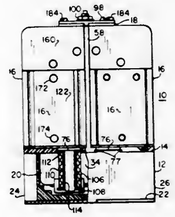
SOLID STATE RELAY AND TIMER HOUSING MEANS

Clarence N. Groth, Mequon; James N. Hempel, Milwaukee; Robert A. Wieczorek, Glendale; Charles F. Meyer, Wauwatosa, and Robert G. Cook, Cedarburg, all of Wis., assignors to Square D Company, Park Ridge, Ill.

Filed Mar. 26, 1973, Ser. No. 345,162

Int. Cl. H02b *1/04*

U.S. Cl. 317—113 **11 Claims**



A solid state relay structure capable of replacing an electromagnetically operated relay. The relay includes a basic support on which up to four switching modules may be easily mounted. The basic support provides a housing for a printed circuit board which has circuits arranged to cause two of the switching modules to provide an instantaneous type switching contact operation and two of the modules to provide an OFF delay or ON delay type of switching contact operation. The basic support has a readily accessible adjustment knob which will permit the timing interval of the relay to be easily changed. Isolation between the solid state control circuit and the power switching circuits in the four modules is provided by reed switches in the switching modules and four magnet coil windings that are carried by the basic support structure.

3,809,966

SECTIONAL LAMINATED STRUCTURAL SYSTEM FOR AREA DISTRIBUTION OF ELECTRICAL POWER AND SIGNAL ENERGY

C. Barry Tirrell, Duxbury, and Walter L. Reid, Jr., Mattapoisett, both of Mass., assignors to Dole Electro-Systems, Incorporated, Palo Alto, Calif.

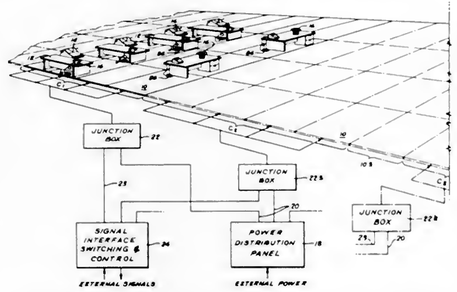
Continuation-in-part of Ser. No. 191,392, Oct. 21, 1971. This application July 5, 1972, Ser. No. 269,214

Int. Cl. H02b *1/04*

U.S. Cl. 317—117 **22 Claims**

A sectional laminated structure system for transmitting electrical power and signal energy over an area so that devices using power and signal energy can be coupled to the structure at randomly selected locations thereon. The system is comprised of a series of interconnected panels, each panel being a

rigid or semi-rigid combination of laminated elements including electrically conductive layers for a power carrying subsystem and/or transmission means for a signal distribution subsystem. The conductive layers are separated by a dielectric



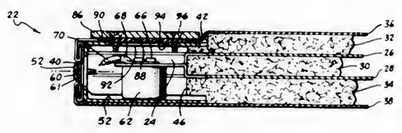
material. Means are included for connecting the panels to provide power and signal transmission continuity, and other means provide for isolating groups of panels from other panels to form selected areas of power and signal distribution.

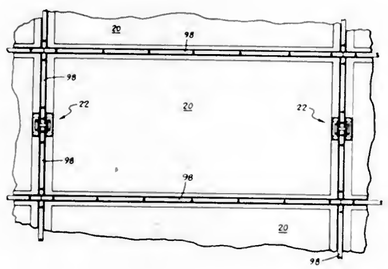
3,809,967

INTERCONNECTION ASSEMBLY FOR PANEL SECTIONS OF AREA TYPE ELECTRICAL DISTRIBUTION SYSTEM

C. Barry Tirrell, Duxbury, and George B. Williams, New Bedford, both of Mass., assignors to Dole Electro-Systems, Incorporated, Palo Alto, Calif.

Filed Nov. 24, 1972, Ser. No. 309,067
Int. Cl. H02b *1/02*
U.S. Cl. 317—117 **12 Claims**





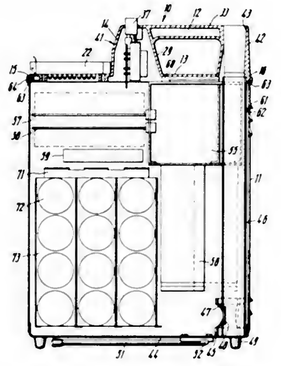
Panel sections having internal conductive layers for transmitting electrical power or signal energy are interconnected to form an area type distribution system by flexible conductors connected to tab portions of the panel conductive layers extending into a flush enclosure formed by a recess on the side edge of each panel. An extensible and flexible tubular member retained at its opposite ends by the enclosures of adjacent panel sections provides a protective and shielded passage for the conductors between panel sections and also allows for dimensional variations between installed, adjacent panel sections.

3,809,968

PORTABLE CURRENT SUPPLY DEVICE FOR FLASH BULBS AND HOUSING MEANS

Walter Haberthur, Hofstetten, Switzerland, assignor to Bron Elektronik AG, Allschwil, Switzerland

Filed Jan. 23, 1973, Ser. No. 326,153
Claims priority, application Germany, Jan. 25, 1972, 2203337
Int. Cl. H02b *1/10*
U.S. Cl. 317—120 **21 Claims**



A current supply device, especially for photoflash lamps, in which a generally cubicle container is provided open at the top and having a cover of electrical insulating material closing the open top. The cover carries connectors for connecting the device to cables leading to photoflash lamps and also carries control elements for controlling the device and a connector for connecting the device to an external source of electrical energy. A handle is provided on the cover for movement of the device and is connected at one end to a raised intermediate portion of the cover and at the other end to an elevated region at one end of the cover. A metal hood is provided that can be mounted on the cover to cover the aforementioned connectors and control elements while leaving the handle exposed.

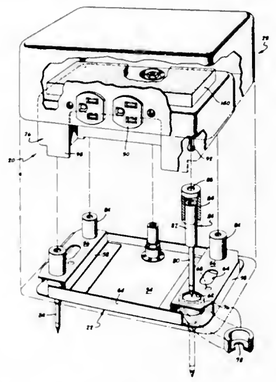
3,809,969

PROBE CONNECTOR RECEPTACLE DEVICE FOR AREA TYPE ELECTRICAL DISTRIBUTION SYSTEM

Lon A. Williams, Wareham, and George B. Williams, New Bedford, both of Mass., assignors to Dole Electro-Systems Incorporated, Palo Alto, Calif.

Filed Jan. 30, 1973, Ser. No. 328,144
Int. Cl. H02b *1/10*
U.S. Cl. 317—120 **18 Claims**

A receptacle device for use with an area type electrical power and/or signal distribution system that utilizes a laminated structure having conductive layers spaced apart by dielectric layers comprises a generally planar base unit for supporting a plurality of probe elements in an upright and spaced apart arrangement to enable them to be simultaneously driven into the laminated structure of said system. A housing unit removably attached to the base unit includes an electronics package with connector pins in contact with said probe elements that are connected to internal circuit means secured within the package, and a resilient, shock-absorbing cover means surrounding the electronics package. The housing unit also supports exterior plug-in receptacle means connected to the circuit means and adapted to receive conventional plug-in connectors so that when the probe elements are installed within a laminated structure in contact with said con-



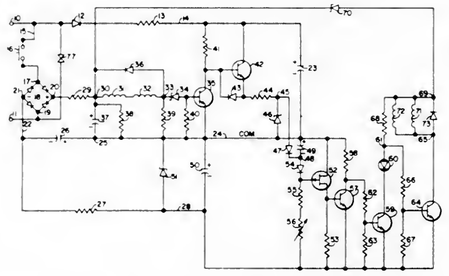
ductive layers an electrical path is provided through them to said connector pins, through said circuit means and to said exterior receptacle means to its plug-in connector.

3,809,970

SOLID STATE TIMING CIRCUIT

Robert G. Cook, Cedarburg, Wis., assignor to Square D Company, Park Ridge, Ill.

Filed Mar. 26, 1973, Ser. No. 345,163
Int. Cl. H03k *17/28*; **H01h** *47/18*
U.S. Cl. 317—141 S **12 Claims**



A solid state circuit for controlling the energization of four magnet coils as may be used in a solid state timing relay. The circuit is arranged so two of the four coils are immediately energized when a first direct current source is connected to the circuit and the remaining two magnet coils are energized or remain energized for a predetermined time interval after the first direct current source is energized or de-energized, respectively. The circuit also is connected to a second direct current source that is continuously energized and during the timing period applies a reverse potential in series with a previously charged timing capacitor to provide consistent accurately timed periods.

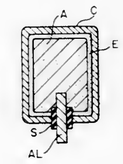
3,809,971

MICROFARAD RANGE VARACTOR

Stephen E. Hluchan, Newton, and Gerard J. Villani, Needham, both of Mass., assignors to Norton Company, Worcester, Mass.

Filed Mar. 17, 1972, Ser. No. 235,663
Int. Cl. H01g *7/06*, *9/05*, *7/04*
U.S. Cl. 317—230 **9 Claims**

A new class of varactors, affording total capacitance in the 0.01 to 1000 microfarad range and above and capacitance change of several percent per volt of bias change, and a total range of capacitance change of over 100%, utilizing thin layer, non-stoichiometric, valve metal oxide dielectrics, modified through materials processing to afford a mixed semiconductive-insulating characteristic, the dielectric being in the form of a thin film sandwiched between electrodes. A mixed anodic oxide coating contained on the surface of a molybdenum-



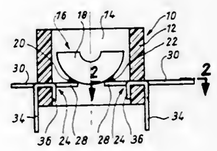
niobium binary alloy electrode is a preferred and distinctly advantageous dielectric. The varactor device of the invention has an oxide film thickness of 20 to 10,000 angstrom units, a capacitance ratio (maximum to minimum capacitance) of at least 2. The invention also comprehends new low frequency control systems incorporating the capability of variable capacitance in response to variation of bias voltage.

3,809,972

ROTARY PLATE CAPACITOR WITH STATOR CONNECTIONS

Henning Wick, Nagold, Germany, assignor to Paul Dau & Co., Nagold, Germany

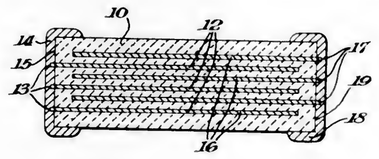
Filed Aug. 23, 1973, Ser. No. 390,789
Claims priority, application Germany, Aug. 25, 1972, 2241967
Int. Cl. H01g *5/06*
U.S. Cl. 317—253 **11 Claims**



A stator construction for a rotary plate capacitor apparatus, including a housing having opposed pairs of side and end walls, at least portions of said side walls being formed of a synthetic plastic material. The capacitor apparatus includes at least one stator that is supported between the side walls by a pair of connecting members each of which is formed from a conductive blank. Each connecting member includes a first coupling portion that extends through an opening contained in the synthetic plastic portion of the housing, whereby the connecting member is fastened to the housing in an insulated manner. The connecting member includes also second and third portions that extend beyond the housing side wall for electrical connection with the stator and with the corresponding electrical lead, respectively. In one embodiment, the opening in which the connecting member is fastened is a horizontal opening contained in the side wall of the housing, while in a

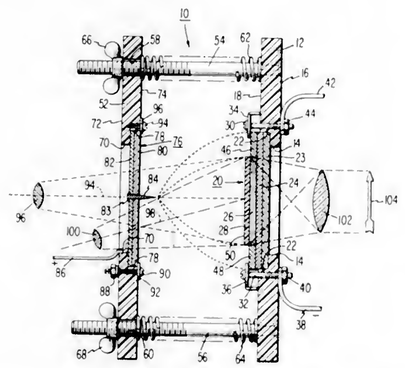
second embodiment, the opening is a vertical opening contained in a horizontal flange provided on the inner surface of each side wall of the housing.

3,809,973
MULTILAYER CERAMIC CAPACITOR AND METHOD OF TERMINATING
Thomas P. Hurley, Pownal, Vt., assignor to Sprague Electric Company, North Adams, Mass.
Filed July 6, 1973, Ser. No. 377,007
Int. Cl. H01g *1/14*
U.S. Cl. 317—258 **3 Claims**



In a multilayer ceramic capacitor having base metal electrodes, a thin film of gold covers the electrode edges that are flush with the ceramic body faces. The capacitor terminals consist in silver coverings that are bonded to each of these faces and the gilded electrode edges. A method of immersion plating is employed to accomplish a selective deposition of gold on only the electrode edges.

3,809,974
CORONA DISCHARGE DEVICE
Robert Allen Gange, Belle Mead, and Charles Steinmetz, Mercerville, both of N.J., assignors to RCA Corporation, Princeton, N.J.
Filed Feb. 26, 1973, Ser. No. 335,524
Int. Cl. H01t *19/04*
U.S. Cl. 317—262 A **1 Claim**

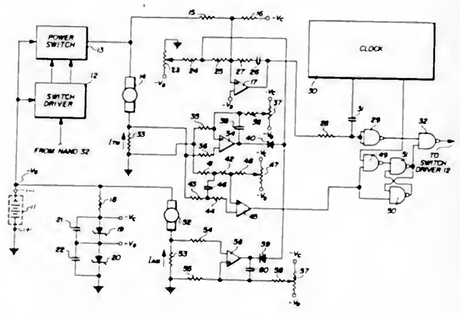


To provide a substantially uniform electrostatic charge on a relatively large area of a surface at ambient pressure, a novel corona discharge device comprises a transparent electrically conductive plate and a pointed member of electrically conductive material extending perpendicularly from the center of the plate and spaced from the surface. A source of high voltage is connected between the plate and the surface.

ERRATUM

For Class 318—23 see:
Patent No. 3,810,253

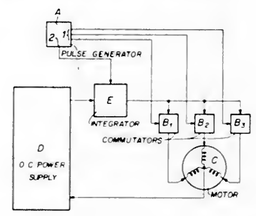
3,809,975
MOTOR SPEED CONTROL APPARATUS FOR AN ELECTRICALLY POWERED VEHICLE
John H. Bartels, 160 Poplar, Elmhurst, Ill.
Filed Jan. 22, 1973, Ser. No. 325,319
Int. Cl. H02p *5/16*
U.S. Cl. 318—39 **8 Claims**



A motor speed control apparatus for automatically reducing the speed of an electrically powered vehicle (e.g., a riding lawnmower) responsive to the traction motor and/or an auxiliary motor being overloaded is disclosed. More particularly, battery means comprising a DC battery are included for applying DC potential to the traction motor and the auxiliary motor (e.g., turning a cutting blade) which may be overloaded due to excessive vehicular speed. The vehicle's speed is determined by the DC potential applied to the traction motor while the current drawn by either motor is determined by the torque required (i.e., loading) of that motor. Means for stabilizing the DC potential applied to the traction motor are provided to maintain the vehicle's speed at the level selected by the operator. Whenever the current drawn by either the traction motor or the auxiliary motor exceeds a predetermined threshold, current limiting means are effective to automatically reduce the DC potential applied to the traction motor until the current drawn by both motors is below the threshold. Moreover, high-speed comparator means are included to monitor the instantaneous current drawn by the traction motor so that the stabilizing means are disabled whenever the instantaneous current exceeds a predetermined level.

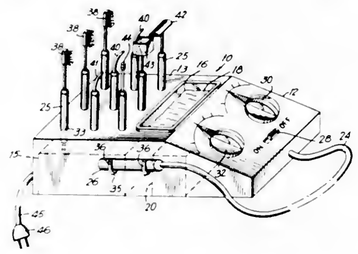
3,809,976
METHOD AND APPARATUS FOR SYNCHRONIZING A THREE PHASE MOTOR
Jean-Jacques Bessire, Bienne, Switzerland, assignor to H. et J. J. Bessire, S.A., Bienne, Switzerland
Continuation of Ser. No. 40,770, May 27, 1970, abandoned. This application Apr. 20, 1972, Ser. No. 245,873
Claims priority, application Switzerland, June 4, 1969, 8474/69
Int. Cl. H02p *5/46*
U.S. Cl. 318—78 **5 Claims**

The method and apparatus for synchronizing a three phase motor with a master motor or other device includes generating three phase voltage pulses which are controlled in frequency by the speed of rotation of the master motor and which vary in amplitude as a function of speed variations of said master motor. A pulse generator driven by the master motor provides pulses which are controlled in frequency by the speed of the master motor and directs such pulses as three phase voltage pulses to three commutating units which selectively feed a winding of a three phase motor. Each commutating unit receives voltage pulses of one phase, and upon receipt of such pulses, provides a signal to the associated motor winding. The



amplitude of this signal is controlled as a function of an integrated signal derived from integrating pulses from the pulse generator.

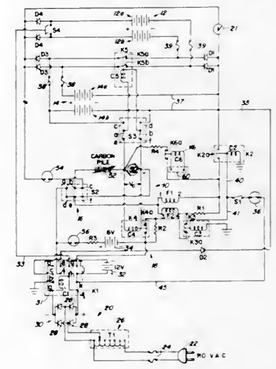
3,809,977
ULTRASONIC KITS AND MOTOR SYSTEMS
Lewis Balamuth, New York; Arthur Kuris, Riverdale, and Manual Karatjas, Glen Oaks, all of N.Y., assignors to Ultrasonic Systems, Inc., Farmingdale, N.Y.
Filed Feb. 26, 1971, Ser. No. 119,298
Int. Cl. H01v *7/00*
U.S. Cl. 318—116 **34 Claims**



The invention discloses various embodiments of an ultrasonic kit adapted to be used in the home or for industrial purposes, as well as a variety of ultrasonic motor constructions and ultrasonic converter designs to be used either individually or in combination with each other. The ultrasonic motor is generally of a piezoelectric material having a removable tip or of a design in which the complete motor is contained in a housing, which housing has electrical contact means adapted to be plugged into an adapter which, in turn, is connected to a converter. The motor may be designed such that frequency sensing is provided therein and the feedback signal is utilized by the generator to adjust itself thereto.

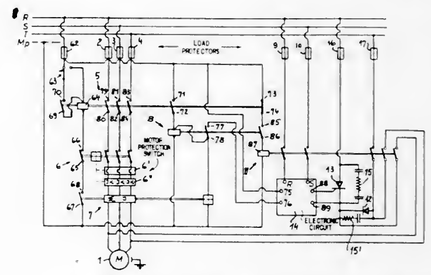
3,809,978
CIRCUIT FOR ELECTRICALLY-OPERATED VEHICLE
Joseph R. Zubris, 5 Glover Pl., Dorchester, Mass.
Filed Sept. 8, 1972, Ser. No. 287,563
Int. Cl. H02p *7/06*
U.S. Cl. 318—139 **16 Claims**

A DC motor circuit powered by two banks of automobile storage batteries includes an armature, a pair of field windings which are essentially connected in parallel with each other and in series with the armature of the motor, an excitation circuit coupled to the pair of field windings for establishing a potential thereacross and having its own DC power source, a switch for operating the DC motor in either the forward or reverse direction and circuit means including a full wave rectifier bridge for recharging the two banks of batteries. The circuit may also include means for switching from a parallel connection of the banks of storage batteries wherein maximum current is available for starting and low speed operation, to a series connection for full voltage high speed operation. With the circuit of this invention greater efficiency of the motor is



obtained primarily by means of the field excitation circuit, and where limited operating range is acceptable the circuitry enables a vehicle to be powered by readily available automotive batteries and still have exceptionally good performance.

3,809,979
MOTOR BRAKE CIRCUIT
Karl-Heinz Zarth, Remscheid, Germany, assignor to "Rhewum" Rheinische Werkzeug-und Maschinenfabrik GmbH, Remscheid, Germany
Filed Dec. 11, 1972, Ser. No. 313,669
Claims priority, application Germany, Dec. 30, 1971, 2165471
Int. Cl. H02p *3/20*
U.S. Cl. 318—212 **6 Claims**

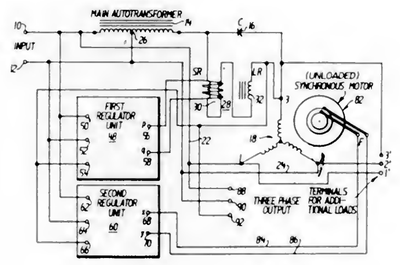


In a direct current brake circuit for braking a three-phase, short-circuit rotor motor, a thyristor and diode are connected between the motor and its three phase supply, via controllable switches, overvoltage protection components are connected to the thyristor and the diode, and protective circuitry is connected to cause the thyristor and diode to be connected to the motor stator and to the motor supply, and the braking voltage to be applied to the motor stator, under no load conditions.

3,809,980
PHASE ADAPTER
Frank O. Nottingham, Jr., 814 Wesley Dr., N.W., Atlanta, Ga.
Filed Feb. 5, 1973, Ser. No. 329,748
Int. Cl. H02p *1/44*
U.S. Cl. 318—220 R **6 Claims**

A device is disclosed for converting single-phase power to three-phase power. The device includes an autotransformer

and a variable impedance device for adjusting the magnitude and phase of the autotransformer output. A first regulator circuit, including comparison, amplifier, phase shifting and SCR stages, is provided to regulate the impedance of the variable



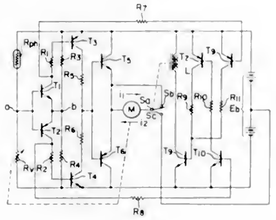
impedance device. A second regulator circuit, including comparison, control and power output stages, is also included to provide the device with the capability of compensating for changing power factors in three-phase loads coupled to it.

3,809,981

EXPOSURE DETERMINING DEVICE

Osamu Maida, Tokyo, Japan, assignor to Nippon Kagaku K.K., Tokyo, Japan

Filed Nov. 2, 1972, Ser. No. 303,233
Claims priority, application Japan, Nov. 29, 1971, 46-96140
Int. Cl. G05d *25/02*
U.S. Cl. 318—294 **5 Claims**



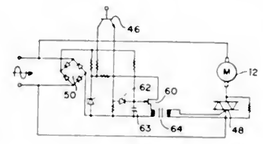
An exposure determining device comprises a bridge circuit which includes at least a photoelectric element for receiving light from an object to be photographed and a variable resistor for controlling the balance of the bridge circuit and associated with exposure factors. The device further comprises a bridge balance detecting circuit producing one of first and second signals upon unbalance of the bridge circuit, and an electric motor rotatable in forward and reverse directions by first and second driving circuits operable in response to the first and second signals, respectively. The motor is associated with the resistor in such a manner that the resistance value of the resistor is decreased during the rotation of the motor in one direction and is increased during the rotation of the motor in the other direction. The opposite terminals of the motor may be short-circuited by a short-circuiting circuit. A relay circuit is provided for closing the first and second driving circuits in response to the first and second signals, respectively, and for closing the short-circuiting circuit upon balance of the bridge circuit.

3,809,982

CENTRIFUGE SPEED CONTROL

Kenneth J. Cook, Oak Park, Mich., assignor to William Beaumont Hospital, Royal Oak, Mich.

Filed Mar. 5, 1973, Ser. No. 337,956
Int. Cl. H02p *5/16*
U.S. Cl. 318—313 **5 Claims**



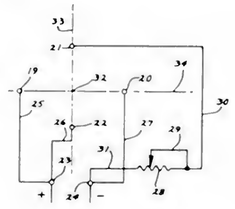
An electro-optical system for measuring and controlling the rotational speed of a centrifuge. The rotational speed is optically sensed and converted into an electrical signal for comparison with a signal indicative of the desired speed. The result of the comparison is optically coupled to control the occurrence and duration of a signal to a motor which rotates the centrifuge. The optical coupling electrically isolates the centrifuge from the measuring system. An optional digital readout may be utilized to indicate rotational speed.

3,809,983

VARIABLE SPEED MOTOR

Peter Walker, Jr., Brooklyn Park, Minn., assignor to Electro-Craft Corporation, Hopkins, Minn.

Filed Nov. 8, 1972, Ser. No. 304,766
Int. Cl. H02p *5/06*; **H02k** *23/04*
U.S. Cl. 318—340 **10 Claims**



A controlled speed direct current motor in which the magnitude of the flux field in which the motor armature is operative is controlled in accordance with the energization of selected armature windings independently of the armature motor drive windings. This is accomplished by the use of separate independent brushes which are adapted to coact with the usual commutator on the rotating armature so as to simultaneously energize selected coil windings on the armature independently of the coil windings of the armature which are energized from a source of electrical current to cause the motor to operate. By utilizing a variable source of current for energizing the selected armature windings the field set up by the independent energization of the selected windings may be utilized to add to or subtract from the flux field normally utilized in the motor.

3,809,984

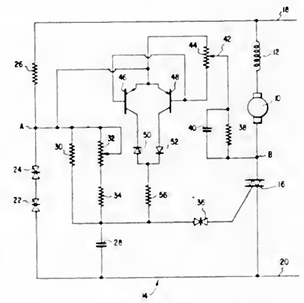
MOTOR SPEED CONTROL SYSTEM

Henri H. Hoge, Baltimore, Md., assignor to Allied Controls Company, Inc., Plantsville, Conn.

Filed Jan. 29, 1973, Ser. No. 327,668
Int. Cl. H02p *5/16*
U.S. Cl. 318—244 **10 Claims**

The motor speed control system includes a bidirectional solid state switch which selectively connects and disconnects a

series AC motor to an AC power source during each half cycle of the power supply signal. The decaying armature current is sensed when the motor is disconnected from the power supply



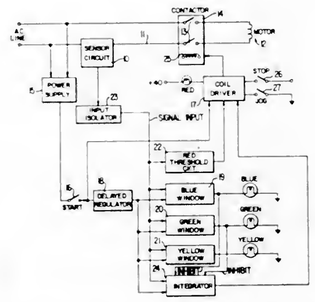
at the end of each half cycle to determine the point in the next succeeding half cycle when the motor will be reconnected to the power supply.

3,809,985

SOLID STATE A/C MOTOR PROTECTOR SYSTEM

Stephen R. Krause, and Nelson Hendler, both of Baltimore, Md., assignors to Pro-Lect, Inc., Baltimore, Md.

Filed Apr. 6, 1973, Ser. No. 348,668
Int. Cl. H02p *3/00*
U.S. Cl. 318—490 **10 Claims**



Apparatus and method for protecting a current drawing load, such as a motor, from excessive overload using logic to open a contactor between the source and load. Overlapping windows or ranges of load current magnitude show the conditions of load including trend of the load current. Threshold sensing of a predetermined level disconnects the load and so indicates. Single or multiple phases may be sensed and indicated while maintaining protective disconnect capabilities for single or multiphase loads.

3,809,986

POSITIONING DEVICE

Wim Visser, Rijswijk, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 15, 1973, Ser. No. 332,735
Claims priority, application Netherlands, Feb. 18, 1972, 7202140
Int. Cl. G11b *21/08*; **G05b** *19/28*
U.S. Cl. 318—561 **12 Claims**

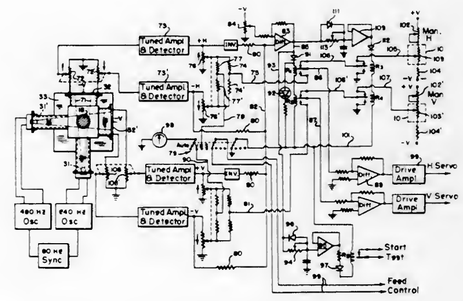
A positioning device is subjected to an acceleration during the first part of a step, whilst it is subjected to a deceleration during the second part. The tolerance in the maximum obtainable deceleration is not negligibly small. Therefore, the second part of the step is divided into three phases. In the first phase a standard deceleration is used which is less than the maximum deceleration; in the second phase the deceleration is maximum; in the third phase positional control is effected.

3,809,987

AUTOMATIC CENTERING OF OBJECTS IN NON-DESTRUCTIVE TEST APPARATUS

Peter J. Suhr, Garden City; Edward D. Spierer, Belle Harbor, and Girish P. Mhatre, Mount Vernon, all of N.Y., assignors to Magnetic Analysis Corporation, Mt. Vernon, N.Y.

Filed Apr. 6, 1973, Ser. No. 348,613
Int. Cl. G01b *11/26*
U.S. Cl. 318—640 **10 Claims**

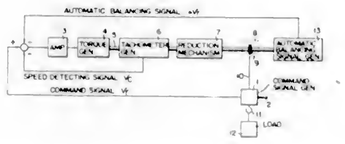


Pairs of light sources and light responsive strips sense horizontal (H) and vertical (V) displacements of a cylindrical object from the axis of the test head in a non-destructive test apparatus prior to entering the test head. An object occludes light from the central portion of each strip and signals from the ends of each strip are amplified, detected and differentially combined to form respective servo control signals. The light sources in H and V channels are pulsated at frequencies different from each other and from the power mains, and the H and V channels are tuned thereto. The relative values of the signals in the H and V channels are initially adjusted to produce null servo control signals when an object is properly centered in the test head, and thereafter a servo system moves the position sensing and test heads to maintain centering. Signals from the individual channels are utilized to detect the ends of an object. A front end signal starts the servo control and, after a delay, starts the testing. A rear end signal discontinues servo control until the object has passed through the test head and then recenters the head for the next object.

3,809,988
AUTOMATIC LOAD WEIGHT BALANCING SYSTEM

Kenro Motoda, Tokyo, and Kensuke Hasegawa, Yokohama, both of Japan, assignors to Motoda Electronics Co., Inc., Tokyo, Japan

Filed Aug. 16, 1973, Ser. No. 388,967
Claims priority, application Japan, Aug. 21, 1972, 47-82861
Int. Cl. G05b *11/28*
U.S. Cl. 318—646 **15 Claims**

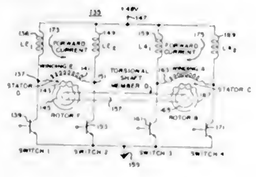


An automatic load weight balancing system includes an automatic balancing signal generating section comprising a clutch directly or indirectly coupled to a drive shaft, a triple position signal element having a suitable dead zone and proportional plus integral element for receiving as an input an output signal of the triple position signal element. An automatic balancing signal from the automatic balancing signal generating section is fed back to a control amplifier for controlling a driving section such as an electric motor, a hydraulic motor etc. to reduce a difference between the weight of a load and a driving force of the driving section to substantially zero, thereby automatically stopping the load in any position.

3,809,989
TORSIONAL STEPPING MOTOR AND EXCITER APPARATUS THEREFOR

John D. Hays, Troy; Harlen L. Baswell; Jerry A. Combs, both of Dayton, and Dale G. Brown, West Carrollton, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Oct. 12, 1971, Ser. No. 188,420
Int. Cl. H02n *29/02*
U.S. Cl. 318—696 **25 Claims**

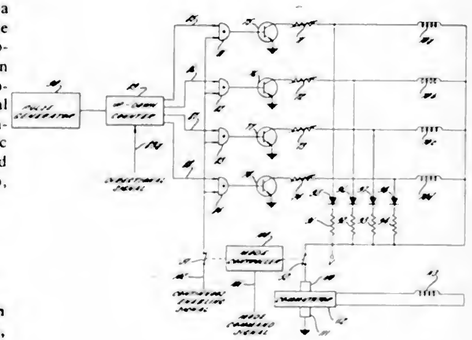


A stepping or indexing motor including plural electrical-to-mechanical energy transducer devices and a torsionally resilient coupling member for connecting transducer rotor members and for storing rotor member mechanical energy between rotor member movements; the torsionally resilient coupling member also providing starting torque for the stepping motor, and a means for separately driving the inertia component and the friction component of the stepping motor load; the torsionally resilient coupling member also providing a means for achieving high torque-to-inertia and torque-to-motor volume ratios in the motor. In one embodiment a transducer device takes the form of a rotor, a stator, and a winding carried at each end of the coupling member, with the output torque at a motor shaft being derived both from an adjacent transducer device and from energy stored in the torsionally resilient coupling member during a previous distorting of the coupling member; the alternate sequential energizing and deenergizing action subjecting the coupling member to a twisting action and a relaxing action during each step of operation. Electrical circuitry for controlling the flow of energy into the stepping motor and for removing energy from the motor magnetic circuit is also described along with a method for achieving a novel energy conserving release of rotor and stator magnetic engagement.

3,809,990
ELECTRIC MOTOR ADAPTED FOR BOTH STEPPING AND CONTINUOUS OPERATION

Benjamin C. Kuo, Champaign, and Kenneth S. Kordik, Rockton, both of Ill., assignors to Warner Electric Brake and Clutch Company, Beloit, Wis.

Filed July 27, 1972, Ser. No. 275,732
Int. Cl. H02k *37/00*
U.S. Cl. 318—696 **17 Claims**

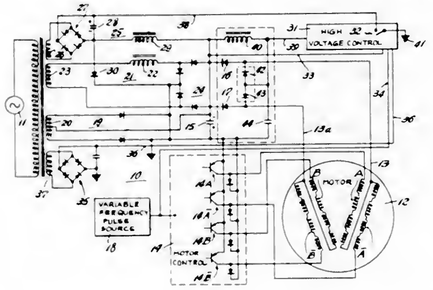


An electric motor adapted for operation in either a stepping mode or a continuous mode. The stator assembly of the motor includes three magnetically independent stator sections spaced along a common axis with each section forming a plurality of magnetic poles of alternating polarity around the circumference thereof, and having a plurality of teeth with the teeth of each stator section circumferentially offset from the teeth of one of the other sections by distance equal to the tooth pitch divided by the number of stator sections. The stator assembly is wound with a multi-phase winding having a separate phase wound on each stator section and connected to a common d-c. voltage source. A plurality of transistors are connected in circuit with the voltage source and each phase of the stator winding for selectively energizing each of the phases independently of the other. A rotor assembly is journalled for rotation in all the stator sections and has teeth with the same pitch as the teeth on the stator sections, and has a winding wound between the rotor teeth. A commutator is connected from the d-c. voltage source to the rotor winding for converting d-c. current from the source to a-c. current in the winding when the rotor assembly is turned. Switches connect and disconnect the voltage source from the commutator, and a plurality of gates actuate the transistors to control the energization of the various phases of the stator winding. When the motor is operated in the continuous mode, all the gates are enabled at the same time to actuate all the transistors to continuously energize all the phases of the stator winding so as to effect continuous rotation of the rotor, while the commutator is connected to the voltage source. In the stepping mode, a pulse generator produces pulses which are fed to a counter for producing output signals sequentially on a series of output lines for enabling the gates in sequence to turn on the transistors in sequence, thereby energizing the various phases of the stator winding in sequence to effect stepping rotation of the rotor assembly in synchronism with the pulses from the pulse generator.

3,809,991
POWER SUPPLY FOR A STEPPING MOTOR

Robert James Loyzim, Coventry, Conn., assignor to The Superior Electric Company, Bristol, Conn.

Filed Nov. 21, 1972, Ser. No. 308,316
Int. Cl. H02k *29/04*
U.S. Cl. 318—696 **8 Claims**

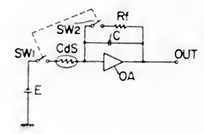


A power circuit for supplying power to a DC energized variable speed stepping motor which for the higher speeds supplies essentially the same quantity of power as is used by the motor by supplying a variable width charge to a capacitor for each step taken by the motor with the capacitor charge being the voltage to the motor.

3,809,992
CIRCUIT FOR STORING A REPRESENTATION OF AN INCIDENT LIGHT QUANTITY IN A CAMERA

Masataka Negishi, Urawa, Japan, assignor to Mamiya Koki Kabushiki Kaisha, Tokyo-to, Japan

Filed Nov. 13, 1972, Ser. No. 305,823
Int. Cl. G03b *7/08*; **G01j** *1/46*
U.S. Cl. 95—10 CE **7 Claims**

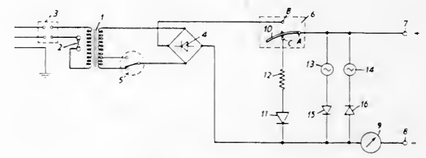


A circuit for storing the amount of incident light in a camera which comprises: a photoelectric conversion circuit constituted by a photosensitive element and a resistor to produce a divided voltage corresponding to the amount of light incident on the camera; an integration circuit formed by an operational amplifier and a capacitor; and switching means operating to apply the divided voltage between the input and output terminals of the operational amplifier and then to terminate the application of the divided voltage, whereby the amount of light incident on the camera before the shutter is operated is stored and maintained in the integration circuit and is utilized to accurately control the operation of the shutter.

3,809,993
ELECTRIC BATTERY CHARGER

Frederick Charles Wheeler, Bath, England, assignor to Staples Developments Limited, London, England

Filed Dec. 13, 1972, Ser. No. 314,773
Claims priority, application Great Britain, Dec. 17, 1971, 58704/71
Int. Cl. H02j *7/04*
U.S. Cl. 320—25 **12 Claims**



A battery charger incorporating an electric current heated thermo-operated switch which prevents the passage of charging current to a bettery connected to the charger the wrong way round, and acts to disconnect a battery intermittently when fully charged, when connected to right way round.

3,809,994
LOW POWER DC-DC CONVERTER EMPLOYING INTERMITTENT BURSTS OF BLOCKING OSCILLATIONS

George J. Ehni, III, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 19, 1972, Ser. No. 263,920
Int. Cl. H02m *3/28*
U.S. Cl. 321—2 **3 Claims**

A battery powered electronic liquid crystal display includes converter circuitry for providing a d.c. voltage suitable for driving the liquid crystal display from a low voltage battery source. The converter includes a transformer having a variable inductance such that the output level can be controlled. In a preferred embodiment the transformer includes a cup core having mating halves. Notches or recesses are defined in a significant portion of the peripheral edge of each cup core component; thus the stored energy of the transformer can be varied by rotating one half of the cup core pair with respect to the other half.

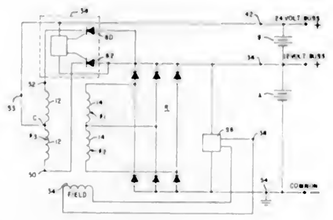
3,809,995
MULTIPLE OUTPUT ALTERNATOR

James T. Hardin, Lambertville, Mich., assignor to Eltra Corporation, Toledo, Ohio

Division of Ser. No. 90,899, Nov. 19, 1970. This application Dec. 11, 1972, Ser. No. 314,184
Int. Cl. H02m *7/00*
U.S. Cl. 321—5 **10 Claims**

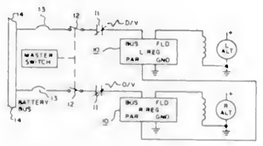
A multiple output alternator having separate sets of power coils mounted on the stator adapted to be magnetically

excited by a rotor having a direct current field coil is provided for a vehicle. The separate power coils being in a cooperative relation to give a distributed load condition when the rotor is driven by the variable speed power unit of the vehicle. Rectifying and voltage regulating means are provided for both sets of power coils to provide a high and low wattage power source, with the field coil of the rotor being supplied with a regulated D.C. voltage from the high wattage power source which also supplies power to the conventional electrical



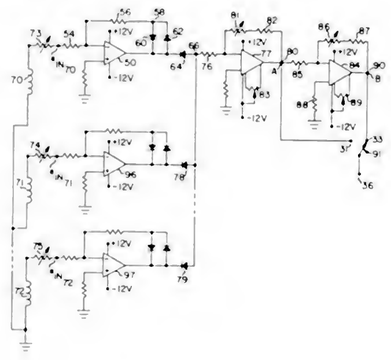
system of the automotive vehicle. For example, two power sources from an alternator are adapted to be used for charging batteries in a power system having two storage batteries which supply power to circuits requiring differing voltages, a relatively low voltage circuit which may include the high wattage power source and one of the batteries and a relatively high voltage circuit which is supplied by both storage batteries in series connection for special purposes such as starting of the variable speed power unit. More than two outputs could be supplied if desired.

3,809,996
LOAD BALANCING VOLTAGE REGULATOR
Raymond L. Meisenheimer, 1262 E. Kay Dr., Cherry Hill, N.J.
Filed Nov. 2, 1972, Ser. No. 303,103
Int. Cl. H02p *9/30*
U.S. Cl. 322—28 **10 Claims**



A voltage regulator is disclosed which includes circuitry therein which may be interconnected with other regulators for machines operating in parallel to provide interaction between the coupled regulators to increase the output of the lower generating machine to match the higher output machine. The regulator includes a voltage sensing network whose output controls a power transistor in series with the field excitation to inversely regulate the field excitation in accordance with the output voltage of the generator. Each regulator further includes a voltage divider network connected between the field excitations of each regulator which network is responsive to the presence of greater excitation in the other regulators to vary the voltage sensing network in the one regulator to increase field excitation to achieve load balance.

3,809,997
GENERATOR SYSTEM WITH LINEAR REVERSIBLE OUTPUT
Enrique J. Klein, 848 Boyce Ave., Palo Alto, Calif., and Myron E. Lee, Palo Alto, both of Calif., assignors to said Klein, by said Lee
Filed Apr. 9, 1973, Ser. No. 349,203
Int. Cl. H02p *1/22*
U.S. Cl. 322—79 **17 Claims**

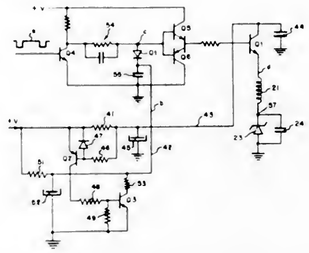


System for providing a DC signal linearly proportional through zero to the angular velocity of rotation of a shaft, and for providing a change of signal polarity with a reversal of the sense of rotation. A brushless generator having a magnetic rotor turning within a stator which includes a number of coils mounted within a magnetic return path ring. Trapezoidally shaped signals are produced by the coils when the magnetic rotor is driven. These signals are summed in one of several alternative electronic circuits, all functioning as peak detecting devices and including as elements operational amplifiers, diodes and field-effect transistors interconnected in such a way that the output will result in a smooth DC signal. The polarity of this signal is controlled by a switch operated by a friction sensitive device responsive to sense of rotation which is mounted on the generator shaft.

3,809,998
CURRENT REGULATOR FOR PULSE EDDY CURRENT TESTER
Sven E. Mansson, Hollviksnas, Sweden, assignor to Magnetic Analysis Corporation, Mt. Vernon, N.Y.
Filed Feb. 1, 1973, Ser. No. 328,889
Int. Cl. G05f *1/56*
U.S. Cl. 323—4 **8 Claims**

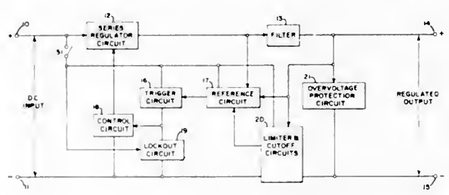
A resistor and coil driver are connected in series between the D-C power supply and test coil of a pulse eddy current tester. A regulator responsive to the voltage across the series resistor produces a D-C control voltage varying with the average current to the test coil. Pulses from a pulse generator

and the D-C control voltage are supplied to a clipper, and the output of the clipper is supplied to the coil driver to produce



pulses in the test coil whose average current is substantially constant.

3,809,999
DIRECT CURRENT VOLTAGE REGULATOR
Cantrell Smith, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.
Filed Apr. 19, 1973, Ser. No. 352,481
Int. Cl. G05f *1/56*
U.S. Cl. 323—17 **3 Claims**



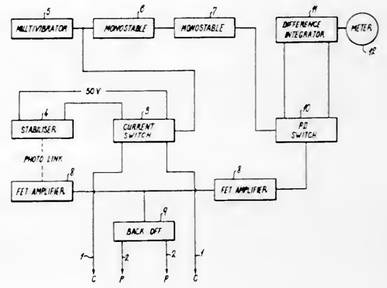
Improved regulation of direct current voltage from an unstable voltage source through a transitor series regulator to a load is provided by a lockout circuit that prevents current flow through the series regulator when the source voltage is removed from the lockout circuit, by a current limiter circuit that controls the series regulator as a function of current supplied to a load, and by a current cutoff circuit that prevents current flow through the series regulator when the output voltage falls below a selected magnitude.

ERRATUM

For Class 324—000 see:
Patent No. 3,810,254

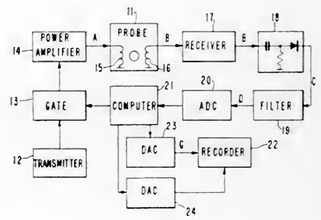
3,810,000
EARTH POLARIZATION METER WITH VOLTAGE CONTROL DURING CURRENT INJECTION
Arnold Aspinall, Bradford; David Gordon Spruce, Huddersfield, both of England, and John Thomas Lynam, Kambalda, Australia, assignors to National Research Development Corporation, London, England
Filed Feb. 16, 1972, Ser. No. 226,885
Claims priority, application Great Britain, Mar. 9, 1971, 6346/71
Int. Cl. G01v *3/04*
U.S. Cl. 324—1 **5 Claims**

This invention concerns a meter for measuring polarisation induced in the earth and in particular for measuring transient voltages that follow the termination of direct current flow through the ground. In this device automatic normalisation of the data is achieved by correllating the voltage source producing the transient voltages with the potential measured across



measurement electrodes in such a manner that the voltage source and measurement circuits are not otherwise electrically linked.

3,810,001
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY EMPLOYING DIFFERENCE FREQUENCY MEASUREMENTS
Richard Robert Ernst, Winterthur, Switzerland, assignor to Varian Associates, Palo Alto, Calif.
Filed June 15, 1972, Ser. No. 263,016
Int. Cl. G01r *33/08*; **G01n** *27/02*
U.S. Cl. 324—.5 R **8 Claims**

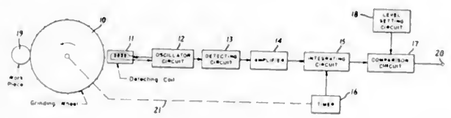


A modified impulse type Fourier transform type of nuclear magnetic resonance spectrometer wherein the direct measurement of difference frequencies between a single reference resonance line and the multiple resonance lines of the sample under analysis is provided, which provides weighting of the sample decay response by its local signal-to-noise ratio resulting in simplified system components and avoidance of stringent conditions with respect to the stability of the static unidirectional magnet field. A non-linear detector forms the desired difference frequencies and weighting function. A first embodiment employs analog-to-digital conversion and a signal averaging computer with the resultant difference frequencies of the sample response Fourier-transformed to obtain the desired spectrum. A second embodiment avoids the analog-to-digital converter and the computer, utilizing instead a form of analog Fourier analyzer to obtain the output spectrum.

3,810,002
METHOD AND MEANS FOR DETECTING THE CLOGGING OF A GRINDING WHEEL OR THE LIKE

Toshio Sata, 3-9-11 Shimohoya, Houya-shi, Tokyo, Japan

Filed Apr. 2, 1973, Ser. No. 346,814
Int. Cl. G01r *33/00*
U.S. Cl. 324—34 R 8 Claims

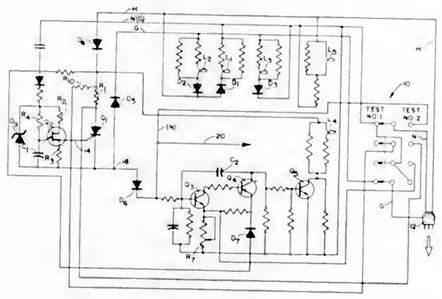


The degree of clogging or loading of the working surface of a grinding wheel or the like with the particles of electrically conductive material removed from the work is detected by a detecting coil disposed opposite the working surface of the grinding wheel and fed by a high frequency oscillator circuit so as to produce a magnetic flux such that eddy currents are induced in the conducting particles on the working surface of the grinding wheel. The counterelectromotive force due to the eddy currents causes a corresponding change in the inductance of the detecting coil, so that the frequency of the output signal from the oscillator circuit changes in accordance with the varying inductance of the detecting coil. The resulting output signal is fed through a detecting circuit, an amplifying circuit and an integrating circuit into a comparison circuit which produces an output when the level of the signal supplied from the integrating circuit becomes at least equal to a predetermined threshold.

3,810,003
DEVICE FOR DETERMINING IMPROPER REVERSAL AND/OR SHORT OF GROUND AND NEUTRAL LINES AND AMOUNT OF IMPEDANCE IN GROUND LINE OF A THREE-WIRE A.C. OUTLET

Peter G. Portoulas, Chicago, Ill., assignor to Ecos Corporation, Chicago, Ill.

Filed July 6, 1971, Ser. No. 159,806
Int. Cl. G01r *27/18, 31/02*
U.S. Cl. 324—51 7 Claims

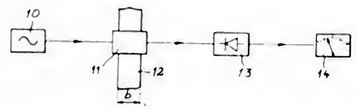


A three wire ground type AC outlet tester for testing (1) the correctness of socket wiring of three-wire receptacles, including neutral-ground reversal or shorting errors, (2) the magnitude of electrical impedance in the ground circuit, and (3) the existence of undesirable excess voltages, the tester including signal injecting means for injecting a test pulse into the ground-neutral circuit, a threshold detector responsive to a sensed magnitude value for responding to the amount of impedance in the ground circuit, and indicating means energized for indicating the presence of an amount of impedance in the ground neutral line which exceeds pre-set threshold impedance levels. The tester includes means for positively indicating an improper reversal or shorting of ground and neutral connections at the terminals of a test outlet and further includes means for providing a distinct indication of either an open ground or open neutral wiring error.

3,810,004
DEVICE FOR CONTINUOUS MEASUREMENT AND/OR MONITORING OF A DIMENSION OF AN OBJECT OF LARGE LONGITUDINAL DIMENSION

Bengt Henoch, Skarholmen, Sweden, assignor to Institutet for Mikrovagsteknik, Stockholm, Sweden

Filed July 6, 1972, Ser. No. 269,439
Claims priority, application Sweden, July 6, 1971, 8725/71
Int. Cl. G01n *27/04*
U.S. Cl. 324—58.5 R 8 Claims

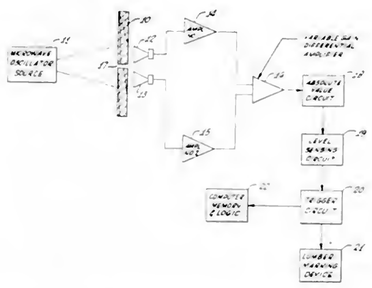


A device for the continuous measurement and/or monitoring of a dimension of an object of large longitudinal dimension. The device is of the kind which comprises a source of high-frequency electrical energy for the supply of energy of a frequency which varies periodically within a certain frequency range, a microwave circuit connected to this source of energy, which circuit in the presence of the said objects transmits frequency dependent energy within the said frequency range, and an indicator circuit for the indication of the dimension of the object as a function of the energy transmission through the microwave circuit.

3,810,005
FLAW DETECTION SYSTEM USING MICROWAVES

Don U. Bennion, and Leonard R. West, both of Salt Lake City, Utah, assignors to Industrial Development Design, Salt Lake City, Utah

Filed Mar. 26, 1973, Ser. No. 344,932
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 A 28 Claims



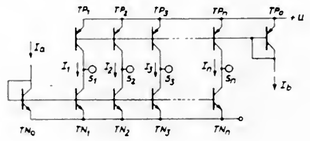
A method and apparatus for the detection of flaws in pieces of lumber or like material in which there may be wide variations in density within each piece, or among the pieces being examined. Lumber being processed is moved past two adjacent microwave detectors positioned to receive microwave radiation transmitted through the moving lumber from a conventional microwave source, and the outputs from the detectors are amplified and compared in a differential amplifier, the presence of flaws resulting in difference signals which are used

to generate pulses for controlling a lumber processing device or for storage in a memory device and use in subsequent processing steps.

3,810,006
CURRENT COMPARING DEVICE

Eric Andre Vittoz, Cernier, Switzerland, assignor to Centre Electronique Horloger S.A., Neuchatel, Switzerland

Filed June 19, 1972, Ser. No. 264,328
Claims priority, application Switzerland, June 21, 1972, 9064/72
Int. Cl. G01r *27/02*
U.S. Cl. 324—62 11 Claims

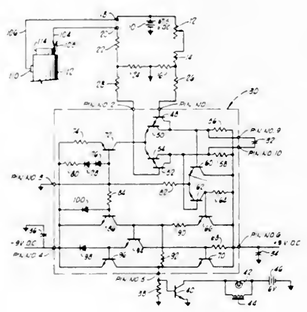


A digital output current comparing device comprises two sets of transistors of opposed types, the emitters and bases of the transistors of each set being in common. Two currents to be compared are supplied to the collectors of the first transistors of each set which each have their collector and base connected and are so dimensioned that they cannot saturate or block. The collectors of the other transistors of each set are each connected to the collector of a corresponding transistor of the other set and to a respective output, the effective injection surface areas of the base-emitter junctions of the transistors of each set being selected so that each output changes state (logic 1 or 0) for a given value of the ratio of the currents to be compared.

3,810,007
HOLIDAY DETECTOR AND COATING RESISTIVITY CHECKER

Minor R. Wiseman, and Rondon L. Schroeder, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed July 23, 1973, Ser. No. 381,792
Int. Cl. G01r *27/02*
U.S. Cl. 324—62 13 Claims

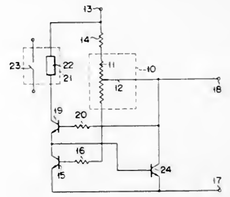


A portable, accurate, non-destructive holiday detector and resistivity coating checker employing electronic resistance bridge means for comparing the resisitivity of non-conducting coatings to a standard resistance value either in the field or in plants where such coatings are applied to metallic vessels, pipes or the like and providing respective signal outputs proportional to the coating resistivity and the standard resistance. The apparatus employs comparator means for comparing the two outputs of the resistance bridge, and an alarm responsive to the output of the comparator means for indicating the presence of a holiday in the non-conducting coating under test where the coating resistivity is less than the standard resistance value. Probe means are also disclosed for providing electrical contact with the surface of the non-conducting coatings under test. Also disclosed is a method of checking coating resistivity for the detection of holidays therein.

3,810,008
APPARATUSES FOR DETECTING FAILURE IN A POTENTIOMETER CIRCUIT

Kenro Motoda, Tokyo, and Kensuke Hasegawa, Yokohama, both of Japan, assignors to Motoda Electronics Co., Ltd., Tokyo, Japan

Filed Aug. 16, 1973, Ser. No. 388,968
Int. Cl. G01r *27/02*
U.S. Cl. 324—62 5 Claims



An apparatus for detecting failure in a potentiometer circuit wherein, for detection of the disconnection of the resistance body of the potentiometer, the base of a first transistor is connected to a first power supply terminal through the resistance body; for detection of the disconnection of a potentiometer slider circuit or nonconduction between the slider and resistance body, the base of a second transistor is connected to the slider; and the collector-emitter paths of the first and second transistors are connected in series between the first and second power supply terminals, so that these transistors are always rendered conducting under a normal condition of the potentiometer circuit. A failure detector, for example, a relay is connected in series to the first and second transistors to detect failure in the potentiometer circuit in response to nonconductive state of at least one of the first and second transistors which is caused by failure in the potentiometer circuit.

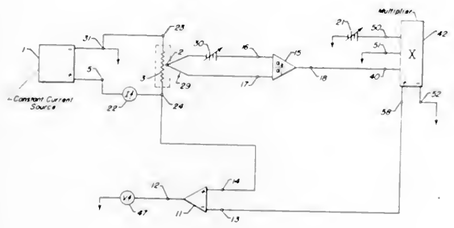
3,810,009
APPARATUS FOR MEASURING MATERIAL FOULING OF A TEST SPECIMEN

Rudolf H. Hausler, Rolling Meadows, and Robert W. Sampson, Arlington Heights, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of Ser. No. 186,888, Oct. 6, 1971, Pat. No. 3,731,187. This application Apr. 20, 1972, Ser. No. 246,044The portion of the term of this patent subsequent to May 1, 1990, has been disclaimed.
Int. Cl. G01r *27/02*
U.S. Cl. 324—65 R 7 Claims

An apparatus and method for measuring material buildup or fouling on a test specimen in which at least a portion of a temperature sensitive voltage output means is located proximate

to a test specimen. The extent of fouling is determined by the change in a detected current or voltage signal resulting from the change in the heat transfer coefficient of the test specimen. The temperature sensitive voltage output means is



at the same temperature as the temperature of the medium in which the test specimen resides and adjusts either a detected current or voltage signal to negate the effects of varying temperature of the medium on the detected signal.

3,810,010

PARTICLE ANALYSIS METHOD AND APPARATUS WHEREIN LIQUID CONTAINING PARTICLES IS SUCKED INTO A CONSTRICTED FLOW PATH

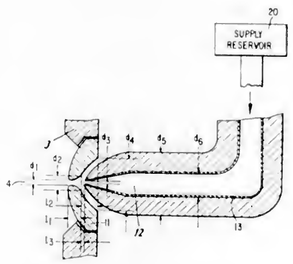
Reinhard Thom, Berlin-Dahlem, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm/Donau, Germany

Continuation of Ser. No. 872,893, Oct. 31, 1969, abandoned. This application Nov. 27, 1972, Ser. No. 309,662

Claims priority, application Germany, Nov. 2, 1968, 1806512

Int. Cl. G01n *27/06*

U.S. Cl. 324—71 CP **17 Claims**



An apparatus for determining the relative quantities of different sized particles contained in a liquid, for example the relative number of red and white blood corpuscles, by measuring the electrical changes which occur as said particles pass through a capillary passage, is improved by providing a second capillary passage which directs the fluid medium containing the particles to be tested into the center of the first capillary passage.

3,810,011

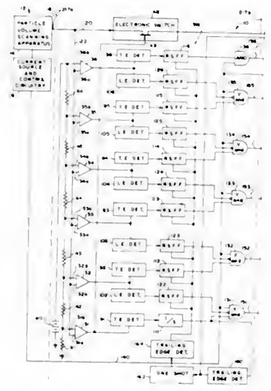
APPARATUS AND METHOD FOR ANALYZING THE PARTICLE VOLUME DISTRIBUTION FOR A PLURALITY OF PARTICLES OF DIFFERENT SIZE IN A QUANTITY OF LIQUID

Wallace H. Coulter, Miami Springs, and Walter R. Hogg, Miami Lakes, both of Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Continuation-in-part of Ser. No. 40,231, May 25, 1970, Pat. No. 3,757,213. This application Apr. 18, 1973, Ser. No. 352,361

Int. Cl. G01n *27/00*

U.S. Cl. 324—71 CP **18 Claims**





The apparatus and method are utilized for ascertaining the volume of particles within predetermined particle-size ranges from a total amount of particulate matter comprising particles of different size, suspended in a quantity of liquid. The apparatus and method utilize the output signals from a particle analyzing device where the quantity of liquid containing particles of different size is caused to flow through a sensing zone including an electric current path of small dimensions and where each particle sensed generates an electrical signal having an amplitude proportional to the size of the particle sensed. The electrical signal is applied simultaneously to a plurality of comparators and to a pulse stretcher which stores the maximum amplitude of the signal. Each of the comparators is connected to a different threshold level and the output of each

comparator is connected to logic signal generating circuitry including trailing edge and leading edge detectors, multivibrators and VETO AND circuits. The output of the pulse stretcher is connected to a plurality of output channels and the output of each VETO AND circuit is connected to an electronic switch in one of the output channels. The logic signal generating circuitry determines within which size range the particle falls and sends a logic signal from one of the AND circuits to one of the electronic switches to close the circuit in that output channel so that the signal from the pulse stretcher can be passed into the output channel. Signal converting circuitry is associated with the output channels for converting the stored maximum amplitude signal in the pulse stretcher to an electrical quantity capable of being accumulated in one of the integrators in one of the output channels. An electrical quantity is produced for each electrical signal generated by each particle sensed and is stored in an integrator in one of the output channels which is determined by the size of the particle. The output signal in each output channel is proportional to the total accumulated electrical quantities in that output channel and hence also proportional to the total volume of particles falling within a particular particle size range.

3,810,012

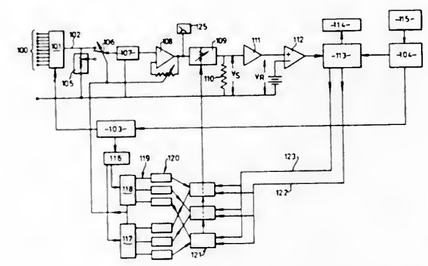
APPARATUS FOR AUTOMATICALLY EVALUATING THE VOLTAGE AT A NUMBER OF TEST POINTS SEQUENTIALLY

Edward Paul Harris, Bognor Regis, England, assignor to Rosemount Engineering Company Limited, Bognor Regis, England

Filed Oct. 17, 1972, Ser. No. 298,239

Int. Cl. G01r *15/12*

U.S. Cl. 324—73 R **8 Claims**



Automatic test equipment primarily for printed circuit boards in which each test point is connected sequentially via a scanner and isolating amplifier across a single set of series connected resistors, the resistors in the set being adjusted for each test point in synchronism with the scanner and to a programme to a value for each point such that when a preassigned input potential is present for a test point a standard voltage is produced across a precision resistor included in the set of resistors, the voltage being compared with a standard voltage source and the result of the comparison indicating the deviation of the test point voltage from that assigned.

3,810,013

ELECTRO-OPTICAL DEVICE FOR MEASURING THE VOLTAGE ON A HIGH-VOLTAGE CONDUCTOR

Willi Muller, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munchen, Germany

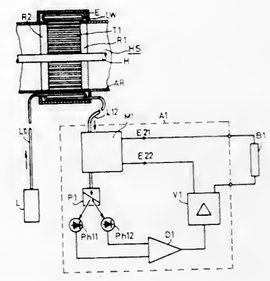
Filed June 5, 1972, Ser. No. 259,613

Claims priority, application Germany, June 11, 1971, 2130046

Int. Cl. G01r *19/00, 31/02*

U.S. Cl. 324—96 **14 Claims**

A measuring device for measuring voltages of high voltage conductors wherein a measuring detector composed of a light wave conductor which is disposed in an electric field produced by said voltage and is penetrated by polarized light so that the polarization plane of the light waves is rotated in proportion to the magnitude of the voltage to be measured



and an evaluation device is provided which converts the rotation of the plane of the polarized light into a low voltage electrical quantity proportional to the magnitude of the high voltage being measured.

3,810,014

MEASURING INSTRUMENT

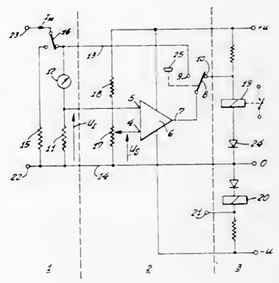
Heinz-Dieter Goldner, Schwalbach, Germany, assignor to Hartmann & Braun Aktiengesellschaft, Frankfurt/Main, Germany

Filed Nov. 20, 1972, Ser. No. 308,110

Claims priority, application Germany, Nov. 30, 1971, 2159284

Int. Cl. G01r *1/30, 1/02*

U.S. Cl. 324—130 **3 Claims**

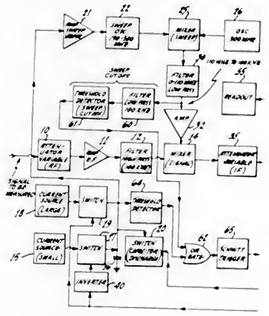


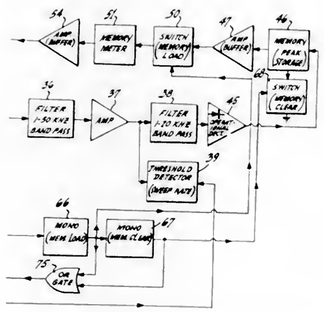
A variable is monitored and indicated by a measuring instrument incorporated in a circuit that uses the instrument for setting and adjustment of the reference input to be used later as trigger level. The reference is supplied to the first input of a differential amplifier while the variable is supplied to the second input of the amplifier. The output of the amplifier is connected with a reversing switch which in its one switching position couples the output to a tripping or triggering stage, possibly including a relay, and in the other one of its switching positions the output is coupled to the second input of the amplifier, so that the instrument actually indicates the reference value rather than the variable.

3,810,015
SENSITIVE WIDE BAND VOLTMETERS

Philip Basse, Freeport, N.Y., assignor to Comstron Corporation, Richmond Hill, N.Y.

Filed Apr. 12, 1972, Ser. No. 243,224
Int. Cl. G01r *19/26, 15/08*
U.S. Cl. 324—120 **8 Claims**





There is described a sensitive wide band voltmeter for measuring the amplitude of an AC signal. The voltmeter includes a mixing circuit having an input adapted to receive an AC signal. A sweep oscillator is capable of operating in a first mode for providing a relatively fast slope waveform and in a second mode responsive to the output of the mixer producing a frequency within a relatively narrow band. During the second mode the frequency difference signal from the mixer is detected and stored to provide an indication of the magnitude of the input AC signal.

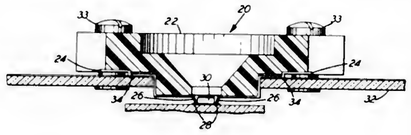
A memory is utilized to provide a stable output indication. The memory is updated at the conclusion of each sweep cycle.

3,810,016
TEST PROBE FOR SEMICONDUCTOR DEVICES

George A. Chayka, Northampton; Eric J. Persson, Bethlehem, and Norbert M. Ziobro, Dupont, all of Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,243
Int. Cl. G01r *31/02, 31/22*
U.S. Cl. 324—158 P **5 Claims**

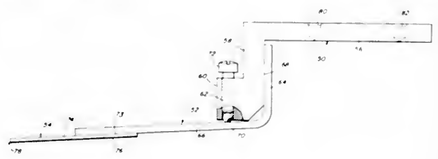
An intricate micro-probe for testing beam-lead semiconductor devices such as integrated circuits is formed from a molded insulator, a die-cut compensating member and photo-etched contact elements. The configuration of the various elements of the probe is such that mechanized fabrication and assembly of the small probe are possible. The contact elements are photo-etched from a blank which also yields a connected frame having a unique expansion feature permitting three-dimensional shaping of the elements without stretching the elements. The contact elements are thermally embedded into the plastic insulator. A shaping of the contact elements is accomplished with a pyramidal shaping tool and a cut-off blade which trims the contact elements against the pyramidal shaping tool.



3,810,017
PRECISION PROBE FOR TESTING MICRO-ELECTRONIC UNITS

Mordechai Wiesler, Lexington, and John S. MacIntyre, Lynnfield, both of Mass., assignors to Teledyne, Inc., Hawthorne, Calif.

Filed May 15, 1972, Ser. No. 253,327
Int. Cl. G01r *31/02*
U.S. Cl. 324—158 P **12 Claims**



A test probe, for electronically contacting microelectronic units, comprises a rigid rearwardly projecting portion and a flexible forwardly projecting portion, fixedly connected together, and an adjusting screw turned into a threaded bore in the rearwardly projecting portion and bearing against the forwardly projecting portion, whereby extremely fine adjustment of the probe tip is possible.

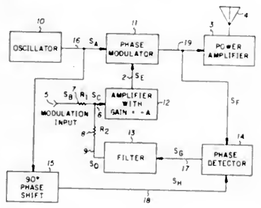
ERRATUM

For Class 325—30 see:
Patent No. 3,810,255

3,810,018
DISTORTION COMPENSATOR FOR PHASE MODULATION SYSTEMS

Harris A. Stover, Cedar Rapids, Iowa, assignor to Collins Radio Company, Dallas, Tex.

Filed June 13, 1972, Ser. No. 262,433
Int. Cl. H04b *1/00*
U.S. Cl. 325—30 **8 Claims**

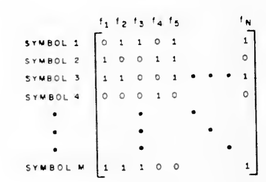


A distortion compensation means for introduction in either the transmitter or the receiver of a phase modulation communication system by introduction into conventional transmitter phase modulators or receiver phase demodulators of a compensating distortion which is added to the distortion normally existing in the system.

3,810,019
MULTIFREQUENCY COMMUNICATION SYSTEM FOR FADING CHANNELS

Chauncey S. Miller, Palos Verdes Peninsula, Calif., assignor to Sperry Rand Corporation, Great Neck, N.Y.

Filed Sept. 25, 1972, Ser. No. 291,880
Int. Cl. H04l *5/06*
U.S. Cl. 325—40 **7 Claims**



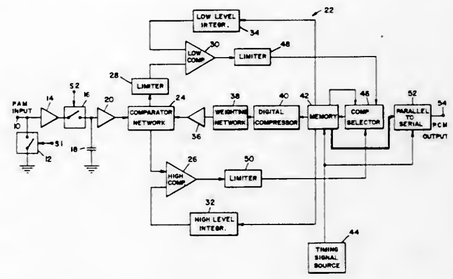
A communication system particularly for underwater communication includes a transmitter and a receiver. An oscillator in the transmitter generates a plurality of signals each having a unique frequency. A network selects predetermined combinations of signals from this plurality, each selected combination defining a data symbol to be transmitted. The assignment of the frequency groups with respect to the data symbols to be transmitted is achieved via a Hadamard matrix. During each data symbol transmission interval a gate selects the combination of frequency signals corresponding to the symbol to be transmitted. The signals in the combination are added and transmitted by a transducer. The receiver includes a bank of filters each tuned to one of the plurality of frequency signals generated in the oscillator bank. The outputs of the filters are envelope detected and applied to a frequency code selector. In each data symbol transmission interval, the frequency code selector combines the detected outputs from the filter bank in accordance with the Hadamard transformation matrix to provide a plurality of groups of signals each corresponding to a symbol in the system symbol repertoire. Each group of signals are summed and the resulting signals applied to a decision circuit that selects the maximum therefrom. The output of the decision circuit which is representative of the transmitted symbol is applied to a suitable readout.

3,810,020
ENCODER-DECODER FOR PCM SYSTEMS

Achille C. Fortuna, Foster City, and Hans-Uno Persson, San Francisco, both of Calif., assignors to Lynch Communication Systems, Inc., San Francisco, Calif.

Filed June 5, 1972, Ser. No. 259,940
Int. Cl. G01r *7/00*
U.S. Cl. 325—141 **4 Claims**

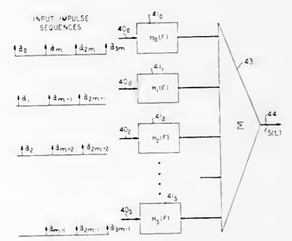
High accuracy at low signal amplitudes is achieved in the encoder section of an encoder-decoder for PCM signals together with low cost by using a feedback linear encoder with a digital compandor, dividing the companding scale into two ranges having an equal number of segments, providing a separate comparator for each range, and using the same set of weights for both comparators. A shift weight is provided to go from the low-level comparison to the high-level comparison, and a ratio-producing network is provided to multiply the effect of each weight by the appropriate expansion factor in the high-level comparator as compared to the low-level comparator.



3,810,021
INBAND GENERATION OF DIGITAL SIGNALING WAVEFORMS

Irving Kalet, Haifa, Israel, and Stephen Brant Weinstein, Holmdel, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed June 16, 1972, Ser. No. 263,642
Int. Cl. H04b *1/04*
U.S. Cl. 325—141 **6 Claims**



Analog waveforms are directly and continuously generated in a desired transmission passband from baseband digital data signals without a separate frequency translation operation by exciting bandpass filters from a train of data pulses. Conventionally, direct inband signal generation is restricted to cases where the passband carrier frequency, whether explicit or implicit, e.g., the carrier frequency in a single-sideband modulation system, is an integral multiple of the data rate. This constraint can be liberalized to permit the ratio of carrier frequency to data rate to be a rational fraction when a finite number of fixed filters with selected phase characteristics are cyclically pulsed. Such fixed filters can advantageously take the form of a single transversal filter with cyclically adjustable tap weights.

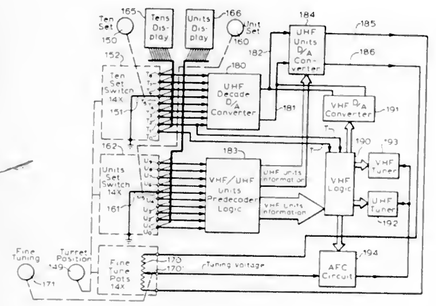
3,810,022
DIGITAL TO ANALOG CONVERTER TELEVISION TUNING OF VARACTOR TUNERS

Johnny Collins, Harvey, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed July 21, 1972, Ser. No. 273,891
Int. Cl. H04b *1/16*
U.S. Cl. 325—459 **3 Claims**

A digital to analog converter effects limited and substantially equal fine tuning ranges for all channels tuned by a

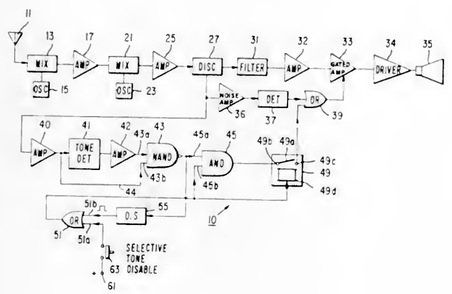
television tuning system incorporating a varactor tuner tunable by tuning voltages applied to a control element. The digital to analog converter derives from coarse tuning voltages established in response to channel decade slection fine tuning voltages in response to channel unit selections. It comprises a voltage dividing network, including the control element, coupled to the coarse tuning voltages and to means responsive to unit selections providing a control effect, to restrict the tuning ranges of the coarse tuning voltages in response to the control effect. The digital to analog converter also provides means for applying the fine tuning voltages to the control element.



3,810,023
AUTOMATIC SQUELCH TAIL ELIMINATOR FOR TONE CODED SQUELCH SYSTEMS

Lee Francis Crowley, Pittsburgh; Dennis Robert Presky, Washington, and Andrew Michael Missenda, Pittsburgh, all of Pa., assignors to RCA Corporation, New York, N.Y.

Filed July 21, 1972, Ser. No. 273,754
Int. Cl. H04b 1/10
U.S. Cl. 325—478 8 Claims

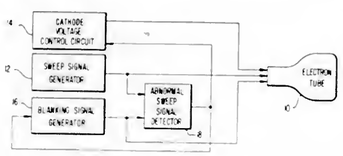


A squelch tail eliminator for use in a receiver having a continuous tone coded squelch system and provision for the disabling of the tone coded squelch system is disclosed. A pulse generator, responsive to the discontinuance of a given tone, generates a gating pulse that inhibits the disabling of the tone coded squelch system for the time duration of that pulse, providing squelch tail elimination at the end of a message transmission indicated by the discontinuance of the tone.

3,810,024
METHOD AND CIRCUIT FOR MONITORING AND DETECTING SWEEP SIGNAL FAILURE

James H. Meacham, Laurel, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 20, 1972, Ser. No. 308,090
Int. Cl. H02h 7/00
U.S. Cl. 328—8 18 Claims



A method and sweep signal monitoring circuit for protecting scanned electron tubes, particularly high sensitivity imaging devices such as television camera tubes, from damage upon loss of a sweep voltage. A monitoring circuit monitors the sweep voltage and generates, through the use of complementary gating signals, a digital signal having a first signal level for a normal sweep voltage and a second signal level for an abnormal sweep voltage. The second signal level of the digital signal not only indicates loss of the sweep voltage but also indicates undesirable changes in the zero crossing point of the sweep voltage. The signal level of the digital signal is monitored and the detection of the second signal level may result in the inhibiting of the scanning of the tube or in any other suitable protective measures.

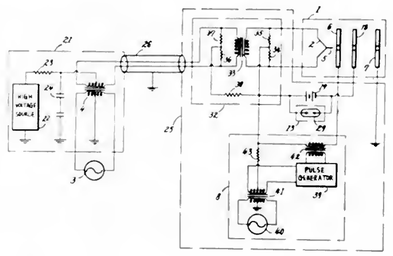
ERRATUM

For Class 328—164 see:
Patent No. 3,810,067

3,810,025
FIELD EMISSION TYPE ELECTRON GUN

Ryuzo Aihara; Susumu Ota, and Nobuyuki Kobayashi, all of Tokyo, Japan, assignors to Nihon Denshi Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 18, 1972, Ser. No. 245,232
Claims priority, application Japan, Apr. 20, 1971, 46-30876; May 11, 1971, 46-31405; Sept. 7, 1971, 46-69070
Int. Cl. H02h 7/20
U.S. Cl. 328—10 2 Claims

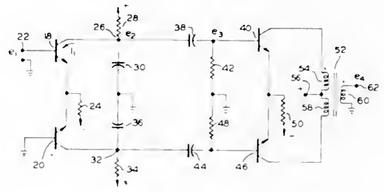


This invention relates to a field emission type electron gun capable of protecting the emitter tip from damage when electrical breakdown occurs in the gun chamber. The preferred embodiments incorporate circuitry for decreasing the impedance between the emitter and its associated electrode when electrical breakdown occurs.

3,810,026
DUTY FACTOR CORRECTION CIRCUIT

Stephen A. Roth, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation of Ser. Nos. 194,064, Oct. 29, 1971, abandoned, and Ser. No. 809,140, March 21, 1969, abandoned. This application May 29, 1973, Ser. No. 364,228
Int. Cl. H03k 17/00
U.S. Cl. 328—127 15 Claims

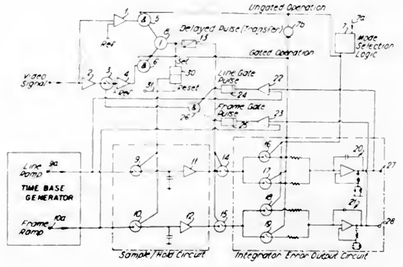


A limiter circuit receives a distorted or unsymmetrical input signal, and in response thereto produces a rectangular current waveform. The rectangular current waveform is applied to an integrating means for generating a triangular waveform, the average value of which divides such triangular waveform into equal time intervals. This triangular waveform is a.c. coupled to a second limiter circuit which provides an output waveform characterized by a fifty percent duty factor.

3,810,027
SIGNAL PROCESSING METHOD AND APPARATUS

Ronald Cook, Shefford; John Reginald Guppy, Hitchin, and John D. Howells, Harpenden, all of England, assignors to British Aircraft Corporation Limited, London, England

Filed Jan. 26, 1973, Ser. No. 327,199
Claims priority, application Great Britain, Jan. 31, 1972, 4495/72
Int. Cl. H03k 5/153
U.S. Cl. 328—129 6 Claims

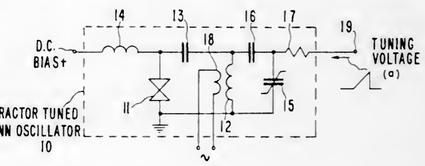


In signal-receiving apparatus of the kind having a time-base generator there are alternative ungated and gated input circuits. The receipt of a signal of a level above a predetermined threshold causes the time-base signal levels, at the instant of receipt, to be stored. These stored time-base signals are compared with instantaneous values of time-base signals in a subsequent time-base cycle and identity between the compared signals is caused to switch the gate in the gated input circuit to its signal-passing condition.

3,810,028
WAVESHAPING CIRCUIT AND DEVICES USING SAME

Curtis E. Ward, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Oct. 10, 1972, Ser. No. 296,384
Int. Cl. H03k 17/00
U.S. Cl. 328—142 9 Claims

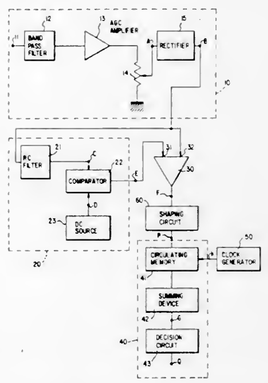


A waveshaping circuit for producing a non-linear transfer function includes an amplifier having a non-linear negative feedback device, such as a diode, connected for causing the gain of the amplifier to increase with increasing amplitude of the input signal such that the transfer function for the waveshaping circuit is an exponential function where the exponent has a magnitude greater than 1. The output of the non-linear amplifier is fed to the input of a device which it is desired to linearize and which has an exponential transfer function where the exponent is less than 1 such that the combined transfer function for the combined wavehsaping circuit and the device to be linearized has a linear transfer function. The non-linearity of the waveshaping circuit is adjustable ty varying the amount of negative feedback. The circuit is temperature compensated by means of a thermistor having a temperature coefficient matched to that of the diode and paralleled with the diode in a differential amplifier circuit.

3,810,029
SYSTEM FOR DETECTING WEAK INFORMATION SIGNALS IN NOISY RECEIVER SIGNALS

Robert Lucien Barthelemy, Toulon, France, assignor to Etat Francais, Paris, France

Filed May 18, 1973, Ser. No. 361,558
Claims priority, application France, May 18, 1972, 72.17849
Int. Cl. H04b 1/10
U.S. Cl. 328—167 15 Claims



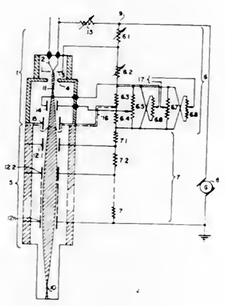
A system is provided which permits the detection of a useful signal in a received signal having a low signal to noise ratio. The system includes a band pass filter connected to receive the signal to be processed, an AGC amplifier, and a compara-

tor which compares the output of the amplifier with a threshold or reference level and produces an output during the time this level is exceeded. The output of the comparator is converted into a train of rectangular pulses which are sampled at a clock frequency which is substantially shorter than the minimum duration of the useful signal. A circulating memory receives the samples which are arithmetically summed at each clock time, the arithmetical sum being then compared with a second threshold level to determine whether the received signal is a useful signal.

3,810,030
APPARATUS FOR FOCUSSING THE BEAM OF A PARTICLE ACCELERATOR

Hermann Adler, Reinach, Switzerland, assignor to Emil Haefely & Cie AG, Basle, Switzerland

Filed May 20, 1971, Ser. No. 145,460
Claims priority, application Switzerland, May 21, 1970, 7528/70
Int. Cl. H01j 29/74
U.S. Cl. 328—228 **1 Claim**



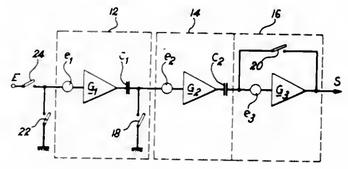
Apparatus for focussing the beam of a particle accelerator. A resistive chain is connected across the high voltage source for the accelerator. This chain includes, inter alia, a potentiometer chain for supplying varying potentials to the accelerating electrodes on a pair of fixed resistors for supplying potential to the anode of the electron gun. The beam injection system includes two pairs of deflection plates which receive potential from two ganged pairs of potentiometers wired in parallel across the pair of fixed resistors.

3,810,031
INTEGRATED AMPLIFYING DEVICE HAVING LOW DRIFT AND METHOD OF COMPENSATING FOR THE DRIFT OF AN AMPLIFYING DEVICE

Robert Poujois, Grenoble, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed May 16, 1972, Ser. No. 253,771
Claims priority, application France, May 19, 1971, 71.18265
Int. Cl. H03f 1/02
U.S. Cl. 330—9 **8 Claims**

The device comprises *n* amplifying stages placed in cascade and each comprising means for storing a value substantially proportional to the offset voltage of each stage and compensating for the offset voltage, and means for periodic control of the storage and compensation means. Storage and compensation operations are carried out on the one hand successively stage by stage in order that one stage should compensate for the imperfections of storage of the preceding stage and, on the other hand, for a period of very short duration compared with the time interval which elapses between two successive operations. The input of the first stage constituting the input of the



device is provided with at least one switch for connecting said input to ground during the storage and compensation operation.

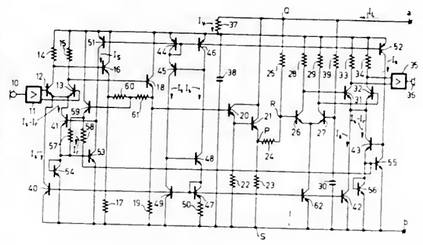
ERRATUM

For Class 330—28 see:
Patent No. 3,810,256

3,810,032
AMPLIFIER DEVICE WITH REMOTE POWER SUPPLY

Petrie Johan Van der Plaats, Hilversum, Netherlands, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,390
Claims priority, application Netherlands, Nov. 19, 1971, 7115947
Int. Cl. H03g 3/30
U.S. Cl. 330—29 **5 Claims**

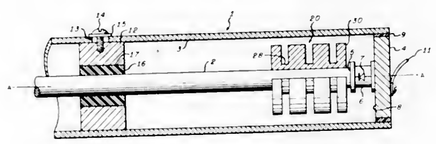


Am amplifier device with remote power supply via a transmission line via which an alternating current signal is transmitted simultaneously with the supply current (from or to the amplifier device). A damping control unit damps the alternating current signal such that the damping differences between long and short transmission lines are equalized. To this end the amplifier device comprises a reference current source, the current of which is independent of variations in the supply voltage. Furthermore, means are provided for generating a control current which is equal to the difference between a constant current which is derived from the current source and a current which is linearly dependent of the supply current. This control current controls a controlled amplifier, the amplification of which is a monotonously decreasing function of the supply current.

3,810,033
BROAD BAND HIGH EFFICIENCY AMPLIFIER WITH IMPROVED BAND WIDTH

Martin I. Grace, Framingham, Mass., assignor to Sperry Rand Corporation, New York, N.Y.

Filed May 17, 1972, Ser. No. 254,147
Int. Cl. H03f 3/60
U.S. Cl. 330—53 **3 Claims**

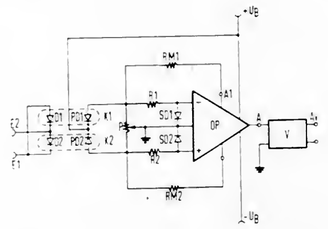


An active high-efficiency-mode semiconductor diode is coupled to oscillating high frequency fields in a transmission line network for amplifying those electromagnetic fields, the apparatus taking the form of a single port high frequency device. The selected diode and the transmission line network provide means for elimination of time delayed triggering of undesired oscillations within the amplifier. Further, operating band width is increased by selection of a diode package that is anti-resonant at the second harmonic of the fundamental frequency signal being amplified, the diode itself reflecting small-signal negative resistance characteristics at that harmonic.

3,810,034
OPTOELECTRIC SIGNAL COUPLER

Gunter Brunsch, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Aug. 29, 1972, Ser. No. 284,463
Claims priority, application Germany, Sept. 1, 1971, 2143792
Int. Cl. H03f 17/00
U.S. Cl. 330—59 **3 Claims**

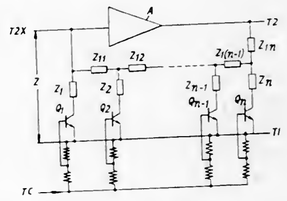


Apparatus is described for transmitting d.c. signals from an input circuit to an output circuit electrically isolated from the input circuit. Optoelectric coupling is used to achieve the isolation. Photodiodes form the output of the optoelectric couplers, and the photodiodes are connected in series, if more than one coupler is used, and are reverse-biased. Each photodiode has an output terminal connected to an input of an operational amplifier. The input terminals of the amplifier are connected across the fixed ends of a potentiometer, and the variable tap is grounded in common with the ground connection of the amplifier. Positive feedback resistances couple the amplifier outputs to its inputs, and these resistances have values such that the output voltage of the amplifier assumes a value corresponding to the input signal received by the optoelectric couplers.

3,810,035
CONTROLLED RESISTANCE DEVICES AND ATTENUATORS

Kenneth James Gundry, London, England, assignor to Dolby Laboratories, Inc., New York, N.Y.

Filed Sept. 28, 1972, Ser. No. 292,922
Claims priority, application Great Britain, Oct. 4, 1971, 46121/71
Int. Cl. H02g 3/22
U.S. Cl. 330—86 **5 Claims**

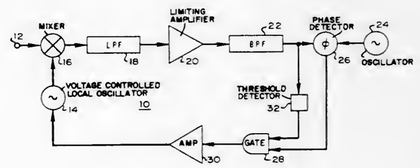


A controlled impedance device such as an attenuator is formed by parallel connected bipolar transistors and a network so applying a control signal to their bases that, as the control signal increases, the transistors commence to conduct progressively. A bootstrapped variable attenuator is formed by a variable attenuator connected in series with an impedance between the output and input of a high input impedance amplifier.

3,810,036
PHASE LOCK LOOP FOR LOCKING ON HIGHEST AMPLITUDE SIGNAL

Arthur R. Bloedorn, Los Altos, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 5, 1972, Ser. No. 295,387
Int. Cl. H03b 3/04
U.S. Cl. 331—15 **5 Claims**



A broadband, limiting amplifier is used in the IF portion of a harmonic phase lock loop, preceding the IF bandpass filter. The limiting amplifier gives an output signal of a predetermined magnitude having a frequency corresponding to the input signal having the highest level, and a detector connected to the output of the IF bandpass filter inhibits the phase lock loop whenever the signal passing through the bandpass filter is below the predetermined magnitude.

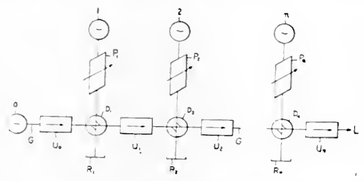
3,810,037
TRAVELING-WAVE TYPE POWER ADDITION CIRCUIT

Masamitsu Nakajima, Kyoto, Japan, assignor to Kyoto University, Kyoto, Japan

Filed June 15, 1972, Ser. No. 263,240
Claims priority, application Japan, Sept. 13, 1971, 46-071003
Int. Cl. H03b 3/06
U.S. Cl. 331—55 **5 Claims**

A traveling-wave type power addition circuit has an original oscillator and a separate directional coupler, reflector and

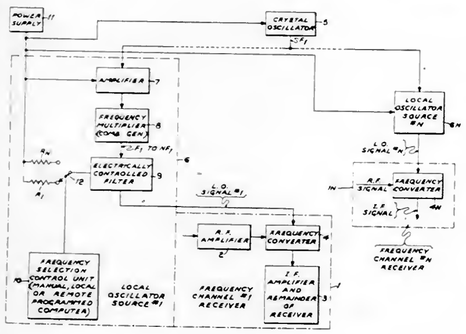
phase shifter associated with each additional oscillator such that a wave provided by the original oscillator is supplied to a subsequent directional coupler and a part of the wave is supplied to a subsequent reflector. Any reflected wave from the reflector is injected through the phase shifter to the additional oscillator. The synchronized output is passed through the directional coupler to a main line.



3,810,038
SYSTEM FOR DERIVING FROM A SINGLE STABLE OSCILLATOR A PLURALITY OF DIFFERENT SELECTABLE LOCAL OSCILLATOR SIGNAL

David E. Hershberg, Ridgewood; Arthur H. Chaplin, Wayne, and Joseph F. Dewland, Secaucus, all of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Nov. 14, 1972, Ser. No. 306,469
Int. Cl. H03b *19/00*
U.S. Cl. 331—60 **8 Claims**

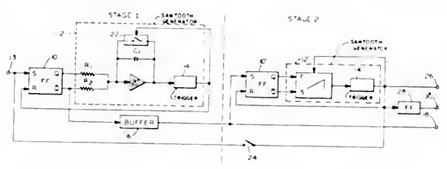


An arrangement is disclosed to provide a different local oscillator signal for each of N receivers contained in a communication station, where N is equal to an integer greater than one. Each of the receivers receive a different one of N communication frequency channels with adjacent ones of the N frequency channels being spaced from each other by a given frequency value. One embodiment incorporates a highly stable oscillator generating a signal having a frequency equal to the given frequency value. The oscillator output signal is then amplified to a high level and distributed to N multiplier/electrically controlled filter units. A different local oscillator signal is then selected for each of the receivers by an associated one of the electrically controlled filters. A second embodiment is identical to the first embodiment through the output of the N multipliers. In the second embodiment there is provided N units, each of which is coupled to a different one of the N multipliers. Each of these N units include N filters, each tuned to a different one of the required local oscillator signals, and N electrically controlled semiconductor switches. A different local oscillator signal is then selected for each of the receivers by a filter and a semiconductor switch of an associated one of the N units. A third embodiment includes the oscillator of the first and second embodiment, a multiplier coupled to the oscillator and one group of N filters of the second embodiment. The outputs of the N filters in this embodiment is fed to a semiconductor NxN matrix. The matrix is controlled to route each of the different local oscillator signals to a different associated one of the N receivers.

3,810,039
METHODS AND APPARATUS FOR GENERATING RANDOM TIME INTERVALS

Harry Fein, Indian Cove Rd., Guilford, Conn.

Filed Feb. 26, 1973, Ser. No. 335,951
Int. Cl. H03k *3/82*
U.S. Cl. 331—78 **11 Claims**

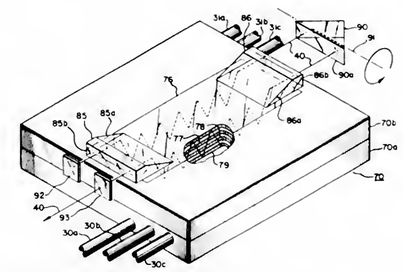


The generation of pulses commensurate with random time intervals is achieved by generating a periodic signal at a first frequency and, upon occurrence of an initiating event, translating the signal to a different time base by changing the time constant of the signal generator. The time between the start of each cycle of the first frequency signal and the obtaining of a predetermining magnitude of the signal after translation to the different time base will be commensurate with random time intervals.

3,810,040
MULTI-COLOR FACE-PUMPED LIQUID LASER DEVICE

William S. Martin, Schenectady, and Donald R. White, Rexford, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed June 14, 1971, Ser. No. 152,582
Int. Cl. H01s *3/05, 3/09, 3/02*
U.S. Cl. 331—94.5 **7 Claims**

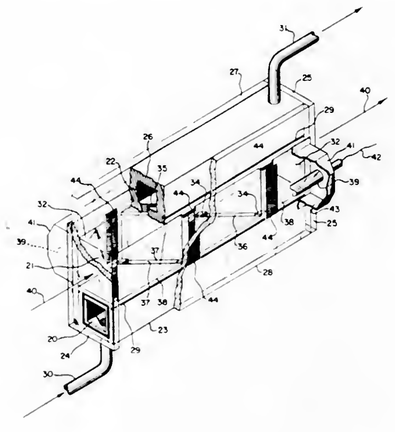


A plurality of flowing (or nonflowing) sheets of active liquid laser media, generally having different color emissions, are each optically excited along at least one of its major surfaces to produce a plurality of coherent electromagnetic radiations each characteristic of the liquid medium employed. In one embodiment, single sheets of a plurality of the liquid laser media are produced in superposed orientation in a liquid-tight chamber, and a multi-color colinear beam of coherent electromagnetic radiation having the combined radiation characteristics of the plurality of liquid laser media, longitudinally transverses the superposed liquid laser media sheets in an off-axial direction to effect multiple total internal reflections of the beam and cause each ray thereof to pass through substantially identical thermal environments thereby substantially reducing distortion of the beam wavefront. In another embodiment, spaced refracting prisms are positioned in a liquid-tight chamber and a plurality of separate zig-zag patterns of the laser liquid sheets are formed in the spacings between adjacent prisms to produce a like plurality of spatially separate laser beams. The pumping radiation is incident on the refracting prisms and is refracted and reflected through the prisms to produce substantially uniform pumping along the major surfaces of the sheets of liquid laser media. The pumping means is laterally positioned with respect to the laser beam axes which coincide with the longitudinal axes of the zig-zag patterns. In this case also, each ray of a beam of coherent electromagnetic radiation experiences the same temperature distribution as it passes through a sheet of liquid laser medium, thereby substantially reducing distortion of the beam waveform.

3,810,041
FACE-PUMPED LIQUID LASER DEVICE

William S. Martin, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed June 14, 1971, Ser. No. 152,701
Int. Cl. H01s *3/05, 3/09, 3/02*
U.S. Cl. 331—94.5 **6 Claims**

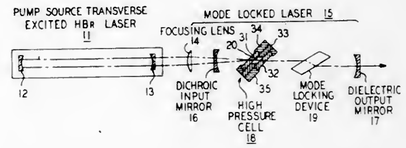


A flowing (or nonflowing) sheet of active liquid laser medium is optically excited along at least one of its major surfaces to produce a coherent electromagnetic radiation characteristic of the liquid medium employed. In one embodiment, a single sheet of the liquid laser medium is produced in a liquid-tight chamber. The coherent electromagnetic radiation longitudinally traverses the liquid laser medium sheet in an off-axial direction to effect multiple total internal reflections of the beam and cause each ray thereof to pass through substantially identical thermal environments thereby substantially reducing distortion of the beam wavefront. In another embodiment, a plurality of spaced refracting prisms are positioned in a liquid-tight chamber and a zig-zag pattern of the laser liquid sheets is formed in the spacings between adjacent prisms. The pumping radiation is incident on the refracting prisms and is refracted and reflected through the prisms to produce substantially uniform pumping along the major surfaces of the sheets of liquid laser medium. The pumping means is laterally positioned with respect to the laser beam axis which coincides with the longitudinal axis of the zig-zag pattern. In this case also, each ray of the beam of coherent electromagnetic radiation experiences the same temperature distribution as it passes through the sheet of liquid laser medium, thereby substantially reducing distortion of the beam wavefront.

3,810,042
TUNABLE INFRARED MOLECULAR LASERS OPTICALLY PUMPED BY A HYDROGEN-BROMIDE LASER

Tao-Yuan Chang, Middletown, and Obert Reeves Wood, II, Matawan, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed May 8, 1972, Ser. No. 250,976
Int. Cl. H01s *3/09, 3/22*
U.S. Cl. 331—94.5 **6 Claims**

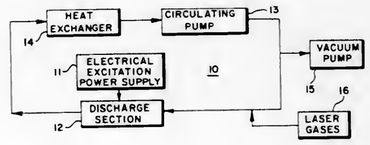


There are disclosed laser configurations in which a high pressure molecular medium such as compressed CO_2, liquid CO_2 or solid CO_2 is pumped by a hydrogen-bromide molecular laser. The hydrogen-bromide laser, when transversely excited, can provide high pump powers between 4.0 and 4.6 micrometers wavelength. This wavelength range is desirable for pumping molecules having a linear three-atomic skeletal, including those molecules which are simple linear three-atomic molecules. An example of a more complicated molecule having a linear three-atomic skeletal is CH_2CO. The active medium has a spectrum of vibrational-rotational emission lines that merge into a continuum that is suitable for mode-locked pulsing or tunable operation.

3,810,043
METHOD OF OPERATING CLOSED-CYCLE CARBON DIOXIDE LASERS IN WHICH CARBON MONOXIDE IS USED TO PREVENT DEGRADATION OF PERFORMANCE

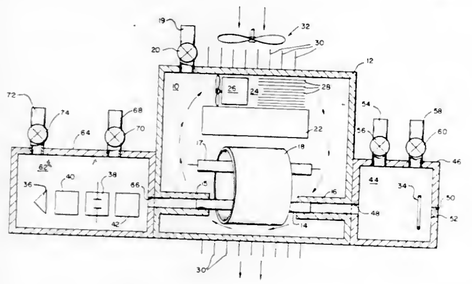
Edward V. Locke, Rockport, Mass., and Edward T. Gerry, MacLean, Va., assignors to Avco Corporation, Cincinnati, Ohio

Filed Nov. 15, 1972, Ser. No. 306,896
Int. Cl. H01s *3/22*
U.S. Cl. 331—94.5 **9 Claims**



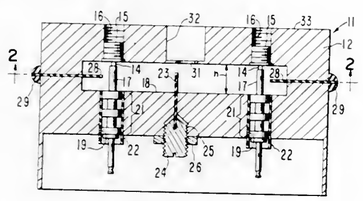
A method of operating closed-cycle carbon dioxide flowing gas lasers in which a gaseous mixture typically comprising carbon dioxide, nitrogen and helium is electrically excited to produce lasing action, wherein carbon monoxide is included in the gaseous mixture in amounts sufficient to substantially prevent degradation of performance relative to open-cycle performance.

3,810,044
METHODS FOR PROTECTING LASER OPTICAL ELEMENTS FROM SURFACE DAMAGE
Eric J. Woodbury, Tarzana, and Donald R. Dewhirst, Torrance, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Feb. 22, 1973, Ser. No. 334,550
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 T **7 Claims**



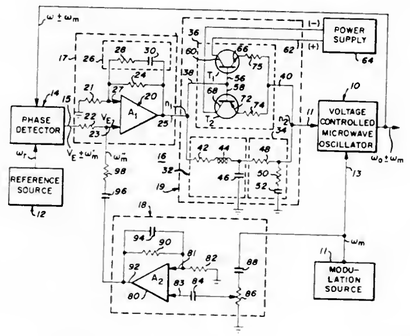
Optical components of a Q-switched laser which are housed within a hermetically sealed chamber and exposed to laser radiation during operation of the laser may be protected from surface damage due to the laser radiation by purging the chamber with a gas containing at least about 50 micrograms of oxygen for each square centimeter of the total surface area exposed to the gas within the chamber prior to operating the laser, and then hermetically sealing the chamber to maintain the aforementioned gas therein at a partial pressure of oxygen not exceeding about one atmosphere during operation of the laser. Protection of optical surfaces within a hermetically sealed laser pumping chamber while cooling the chamber may be achieved by circulating in the laser pumping chamber a pressurized coolant gas consisting of about 99 percent nitrogen and about 1 percent oxygen at a total pressure of about 20 atmospheres.

3,810,045
PUSH-PULL TRANSFERRED-ELECTRON DEVICE CIRCUIT
Thomas G. Ruttan, Mountain View, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Nov. 3, 1972, Ser. No. 303,577
Int. Cl. H03b *7/14*
U.S. Cl. 331—96 **9 Claims**



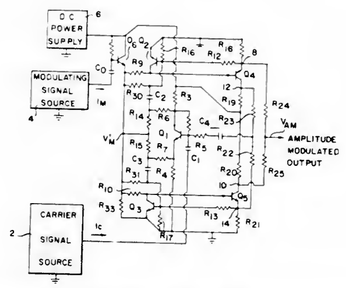
A pair of transferred-electron devices, such as Gunn diodes, are spaced apart in a hollow microwave conductor operating in a TE or TM mode. The Gunn devices are coupled in energy exchanging relation to the fields of the operating mode and are spaced apart by approximately an integer number of full wavelengths and in such a manner that the devices are coupled to approximately equal electromagnetic wave energy fields of opposite phase to obtain a push-pull configuration. Output energy is extracted from the operating mode.

3,810,046
MICROWAVE SOURCE
Drew R. Lance, Saratoga, Calif., assignor to California Microwave Inc., Sunnyvale, Calif.
Filed Feb. 23, 1973, Ser. No. 335,316
Int. Cl. H03c *3/00*
U.S. Cl. 332—19 **11 Claims**



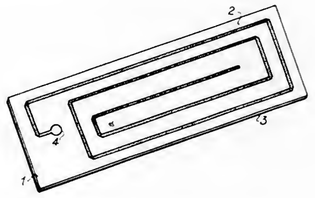
A microwave source including a dual bandwidth phase lock loop and a circuit for developing a modulation cancelling signal for insertion into the loop to cancel any error signal modulation components. In the preferred embodiment the same modulating signal used to modulate the oscillator is shifted in phase by 90° and added to the output of the phase detector. Since the cancelling signal is then 180° out-of-phase with the error signal modulation component, complete cancellation is achieved leaving only the DC error signal for input to the adaptive control network which completes the loop.

3,810,047
INDUCTORLESS AMPLITUDE MODULATOR AND DEMODULATOR APPARATUS
Donald H. Gehring, 401 N. Armistead, Alexandria, Va.
Filed Dec. 8, 1972, Ser. No. 313,432
Int. Cl. H03c *1/52*
U.S. Cl. 332—31 R **15 Claims**



An inductorless modulator-demodulator circuit is disclosed including a pair of symmetrical channels each containing a control device biased to Class AB operation. Components of a first input signal are applied to corresponding selected electrodes of the control devices, respectively, the biasing being such that each of the control devices has a constant specific percent of conduction time. Components of a second input signal are applied simultaneously to a pair of electrodes of each control device, respectively, and owing to the specific bias maintained on the control devices, in-phase and out-of-phase components of the output signals of the devices may be added in such a manner that undesired out-of-phase components are eliminated through mutual cancellation without filtering, and the in-phase components are added to produce an undistorted output signal. The control devices of the channels of the balanced circuit may be either of the same or opposite polarity, respectively.

3,810,048
RESISTIVE POWER LOAD
Michel Baril, and Jacques Legendre, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Feb. 20, 1973, Ser. No. 334,110
Claims priority, application France, Feb. 24, 1972, 72.06289
Int. Cl. H01p *1/26, 3/08*
U.S. Cl. 333—22 R **6 Claims**

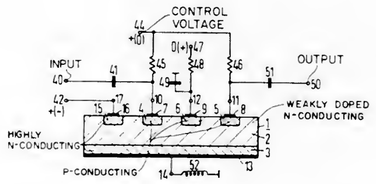


A resistive power load for a microwave line of microstrip type. This load is constituted by a dielectric arranged between a conductor strip made of a metal having good conductivity, and an earthing plane made of a resistive metal alloy having good thermal conductivity. A load of this kind makes it possible to achieve substantial heat dissipation at the expense of only small volume and low weight.

ERRATUM

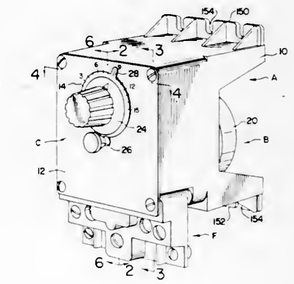
For Class 333—30 see:
Patent No. 3,810,256

3,810,049
INTEGRATED ATTENUATION ELEMENTS
Gerhard Krause, Ebersberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Jan. 4, 1973, Ser. No. 321,032
Claims priority, application Germany, Jan. 24, 1972, 2203247
Int. Cl. H01p *1/22*
U.S. Cl. 333—81 R **3 Claims**



An integrated attenuation element having a variable attenuation characteristic for high frequency signals comprises a semiconductor body of one conductivity type having at least three zones of the opposite conductivity type arranged in one face thereof. One of the zones serves as an input for high frequency signals and another of the zones serves as an output, while the third zone serves as a control electrode. An attenuation circuit which employs such an element includes means for applying control signals to the zones to control the attenuation of the element.

3,810,050
RELAY CLUTCH TIMER
Frank Arthur Pearson, Moline, Ill., assignor to Gulf & Western Industries, Inc., New York, N.Y.
Division of Ser. No. 165,142, July 22, 1971, Pat. No. 3,725,616. This application Nov. 16, 1972, Ser. No. 307,300
Int. Cl. F16d *27/10*
U.S. Cl. 335—75 **4 Claims**

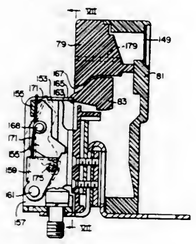


An adjustable reset timer for providing delayed time sequences for electrical circuits. In the timer, an adjustable cam member, including a cam hub having a serrated face is disposed about the drive shaft of a synchronous motor in a free wheeling relationship therewith. A clutch hub member, also having a serrated face, is received over the drive shaft in rotational driving engagement therewith and is axially shiftable along the drive shaft between engaging and non-engaging positions relative to the cam hub. In the engaging position, the serrations on the hubs mate to form a rotational driving connection therebetween so that in that position, the cam member is rotatably driving from a non-engaging to an energizing position relative to at least one load switch. The clutch hub is normally biased toward the engaging position but is prevented from engagement with the cam hub by a retaining lever. The lever is disposed in an operative relationship with an electrical relay which is selectively energizable and de-energizable to permit the lever to be moved between retaining and non-retaining conditions with resultant corresponding movement of the cam hub between the non-engaging and engaging positions.

3,810,051
CIRCUIT BREAKER TRIP AND LATCH MECHANISM
Eugene J. Walker, Beaver, and Alfred E. Maier, Beaver Falls, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 27, 1973, Ser. No. 345,396
Int. Cl. H01h *9/20*
U.S. Cl. 335—167 **7 Claims**

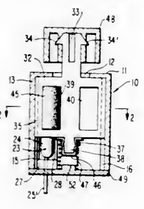
A circuit breaker with a thermal and magnetic tripping mechanism for releasing the separable contacts of the circuit breaker in response to overload currents. The tripping mechanism comprising a trip bar responsive indirectly to the overload current for releasing a trip lever which in turn releases a latch lever. The latch lever and trip lever being pivoted on spaced pivot points and the trip lever having a

roller mounted thereon for retaining the latch lever in the latched position and for rolling out of engagement with the



latch lever when the trip lever is released, whereby shorter levers and less force are required to actuate the mechanism.

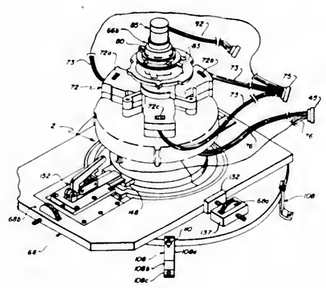
3,810,052
PUSH BUTTON SWITCH
Makoto Yanaga, Tokyo, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
Filed Jan. 9, 1973, Ser. No. 322,247
Claims priority, application Japan, Jan. 21, 1972, 47-8123
Int. Cl. H01h *36/00*
U.S. Cl. 335—205 **14 Claims**



A rectangular case supports a spring biased reciprocating lever of rectangular, block form by engagement of its ends with opposed parallel guide grooves within the sidewalls of the case, the width of the sidewalls at the groove contact area and respective grooves being different for orientation of the lever. Plural reed switches are mounted within a recessed portion of a rectangular protecting frame with a hole within the bottom of the frame receiving one reed switch lead and the lead captured within the groove at the rear of the frame. Frame pits, of corresponding size, defined by strips projecting inwardly from the sidewalls of the case receive the frames. Cylindrical cavities within the lever and flexible stops on opposed sides at the top and bottom of the cavity openings permit insertion and retention of cylindrical permanent magnets within the lever.

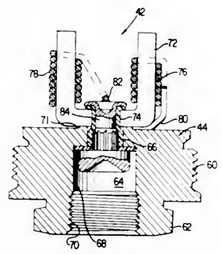
3,810,053
DEFLECTION YOKE HAVING RELATIVELY ADJUSTABLE CORE AND COILS
Kenneth W. McGlashan, Laredo, Tex., assignor to Pemcor, Inc., Westchester, Ill.
Filed Aug. 28, 1972, Ser. No. 284,370
Int. Cl. H01f *1/00*
U.S. Cl. 335—212 **12 Claims**

In a deflection yoke assembly for a color television cathode ray tube including a frame adapted to be mounted around the neck of a cathode ray tube, vertical and horizontal deflection coils supported by said frame for respectively producing inside the neck of the cathode ray tube horizontally and vertically extending magnetic fields which respectively effect vertical and horizontal beam deflection in the color television cathode ray tube when vertical and horizontal deflection currents are respectively fed therein, and a core supported by said frame and associated with said horizontal and vertical deflection



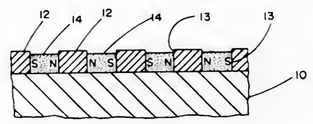
coils for forming a low reluctance path for said magnetic field outside of the neck of said cathode ray tube, the improvement wherein the position of at least one of said core and horizontal deflection coils are supported for fine adjustment relative to the other of same over a range which significantly varies the relative positions of at least two of the similarly oriented traces appearing on the face of the color television cathode ray tube with which it is to be used when the beams thereof are caused to traverse the face of the tube.

3,810,054
AUTOMATIC PILOT VALVE MAGNET CONTACT CONSTRUCTION
Rodney W. Nelson, Los Angeles, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 26, 1973, Ser. No. 354,576
Int. Cl. H01f *7/08*
U.S. Cl. 335—220 **10 Claims**



A pilot valve assembly including a valve controlling electromagnet within a housing which is enclosed by a conductive supporting base for the electromagnet. The supporting base includes a cavity therethrough for accommodating an insulated conductive contact member therein which has one end electrically connected within the housing to a coil of the electromagnet and the other end adapted to be connected to a thermocouple when threaded into the cavity.

3,810,055
MAGNETIC HOLDING DEVICE
Theodore D. Wright, 511 Grand Hill, St. Paul, Minn.
Filed May 21, 1973, Ser. No. 361,898
Int. Cl. H01f *7/20*
U.S. Cl. 335—285 **5 Claims**



A magnetic cylinder or section of a magnetic cylinder comprises a layer of ferromagnetic material inserted between separate sections of the ferromagnetic material.

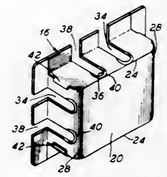
3,810,056
NON-MAGNETIZED CERAMIC MAGNETIC ASSEMBLY
Richard F. Jereb, Lindenhurst, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed Aug. 28, 1972, Ser. No. 283,948
Int. Cl. H01f *7/02*
U.S. Cl. 335—302 **8 Claims**



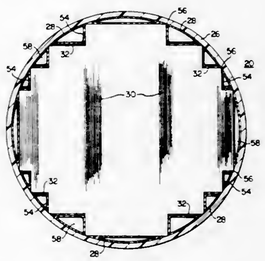
Disclosed herein is a ceramic magnet assembly including a non-magnetized ceramic magnet member having inner and outer concentric surfaces, together with a back iron member connected to the outer ceramic member surface by mechanically interlocking means and a pole shoe member connected to the inner ceramic member surface by mechanically interlocking means.

3,810,057
END ENCLOSURE FOR TRANSFORMERS
Robert W. Franz, Elk Grove Village, and John J. Zielnicki, Northbrook, both of Ill., assignors to Cam-Fram Tool Co., Inc., Chicago, Ill.
Division of Ser. No. 215,058, Jan. 3, 1972, Pat. No. 3,762,205.
This application Jan. 15, 1973, Ser. No. 323,728
Int. Cl. H01f *27/02*
U.S. Cl. 336—98 **10 Claims**

An end enclosure for transformers in which a pair of opposed transverse walls are formed along bend lines which form a square corner with the top wall, said sidewalls having elongated openings which extend up to said bend lines to provide greater access space for conductors. The opposite pair of transverse walls may have top round corners so that said walls tend to counter displacement towards each other. Interlock means may be provided between the first and second pair of sidewalls to prevent outward displacement of the round corner sidewalls and inward displacement of the square corner sidewalls. A method for making such improved end enclosures from planar, deformable sheet material provides removing areas of selected configuration from the four corners of the sheet material, and forming the opposed pair of extending sidewall portions into the sidewalls of the enclosures by moving them along bend lines. A substantially continuous flange portion is formed by moving a bottom portion of each sidewall along bend lines.



3,810,058
EXPANDABLE COIL BRACING TUBES FOR ELECTRICAL INDUCTIVE APPARATUS
Dale White, Sharon, Pa., and Louis Morris, Jr., Campbell, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 28, 1973, Ser. No. 345,812
Int. Cl. H01f *27/30*
U.S. Cl. 336—196 **5 Claims**

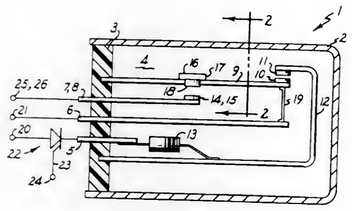


A preshaped, hollow, expandable metal tube inserted between a magnetic core and a winding support tube in an electrical inductive apparatus. Expansion of the metal tube after it has been placed into position provides a tight fitting relationship between the magnetic core and the winding support tube, to prevent buckling of the winding support tube during short circuit conditions.

3,810,059
RELAY
Ernest M. Jost, Plainville, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Apr. 16, 1973, Ser. No. 351,684
Int. Cl. H01h *61/013*
U.S. Cl. 337—25 **6 Claims**

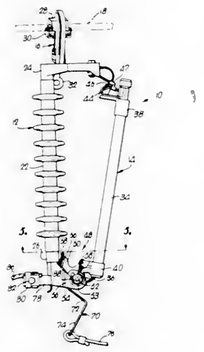
The disclosure relates to a relay having a gas tight enclosure filled with a noble gas. A spring member carrying a first contact is normally biased to engage the first contact with a second contact within the enclosure. A wire of a selected nickel-titanium alloy is connected to the spring member and is arranged in series with the noted contacts to form a control circuit. When this control circuit is energized, as through an SCR, current directed through the alloy wire heats the wire causing the wire to abruptly shorten in length to separate the noted contacts but to permit a glow discharge to occur across the contacts for maintaining the wire in heated condition with less current being directed through the wire. The spring member carries a bridging contact arm for closing a relay out-

put circuit when the spring member is moved by shortening of the alloy wire. When the glow discharge is terminated, as by



shutting off the SCR, the alloy wire cools and is stretched as the spring member moves in response to its bias to reopen the relay output circuit and reengage the noted control contacts.

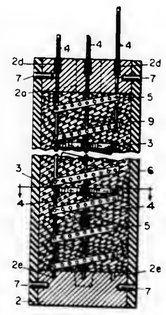
3,810,060
REMOTE CLOSING POWER LOAD PICKUP DEVICE
David G. Hubbard, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.
Filed Mar. 30, 1973, Ser. No. 346,590
Int. Cl. H01h *73/22*
U.S. Cl. 337—155 **12 Claims**



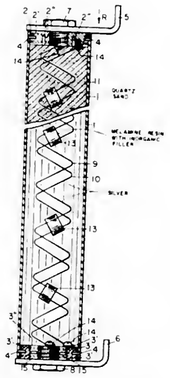
A fused, remote closing power load pickup device for electrically interconnecting an overhead power line with electrical apparatus, wherein is included a switch member movable toward and away from a latching contact therefor with a lever and a lanyard being operably connected to the switching member so that it may be safely shifted from open disposition to its closed position in latched relationship with the contact therefor from a remote location.

3,810,061
HIGH-VOLTAGE FUSE
Erwin Salzer, Waban, Mass., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Continuation-in-part of Ser. No. 161,089, July 9, 1971. This application Dec. 4, 1972, Ser. No. 312,191
Int. Cl. H01h *85/04*
U.S. Cl. 337—159 **6 Claims**

A high-voltage fuse having plug terminals a plugged casing, bores in one of the plug terminals, rods removably mounted in the bores of the casing, which form a temporary support for a fusible element wound substantially helically around the aforementioned rods. In the resulting fuse the conventional mandrel of electric insulating or ceramic material generally star-shaped in cross-section is dispensed with. The aforementioned rods are withdrawn when the pulverulent arc-quenching filler filled into the casing provides sufficient support for the long and fragile fusible element or elements. An annular or tubular element of electric insulating material is arranged along the axis of the fuse structure in such a way that it braces the temporary supporting rods for the fusible element or elements against the pressure exerted by the latter, tending to bend said rods radially inwardly. The annular or tubular element may be adapted to perform additional functions.

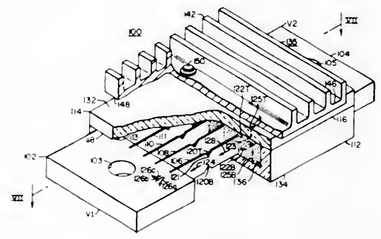


3,810,062
HIGH-VOLTAGE FUSE HAVING FULL RANGE CLEARING ABILITY
Frederick J. Kozacka, South Hampton, N.H., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed May 4, 1972, Ser. No. 250,175The portion of the term of this patent subsequent to July 2, 1990, has been disclaimed.
Int. Cl. H01h *85/12, 85/38, 85/08*
U.S. Cl. 337—161 **7 Claims**



A high-voltage fuse having full range clearing ability, i.e., capable of interrupting overload currents so small that it may take one or even several hours to cause blowing of the fuse on account of the overload currents, and also capable of interrupting major fault currents, and further capable of interrupting all currents between these extremes. This is mainly achieved by threading the fusible elements through relatively large beads of a material having an extremely low thermal conductivity. Each of the beads may be provided with several substantially parallel bores, or passageways, each receiving one of a plurality of helically wound fusible elements. Such multiple bore beads form spacers between a plurality of helically wound fusible elements not supported by a star shaped mandrel structure, add to their support by a pulverulent arc-quenching filler, and tend to maintain an equidistant spacing between such fusible elements.

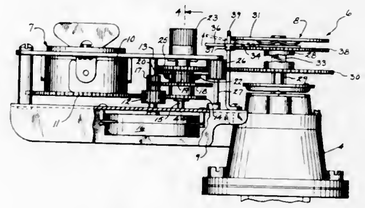
3,810,063
HIGH VOLTAGE CURRENT LIMITING FUSE INCLUDING HEAT REMOVING MEANS
Donald D. Blewitt, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Feb. 25, 1972, Ser. No. 229,362
Int. Cl. H01h *85/04*
U.S. Cl. 337—166 **12 Claims**



A current limiting fuse structure comprising a plurality of elements of fusible material adapted for higher voltage circuit operation. Each fuse element has a plurality of areas of reduced cross-section to facilitate the generation of a plurality of arclets at the time of melting to limit electrical current in the circuit to be protected by the fuse during the blowing of the fuse. The fuse elements and/or adjacent pulverulent arc quenching material are enclosed by a housing or casing which may be formed from ceramic material. Edges of each fuse element are disposed in intimate physical or structural contact with the associated casing to facilitate the removal or transfer of heat which may be generated in the areas of reduced cross section. The material from which the casing is made is such a composition or type that is a relatively good electrical insulator so as to withstand the voltage of the protected circuit once the fuse has blown and is also a good conductor of heat so as to efficiently remove heat from the enclosed fuse elements. The casing may be formed from a plurality of sections which may be joined to each other and the terminals of the fuse by high temperature epoxy cement. A metallic heat exchanger or heat sink may be assembled or disposed in intimate contact with an outside surface of the casing either by bolting or by using a suitable bonding material cement so that the heat which may be generated in the enclosed fuse and which may be conducted away from the fuse elements by the casing may be further conducted to the air or similar environment through the associated heat exchanger.

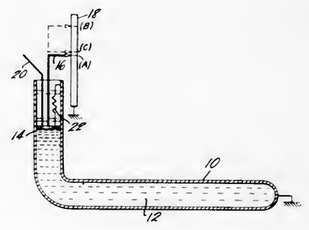
3,810,064
TEMPERATURE CONTROLLER
David D. Flegel, Racine, Wis., assignor to Reliance Time Controls, Racine, Wis.
Filed May 31, 1973, Ser. No. 365,577
Int. Cl. H01h *37/00*
U.S. Cl. 337—304 **7 Claims**

A controller for attachment to a thermostat includes a drive portion and a control portion. The drive portion is actuated by a spring wound motor and includes a gear-and-shaft drive train. The control portion primarily includes a sleeve fixedly mounted to the input control shaft of a thermostat. A gear on the sleeve forms the downstream end of the said drive train. A dial plate having suitable temperature indicia thereon is also mounted to the sleeve, and is manually settable at a mark on a temperature setting indicator post, and to the desired ambient or minimum temperature, as by a control knob connected to a drive train shaft. A clutch permits overriding of the drive train downstream of the shaft. A temperature change member is manually rotatable on the said sleeve to selectively pre-set an



arrow to the desired maximum thermostat temperature setting. After adjusting the temperature change member, it is locked on the sleeve. Actuation of the motor will rotate the sleeve and associated parts until an arm on the temperature change member engages a stop member. Further increase of the thermostat setting is thus prevented, although the motor may keep on running, due to the clutch mechanism in the drive train. The arcuate distance between the forward edge of the said arm and the said arrow is equal to the arcuate distance between the engagement surface of the said stop member and the indicator post mark.

3,810,065
METHOD AND APPARATUS FOR HEAT DETECTION AND CONTROL
James W. Welsh, Summit, N.J., assignor to Standard Motor Products, Inc., Long Island City, N.Y.
Filed Oct. 18, 1972, Ser. No. 298,523
Int. Cl. H01h *37/40*
U.S. Cl. 337—320 **9 Claims**



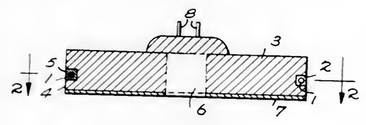
A capillary protector is disclosed in which contained material, vaporizable at a temperature of interest, is maintained in exclusively liquid state when the protector is at a temperature below such preselected temperature. Methods for using such capillary protector and heating apparatus incorporating the same are also disclosed.

3,810,066

PRECISION RESISTANCE FOR MEASURING PURPOSES

Joachim Scholz, Grossauheim, and Raudi Reber, Neuenhasslau, both of Germany, assignors to Deutsche Gold-und Silber-Scheidean-Stalt Vormals Roessler, Frankfurt am Main, Germany

Filed Aug. 17, 1973, Ser. No. 389,158
Int. Cl. H01c 7/00
U.S. Cl. 338—25
5 Claims



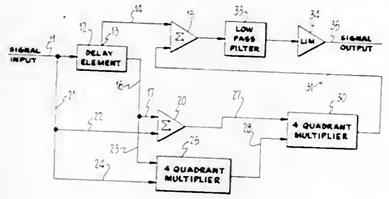
A rapidly responding resistance for measuring purposes which is temperature sensitive on a flat surface comprises a measuring wire in a groove which is located in the surrounding surface of a smooth, cylindrical carrier body slightly distant from the front turned toward the object to be measured.

3,810,067

ELECTRICAL SIGNAL FILTER

Robert F. Heidecker, Longmont, Colo., assignor to Iomec, Inc., Santa Clara, Calif.

Filed May 23, 1973, Ser. No. 362,968
Int. Cl. H03k 5/01
U.S. Cl. 328—164
10 Claims



A filtering technique for removing noise and enhancing the waveform shape of an information signal train. An incoming signal is subjected to a two bit interval delay. The delayed signal is separately summed with and multiplied by the undelayed signal. The resulting sum and product signals are multiplied together and the resulting product signal is summed with the incoming signal delayed by one bit interval. The resulting sum is passed through a low pass filter and used to drive a limit amplifier to produce the filtered output signal.

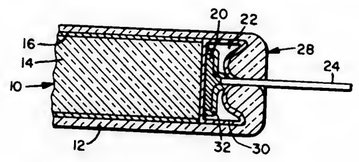
3,810,068

IMPEDANCE ELEMENT WITH MAGNESIUM REACTION TERMINAL CONTACT AND METHOD

Robert D. DeLuca, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed May 7, 1973, Ser. No. 358,014
Int. Cl. H01c 1/14
U.S. Cl. 338—274
19 Claims

An electrical impedance device is hermetically sealed within an encapsulating sleeve while external leads are simultaneously electrically connected thereto. The impedance element is disposed in an encapsulating sleeve which extends beyond the ends thereof. Magnesium is disposed within the ends of the sleeve, and one end of an external lead is placed in each end of the sleeve adjacent to the end of the impedance element. A bead of fusible material is disposed about the lead and is positioned adjacent to the end of the sleeve. Heat is applied to that portion of the assembly so formed including the bead and the end portion of the sleeve to cause the bead to form a hermetic seal with the lead and the sleeve and to cause the magnesium to vaporize and form a conductive cermet



layer which forms an electrical connection between the lead and the electrical terminal of the impedance element. The magnesium also reacts with sleeve and bead to form a magnesium reaction product.

ERRATUM

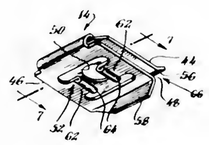
For Class 339—12 see:
Patent No. 3,810,258

3,810,069

GROUNDING CLIP FOR ELECTRICAL FIXTURES

Frank C. Jaconette, Jr., Trumbull, Conn., assignor to Harvey Hubbell Incorporated, Bridgeport, Conn.

Filed Aug. 8, 1972, Ser. No. 278,772
Int. Cl. H01r 3/06
U.S. Cl. 339—14 R
11 Claims



Apparatus for providing a reliable grounding path between electrical fixtures and their mounting boxes, particularly where modifications to the conventional nature of the electrical fixtures are unnecessary. A metal clip is disposed as a conductive interface between the mounting yoke of the electrical fixture and the mounting screw utilized to secure the electrical fixture within the mounting box. Low resistance electrical contacts are maintained by disposing spring members on the clip to exert continual contact pressure against both the mounting yoke and the mounting screw. Sharp protrusions extend from the clip to concentrate the contact pressure exerted against the mounting yoke and the mounting screw is engaged by a screw-receiving means on the clip. A spring means is disposed within the screw receiving means to develop the contact pressure and also provides for self-adjustabliity to pitch variations of the mounting screws or to fixed pitch references of the mounting box.

3,810,070

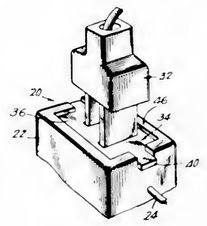
TERMINAL CONNECTOR FOR ELECTRIC EXTENSION CORD

Melvin S. Ludwig, Great Neck, N.Y., assignor to Eagle Electric Mfg. Co., Inc., Long Island City, N.Y.

Filed Sept. 18, 1972, Ser. No. 289,975
Int. Cl. H01r 13/54
U.S. Cl. 339—36
11 Claims

A connector having a body of elastomeric material is molded around one end of an extension cord the other end of

which terminates in a twin-prong plug. An electrically nonconductive rigid safety guard is slidably captive over an exterior surface of the body and has a pair of prong-passing passageways the dimensions and relative positioning of which conform to those of underlying prong-admitting passageways of the connector that lead to a pair of internal electrical female contacts. The prong-admitting passageways of the guard normally are disaligned with the prong-admitting passageways of the connector. However, the guard can be forced into a position in which its prong-admitting passageways are aligned with the prong-admitting



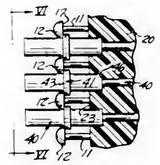
passageways of the connector so as to permit entry of the twin-prongs of a plug into the connector. Forcing the guard to such position resiliently deforms a portion of the elastomeric body, thereby building up a stress which, when the plug is withdrawn, restores the guard to its idle position in which it covers the prong-admitting passageways of the connector and thus prevents a child from being subjected to an electrical shock or burn either through accidental or deliberate insertion of an electrically conductive element into a prong-admitting passageway of the connector or by having the child place the connector in his mouth.

3,810,071

REAR RELEASE CONTACT RETENTION ASSEMBLY

Raymond J. Eifler, Farmington, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Division of Ser. No. 318,343, Dec. 26, 1972. This application Aug. 22, 1973, Ser. No. 390,625
Int. Cl. H01r 13/48
U.S. Cl. 339—59 M
1 Claim



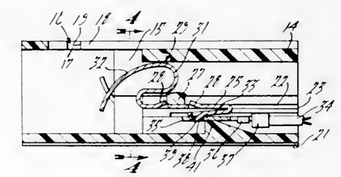
An electrical connector assembly that includes means for demountably retaining electrical contacts with the connector. The contact retention assembly includes rearwardly extending latches that are resiliently expandable in a radial direction so that contacts may be demountably retained within a passage surrounded by one or more latches. An additional insert may be used to confine the latches and prevent radial expansion thereof.

3,810,072

SOCKET

Marvin W. Moore, Rochester, Mich., assignor to Microdot Inc., Birmingham, Mich.

Filed Nov. 22, 1972, Ser. No. 308,757
Int. Cl. H01r 13/54, 33/46
U.S. Cl. 339—88 R
8 Claims



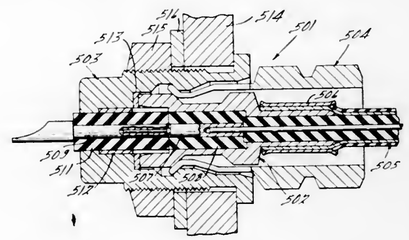
Socket bodies of various shapes are molded with a smooth or contoured bore in the former of which a plastic tubular liner is secured to provide the same interior contour for supporting snap-in contacts. The contact has an S-shaped leaf type of terminal secured to one end of a rectangular body portion which has locking tongues thereon. The opposite end of the contact is extended and engaged by conductors of a harness or has conductors fixedly attached thereto. The liner, when used, simplifies the mold for the various socket bodies and provides a standard element for supporting the terminals therewithin.

3,810,073

CONNECTOR LOCKING MECHANISM

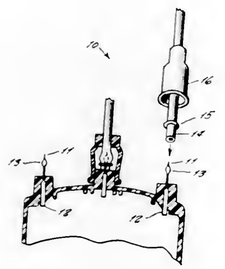
Donald M. Zajac, Plymouth, and James Kubota, Royal Oak, both of Mich., assignors to Omni Spectra, Inc., Farmington, Mich.

Continuation of Ser. No. 166,363, July 16, 1971, abandoned. This application Jan. 26, 1973, Ser. No. 326,987
Int. Cl. H01r 13/54
U.S. Cl. 339—91 R
16 Claims



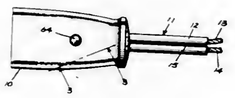
A quick-disconnect device for electrical, mechanical or hydraulic couplings. Plug and receptacle members have longitudinally offset annular grooves with facing locking ends. A coupling sleeve on one member has spring fingers with inclined ends insertable between the facing locking ends to resist axial separating forces of the plug and receptacle members. Uncoupling is effected by sliding the sleeve to extract the fingers. Modifications of the invention control connector disengagement with varying predetermined axial separating forces on the plug and receptacle members.

3,810,074
ELECTRICAL (H. V.) DISTRIBUTOR CAP CONTACTS FOR SPARK IGNITED COMBUSTION ENGINES
Wilson C. Brandenburg, Jr., 2218 Garden Dr., Avon, Ohio
Filed June 14, 1972, Ser. No. 262,453
Int. Cl. H01r *11/20*
U.S. Cl. 339—100 **1 Claim**



An improved electrical connection of the H. V. leads at the distributor cap of a spark ignited internal combustion engine, by slipping each semi-conducting H. V. lead over an extended end of a pin which has an enlarged portion for better holding the lead captive therearound; there also being an O-ring for improved electrical and mechanical interconnection, and there also being a rain shield molding so to seal out moisture and dust.

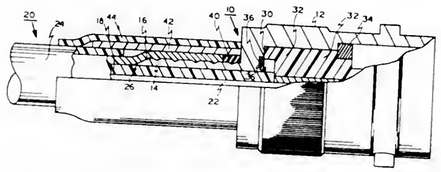
3,810,075
ELECTRIC CONNECTOR
Prescott K. Turner, Fairfield, Conn., assignor to General Electric Company, Fort Wayne, Ind.
Continuation of Ser. No. 105,646, Jan. 11, 1971, abandoned, which is a continuation of Ser. No. 811,057, March 27, 1969, abandoned. This application July 5, 1972, Ser. No. 269,172
Int. Cl. H01r *13/58*
U.S. Cl. 339—105 **10 Claims**



A connector for an electric cord, having a resilient jacket, includes a body of electrically insulating material defining a passageway to receive the cord. A pair of partitions extend into the passageway from opposite sides thereof. The partitions overlap and are spaced apart along the passageway a distance less than a corresponding lateral dimension of the cord whereby an adjacent region of the cord is firmly compressed between the overlapping partitions. The body is formed of two sections, joined together, and the cord is compressed in a direction generally perpendicular to the direction of joining.

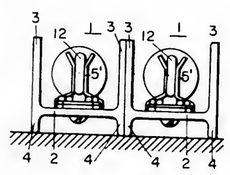
3,810,076
SEALED COAXIAL CONNECTOR
Harold Gregory Hutter, Sunset Cove, Brookfield, Conn.
Continuation-in-part of Ser. No. 25,073, April 2, 1970, abandoned. This application Sept. 28, 1971, Ser. No. 304,556
Int. Cl. H01r *17/04*
U.S. Cl. 339—177 R **2 Claims**

A sealed coaxial cable connector. A member of a moldable resilient material is provided at the junction between an internal cylindrical opening through the center of a connector body and an enlarged counterbore at the forward end of the body. The member, which may for example be molded to the rear shoulder of the counterbore, has an opening through its center which is sized so that the member coacts with the insulating layer of a coaxial cable, when the cable is inserted into the connector, to seal the opening. An external seal may also



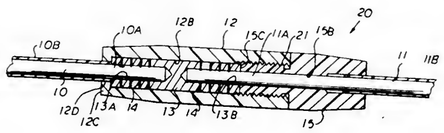
be provided by a gasket of a resilient material positioned at the forward end of a ferrule portion of the connector body, ahead of the connector outer conductor. The gasket is adapted to have a crimp ferrule pass over it, and to be compressed by the crimp ferrule when the ferrule is crimped to form a seal between the crimp ferrule and the body member. The rear end of the crimp ferrule is sealed by passing the ferrule over the outer insulating jacket of the cable.

3,810,077
FUSE HOLDERS
Erwin Salzer, Waban, Mass., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed Jan. 31, 1973, Ser. No. 328,423
Int. Cl. H01r *9/08*
U.S. Cl. 339—219 F **2 Claims**



A modular fuse holder system capable of being adapted for various applications is based on fiber re-inforced H-beams having flange portions of different length.

3,810,078
COMPRESSION SPLICE FOR ELECTRICALLY COUPLING ELECTRICAL CONDUCTORS
Joseph L. Chordas, 37 Brookview Ave., Wallingford, Conn.
Filed Feb. 8, 1973, Ser. No. 330,692
Int. Cl. H01r *7/08*
U.S. Cl. 339—268 R **8 Claims**

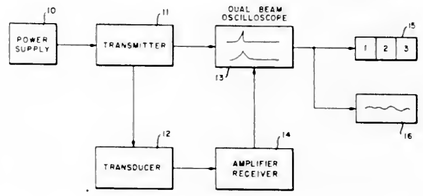


A compression splice for electrically coupling electrical conductors which includes a compressive coupling sleeve adapted to receive the ends of the conductors to be connected. The coupling sleeve is formed of a suitable electrical conducting material with deformation grooves formed therein which causes the coupling sleeve to deform upon the application of a compressive force. Complementary housing sleeve and compression nut having complementary mating portions are adapted to be received on the ends of the conductors to encase therebetween the compression sleeve which when mated imparts the requisite compressive force onto the coupling sleeve to secure the conductors in electrical connection.

ERRATUM

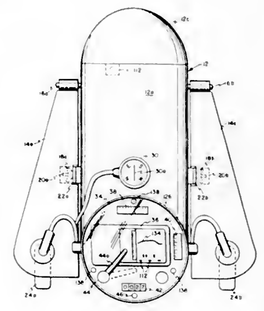
For Class 340—172 see:
Patent No. 3,809,884

3,810,079
PROPAGATION LOSS MEASURING DEVICE
Daniel Barron, 150 Kalmia Dr., Greenbelt, Md.
Filed Sept. 25, 1972, Ser. No. 292,202
Int. Cl. G01s *9/66*
U.S. Cl. 340—3 R **2 Claims**



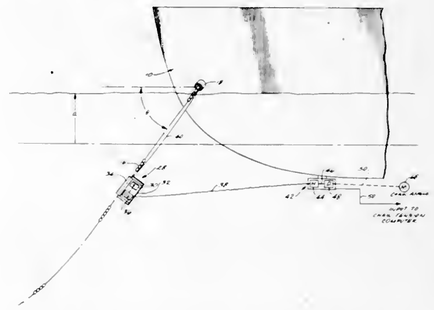
This disclosure is directed to a system for determining the propagation loss of a signal passing through water. A signal generator directs a signal through a hydrophone into the water simultaneous with directing a signal into a computer. The return signal is directed into the computer and the pulse energy of the returned signal is compared with the original signal. The difference is a measure of the signal loss.

3,810,080
SWIMMER-DIVE NAVIGATION AND RECONNAISSANCE DEVICE
Earl K. Hunter, Gig Harbor, Wash., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Oct. 13, 1972, Ser. No. 297,577
Int. Cl. G01s *9/66, 7/52*
U.S. Cl. 340—3 R **10 Claims**



A navigation/reconnaissance device is disclosed which comprises a hand-held pressure hull having a viewing port through which a using swimmer-diver views a drift meter for correcting his compass heading to compensate for water currents, a depth meter, a distance meter, and a strip chart recorder showing total water depth and distance traveled vs. time. The hull houses or carries all components for doppler sonar, swimmer-diver depth meter, altimeter, and combinations of the outputs thereof.

3,810,081
SUBMERGED CHAIN ANGLE MEASUREMENT
Paul R. Rininger, Westlake Village, Calif., assignor to Global Marine Inc., Los Angeles, Calif.
Filed Nov. 15, 1972, Ser. No. 306,536
Int. Cl. H04b *11/00*; **G01l** *5/04*
U.S. Cl. 340—3 R **20 Claims**

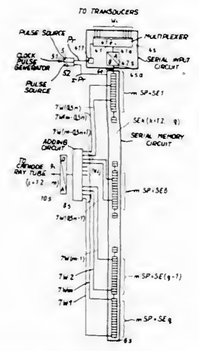


The tension in an anchor chain connected to a floating vessel is measured by a chain angle sensing device coupled to the chain below the surface of the water. The chain angle sensing device is submerged at a depth where the sensed chain angle is substantially identical to the chain angle of inclination existing immediately outboard of its point of support on the vessel, but where wave action energy levels have a substantially negligible effect on the rate of change in the sensed chain angle measurement. In one form of the invention, the chain angle sensing device is an acoustic angle indicator for generating a coded acoustical signal representing the chain angle of inclination. A transponder on board the vessel receives the acoustical signal and decodes it to generate an output representing the instantaneous chain angle measurement. In an alternate form of the invention, a sonic reflector engaged with the chain reflects a train of sonic pulses generated by a sonic transponder onboard the vessel. The transponder receives the sonic pulses from the reflector, and generates a signal representing the measured distance between the transponder and the reflector. Triangulation techniques are used in conjunction with the sonar detected distance measurement to generate a signal representing chain angle. Chain tension information is obtained using sensed chain angle information in conjunction with a graphic diagram in which tension is a function of chain angle, or chain tension can be obtained from an onboard computer programmed to generate chain tension information as a function of chain angle.

3,810,082
CIRCUIT ARRANGEMENT FOR FORMING A TIME SEQUENCE OF SIGNALS
Egidius Arens, Achim, Germany, assignor to Fried Krupp Gesellschaft beschrankter Haftung, Essen, Germany
Filed June 30, 1972, Ser. No. 268,104
Claims priority, application Germany, July 23, 1971, 2136780; Dec. 18, 1971, 2163053
Int. Cl. G01s *3/80*
U.S. Cl. 340—6 R **24 Claims**

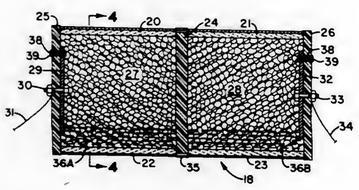
A circuit arrangement for forming a time sequence of group signals in the ranging art, particularly in the sonar art, and

preferably for a receiving system for signals impinging in a planar wave front, for a momentarily effective characteristic of a group of adjacent, possibly overlapping group characteristics obtained from received signals originating from a number of adjacent transducers from a larger plurality of transducers, in the receiving system. The group signals are formed by varied, quantized time delays determined by the geometrical arrangement of the transducers and by the propagation speed of the impinging signals in the transmission medium. The circuit arrangement employs a single memory circuit having arrangements for the reading in and for the directed reading out of received signals, and a subsequently connected adding circuit of whose output the group signals of the group characteristics appear. An input circuit is provided for the repeated, consecutive interrogation of the respective



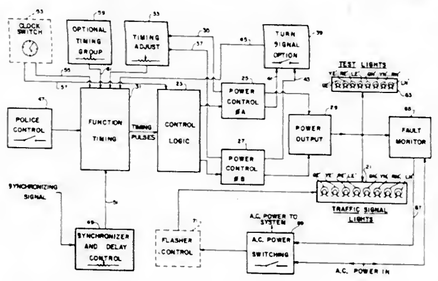
momentary received signal from each individual transducer of a plurality m of the adjacently positioned transducers. The input circuit is operative for reading the received signals, via a read-in point, in succession and in the same sequence into the memory circuit within which each read-in received signal consecutively occupies in steps memory locations which are further removed from the read-in point. The memory circuit is provided with a number of memory locations which at least and preferably are determined by the maximum time delay for the first interrogated received signal. An output circuit is provided for the destruction-free read-out of the stored received signals from a number of n memory locations which correspond to the required time delays with respect to the read-in point. The adding circuit is connected to the output circuit and the group signals derived from the received signals appear in succession at the output of the adding circuit.

3,810,083
SELF-RIGHTING GEOPHONE
Richard J. Kostelnicek, Houston, Tex., assignor to Esso Production Research Corporation, Houston, Tex.
Filed July 20, 1972, Ser. No. 273,651
Int. Cl. H04b *13/00*
U.S. Cl. 340—8 LF **11 Claims**



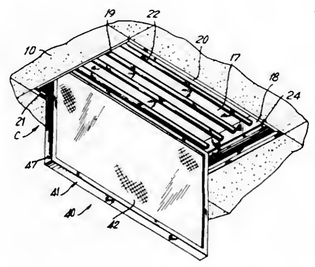
Disclosed is a seismic surface cable detector system where the detector comprises axially aligned, tubular, piezoelectric elements having outer metallic coatings and the elements are radially polarized in opposite senses. Electrically nonconductive end walls on the elements define enclosed chambers and at the ends of the chambers are stainless steel electrodes. Mercury is placed in the chambers in an amount less than one-half of the volume of a chamber and provides a reaction mass and an electrical path between the piezoelectric material and the electrode plate. Take out leads are attached to the electrode plates. An open celled foam in the chambers prevents or inhibits splash. The mercury is injected into the chamber by a hypodermic needle which passes through a self-sealing silastic closure.

3,810,084
ELECTRONIC TRAFFIC SIGNAL CONTROL SYSTEM
Harold C. Hoyt, Jr., St. Louis, Mo., assignor to Meyer Labs, Inc., St. Louis, Mo.
Filed Mar. 23, 1971, Ser. No. 127,134
Int. Cl. G08g *1/085*
U.S. Cl. 340—41 R **14 Claims**



An electronic traffic signal control system. Logic circuitry is included for providing a sequence of timed changing logic states which define operating periods for a plurality of signal lights. Control means is responsive to the changing logic states for selectively energizing predetermined ones of the signal lights during each of respective operating periods defined by the logic states. Timing circuitry generates timing pulses for causing successive changing of the logic states. Provision is made for manually varying the timing of generation of the timing pulses for preselecting the lengths of the respective operating period defined by each of the logic states.

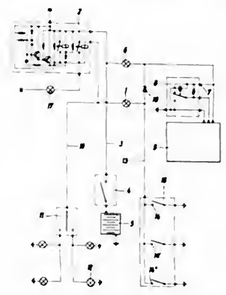
3,810,085
ADJUSTABLE LIGHTING FIXTURE FOR HUNG CEILING INSTALLATION
Leonard E. Woloski, Jersey City, N.J., assignor to Lightoller Incorporated, Jersey City, N.J.
Filed Mar. 29, 1973, Ser. No. 345,863
Int. Cl. H05b *33/02*
U.S. Cl. 240—51.11 **8 Claims**



The present invention is directed to an improved lighting fixture especially adapted for use in a hung ceiling installation

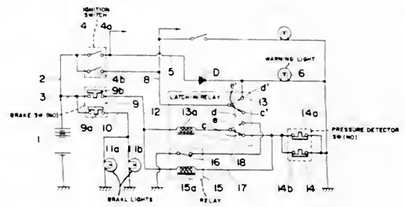
of the so-called "grid" type, and is characterized by the provision of a rectangular housing supported by the ceiling hanger structure and a separate rectangular diffuser frame dimensioned to telescope with the housing. The frame and housing includes complemental mounting devices permitting the vertical spacing between the diffuser and housing to be varied between preselected adjusted positions to compensate for the height characteristics of the ceiling tiles.

3,810,086
ELECTRICAL CONTROL CIRCUIT FOR A CENTRAL WARNING LIGHT OF MOTOR VEHICLES
Walter Bemsel, Stuttgart-Bad Cannstatt, and Hermann Schreiner, Schwieberdingen, both of Germany, assignors to Dr.-Ing. h.c.F. Porsche KG, Stuttgart-Zuffenhausen, Germany
Filed Sept. 7, 1971, Ser. No. 178,309
Claims priority, application Germany, Sept. 8, 1970, 2044383
Int. Cl. B60q *1/38*; **G08b** *19/00*
U.S. Cl. 340—52 F **7 Claims**



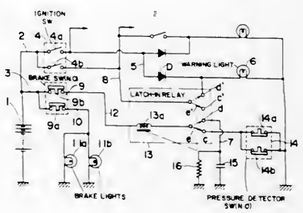
An electrical control circuit for testing the operativeness of a central warning light which serves for indicating the operating condition of one or several electrical monitoring devices for a vehicle which is equipped with an intermittently operable, so-called flasher direction-indicator transmitter whereby the warning light is connected in the circuit between the direction-indicator transmitter and the regulator of a light generator and is controlled by a voltage-dependent element.

3,810,087
FAILURE WARNING APPARATUS FOR OIL PRESSURE BRAKE
Masaru Suzuki, Chiryu, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi-ken, Japan
Filed July 20, 1972, Ser. No. 273,424
Claims priority, application Japan, July 21, 1971, 46-64615
Int. Cl. G08b *21/00*
U.S. Cl. 340—52 B **8 Claims**



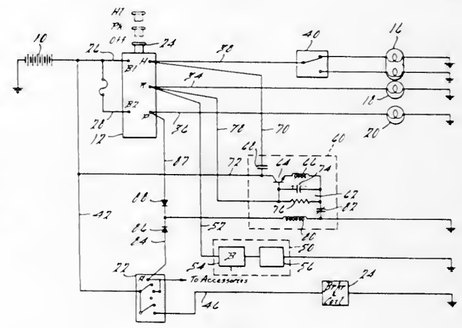
A failure warning apparatus for an oil pressure brake in which a latch-in relay is actuated, when the oil pressure brake is out of order, so as to light a warning lamp until the failure is repaired, thereby to prevent a driver from driving continuously without repairing a failure of the oil pressure brake.

3,810,088
FAILURE WARNING APPARATUS FOR OIL PRESSURE BRAKE
Masaru Suzuki, Chiryu, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi-ken, Japan
Filed Aug. 18, 1972, Ser. No. 281,657
Claims priority, application Japan, Aug. 19, 1971, 46-74446
Int. Cl. G08b *21/00*
U.S. Cl. 340—52 C **7 Claims**



A failure warning apparatus for an oil pressure brake in which a latch-in relay is actuated, when the oil pressure brake is out of order, so as to light a warning lamp until the failure is repaired, thereby to prevent a driver from driving continuously without reparing a failure of the oil pressure brake.

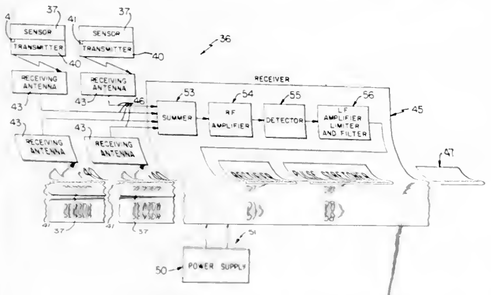
3,810,089
DISCRIMINATING SIGNAL WARNING AND SELECTIVELY OPERABLE TIME DELAY CONTROL SYSTEM FOR LIGHTING CIRCUIT
Dennis E. Florence, Detroit; Frank R. Winders, Jr., Birmingham, and Charles E. Wontrobski, Southfield, all of Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Filed Sept. 30, 1968, Ser. No. 763,712
Int. Cl. B60g *5/00, 1/04*
U.S. Cl. 340—52 D **10 Claims**



A signal warning and selectively operable time delay control system for a vehicle lighting circuit wherein a warning signal is provided if the lighting circuit inadvertently remains energized through the vehicle light control switch but (the signal) is inhibited if the lighting circuit is temporarily maintained energized from the vehicle battery through the time delay controller; and further wherein a selection of immediate or delayed de-energization of the lighting circuit is available to

the operator in accordance with a predetermined sequence, program or relative order of turn-off operation of the vehicle light control switch and the vehicle ignition switch.

3,810,090
PNEUMATIC TIRE LOW PRESSURE MONITORING AND WARNING SYSTEM
Henry Davis, Jr., and Donald E. Church, both of Richmond, Ind., assignors to Avco Corporation, Richmond, Ind.
Filed Sept. 15, 1972, Ser. No. 289,702
Int. Cl. B60c *23/04*
U.S. Cl. 340—58 **13 Claims**



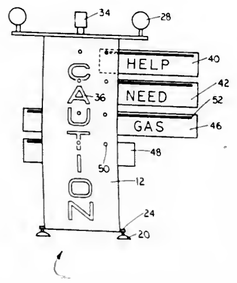
An improved pneumatic tire low pressure monitoring and warning system is provided which senses a low pressure condition in a pneumatic tire and employs a transmitter which is fixed to a rotatable support for rotation therewith. The transmitter is located off center from the central axis of rotation of the rotatable support and is actuated by sensing means to provide pulse modulated output signals at a radio frequency in response to a low pressure condition in the tire. A receiver is provided for receiving the signals and such receiver operates to improve the character of the output signals while removing undesirable signals and such receiver activates an indicating device in response to a low pressure condition in the pneumatic tire.

3,810,091
WARNING SIGN
William W. Hoover, 725 Grant St., Chenoa, Ill.
Filed May 11, 1972, Ser. No. 252,358
Int. Cl. G08b *5/00*; **G09f** *13/00*
U.S. Cl. 340—84 **3 Claims**



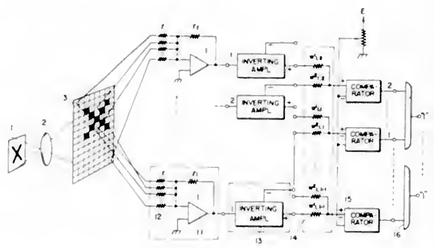
A portable warning sign including a sign panel, a lens at one edge of the panel, and a battery casing handle extending outwardly of lens portion and supporting batteries and light bulb operable within the lens.

3,810,092
WARNING AND DISTRESS SIGNAL DEVICE FOR A DISABLED VEHICLE
Charles M. Tucker, 59 Twelveoak Hill Dr., San Rafael, Calif.
Filed Nov. 24, 1972, Ser. No. 309,071
Int. Cl. B60q *1/00*; **G09j** *7/00*
U.S. Cl. 340—107 **5 Claims**



A warning and distress signal device for a disabled vehicle comprising a pair of brightly colored panels attached along their top edges and having rubber suction cup feet for mounting them on the vehicle roof. A series of slides behind one of the panels carries card signs which may be moved to extend laterally of the panels to expose to passing motorists words citing the needs, e.g. "gas," "aid," etc. of the driver.

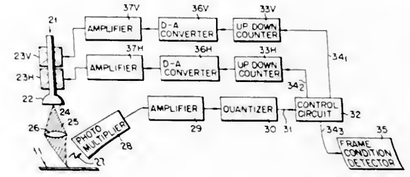
3,810,093
CHARACTER RECOGNIZING SYSTEM EMPLOYING CATEGORY COMPARISON AND PRODUCT VALUE SUMMATION
Michio Yasuda, Koganei; Hiroshi Makihara, and Shozo Kadota, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Marunouchi, Chiyoda-ken, Tokyo, Japan
Filed Nov. 9, 1971, Ser. No. 196,992
Claims priority, application Japan, Nov. 9, 1970, 45-97915
Int. Cl. G06k *9/12*
U.S. Cl. 340—146.3 MA **1 Claim**



A character recognizing or recognition system characterized in that, in order to determine the category of an unknown character, a plurality of reference characters are used to compute the correlation between the mutually adjacent reference characters and also the correlation between the unknown character and the reference character; and

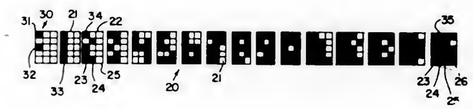
the category of the unknown character is determined by pair judgement according to the weighting coefficient determined by said correlation data, whereby the unknown character is recognized. This system makes it possible to average the weight distribution and to minimize the read error.

3,810,094
CHARACTER TYPE DISCRIMINATOR FOR CHARACTER READERS
Kenichi Mori, Yokohama, and Hisao Takebe, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Co. Ltd., Saiwai-ku, Kawasaki-shi, Japan
Filed July 19, 1972, Ser. No. 273,289
Claims priority, application Japan, July 21, 1971, 46-53906
Int. Cl. G06k *9/02, 7/015*
U.S. Cl. 340—146.3 D **6 Claims**



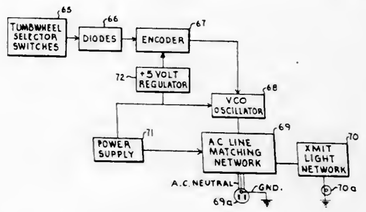
A character type discriminator uses a record medium carrying at least two series of characters to be read out, each type of which differs and which are enclosed with distinguishable frames. The recorded surface of the medium is scanned by a flying-spot scanner. The bright and dark light spots reflected from or transmitted through the medium are applied via a photomultiplier to a quantizer to produce therefrom "1" and "0" binary digits. Output signals from the quantizer are supplied to a control circuit. The control circuit has a pair of output terminals connected to counters for counting the number of elemental points on the medium scanned in vertical and horizontal directions to control the respective deflection coils of the scanner, and has an output terminal connected to a frame condition detector for determining the different physical features of the frames to discriminate the type of characters indicated therein.

3,810,095
FONT OF DIGITAL, OR OTHER, CHARACTERS AND METHOD FOR PATTERN PRINTING THEREOF
Klaus Bibl, Belmont, Mass., assignor to Lowell Technological Institute Research Foundation, Lowell, Mass.
Continuation-in-part of Ser. No. 70,946, Sept. 10, 1970, abandoned. This application Oct. 24, 1972, Ser. No. 299,671
Int. Cl. G06k *9/18*
U.S. Cl. 340—146.3 A **13 Claims**



A font of digital numerals, or other characters, has each character formed on one of a set of identical grid-like arrays each having a predetermined number of squares, each successive character in a series being depicted by a predetermined different number of filled squares arranged in the configuration of the character. The numerals one to 15 are each formed by four more squares than their respective values. Ditital data may be generated, electrically transmitted and printed in analog patterns with each number from zero to 15 requiring no more than 20 yes/no decisions.

3,810,096
METHOD AND SYSTEM FOR TRANSMITTING DATA AND INDICATING ROOM STATUS
Jules M. Kabat, and James H. Beggs, both of Las Vegas, Nev., assignors to Integrated Systems Company, Las Vegas, Nev.
Filed Sept. 14, 1972, Ser. No. 289,134
Int. Cl. H04b *13/02*; **H04q** *11/00*
U.S. Cl. 340—147 R **15 Claims**



A method and system for transmitting data and indicating room status wherein data is transmitted over the neutral and ground lines of a conventional AC room power line as a communications link. The transmitter sends coded signals through a wall outlet via the neutral and ground to the receiver and computer where it may be stored for eventual use. Transformers are bypassed from the secondary to the primary in the power distribution system. Data terminals provide a means for selectively displaying the received information as it relates to room status or alarm conditions. Additionally, status boards may be utilized with the received and stored data to visually display room status and conditions for front desk, housekeeping operations or supervisory stations.

The method of transmitting data and indicating room status includes the steps of

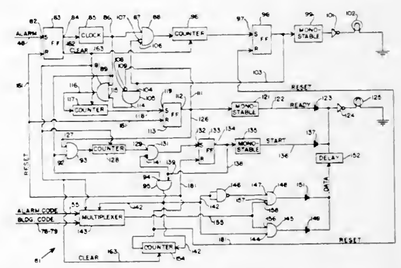
encoding information relating to a room number and status,

transmitting said encoded information on an AC power line using the neutral and ground of same,

receiving said transmitted information, and

indicating the status of said room.

3,810,097
METHOD AND SYSTEM FOR VISUALLY CONVEYING ALARM INFORMATION
Gregory A. Muir, and Craig J. Scherer, both of Box 17112, Denver, Colo.
Filed Feb. 28, 1973, Ser. No. 336,416
Int. Cl. G08b *19/00*
U.S. Cl. 340—64 R **21 Claims**



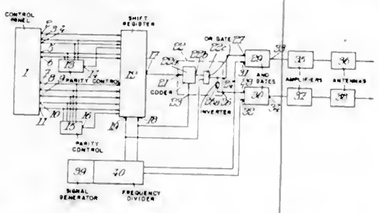
Disclosed is a method and a system for conveying alarm information wherein a visual alarm signal is transmitted from a first location in response to the occurrence of a preselected event thereabout. A preselected observer at a different location observes the visual alarm signal and relays notice of the receipt of the signal to proper authorities for response. A plurality of transmitters is utilized, each at a different location, and each transmitter encodes its signal with information in-

dicating its location and further information indicative of which one of a group of preselected events has occurred. The observer, upon visually observing a signal, focuses a receiving device on the source of the signal. The receiving device decodes the signal to extract the coded information therefrom and furthermore rejects improperly coded or noncoded signals.

3,810,098
EMITTER AND RECEIVER DEVICES FOR REMOTE CONTROL OF MINING MACHINES

Edmond Jamet, Montlucon, and Paul Jaquard, Courbevoie, both of France, assignors to Societe D'Applications Generales D'Electricite Et De Mecanique SAGEM, Paris, France

Filed Oct. 2, 1972, Ser. No. 294,192
Claims priority, application France, June 26, 1972, 72.23059
Int. Cl. H04b 1/00; H04q 9/00
U.S. Cl. 340—170 **10 Claims**

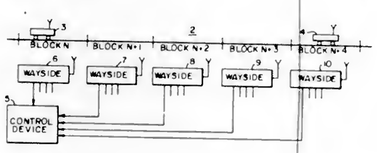


A transmitter device is provided which includes a serial encoder which transforms input control data into a series of binary signals which are subsequently coded into a second series of binary signals. An ascending transition between levels in the second series, e.g., a transition between a binary "zero" and a binary "one", represents one of the levels of the binary signals of the first series and a descending transition represents the other of the levels. The transmitter device also includes a modulator for modulating the signals of the second series with two distinct modulating frequencies.

3,810,099
MEANS FOR PROVIDING A VEHICLE CONTROL SIGNAL CONTAINING DIRECTION AND SPEED INFORMATION

David H. Woods, Ann Arbor, Mich., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 26, 1972, Ser. No. 301,011
Int. Cl. H04q 9/00
U.S. Cl. 340—171 R **5 Claims**

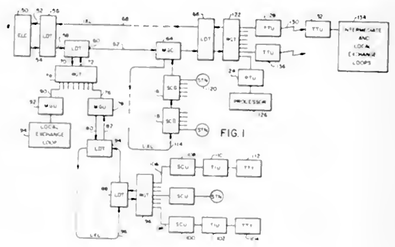


A vehicle control system, such as a rubber tired system in which a speed and direction signal is transmitted to a vehicle operational in the system. The speed and direction signal is binary coded and frequency modulated such that the respective frequencies of the binary ONES and ZEROS determine the direction of travel, and the order of the binary ONES and ZEROS determines the speed of the vehicle. If the vehicle is to travel in a forward direction along the vehicle travel path, the binary ONE and ZERO signals are at first and second frequencies respectively, and if the vehicle is to travel in the reverse direction along the vehicle travel path, the binary ONE and ZERO signals are at third and fourth frequencies respectively.

3,810,100
LOOPED DIRECT SWITCHING SYSTEM

Laurence D. Hungerford, and Clarence G. Marshall, both of Cedar Rapids, Iowa, assignors to Collins Radio Company, Dallas, Tex.

Filed Dec. 16, 1971, Ser. No. 208,548
Int. Cl. H04j 3/16
U.S. Cl. 340—172.5 **38 Claims**

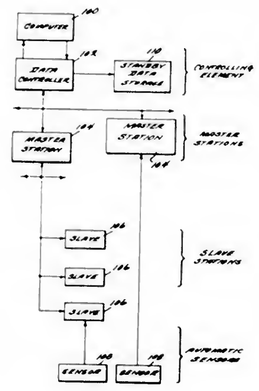


A communication system for transmitting messages between calling and called parties wherein the message is divided into predetermined length blocks and transmitted a block at a time. The concept includes the possibility of a very complex system wherein the message is transmitted via communication links from one node to the next node such that the transmitting party does not have a solid connection to the ultimate receiving party. In other words the transmission of a block from one node to the next is completed and satisfactory receipt is acknowledged before the message block is transmitted to a further node. The message blocks can be transmitted at a time when some of the nodes connecting the calling and called parties are busy with other messages such that the message block is stored in each node of the connection path until the following node is clear to receive a new message block.

3,810,101
DATA COLLECTION SYSTEM

William L. Avery, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Dec. 29, 1971, Ser. No. 213,508
Int. Cl. G06f 15/46, 3/00, 3/04
U.S. Cl. 340—172.5 **114 Claims**

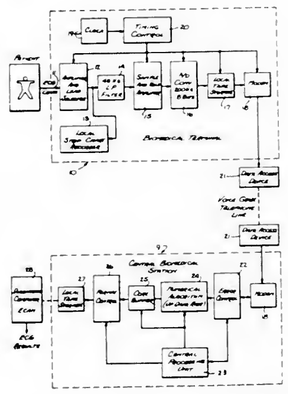


A system for transferring information from a plurality of data stations to a central station such as a computer. A novel data controller couples the computer to a plurality of master stations, some of which may in turn be coupled to a set of slave stations, for communicating with the master stations. The data controller operates in three phases — a load phase in which a station address and instructions are loaded into the controller either from the computer or an internal memory within the data controller, an execute phase in which the data controller communicates with the addressed stations and a transfer phase in which the received information is transferred by the data controller to the computer or, if it is malfunctioning, to auxiliary storage devices. Any of a number of unique master stations can be used in the system. A slave multiplexer operates to interrogate a number of associated slave stations of varying types and convey the information thus derived to the data controller when queried. An interactive keyboard permits manual entry of information which is then conveyed to the data controller.

3,810,102
SYSTEM FOR TRANSMISSION AND ANALYSIS OF BIOMEDICAL DATA

William Louis Parks, III, Bethesda; William Luster Grenoble, Jr., Rockville; Henry Herman Harjes, Jr., Clarksville, and Lawrence James McCarthy, Rockville, all of Md., assignors to Telserv, Inc., Rockville, Md.

Filed Mar. 31, 1972, Ser. No. 240,136
Int. Cl. G06f 3/04, 3/05, 5/06
U.S. Cl. 340—172.5 **11 Claims**



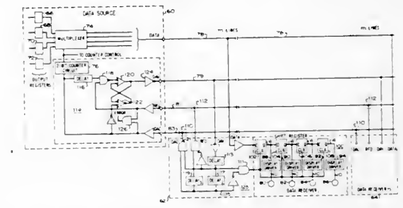
A method and system for transmitting biomedical data to a remote station for subsequent processing. Analog electrical biomedical signals are sampled and digitized at a relatively low data rate and transmitted over a communications link of limited bandwidth to a remote station where the analog electrical biomedical signals are reconstructed from the digital data and are sampled and digitized at a substantially higher data rate for subsequent interpretation by a diagnostic computer. Alternatively, the received digital data are directly converted to a substantially higher digital data rate by means of a numerical algorithm, a form of digital interpolation.

3,810,103
DATA TRANSFER CONTROL APPARATUS

David W. Ricci, Cupertino, Calif., assignor to Hawlett-Packard Company, Palo Alto, Calif.

Filed Apr. 3, 1972, Ser. No. 240,403
Int. Cl. H04q 1/00
U.S. Cl. 340—172.5 **17 Claims**

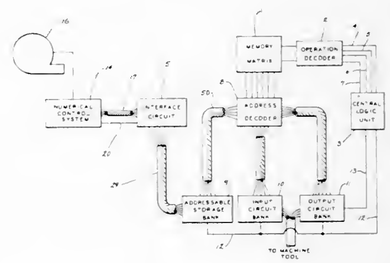
An improved data transfer system enables a common data source to operate asynchronously with a plurality of diffeent data receivers at a data transfer rate that is limited only by the operating rates of the data receivers and the data source. The operating conditions of the data receivers are sensed in common by the data source and the operating condition of the data source is sensed by the data receivers in order to optimize the data transfer rate without loss of data and with restriction to a predetermined (or synchronous) data transfer rate.



3,810,104
PROGRAMMABLE MAGNETICS FOR A NUMERICAL CONTROL SYSTEM

Theodore J. Markley, Mentor, Ohio, assignor to Allen-Bradley Company, Milwaukee, Wis.

Filed July 31, 1972, Ser. No. 276,283
Int. Cl. G06f 13/00, 15/46
U.S. Cl. 340—172.5 **10 Claims**



A programmable controller connects to a numerical control system to operate the magnetics on a machine tool. An interface circuit which includes a programmable decoder connects to receive auxiliary command words generated by the numerical control and selectively set addressable storage elements. The programmable controller operates under the direction of a control program, to read the condition of the addressable storage elements, to read the condition of devices on the machine tool, and in response to these conditions operate output devices on the machine tool. A first embodiment of the invention includes a separate read only memory which performs the decoding function and a second embodiment uses a portion of the controller memory to perform this function.

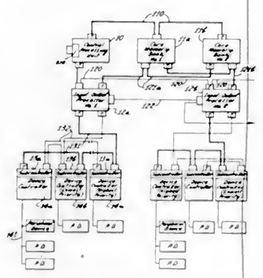
3,810,105
COMPUTER INPUT-OUTPUT SYSTEM

Alfred W. England, Los Angeles, Calif., assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 678,235, Oct. 26, 1967, Pat. No. 3,702,462. This application Aug. 31, 1972, Ser. No. 285,458
Int. Cl. G06f 3/00
U.S. Cl. 340—172.5 **21 Claims**

A computer system for digital computers is disclosed in which peripheral devices cooperate with "hardware" input-output processors (IOP) independent from the central processor (CPU) of the computer for handling the transfer of data between peripheral devices and memory which is also accessible to the CPU. Signal communication runs through special

transmission facilities which include separate communication paths for the IOPs and CPU to memory, separate communication paths for control and data signals, and separate communication paths for determination of priority of operations among several IOPs and the CPU at memory, or between several IOPs



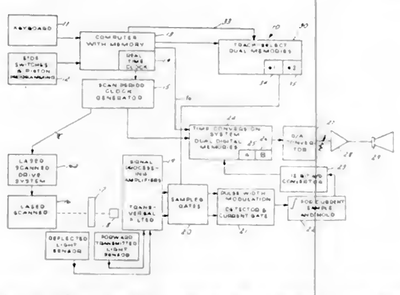
at the IOP or between several devices at the device. The devices are controlled by device controllers which include subcontrollers which together with a portion of the IOPs provides a communication interface configuration between devices and IOPs.

3,810,106

SYSTEM FOR STORING TONE PATTERNS FOR AUDIBLE RETRIEVAL

Bernard David Nadler, Bayside, and Mitchell A. Cotter, Henry Hudson Parkway, both of N.Y., assignors to APM Corporation, Englewood, N.J.

Filed Oct. 5, 1972, Ser. No. 295,234
Int. Cl. G06f *3/00, 7/00*; **G11b** *7/00*
U.S. Cl. 340—172.5 **3 Claims**



A system of storing information as a purality of parallel, finite length tracks, each track constitiuting a discrete tone pattern, and means for retrieving said tone patterns by orthogonal scanning of said tracks using a single scanning device, whereby the entire field of stored information is substantially simultaneously available for reproduction. The system is particularly suited for audible retrieval, with disclosed application to voice reproduction, vocoders, and electronic keyboard instruments.

3,810,107

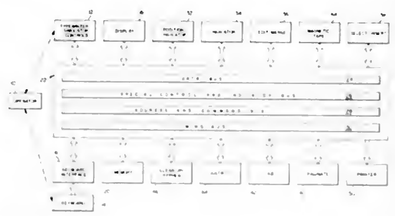
ELECTRONIC TEXT DISPLAY AND PROCESSING SYSTEM

Arnold J. Goldman; Stephen L. Kurtin, both of Sherman Oaks, and Carver A. Mead, Pasadena, all of Calif., assignors to Lexitron Corporation, Chatsworth, Calif.

Filed Jan. 18, 1973, Ser. No. 324,776
Int. Cl. G06k *15/02, 15/20*
U.S. Cl. 340—172.5 **15 Claims**

An electronic Test Display and Processing System having a display memory, and a manually operable data and control function entry device for interactive text processing by an operator via a keyboard whereby text entered on the display is modifiable under the control of the operator. By utilization of a position indicator or cursor which is positionable by the operator on the display screen at the desired position with respect to the text the operator can perform text editing functions such as adding a character, deleting a character, adding or deleting a line of text, selecting a block of text from the display for deletion or insertion into another page of text displayed on the screen, or erasing text.

The text editing functions are accomplished by means of a processor receiving commands indicative of operator action as well as commands indicative of internal signals generated in



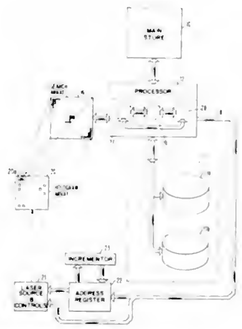
proper time sequence to perform the functions selected by the operator. The memory includes a display memory capable of storing information in coded form for displaying a full "page" of text; a character buffer for storing information indicative of two characters within a line of text, the two characters being the character currently being displayed as well as the character previously displayed; and a line buffer capable of storing two of the lines of textual information, one line being the line of text currently being displayed while the other line is the line of text previously displayed. Multiplexing and data selection means are provided for sequentially reconfiguring the flow of information through the various storage means within the memory to accomplish the text editing functions.

3,810,108

PROCESSOR UTILIZING A HOLOGRAPHIC ARRAY AND A CONTENT ADDRESSABLE STORAGE UNIT FOR HIGH SPEED SEARCHING

Neil N. Krewson; John B. Tait, both of Vestal, and Bruce M. Updike, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 257,495, May 30, 1972. This application Apr. 26, 1973, Ser. No. 354,585
Int. Cl. G06f *9/19, 9/00*
U.S. Cl. 340—172.5 **12 Claims**



In a data processing system, a holographic array is controllable to change the entire contents (or a part thereof) of a

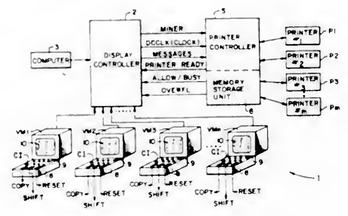
content addressable storage unit, i.e. an associative storage unit having two-state photoresponsive cells or a functional storage unit having four-state photoresponsive cells during one machine cycle. Thus information is transferred in parallel in a broad band path depending upon the size of the photoresponsive cell array, hologram efficiency, etc. During a succeeding machine cycle, the entire contents of the associative or functional storage unit may be searched in accordance with a search argument to select from the storage unit data which corresponds to the search argument. In this fashion, significant quantities of data are searched rapidly. Within the same system, the holographic array can be controlled during one machine cycle to change the entire contents of additional storage arrays which may be of the associative, functional or location addressable type. In this fashion, storage units such as microprogram control stores, operating system program stores and user application program stores can be rapidly changed, for example, a page (e.g. 2000 bytes) at a time during one machine cycle. This adds a new dimension for information transfer within high performance data processing systems. In one embodiment, read/write hologram arrays, the contents of which are selectively changeable, are utilized to provide a greater versatility and performance to system operation.

3,810,109

STORAGE AND SPACE AVAILABILITY APPARATUS FOR A DATA PROCESSING PRINTOUT SYSTEM

Floyd D. Morris, Pennsauken, and Barry S. Rich, Cherry Hill, both of N.J., assignors to Ultronic Systems, Moorestown, N.J.

Filed July 21, 1972, Ser. No. 273,921
Int. Cl. G06f *3/14*
U.S. Cl. 340—172.5 **12 Claims**



A data processing printout system for providing hard copy of information originating from a computer or from video display terminals. The data processing printout system includes a printer controller having a memory storage unit for storing information, in the form of multi-character messages, originating from the computer or from the display terminals. Messages stored in the memory storage unit are continuously extracted therefrom, even though new messages may, at the same time, be in the process of being entered into the memory storage unit. The extracted messages are applied selectively to printers connected to the printer controller and to which the display terminals are assigned. The computer may cause messages to be printed by any one of the printers.

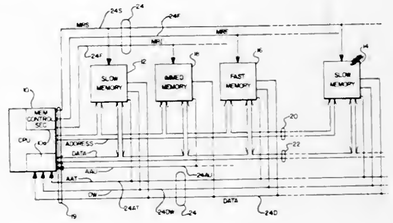
In accordance with the invention, only messages of a length up to a predetermined maximum permissible length are allowed to be stored in the storage unit for subsequent use by the printers. The availability of space in the memory storage unit for the storage of messages of a length up to the aforementioned maximum permissible length is determined by a space availability arrangement which continuously examines the empty spaces in the memory storage unit to find empty spaces capable of storing messages having lengths equal to the maximum permissible length and allows messages to be stored therein wherever sufficient contiguous empty space is deemed to exist. There are, therefore, no special assigned spaces in the memory storage unit for messages originating from the computer or from the display terminals.

3,810,110

COMPUTER SYSTEM OVERLAP OF MEMORY OPERATION

Alan Kotok, Waltham; Allan R. Kent, Framingham, and David A. Gross, Acton, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed May 1, 1973, Ser. No. 356,147
Int. Cl. G11c *5/06, 9/00*
U.S. Cl. 340—172.5 **7 Claims**



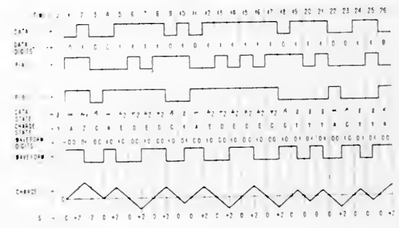
This relates to a digital computer system having a plurality of memories. Retrieval operations in the memories are overlapped so that a retrieval operation in one memory can be initiated before a previously initiated retrieval operation in another memory has been completed.

3,810,111

DATA CODING WITH STABLE BASE LINE FOR RECORDING AND TRANSMITTING BINARY DATA

Arvind M. Patel, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1972, Ser. No. 317,980
Int. Cl. H03k *13/00*; **H04l** *3/00*; **G06f** *5/00*
U.S. Cl. 340—172.5 **20 Claims**

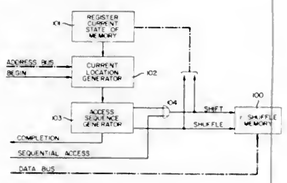


An improved method and apparatus for encoding and decoding binary data is disclosed. For improving data density for storage or transmission, the waveform has an upper frequency limit such that transitions in the encoded waveform occur no closer together than the time for one data digit. To provide suitable clocking for waveform detection circuits, the waveform has a lower frequency limit that transitions occur no farther apart than two data digit times. In addition, the waveform is symetrical about a zero signal level within narrow limits. The encoding is called "zero modulation" (or ZM) for zero direct component. Since the waveform has a constrained direct component, it can be used with circuit devices of the type that will not transmit a direct component. Circuits for detecting errors in the decoded waveform are also disclosed.

3,810,112
SHIFT-SHUFFLE MEMORY SYSTEM WITH RAPID SEQUENTIAL ACCESS

Alfred Vaino Aho, New Providence, and Jeffrey David Ullman, Princeton, both of N.J., assignors to Bell Laboratories Incorporated, Murray Hill, N.J.

Filed Dec. 18, 1972, Ser. No. 316,109
Int. Cl. G06f 7/00
U.S. Cl. 340—172.5 14 Claims

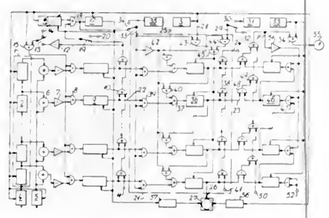


A shift register memory having interconnections among its internal stages permitting stored data to be rearranged in two different ways. A first set of interconnections permits the usual cyclic rotation of data in response to a first "shift" control pulse. A second set of interconnections permits data to be rearranged in a shuffle pattern in response to a second "shuffle" control pulse, similar to the rearrangement of cards in a deck when shuffled. A pair of control registers records the current state of the data arrangement. Addressing circuitry calculates the present storage location of an addressed datum from this state information. Additional circuitry generates an accessing sequence of shift and shuffle control pulses which brings the addressed datum to the output stage of the shift register. After data at two succeeding addresses have been accessed in this fashion, all the data in the shift register have been reordered and succeeding datum addresses may be accessed with a single shift pulse per address.

3,810,113
DIGITAL DATA PROCESSING APPARATUS

James Redmon Jordan, Fife, England, assignor to National Research Development Corporation, London, England

Filed Aug. 17, 1972, Ser. No. 281,273
Claims priority, application Great Britain, Aug. 27, 1971, 40295/71
Int. Cl. G01f 1/100; G06f 7/02
U.S. Cl. 340—172.5 24 Claims

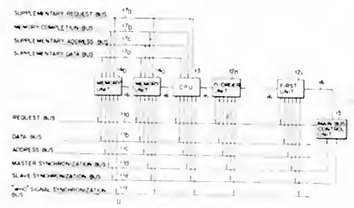


A computing apparatus comprises a set of counters corresponding to different stages of a shift register having a serial input. A binary signal is applied to this input, and the inputs of the counters are gated so that each counts only when the state of the corresponding stage satisfies a particular condition, for example coincidence with the current state of another binary signal. Once the count for any counter has reached a given value a signal is generated indicating for which of the counters this has occurred. A principal use is for identifying the time delay between two related noise signals.

3,810,114
DATA PROCESSING SYSTEM

Hirohide Yamada, and Yoshiaki Nakayama, both of Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Dec. 29, 1972, Ser. No. 319,357
Claims priority, application Japan, Dec. 29, 1971, 46-708; Dec. 29, 1971, 46-2067
Int. Cl. G06f 3/00
U.S. Cl. 340—172.5 10 Claims

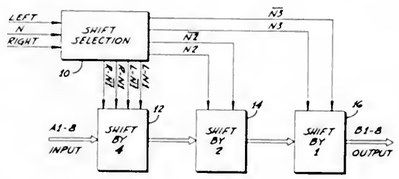


A data processing system wherein a plurality of data processing units including an arithmetic operation unit, memory unit and other units attached to an electronic computer are connected through a main bus in parallel relationship with each other and at least said arithmetic operation unit and memory unit are connected to each other through a supplementary bus. A selected two of said plurality of units are connected to each other through an interface circuit on the side of a main bus assembly under control of a main bus control unit so as to effect exchange of data therebetween. The arithmetic operation unit and memory unit are connected to each other through an interface circuit on the side of a supplementary bus assembly for exchange of data independently of the operating condition of the main bus assembly.

3,810,115
POSITION SCALER (SHIFTER) FOR COMPUTER ARITHMETIC UNIT

John P. Stafford, Oklahoma City, Okla., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Feb. 5, 1973, Ser. No. 329,805
Int. Cl. G06f 7/00; G11c 19/00
U.S. Cl. 340—172.5 9 Claims

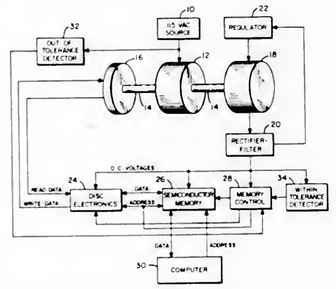


The information bit position scaler or shifter includes logic for shifting eight binary bits of information, bidirectionally, either right or left from one to eight positions, with zero fill, or in a circular mode. The position scaler includes a shift selection unit and units providing layers of shifts of four, two and one. The highest number of shifts are performed first in the shift by four unit, with the direction selection controlling only this unit.

3,810,116
VOLATILE MEMORY PROTECTION

Leroy A. Prohofsky, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 24, 1972, Ser. No. 309,017
Int. Cl. G05b 11/00
U.S. Cl. 340—172.5 5 Claims

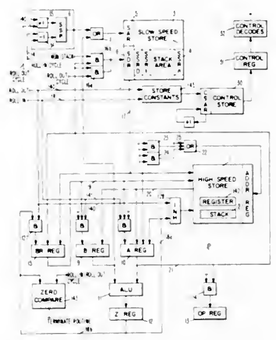


A system for capturing the information stored in a volatile semiconductor memory upon electrical house-power loss is disclosed. The system includes a standby nonvolatile rotating memory-alternator combination which upon power failure utilizes its stored kinetic energy to continue rotating and thus generate the required electrical power to record in the nonvolatile memory the information held in the volatile memory.

3,810,117
STACK MECHANISM FOR A DATA PROCESSOR

Robert A. Healey, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 20, 1972, Ser. No. 299,499
Int. Cl. G06f 13/00
U.S. Cl. 340—172.5 11 Claims

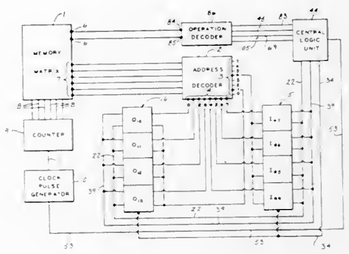


A storage device (hereinafter referred to as a high speed stack) having an access speed compatible with that of its processor has operands and/or operators entered therein (a push operation) and removed therefrom (a pop operation) for processing in a last-in-first-out order. The number of entries stored in the stack at any moment can become very large due to the nesting of operators. Since it is not economically feasible to provide a large capacity high speed stack, overflow of the stack into a slower speed storage device (hereinafter called a low speed stack) is provided. "Roll out" of entries to the low speed stack and "roll in" of the entries back to the high speed stack is effected as the high speed stack becomes relatively full and empty. A backup register, which normally stores the last entry transferred to the low speed stack, permits delay of roll in, roll out operations until the last possible moment. When a new entry is to be stored into the high speed stack (hereinafter referred to as a push operation) and the stack is full, the new entry is put into the backup register, a selected number of entries are rolled out from the high speed stack to the low speed stack and the new entry is then transferred from the register to the high speed stack. Roll in is not initiated even when the high speed stack is empty since the next available entry in the slow speed stack is available in the backup register for fast access by the processor. Only after the entry in the backup register is accessed for processing, the high speed stack being empty, does roll in of entries from the low speed stack to the high speed stack begin. High speed stack top and bottom pointers and a slow speed stack pointer are incremented and decremented to address the stacks and to determine the full, empty states of the high speed stack. With the stack bottom movable, the number of entries left in high speed storage on a roll out (or the number of entries not filled with valid data on a roll in) can be controlled by the roll in and roll out routines. Thus the stack mechanism can be tuned to an optimum based on the program language being processed.

3,810,118
PROGRAMMABLE MATRIX CONTROLLER

William W. Kiffmeyer, Bayside, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis.

Filed Apr. 27, 1971, Ser. No. 137,923
Int. Cl. G05b 11/00
U.S. Cl. 340—172.5 22 Claims

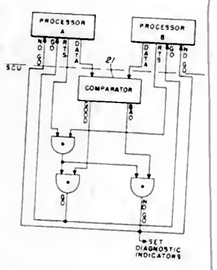


A programmable logic controller operates to read the condition of a plurality of input devices and operate a plurality of output devices in accordance with a set of instructions contained in a stored program. Each instruction contains a six-bit address which is read by an address decoder to activate a specific input or output circuit connected to an external device. Each instruction also generates a two-bit operating signal which is transformed by an operation decoder into one of four separate operations. A central logic unit connects to the operation decoder, connects to receive condition signals from the input devices, and connects to the output devices. The central logic unit performs any one of the four operations: read the condition of an addressed input device; read the inverse condition of an addressed input device; store the result of the read operations; and set an addressed output device in accordance with the stored information.

3,810,119
PROCESSOR SYNCHRONIZATION SCHEME

Robert M. Zieve, Trumbull, Conn.; Christopher L. Maginnis, Turnersville, and Moishe Kleidermacher, Runnemede, both of N.J., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 4, 1971, Ser. No. 140,178
Int. Cl. G05b *11/18, 19/28*; G06f *9/18*
U.S. Cl. 340—172.5 10 Claims

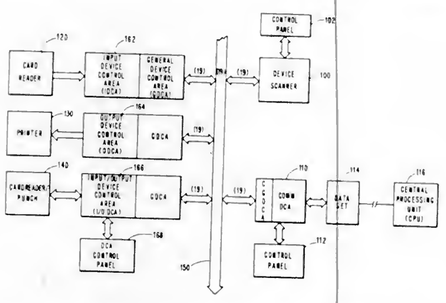


A method of maintaining synchronization between two independently clocked, stored-program computer processors which are executing the same program simultaneously and are connected in a master-slave relationship. There is further provided a method of preventing a failure from disabling both master and slave units. A special function is inserted at selected intervals which delays the master processor until the slave processor catches up. Further, means are provided to automatically detect when a failure occurs. This program alignment and error detection are accomplished by inserting checkpoints at selected intervals at which the redundantly processed results are compared.

3,810,120
AUTOMATIC DEACTIVATION DEVICE

Robert E. Huettner, Acton, and Edward B. Tymann, Natick, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Feb. 12, 1971, Ser. No. 114,876
Int. Cl. G06f *11/06*; G06k *17/00*; G05b *13/02*
U.S. Cl. 340—172.5 18 Claims

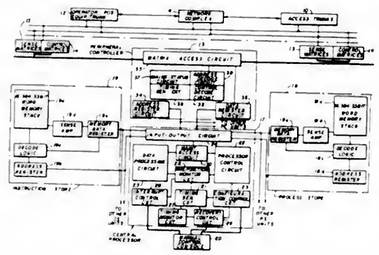


An apparatus is associated with scanning apparatus for a number of peripheral input and output devices connected to a common input/output bus of a terminal system. The apparatus includes means for detecting a failure in any one of the peripheral devices by monitoring the condition of the terminal bus. Upon detecting the presence of a failed device on the bus, the apparatus then determines automatically whether the device is operating as an input or output device and thereafter selectively disables the failed device whereby the terminal system is placed in a state in which it can still continue system data transfer operations.

3,810,121
TIMING GENERATOR CIRCUIT FOR CENTRAL DATA PROCESSOR OF DIGITAL COMMUNICATION SYSTEM

Gregory I. Chang, Oak Park; Rolfe E. Buhrke, La Grange Park; Verner K. Rice, Wheaton, and John J. Mele, Chicago, all of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Apr. 23, 1973, Ser. No. 353,915
Int. Cl. G06f *1/04*
U.S. Cl. 340—172.5 7 Claims

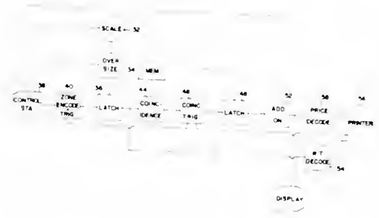


Central data processors are provided in duplicate for a digital communication system. Each processor has its own timing generator circuits; circuits are arranged so that the one in the active central processor generates place and accept levels for both central processors. Circuitry is disclosed for switching timing generators when central processors are switched between active and passive. Circuitry also turns off the standby central processor under hardware or software control and sets up the standby when it has been determined that a switch will be necessary.

3,810,122
READ ONLY MEMORY APPARATUS

William Hecox, Canal Winchester, Ohio, assignor to Exact Weight Scale Co., Inc., Columbus, Ohio

Filed June 30, 1971, Ser. No. 158,269
Int. Cl. G11c *11/42, 15/00*
U.S. Cl. 340—173 LM 3 Claims

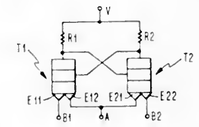


A read-only memory apparatus which incorporates a novel data storing means preferably in the form of a rotatable disk. The code impressed on the disk is not related to shaft position information. The apparatus includes means for creating optical signals responsive to the coded disk and means for sensing and converting the optical signals into electrical signals. These signals are appropriately compared with predetermined reference signals for locating the desired data coded on the disk for retrieval upon command.

3,810,123
MONOLITHIC STORAGE MULTI-EMITTER TRANSISTORS WITH DIFFERENT WIDTH BASES

Utz G. Baitinger, Stuttgart, and Knut K. Najmann, Gartringen, both of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 29, 1972, Ser. No. 267,324
Claims priority, application Germany, July 29, 1971, 2137976
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 FF 4 Claims

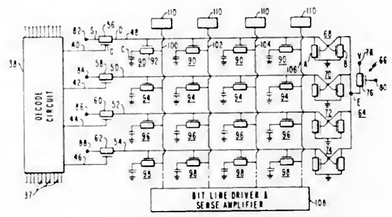


A monolithic storage matrix having cells formed of multi-emitter transistors in which one emitter of each transistor forms part of the storage circuit and the other emitter of each transistor is coupled to the accessing and retrieval circuits. The transistors portions for storage are formed with bases of a given width and the transistors portions coupled to the accessing and retrieving circuits have a lesser width so that short access times are obtained while the stability of the storage circuit is maintained.

3,810,124
MEMORY ACCESSING SYSTEM

William K. Hoffman, Shelburne, and Albert Y. Kao, Essex Junction, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,805
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R 16 Claims

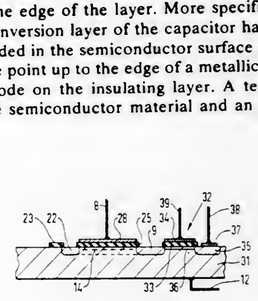


A system for accessing a memory line coupled to a plurality of aligned memory cells has only a decode circuit and means for applying a drive pulse coupled to one end of the line, the other end of the line is connected to a pulldown circuit which provides a low impedance path to ground unless it is overdriven by the drive pulse. The drive pulse is applied only to a line selected by the decode circuit.

3,810,125
INTEGRATED CIRCUIT ELECTRICAL CAPACITOR, PARTICULARLY AS A STORAGE ELEMENT FOR SEMICONDUCTOR MEMORIES

Karl-Ulrich Stein, Muenchen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Sept. 5, 1972, Ser. No. 286,267
Claims priority, application Germany, Sept. 30, 1971, 2148948
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 CA 6 Claims

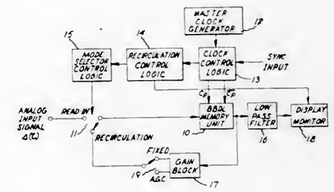


An electrical capacitor in an integrated circuit form in or on a semiconductor material wherein the capacitor has an insulating layer on the surface of the semiconductor material and an electrically conductive coating with a terminal, the coating arranged on the insulating layer and extending at least at one point up to the edge of the layer. More specifically, the terminal for an inversion layer of the capacitor has an electrical contact provided in the semiconductor surface which reaches at least at one point up to the edge of a metallic coating forming an electrode on the insulating layer. A terminal is connected to the semiconductor material and an electrical bias source is connected between the terminal and the metallic coating for the application of a voltage to produce an electric field across the insulating layer sufficient to form the inversion layer. A matrix of such capacitors and corresponding integrated circuit field effect transistors employ a common semiconductor substrate wherein the electrodes and the selection lines are formed by a two step metalization process and the digit lines comprise doped regions in the substrate contacting the aforementioned electrical contacts of the inversion layer which are also doped regions.

3,810,126
RECIRCULATION MODE ANALOG BUCKET-BRIGADE MEMORY SYSTEM

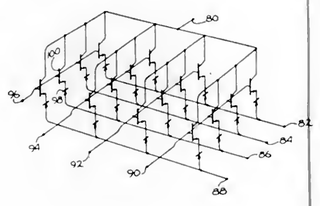
Walter J. Butler, and Charles McD Puckette, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,351
Int. Cl. G11c *27/00, 19/00*
U.S. Cl. 340—173 RC 21 Claims



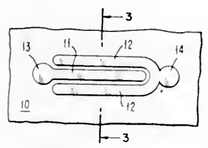
A bucket-brigade delay line (BBDL) is selectively operable in an analog signal read-in mode or memory recirculate mode with signal storage (hold) intervals therebetween. A clock control logic circuit determines the period for each cycle of read-in and "hold" or recirculate and hold. A recirculation control logic circuit determines the number of recirculations between successive read-ins of new information. A mode selector control logic circuit determines the order in which the BBDL operates in the read-in or memory recirculate modes. A feedback network is connected around the BBDL in the recirculate mode. In the recirculate mode a nondestructive read-out capability is obtained and the information can be read out on a display monitor connected to the output of the BBDL.

3,810,127
PROGRAMMABLE CIRCUIT — THE METHOD OF PROGRAMMING THEREOF AND THE DEVICES SO PROGRAMMED
Marcian Edward Hoff, Jr., Mountain View, Calif., assignor to Intel Corporation, Mountain View, Calif.
Continuation of Ser. No. 49,097, June 23, 1970, abandoned. This application June 29, 1972, Ser. No. 267,637
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 SP **19 Claims**



A programmable circuit, a method of programming and the devices so programmed wherein a conductive spike is created to eliminate the potential difference across a P-N junction (e.g. by creating a continuous metal bridge across the P-N junction). The spike is created by the application of a pulse of current through the P-N junction.

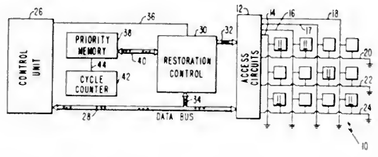
3,810,128
SEMICONDUCTOR SWITCHING AND STORAGE DEVICE
Andreas Moser, Thalwil, Switzerland, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 26, 1972, Ser. No. 292,475
Claims priority, application Switzerland, Sept. 30, 1971, 14201/71
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R **15 Claims**



A Schottky barrier non-volatile bistable switch and memory device, such as a rhodium contact on gallium arsenide. In one embodiment, a field effect transistor with bistable Schottky contact is made. The latter is employed in storage cell arrangement.

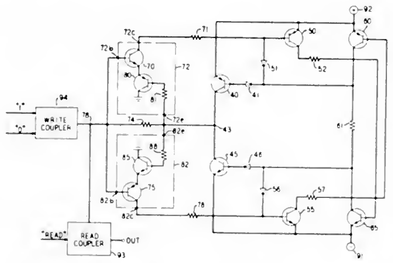
3,810,129
MEMORY SYSTEM RESTORATION
Stephen Barry Behman, Saratoga, and Stephen Goldstein, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 19, 1972, Ser. No. 298,917
Int. Cl. G11c *13/00*
U.S. Cl. 340—173 DR **10 Claims**

Restoration of information in a memory of the type requiring periodic restoration to maintain viability of the information is carried out in a manner dependent on the relative need of memory cells in the memory for restoration. This system includes an array of memory cells in which the stored information must be restored periodically to maintain its viability. Means for accessing the memory cells in the array desirably accomplishes a restoration of a memory cell each time it is accessed. Means for determining a priority list of the memory cells in the array for restoration does so in an order substantially dependent on the relative need of the memory cells for restoration. Means are provided for restoring the memory cells sequentially in the absence of a requested access to the



memory array in accordance with the priority list established by the priority list determining means. In this manner, a memory requiring, e.g., 50 percent of its operating time for restoration may be available 90 or even 100 percent of the time a requested access is made.

3,810,130
ONE-PORT COMPLEMENTARY MEMORY CELL
Herbert Anton Schneider, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 2, 1973, Ser. No. 356,288
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R **14 Claims**

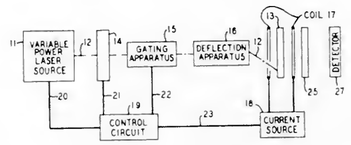


A one-port memory cell of the type in which the common collector terminal of a collector-coupled complementary transistor pair is coupled to the input/output port, and the respective emitters of the complementary pair are connected to first and second power sources. When a write signal is applied to the input/output port to transfer the cell state, a switching sequence is established in which an originally conductive transistor of the complementary pair is assured to be nonconductive before the other, originally nonconductive transistor of the pair becomes conductive. Transistor and/or power supply damage during the transition period between cell states is thus avoided.

3,810,131
DEVICES EMPLOYING THE INTERACTION OF LASER LIGHT WITH MAGNETIC DOMAINS
Arthur Ashkin, Rumson, and Joseph Martin Dziedzic, Clark, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 18, 1972, Ser. No. 272,787
Int. Cl. G11c *11/14, 11/42*
U.S. Cl. 340—174 YC **7 Claims**

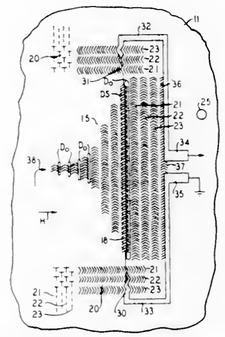
Focused laser light, when partially absorbed to cause localized heating in low coercivity magnetic layers of the type used in conventional bubble devices, is employed to manipulate bubble and strip magnetic domains. Bubbles and strips are thermally nucleated or annihilated as well as captured and moved about freely, by an incident laser beam of variable

power without the use of outside connections, conductor loops or magnetic elements. Bubbles are arranged in fixed arrays and propagated at high velocities through well-defined patterns. Simplified memory devices are disclosed using laser



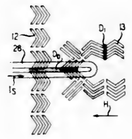
techniques. There is also disclosed a novel form of reversible strip domain writing in low coercivity layers with the laser beam. Each of the disclosed arrangements has potential application to bubble devices and to various magneto-optical information storage, processing and display devices.

3,810,132
INTEGRATED BUBBLE EXPANSION DETECTOR AND DYNAMIC GUARD RAIL ARRANGEMENT
Andrew Henry Bobeck, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 24, 1972, Ser. No. 309,204
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 EB **7 Claims**



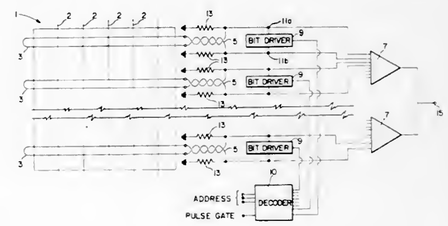
A magnetic bubble expansion detector for a bubble memory is incorporated into a dynamic guard rail encompassing that memory in order to eliminate expanded bubbles after detection without shrinking the bubbles to normal size.

3,810,133
MAGNETIC DOMAIN REPLICATOR ARRANGEMENT
Andrew Henry Bobeck, Chatham, and Irynej Danylchuk, Morris Plains, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 24, 1972, Ser. No. 309,205
Int. Cl. G11c *19/00, 11/14*
U.S. Cl. 340—174 TF **15 Claims**



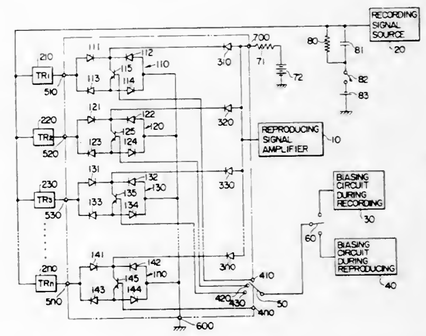
A magnetic bubble replicate arrangement, when defined by magnetically soft elements which are very closely spaced with

3,810,134
MEMORY BIT DRIVE CIRCUITRY PROVIDING COMMON TERMINATING IMPEDANCE TO A SENSE LINE
Stuart David Culp, Whitesboro, N.Y., assignor to General Electric Company, Utica, N.Y.
Filed July 18, 1972, Ser. No. 272,996
Int. Cl. G11c *11/04, 11/14*
U.S. Cl. 340—174 PW **4 Claims**



In a memory, for example a non-destructive read out matrix memory, improved means are provided for writing into a selected bit line. Each bit is written into a storage cell which is magnetically coupled to a sense pair. In the presnt invention, a bit driver is connected across each sense pair. The bit driver comprises a current source. Consequently, the bit driver does not reflect a load into the sense pair during a write operation. During a read operation, the bit driver presents no impedance to the sense line. Consequently, a common terminating impedance is provided to the sense pair during both read and write, improving memory speed and precision of operation.

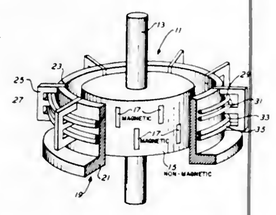
3,810,135
CONTROL CIRCUIT OF RECORDING AND REPRODUCING SIGNALS TO AND FROM MAGNETIC TRANSDUCERS FOR MAGNETIC MEMORY APPARATUS
Kanji Kawakami, and Eiji Kaneko, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 13, 1972, Ser. No. 297,301
Claims priority, application Japan, Oct. 13, 1971, 46-80147
Int. Cl. G11b *5/02*
U.S. Cl. 360—63 **7 Claims**



A control circuit for recording and reproducing signals to and from magnetic heads for magnetic memory apparatus has

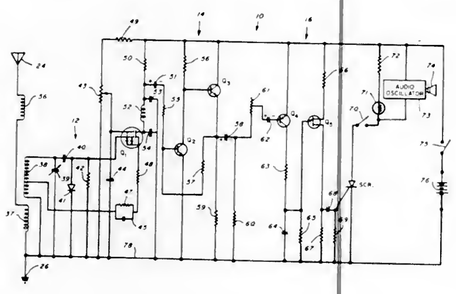
a plurality of full wave rectifier circuits, each of which is connected to a corresponding magnetic head and an NPN transistor is connected between the output terminals of each full wave rectifier circuit. The transistor is saturated during the recording operation of the corresponding magnetic head and switched into an active region during the reproducing operation of the corresponding magnetic head.

3,810,136
DIGITAL POSITION SENSOR
Charles W. Lang, Wayne, and Peter J. O'Hara, Denville, both of N.J., assignors to The Singer Company, Little Falls, N.J.
Filed Feb. 15, 1973, Ser. No. 332,682
Int. Cl. G08c *19/08, 19/16*
U.S. Cl. 340—199 **15 Claims**



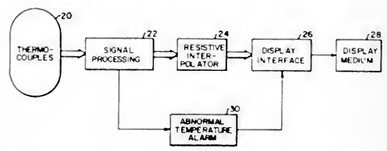
A reliable digital shaft encoder capable of operating at high speeds is shown. A plurality of magnetic segments are embedded in the rotor of the encoder forming two staggered rows. The stator contains a plurality of E shaped magnetic strips through which excitation and pickup coils are wound. Magnetic coupling from the stator strips through the rotor segments induces a voltage in the pickup coils which is then demodulated to provide a position indication.

3,810,137
TORNADO WARNING DEVICE
Kenneth H. Bacon, Jr., and Kenneth H. Bacon, Sr., both of 5398 E. 26 Pl., Tulsa, Okla.
Filed Nov. 13, 1972, Ser. No. 306,010
Int. Cl. H04b *1/16*
U.S. Cl. 340—224 **4 Claims**



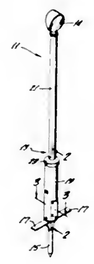
A radio receiver system for warning of an approaching tornado. The device is a regenerative detector tunable over the broad range of 25 to 60 MHz but normally tuned to the 53.25 MHz frequency. The system is capable of extracting from a carrier a tornado audio frequency signal as small as 0.5 microvolts. The tornado signal in the audio frequency range is extracted from the carrier frequency and is amplified by a general purpose amplifier. It is fed to trigger circuit for switching on an audio oscillator and a warning light. These warning devices stay on until they are manually switched off.

3,810,138
INTERPOLATIVE SENSOR OUTPUT VISUAL MAP DISPLAY SYSTEM
Francis T. Thompson, Murrysville; Steven L. Silverstein, and Shan C. Sun, both of Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 10, 1972, Ser. No. 216,691
Int. Cl. G08b *5/00*
U.S. Cl. 340—225 **21 Claims**



A sensor output visual display system is presented for coherently displaying the output readings of a plurality of sensors, such as the in-core thermocouples of a nuclear reactor. The in-core temperature distribution, as detected by the in-core thermocouples, is displayed using light intensity modulation over a reactor core map — the brighter areas on the map corresponding to the hotter areas of the core. The active display area is divided into blocks, each corresponding to a zone within the core representing a fuel rod assembly. Interpolation for assemblies not monitored directly by thermocouples is provided for a coherent display. The interpolation is performed by a resistive plate or resistor matrix constructed to conform to the geometric configuration of the reactor core. The total temperature information is then processed to interface with the display media. A visual alarm feature is included to indicate thermocouple readings which are outside preset limits and for identifying the existence of defective thermocouples.

3,810,139
TEMPERATURE RESPONSIVE SIGNALING DEVICE
Alexander H. B. Fergusson, 1480 N. Palm Ave., Apt. 5, Rialto, Calif.
Filed Nov. 29, 1972, Ser. No. 310,438
Int. Cl. G08b *21/00*
U.S. Cl. 340—229 **4 Claims**

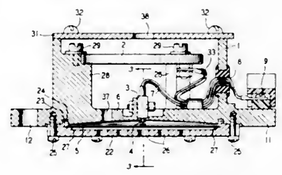


A temperature responsive signaling device comprising a supporting structure adapted to project above a supporting surface, an electrical power source carried by the supporting structure, a light mounted on the supporting structure, a circuit for coupling the power source to the light, a temperature responsive device for opening and closing the circuit to the light in response to predetermined temperatures, and a mechanism for causing the light to flash when the circuit to the light is closed.

3,810,140
APPARATUS FOR THE PROGRAMMED TREATMENT OF BED WETTING
William W. Finley, 5531 S. Birmingham, Tulsa, Okla.
Filed Oct. 30, 1972, Ser. No. 302,357
Int. Cl. G08b *21/00*
U.S. Cl. 340—235 **8 Claims**

A method and apparatus for treatment of patients who have the problem of bed wetting. Whereas, formerly the method of treatment of such patients was to provide a loud alarm and bright spotlights which would be turned on in response to each incident of bed wetting so as to awaken the patient, this system provides two types of alarms. The first type has a loud bell and spotlight which are adapted to immediately awaken the patient. A second alarm is provided which after a selected delay time awakens the patient's caretaker, that is, parent or nurse, who then proceeds to take care of the patient. The choice as to whether a single event of bed wetting will operate the first alarm or the second alarm is preset into the system so that some selected percentage of the events operate the first alarm and the remaining percentage of events operate the second alarm. These can be controlled in a random, or other type of sequence. This improved apparatus treatment of enuresis serves not only to control the habit of bed wetting, but also prevents a relapse of the patient once he has been treated.

3,810,141
BLAST-ACTUATED CONTROL SYSTEM
William Pferd, Mendham, and Eugene Francis Witt, Lake Hopatcong, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 20, 1971, Ser. No. 209,653
Int. Cl. G08b *21/00*
U.S. Cl. 340—240 **7 Claims**

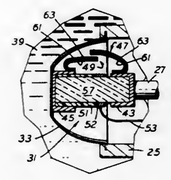


A blast-actuated control system for operatively controlling an alarm circuit in response to shock wave pressure resulting from a nuclear explosion which produces a sudden high rise in the temperature and the pressure of air surrounding the sytem. The control system comprises a housing having a chamber containing a switch actuator and a flat plate. The plate is loosely supported inside the chamber and is adapted for being raised upward for operating the switch actuator in response to the sudden increase in air pressure that is produced by a nuclear blast. Although the blast also produces a sudden high rise in temperature which causes expansion of both the housing and the plate, this expansion will not impede the movement of the plate because of its loose supporting construction.

3,810,142
DEVICE FOR DETECTING AND INDICATING A DIFFERENCE IN HYDRAULIC PRESSURE
Shinya Ito, Tsushima, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisaku-Sho, Nishikasugai-gun, Aichi Prefecture, Japan
Filed July 20, 1972, Ser. No. 273,577
Claims priority, application Japan, July 22, 1971, 46-64212
Int. Cl. G08b *21/00;* **B60q** *1/44;* **B60t** *17/22*
U.S. Cl. 340—242 **4 Claims**

A device for detecting and indicating a difference in hydraulic pressure which comprises a slide bar adapted to slide in the horizontal direction upon receiving hydraulic pressure applied thereto and having a gourd-shaped portion at its central portion; switching mechanism adapted to be actuated through the movement of said slide bar; and an indicating lamp. The present device is capable of indicating a possible difference in hydraulic pressure and keeping such an indication until the difference in hydraulic pressure is eliminated.

3,810,143
TEMPERATURE COMPENSATED FLUID SENSOR
James O. Lawson, and David F. Thompson, both of Warren, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.
Filed Apr. 9, 1973, Ser. No. 349,290
Int. Cl. G08b *21/00*
U.S. Cl. 340—244 R **16 Claims**

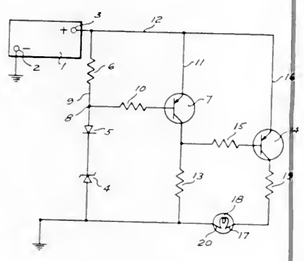


There is described an improved apparatus for detecting the presence or absence of fluid. The apparatus comprises an electrical circuit and a sensor device electrically joined to the circuit. The device comprises a housing member defining a chamber, a thermally conductive member within the chamber, a tip member forming a closure for the chamber, an element within said chamber having first and second spaced apart portions, means for heating this element comprising an electrical resistive element, and first and second heat responsive members respectively affixed to the spaced apart portions and adapted for engaging when the temperature difference between these portions exceeds a predetermined level. The improvement comprises providing a portion of electrically insulative material intermediate and engaging the spaced apart portions whereby the first spaced apart portion is electrically insulated from the electrical resistive element and the second spaced apart portion is electrically connected to the electrical resistive element.

3,810,144
LOW VOLTAGE WARNING SYSTEM

Leland Francis Clouse, Grand Forks Air Force Base, N. Dak., assignor to The Raymond Lee Organization, New York, N.Y., a part interest

Filed Jan. 10, 1973, Ser. No. 322,517
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 C **2 Claims**

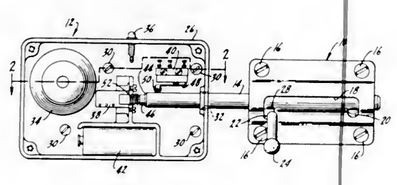


A Zener diode is connected in series circuit arrangement with first resistor and a diode between the positive polarity terminal of a battery and a point at ground potential. A first transistor has an input connected to a common point in the connection between the first resistor and the diode. A second transistor has an input connected to the output of the first transistor. A signal lamp is connected to the outputs of the first and second transistors.

3,810,145
DOOR BOLT WITH ELECTRIC ALARM

Vladas Gusaras, Madison, Wis., assignor to Oak Industries, Inc., Crystal Lake, Ill.

Filed Oct. 27, 1972, Ser. No. 301,589
Int. Cl. E05b *45/12*
U.S. Cl. 340—274 **14 Claims**



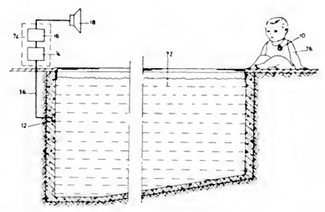
A door bolt with an electric alarm provides an alarm indication after a door bolt has been placed in the locked position and an intruder either severs the bolt, forces the door open or applies great force against the door.

3,810,146
ALARM SYSTEM FOR THE SAFETY OF NON-SWIMMERS

Solomon Nathan Lieb, Johannesburg, South Africa, assignor to Manfred Dworcan, Johannesburg, South Africa, a part interest

Filed Dec. 13, 1972, Ser. No. 314,839
Claims priority, application South Africa, Mar. 22, 1972, 72/1956
Int. Cl. G08b *21/00*; **B63c** *9/00*
U.S. Cl. 340—279 **13 Claims**

An alarm system for the safety of non-swimmers comprises a portable transmitter which is adapted to be attached to the body of the non-swimmer and to be activated on immersion in water, and a receiver adapted to operate an alarm on receiving

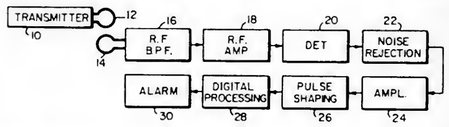


the transmitted signal. The transmitted signal is a mechanical wave having a frequency which is ultrasonic.

3,810,147
ELECTRONIC SECURITY SYSTEM

George Jay Lichtblau, Suite E. -12-D 425 E. 63rd St., New York, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,361
Int. Cl. G01s *9/56*
U.S. Cl. 340—280 **24 Claims**

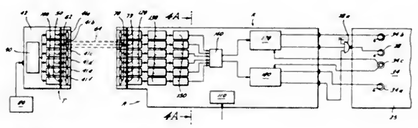


An electronic security system especially adapted for use in retail stores and employing a multi-frequency resonant tag circuit having distinct frequencies for detection and deactivation. A transmitting system provides an electromagnetic field within a controlled area at a frequency which is swept through a range including the detection frequency of the resonant circuit. In the presence of a tag circuit within the controlled area and operative at the detection frequency, pulses are detected by a receiver which includes noise rejection circuitry for discriminating true signals from noise. The receipt of a predetermined number of signal pulses within a prescribed interval of time causes an alarm actuation. The resonant circuit is formed by printed circuit techniques as a relatively small tag which can be affixed to an article of merchandise. The tag includes a fusible link integrally formed as part of the circuit and which can be fused upon application of an electromagnetic field of predetermined magnitude at the deactivation frequency of the resonant circuit. Deactivation of the tag destroys the resonant properties of the tag at the detection frequency such that a deactivated tag produces no alarm when passing through a controlled area.

3,810,148
ELECTRONIC LINE INDICATOR APPARATUS

Fred W. Karsten, Seabrook; James D. Evans, and Sam Lee Pool, both of Houston, all of Tex., assignors to Kewp, Inc., Houston, Tex.

Filed July 6, 1972, Ser. No. 269,468
Int. Cl. G08b *23/00*
U.S. Cl. 340—323 **17 Claims**

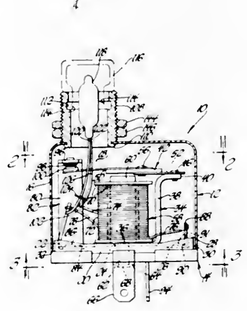


A new and improved indicator for detecting and indicating the intrusion or presence of objects on a line or boundary being monitored by officials or monitoring personnel, such as a boundary line at a sporting event or contest.

3,810,149
AUDIO-VISUAL SIGNAL DEVICE

Gerald K. Miller, and Norman A. Rautiola, both of Reed City, Mich., assignors to Nartron Corporation, Reed City, Mich.

Filed July 3, 1972, Ser. No. 268,665
Int. Cl. G08b *7/00*
U.S. Cl. 340—326 **9 Claims**

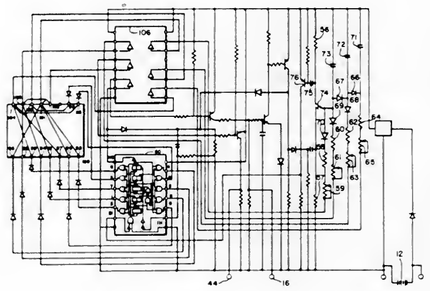


An audio-visual signal device has a housing containing a primary winding, a secondary winding, a make and break switch assembly responsive to the magnetic field generated in the primary winding and an electrical bulb energized in response to energy transfered from the primary winding to the secondary winding; audio signals are produced in response to the making and breaking of a circuit by the switch assembly.

3,810,150
NAVIGATIONAL LIGHT SYSTEM

Thomas A. Jacobs, Houston, Tex., assignor to Tideland Signal Corporation, Houston, Tex.

Division of Ser. No. 211,605, Dec. 23, 1971. This application Jan. 4, 1973, Ser. No. 320,966
Int. Cl. G08b *5/36*
U.S. Cl. 340—340 **2 Claims**

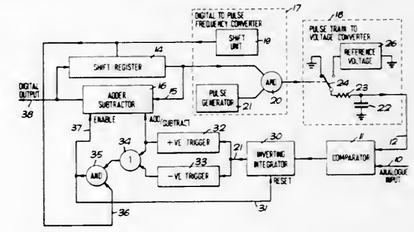


On and off times for a coded flashing navigational light are controlled by a unijunctional transistor timer having different time constant circuits which are individually connected to the transistor by a counter in a sequence determined by a wired code board.

3,810,151
ANALOGUE TO DIGITAL CONVERTERS

James Stewart Johnston, and David Frank Fellows, both of Bognor Regis, England, assignors to Rosemount Engineering Company Limited, Bognor Regis, England

Filed Aug. 23, 1972, Ser. No. 283,088
Claims priority, application Great Britain, Aug. 26, 1971, 40153/71
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 AD **12 Claims**

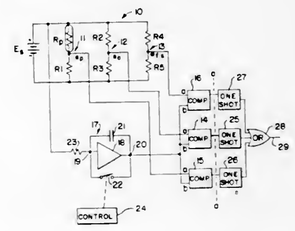


An analogue-to-digital converter comprises a digital storage means, a digital-to-pulse train converter converting the output of the digital storage means into a pulse train having a frequency representative of the digital number, a comparator comparing the pulse frequency with an analogue input voltage either by converting the pulse frequency into an analogue signal or the analogue input into a pulse frequency, and means responsive to the output of the comparator for periodically updating the number in said digital storage means.

3,810,152
METHOD AND APPARATUS FOR CONVERSION OF A VARIABLE RESISTANCE TO A TIME MODULATED SIGNAL AND FOR ANALOGUE RESTORATION

James A. White, N. Granby, Conn., assignor to Becton, Dickenson and Company, Rutherford, N.J.

Filed Oct. 13, 1972, Ser. No. 297,428
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 NT **15 Claims**



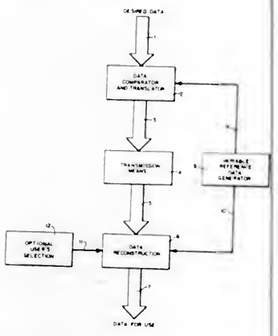
A variable unknown resistance representing any variable parameter which may be converted to a resistance is converted to a time modulated signal wherein a time interval representing the unknown resistance is measured along a time base from an initial time, against a second time interval representing a full scale also measured along the same time base from the same initial time so that the time interval representing the unknown resistance is proportional to the second time interval. An analogue restoration of the time interval representing the unknown resistance is obtained by comparing the full scale time interval to a reference voltage in a manner such that the ratio of the analogue voltage e_{OUT} representing the unknown resistance to the reference voltage e_{REF} is equal to the ratio of the time interval representing the unknown resistance to the full scale time interval. The time

modulated signal may be pulse position modulated or pulse width modulated with the same result being obtained using slightly different circuits. The method of the invention keeps the output independent of system variables.

3,810,153
DATA HANDLING SYSTEM

David Martin Ostfeld, 4802 Irogene, Houston, Tex., and Mauro Guiseppe Togneri, 7626 Westwind Ln., Houston, Tex.

Continuation of Ser. No. 849,287, Aug. 6, 1969, abandoned.
This application Jan. 3, 1972, Ser. No. 215,128
Int. Cl. H03k *13/00*; **H04j** *3/00*
U.S. Cl. 340—347 AD **15 Claims**

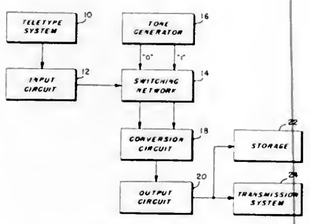


A data handling system wherein data usually in the form of voltage signals at data points or stations are compared to a transient reference variable, e.g., a linear ramp function of voltage against time, and the voltage data translated or encoded to the time reference data which is then transmitted, reconstructed and used, the system being generally illustrated (FIG. 1); the system is particularly applied to an analog data acquisition system (FIG. 2), a digital computer output system (FIG. 3) and a digital data handling system (FIG. 4), among others.

3,810,154
DIGITAL CODE TRANSLATOR APPARATUS

Bob B. Briant, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 10, 1972, Ser. No. 296,426
Int. Cl. H03k *13/00*; **H04l** *3/00*
U.S. Cl. 340—347 DD **7 Claims**

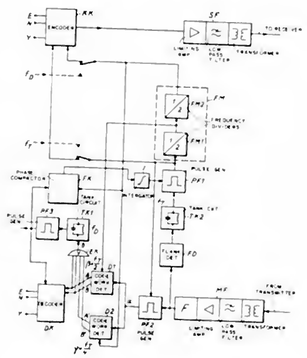


Apparatus for increasing substantially the amount of information that can be transferred by teletype communication systems in a given amount of time without additional increase in bandwidth, transmission facilities, or teletype system equipment. At a transmitting station, parallel, fixed-place digital-coded message characters are translated to serial, variable-place, digital-coded message characters. After reception at a remote station, the received characters are retranslated into output characters which are equivalent to the parallel, fixed-place characters transmitted. The conversion apparatus essentially comprises a switching network which produces in a novel manner digital representations of characters which are equivalent to the corresponding character to be translated.

3,810,155
METHOD AND APPARATUS FOR CODING A DATA FLOW CARRYING BINARY INFORMATION

Walter Herbert Erwin Widl, Bandhagen, and Stig Erik Karlsson, Skarholmen, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jan. 13, 1972, Ser. No. 217,610
Claims priority, application Sweden, Jan. 26, 1971, 875/71
Int. Cl. H04l *3/00*
U.S. Cl. 340—347 DD **8 Claims**



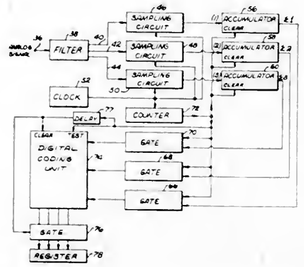
The present invention relates to a method of coding a data flow carrying binary information in a local transmission equipment. The data flow comprises two kinds of data signal elements and control signal elements, whereby an optional polarity on the line terminal of the transmission can be selected. The coding method uses four different binary code words 0101, 1010, 0011 and 1100, so that the first kind of the data elements corresponds to one of the code words 0101 or 1010 and the other kind of the code words corresponds to one of the code words 0011 and 1100. One or the other of the code words is selected so that more than two of the code words will not follow one another upon the coding of more than two data elements of the same kind.

3,810,156
SIGNAL IDENTIFICATION SYSTEM

Robert N. Goldman, 16661 Akron St., Pacific Palisades, Calif.

Continuation of Ser. No. 46,352, June 15, 1970, abandoned.
This application Apr. 5, 1972, Ser. No. 241,391
Int. Cl. H03k *13/18*
U.S. Cl. 340—347 AD **7 Claims**

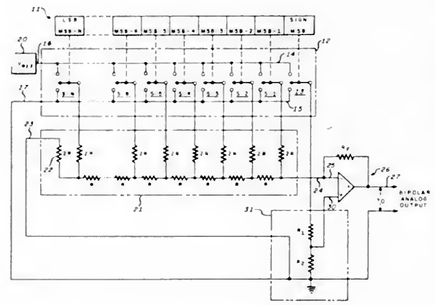
A system is disclosed for reducing analog signal patterns or sequences to concise digital representations for identification, as to recognize an audio signal, for example, manifesting a musical recording. In the system, audio (analog) signals are sampled for dissection into a plurality of values which are accumulated over a sampling interval to provide an aggregate value. Preliminary to such a sampling operation, the signal of interest may be frequency dissected into a plurality of individual signals which are sampled then summarized or totalled. The aggregate total numerical values are reduced to a representative form by encoding them in accordance with their relative significance. Operation over repeated sampling intervals affords an expanded basis for indentification and recognition.



3,810,157
BIPOLAR DIGITAL-TO-ANALOG CONVERTER

Frank H. Kallio, Anchorage, Alaska, assignor to Sperry Rand Corporation, New York, N.Y.

Filed Feb. 14, 1972, Ser. No. 225,794
Int. Cl. H03k *13/14*
U.S. Cl. 340—347 DA **6 Claims**

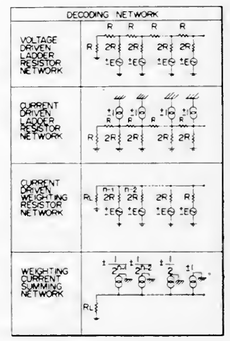


A digital-to-analog converter for transforming signed binary numbers to analog form comprises a plurality of single pole-double throw switches having first contacts commonly connected to a source of reference potential and second contacts commonly connected to ground potential. The positions of the wipers of the switches are controlled by the respective digits of the number to be converted. The wipers of the switches associated with the magnitude digits of the number to be converted are connected to an R-2R resistance ladder network. The output of the resistance ladder network is connected as an input to a differential amplifier capable of operating in an inverting or non-inverting mode. The other input of the differential amplifier is resistively coupled to the wiper of the switch associated with the sign digit of the number to be converted whereby the output of the differential amplifier provides an analog signal of polarity and magnitude representative of the signed binary number to be converted.

3,810,158
DECODING SYSTEM

Junzo Murakami, Kawasaki; Shigeo Asakawa, Tokyo, and Keiji Takeuchi, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Continuation of Ser. No. 859,879, Sept. 22, 1969. This application Dec. 16, 1971, Ser. No. 208,811
Claims priority, application Japan, July 9, 1968, 43-47534; Aug. 13, 1968, 43-57125; Aug. 13, 1968, 43-57126; Aug. 14, 1968, 43-57381; Oct. 26, 1968, 43-69116; Oct. 26, 1968, 43-69117
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 DA **5 Claims**

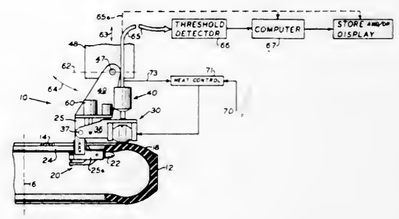


A decoding system comprising a network including a plurality of signal supply terminals respectively corresponding to individual digits in the form of binary code, a signal source generating electric signals of three different values in response to the most significant digit and each corresponding digit, said electric signals being selectively applied to the corresponding signal supply terminals by means of switching circuits.

3,810,159
APPARATUS AND METHOD TO EFFECT IR READING OF A RELIEF PATTERN

William L. Hinks, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 3, 1972, Ser. No. 240,620
Int. Cl. G06k *9/00*
U.S. Cl. 340—146.3 R **8 Claims**

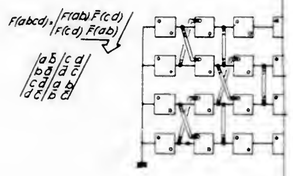


Reading of an identification pattern in relief to the surface area of a material is accomplished by creating a temperature difference between raised and recessed portions of the pattern. Either heating or cooling the inclosed area of the pattern by conduction provides emitted infrared radiation having energy levels indicative of the temperature of the raised and recessed areas. The radiation energy is detected by IR sensors that convert the radiation to electrical signals indicative of the relief pattern in the material. Output apparatus converts the sensor signals to an equivalent readout or display of the pattern.

3,810,160
SWITCHING MATRIX

Jean Hedde, 1, rue des Platenes, 91 Orsay, France

Filed Nov. 9, 1972, Ser. No. 305,061
Claims priority, application France, Nov. 16, 1971, 71.40895
Int. Cl. H04q *3/00*
U.S. Cl. 340—166 R **2 Claims**



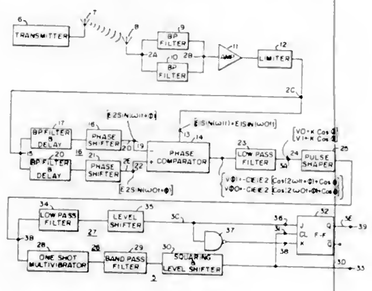
A switching matrix for realizing at least one or more transcoding function having a constant switching time-delay between different binary variables comprises an array of identical switching circuits disposed in the form of a matrix table having *n* lines and *m* columns. Each circuit comprises an input terminal C, an input terminal E of said applied binary variable, an output terminal L and an auxiliary output terminal S which supplies the complemented value of the value which appears at the output terminal L. Each succeeding circuit on a line has an input C coupled to the output L of the preceeding circuit which is located on the same line and each preceeding circuit on a line has an output L coupled to the input C of the following circuit which is located on the same line. The inputs C of the circuits of the first column are all connected to ground. Means for provide selected connections between different circuits through the intermediary of the terminals L, E and S and means are provided for applying said binary variables to said terminals E. The structure of each circuit is such as to have the following relations between the input and output values :

$$S = E \cdot \text{AND} \cdot C \text{ and } \overline{L} = \overline{S}.$$

3,810,161
APPARATUS FOR RECEIVING A FREQUENCY AND PHASE CODED VEHICLE CONTROL SIGNAL

Arun P. Sahasrabudhe, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 15, 1973, Ser. No. 341,647
Int. Cl. H04q *9/00*
U.S. Cl. 340—170 R **10 Claims**

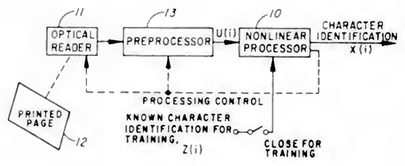


A vehicle control signal, for example a vehicle speed command, is binary coded wherein the message content is frequency coded such that a binary one indication is at a first frequency and a binary zero indication is a second frequency. Timing information is phase coded, such that a shift in phase of a binary indication is indicative of a change from one bit to the next of the vehicle control signal. The vehicle control signal is received and is then shifted in phase an angular amount ϕ. The received signal and the phase shifted signal are then multiplied together yielding a vehicle control signal proportional to Cos ϕ. For each sensed change of frequency, or in the absence of a change of frequency a shift of phase, a timing pulse is provided. The message content of the Cos ϕ signal is also sensed, the sensed message is synchronized with the timing pulses to provide a synchronized vehicle control signal.

3,810,162
NONLINEAR CLASSIFICATION RECOGNITION SYSTEM

William Steele Ewing, Jr., Dallas; Thomas Walter Ellis, Richardson, and William Clay Choate, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 1, 1970, Ser. No. 42,428
Int. Cl. G06f *15/18*
U.S. Cl. 340—172.5 **6 Claims**



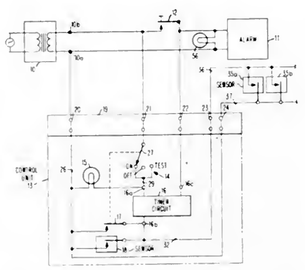
In a classification recognition system comprised of a trainable non-linear signal processor having at least one input signal U and one desired output signal Z applied thereto during training and at least one actual output signal X derived therefrom during execution, an improved subsystem is provided for selecting a proper output X according to some predetermined procedure when the processor has identified two or more of the desired output signals Z with the same input signal U during training. Generally, the signal processor stores the desired output signals in registers of a tree-allocated memory array wherein the allocation is determined by a particular input signal U during the training cycle. The subsystem is essentially comprised of an artificial extension of the tree-allocated memory array wherein different values of Z associated with the same input signal U are individually stored during training. In an execution cycle, one or more of such Z's may be selected to become the output X for an input U. In one embodiment of the invention only one of such Z's is selected according to a predetermined scheme whereby the most likely Z is selected to be the actual output X.

3,810,163
RESIDENTIAL ALARM SYSTEM

William A. Arnold, 20 Holmes Ave., and Roger E. Miller, R.D. No. 1, both of Apalachin, N.Y.

Filed July 26, 1972, Ser. No. 275,433
Int. Cl. G08b *23/00*
U.S. Cl. 340—310 R **3 Claims**

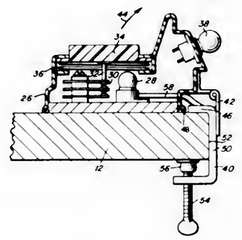
Alarm control apparatus for installation in parallel with an actuator switch for an already-installed power supply and annunciator arrangement, which is operable upon occurrence of a predetermined change in environmental conditions, to automatically and repetitively activate the annunciator. Use is made of existing equipment without interference with its normal function. The solid state alarm system permits attachment of a variable number of environmental sensors and is energized only upon activation of one or more of the sensors.



3,810,164
COMBINATION SIGNALLING AND ADVERTISING SYSTEM

Adelor A. Lambert, P.O. Box 427, Round Lake, Ill.

Filed Mar. 21, 1972, Ser. No. 236,751
Int. Cl. G08b *5/36*
U.S. Cl. 340—332 **3 Claims**



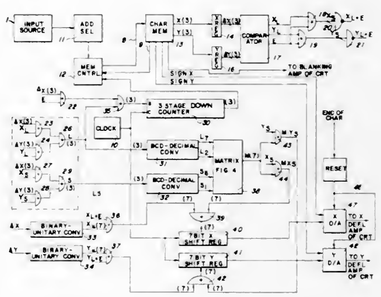
A combination signalling and advertising system comprising a plurality of switches mounted on a bar counter top or the like, each including a lamp actuated by positioning a drinking container on the switch, the switches being arranged in groups, corresponding to service areas, a master indicator including signal lamps each corresponding to a particular group of switches and actuatable by any switch of that group, and an advertising display associated with the master indicator and being enhanced thereby when the signal lamps are energized. Each switch is provided with a hinged mounting which permits it to be swung upwardly for easy cleaning of the counter top surfaces.

3,810,165
ELECTRONIC DISPLAY DEVICE

Jerome A. Rosenthal, Brighton, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 28, 1971, Ser. No. 212,922
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 A **6 Claims**

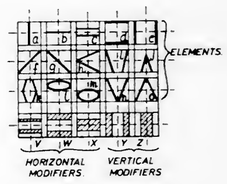
Apparatus for generating characters or symbols on the screen of a cathode ray tube by deflecting the electron beam along a predetermined path in accordance with signals derived from a character memory. When the deflection increments along the X and Y axes are equal, signals are generated in binary to unitary converters for input to X and Y shift registers which in turn generate bit streams to be applied to digital to analog converters. The bit streams are integrated in the digital to analog converters and strokes generated. The strokes are then applied to the deflection amplifiers of the cathode ray tube. When the deflection increments along the X and Y axes are unequal, the smaller increment is determined by a comparator circuit. The smaller and larger increments are then routed to binary to decimal converters and thereafter to a matrix circuit where signals are generated for application to the shift register having the smaller increments. In this mode of operation the larger increment is loaded into the shift register via a binary to unitary converter as in the case where the increments are equal.



3,810,166
ELECTRONIC CHARACTER GENERATING SYSTEMS

Laurence Walter Atkin, Richmond, England, assignor to Aston Electronic Developments Limited, Deepcut, Camberley Surrey, England

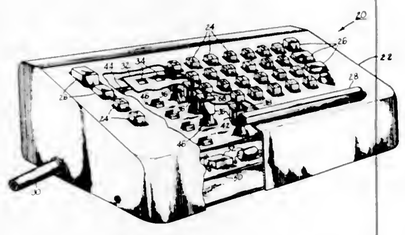
Filed May 4, 1973, Ser. No. 357,142
Claims priority, application Great Britain, May 5, 1972, 20983/72
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 AD **22 Claims**



An electronic system for generating characters for television display by employing selected combinations of analogue waveforms. Ramp waveforms, usually of sawtooth form, are generated at line and field periods and are used to generate in turn triangular and parabolic waveforms.

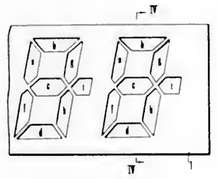
A memory contains data representing the shape of individual elements of characters for each quadrant of a display area and is actuated by a digital store. The memory serves to gate selected combinations of all the waveforms, together with blanking waveforms derived from the triangular waveforms, to synthesize a video character waveform. Means is provided for producing from the video character waveform a further video waveform, defining an area to outline the characters, which acts on a conventional video signal to hold the latter at the black level so that the video character waveform can be inserted thereon.

3,810,167
MAGNETIC KEYBOARD ENCODING DEVICE
Francis H. Shepard, Jr., Summit, N.J., assignor to Vogue Instrument Corporation, Plainview, N.Y.
Continuation-in-part of Ser. No. 724,767, April 29, 1968, Pat. No. 3,683,110. This application Sept. 1, 1971, Ser. No. 176,928
Int. Cl. H04l *15/06*
U.S. Cl. 340—365 **20 Claims**



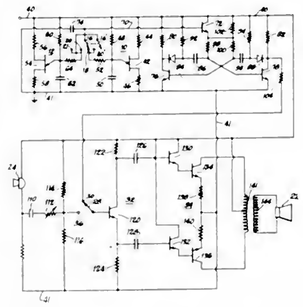
Each key in the encoding keyboard has a key module which, when assembled into the keyboard, forms a magnetic flux path around one or more conductors. A small permanent magnet is in the magnetic flux path. When the key lever is depressed, an air gap is formed in the flux path by movement of an armature. Then, the armature is snapped rapidly back into place so as to quickly close the air gap and, thereby, rapidly decrease the reluctance of the magnetic path and increase the flux flowing in the path. The flux suddenly stops changing abruptly when the armature suddenly stops as it returns to its rest position. That flux change induces voltage pulses in the conductors encircled by the flux path. The number of conductors passing through each flux path varies in accordance with a code. Means are provided for detecting the voltage pulses developed in the conductors to thereby digitally encode the character represented by the key. The conductors preferably are on a printed circuit board which includes one or more magnetic members which are used, when assembled with the key modules, to complete the magnetic paths for the keys.

3,810,168
LUMINOUS DISPLAY PANEL WITH GEOMETRIC SEGMENT MATRIX AND DIFFUSER PANEL
Rintaro Nishina, Yonezawa, Japan, assignor to Tamura Electric Works, Ltd., Tokyo, Japan
Filed Mar. 27, 1972, Ser. No. 238,063
Claims priority, application Japan, Mar. 31, 1971, 46-23100[U]
Int. Cl. G09f *9/34*
U.S. Cl. 340—383 **1 Claim**



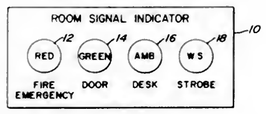
In a luminous display device of the type comprising a substrate, a plurality of depressions formed in one surface of the substrate, a plurality of lamps disposed in respective depressions and means for selectively lighting the lamps so as to display a selected pattern, there is provided a light diffusing layer convering the depressions.

3,810,169
ELECTRONIC SIREN SYSTEM
Philip F. Locke, 319 Highland Rd., Ithaca, N.Y.
Continuation of Ser. No. 884,828, Dec. 15, 1969, abandoned. This application May 15, 1972, Ser. No. 253,407
Int. Cl. G08b *3/10*
U.S. Cl. 340—384 R **9 Claims**



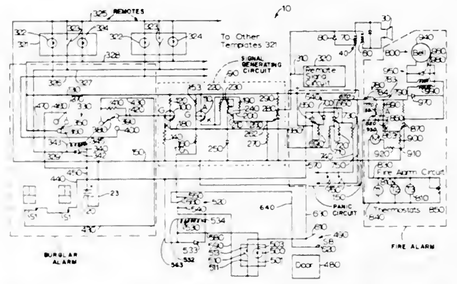
A siren system in which a sound producing transducer is coupled to a basic oscillating circuit through a push-pull amplifier and a semiconductor phase inverter. The basic oscillating circuit is modulated by a relaxation oscillator. A semi-conductor device, which acts as a variable resistance, is connected in a resistance-capacitance circuit of the basic oscillating circuit and is coupled to the relaxation oscillator.

3,810,170
ALARM SYSTEM
Roland F. Zinsmeister, 26 E. Park Rd., Pittsford, N.Y.
Filed Oct. 5, 1972, Ser. No. 295,241
Int. Cl. G08b *23/00, 17/00*
U.S. Cl. 340—420 **12 Claims**



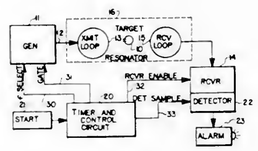
A visual signalling system which provides for visual signalling of deaf persons is described. The system is installed in the sleeping rooms, corridors, rest rooms, and other areas of a building which may be occupied by deaf persons. A signalling panel in each room contains a plurality of lights including a high intensity strobe lamp. Electrical control circuits for the lamps include an emergency and fire warning circuit and attention circuits. These circuits repeatedly operate the strobe lamp, and in the case of the fire and emergency circuits, override all other circuits to operate the strobe lamp. In addition, another of the lamps, which has a distinguishing color or other label, indicates the fire or emergency condition. Thus, through the use of the strobe lamps the attention of the deaf persons is obtained, and when these persons observe the other lamps, they are informed of the nature of the call, whether it be fire or other emergency condition, or visitors, or some other signalling condition.

3,810,171
COMBINATION BURGLAR ALARM AND FIRE ALARM SYSTEM
Howard C. Schubert, Leonia, N.J., assignor to Aerolite Electronics Corporation, Union City, N.J.
Filed Aug. 21, 1972, Ser. No. 282,245
Int. Cl. G08b *23/00*
U.S. Cl. 340—420 **11 Claims**



The system includes fire alarm and burglar alarm portions and a common power supply therefor. The burglar alarm portion includes (1) alarm sensors and an alarm circuit for generating signals in response to the operation thereof; (2) a "panic" portion, operable by an individual anywhere in the premises protected, and connected to the alarm circuit and operable thereby whether power is directly connected thereto or not; and (3) status lights and power switch combinations dispersed throughout the premises to display the status of the system. The fire alarm portion includes sensors dispersed throughout the premises and an alarm signal generating circuit.

3,810,172
DETECTION SYSTEM
Lee E. Burpee, 77 N. Castle Cir., and Donald A. Paynter, 5944 Via Lemora, both of Goleta, Calif.
Filed July 18, 1972, Ser. No. 272,831
Int. Cl. G01s *9/02*
U.S. Cl. 343—5 PD **13 Claims**

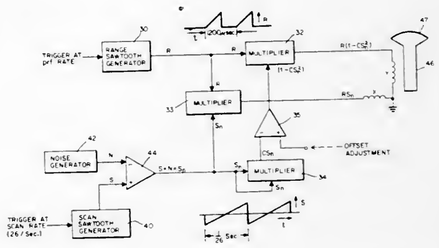


A system for detecting the presence of resonant circuit targets in a field of electromagnetic radiation. The system includes means for generating a burst of a predetermined single frequency and a detector enabled after the termination of transmission. The detector is sensitive to continued presence of the predetermined frequency indicative of resonant ringing of a target in the field. Time sharing of a common transmitter and detector is accomplished employing a time division multiplex arrangement.

Counterfeit target detection is also accomplished employing a test fixture with valid and invalid target indicators controlled by the system.

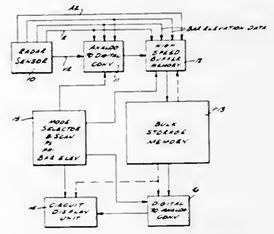
In one embodiment, the antenna means is positioned in obstructions or doors which are moved aside by a person passing through the portal. This provides close coupling of energy and the system is provided with an enabling switch operated by displacement of the obstruction or door.

3,810,173
PPI DISPLAY SYSTEM WITH DEFLECTION MODULATION TO REDUCE SPOKING
George M. Kirkpatrick, North Syracuse, N.Y., assignor to Syracuse University Research Corporation, Syracuse, N.Y.
Filed Nov. 30, 1972, Ser. No. 310,682
Int. Cl. G01s *7/12*
U.S. Cl. 343—5 R **13 Claims**



A PPI display system representing slant range and azimuth angle corresponding to a given number of beam positions, having a noise source modulation circuit for modulating the scanning signal to cause random lateral deflection, and a long persistence display tube for providing video integration of such random deflections to reduce display spoking and provide a uniform PPI appearance.

3,810,174
DIGITAL SCAN CONVERTER
James L. Heard; William C. Hoffman, both of Torrance, and Eugene W. Opittek, Tustin, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Nov. 28, 1969, Ser. No. 880,630
Int. Cl. G01s *7/44, 9/02*
U.S. Cl. 343—5 DP **28 Claims**

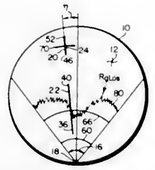


A digital system is disclosed for conversion of data rates inherent in various scanning patterns to different rates for display. A buffer memory is employed to accumulate blocks of data pertaining to successive scanning lines in a rectilinear or polar coordinate scanning pattern. The data is transferred in blocks to a bulk storage memory from which it is read cyclically for display. Different scanning and display patterns are accommodated through mode control switches. In multi-bar-elevation radar scanning modes, detection of targets is augmented by storing for simultaneous display a plurality of past frame histories or by storing an intensity value in binary code for a target return and decreasing it in uniform steps during successive scanning cycles during which a target return is not received from the same range element until it reaches a level of zero.

3,810,175
ALONG TRACK TERRAIN AVOIDANCE CONTOURING SYSTEM

William H. Bell, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Jan. 17, 1972, Ser. No. 218,217
Int. Cl. G01s 9/06, 9/52
U.S. Cl. 343—7 TA 4 Claims

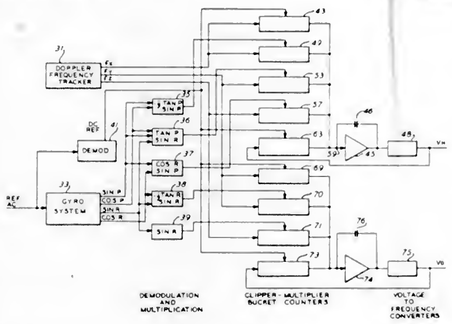


A terrain clearance or following system that provides terrain clearance information in depth from large elevation depression angles out along the projected aircraft ground track to the horizon. The aircraft projected ground track is displayed on a cathode ray tube by a heavy along track line and the intersection of the aircraft velocity vector with the terrain is displayed by the intersection of the along track line and a flight path reference line. The range to the top of a first hill is displayed at the end of a first segment of the along track line and the distance across the valley between first and second hills is displayed as a blank space between the first and a second segment of the along track line. The range to the top of succeeding hills is displayed by additional segments of the along track line. This system operates with simultaneous display of a radar line of sight range line and a terrain clearance reference line representing an imaginary clearance plane at a selected distance below the aircraft. A down look reference line representing the range to the clearance plane at the maximum depression angle may also be displayed.

3,810,176
ROLL AND PITCH CORRECTION FOR A FIXED-ANTENNA DOPPLER SYSTEM

John Gray, Guilford, Conn., assignor to The Singer Company, Little Falls, N.J.

Filed Dec. 18, 1972, Ser. No. 316,104
Int. Cl. G01s 9/48
U.S. Cl. 343—8 22 Claims

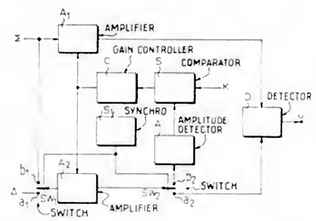


Apparatus to correct the signals obtained from a fixed antenna doppler navigation system, which will be in terms of body axes velocities, to take into account the pitch and roll of the aircraft in which the system is installed to thereby provide corrected signals representing ground velocity components is shown. The equations expressing the transformation from body axis velocities to ground velocities are solved using a plurality of clipper-multiplier bucket counter units to perform the required multiplications of the aircraft body axes components, expressed as frequencies, by functions of pitch and roll expressed as DC voltages to obtain the terms in the equations. The DC voltages proportional to functions of pitch and roll are obtained by demodulating 400 HZ sine and cosine signals available in the aircraft. Also shown is a multiplying demodulator and sampling multiplying dividing apparatus used in simplifying the computations of the pitch and roll functions used in the equations.

3,810,177
MONOPULSE RADAR RECEIVER

Remy Tabourier, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Sept. 29, 1972, Ser. No. 293,539
Claims priority, application France, Oct. 1, 1971, 71.35478
Int. Cl. G01s 9/22
U.S. Cl. 343—16 M 7 Claims

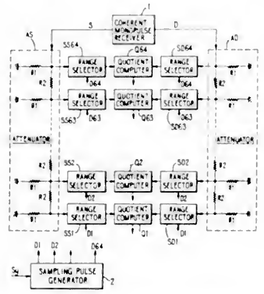


The present invention relates to the receivers used in multibeam, recurrent pulse ranging systems. In accordance with the invention, in a receiver comprising two variable-gain amplifiers, one of which is for the sum signal Σ and the other for the difference signal Δ, it is arranged that with one recurrence among a plurality thereof, the sum signal is supplied to the difference amplifier and the gain control device AGC is then supplied with the sum signal from the output of that amplifier. The synchronous demodulator D supplies the signal K .Δ/Σ independent of the respective gains of the sum and difference amplifiers K being the reference AGC value.

3,810,178
RANGE-CONTROLLED VARIABLE GAIN DEVICE FOR PULSE RADAR RECEIVER

Robert Basard, Meudon, and Michel R. J. Dalbera, Chatillon sur Bagneux, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,244
Claims priority, application France, Nov. 29, 1971, 71.42640
Int. Cl. G01s 9/22, 7/34
U.S. Cl. 343—16 M 7 Claims



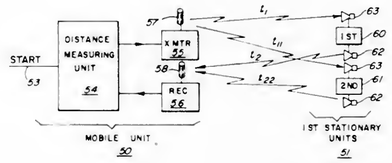
A coherent monopulse radar receiving system with discrete-step sensitivity-time control. The video signals of each channel

(sum and difference) are fed to separate ladder attenuators each having n sections or stages. The n outputs of those attenuators provide the inputs to the range selectors of the system which are also separate for sum and difference channels. The result is a step-like attenuation curve approximating the theoretical curve ($1/r^4$). A variation shown involves grouping of range selectors to obtain broader approximation. In either embodiment the equality of sum and difference channel gains is maintained to a high degree of accuracy.

3,810,179
RADAR TRILATERALIZATION POSITION LOCATORS

James W. Merrick, El Paso, Tex., assignor to Del Norte Technology, Inc., El Paso, Tex.

Filed Nov. 4, 1971, Ser. No. 195,687
Int. Cl. G01s 9/56
U.S. Cl. 343—6.5 LC 10 Claims

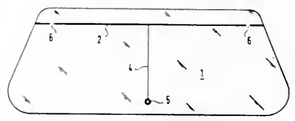


A radar position locator system uses a mobile and at least two stationary transceivers. The stationary transceivers function somewhat as a surveyor's bench mark system where a transceiver at each end serves to locate the ends of a previously surveyed line; this line then becomes a survey baseline. Each transceiver is individually identified by a coded stream of radar pulses, as, for example, a stream of pulses transmitted at a predetermined transceiver identifying pulse repetition rate. A selected number of validated radar signals are transmitted between the mobile and stationary transceivers. The round trip transmission times of several of these signals are averaged, and a digital read out indicates the distance represented by such averaging.

3,810,180
MOTOR VEHICLE WINDSHIELD WITH INCORPORATED ANTENNA

Heinz Kunert, Cologne; Heinz Moebs, Herzogenrath, and Gerd Sauer, Broichweiden, all of Germany, assignors to Saint-Gobain Industries, Neuilly-sur-Seine, France

Filed May 14, 1971, Ser. No. 143,558
Claims priority, application Germany, May 15, 1970, 2023823
Int. Cl. H01q 1/32
U.S. Cl. 343—713 1 Claim

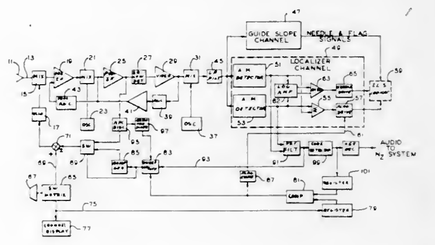


A window or the like, such as the windshield of an automotive vehicle, comprising electrically conductive lines constituting an antenna for receiving electric waves from space.

3,810,181
LOW COST GUIDANCE RECEIVER

Peter R. Tierney, Briar Cliff Manor; Arthur F. Lohman, Pleasantville, and Donald M. Andrus, Lincolndale, all of N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed Jan. 2, 1973, Ser. No. 320,376
Int. Cl. G01s 1/16
U.S. Cl. 343—108 R 18 Claims

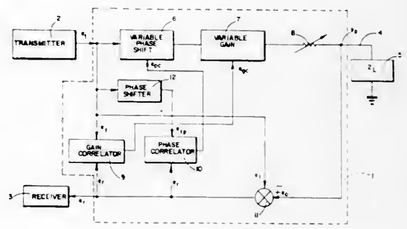


A low cost airborne set for a microwave landing system in which a voltage controlled oscillator only accurate to within two channels is used for tuning. The oscillator, after selection of a desired channel on the control panel is scanned by a ramp voltage and, upon receiving a proper microwave signal, an AFC loop closed to hold the signal. The beams of the transmitter are switched at a variable rate to transmit a Morse Code identifying number which is decoded upon receipt and compared with the selected channel number. If a comparison results, the AFC remains in and the instruments are enabled. If the wrong station is being received, the AFC is removed and scanning resumed until the next signal is received and the process repeated until the proper channel is obtained.

3,810,182
ADAPTIVE ELECTRONIC HYBRID TRANSFORMER

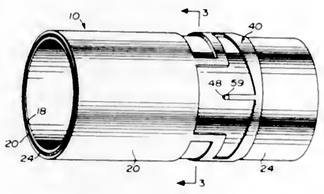
Stanley A. White, Yorba Linda, and Hubert L. Raper, Fullerton, both of Calif., assignors to North American Rockwell Corporation, El Segundo, Calif.

Filed Aug. 12, 1971, Ser. No. 171,082
Int. Cl. H04l 5/00
U.S. Cl. 343—180 9 Claims



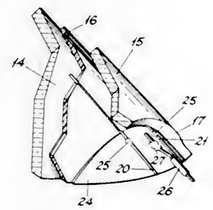
The circuit is interposed between the transmitter and the receiver at one end of the transmission channel and correlates signals in a transmission channel with signals from the transmitter to adjust the gain and phase shift of the signal from the transmitter until the signal component in the transmission channel from the transmitter is filtered from the transmission channel signal so that only the receiver signal component is passed into the receiver.

3,810,183
DUAL SLOT ANTENNA DEVICE
Jack K. Krutsinger; Carl N. Bullai, and Robert E. Munson, all of Boulder, Colo., assignors to Ball Brothers Research Corporation, Boulder, Calif.
Filed Dec. 18, 1970, Ser. No. 99,481
Int. Cl. H01q 13/10
U.S. Cl. 343—708 4 Claims



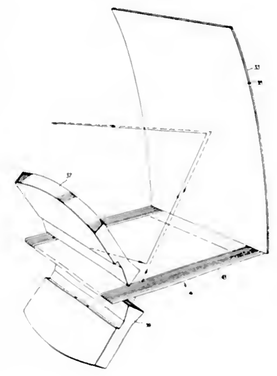
A dual slot antenna assembly is disclosed herein and generally includes a pair of concentrically positioned and radially spaced cylindrical conductors defining a pair of circumferential slots which are longitudinally spaced one-half wavelength apart at the anticipated operating frequency of the antenna device. An electrical signal feed assembly is connected with the conductors for exciting the slots so as to provide overlaping radiation patterns emanating in the same direction.

3,810,184
LAMINATED WINDSHIELD WITH BUILT-IN ANTENNA
James H. Boicey; Paul T. Mattimore, and Otto J. Schmoeger, Jr., all of Toledo, Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio
Continuation of Ser. No. 814,896, April 10, 1969, abandoned. This application Feb. 17, 1972, Ser. No. 227,641
Int. Cl. H01q 1/32
U.S. Cl. 343—713 7 Claims



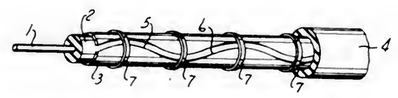
An automobile windshield of laminated glass having an indentation in the lower edge of one of the glass sheets, an antenna carried by the plastic interlayer and made up of fine wire elements that include horizontally extending elements and vertical elements that extend from the horizontal elements toward the bottom of the windshield, and a tinned metal plate also carried by the interlayer in alignment with the indentation in the glass sheet for connecting the antenna to the car radio.

3,810,185
DUAL POLARIZED CYLINDRICAL REFLECTOR ANTENNA SYSTEM
Ernest J. Wilkinson, Sudbury, Mass., assignor to Communications Satellite Corporation, Washington, D.C.
Filed May 26, 1972, Ser. No. 257,094
Int. Cl. H01s 19/00
U.S. Cl. 343—756 16 Claims



A dual polarization antenna system comprising a cylindrical reflector having a parabolic cross section. The cylindrical reflector simultaneously collimates energy directed from a vertically polarized and a horizontally polarized line source, both of which are offset from the cylindrical reflector to avoid aperture blockage. A folded pill box may be used for each of the line sources.

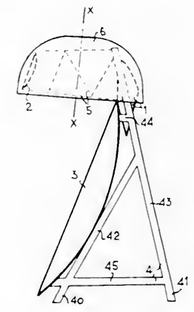
3,810,186
LEAKY COAXIAL CABLE
Tsuneo Nakahara, Nishinomiya; Noritaka Kurauchi, Suita, and Tachiro Nagao, Osaka, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Continuation of Ser. No. 701,983, Jan. 31, 1968, abandoned. This application Feb. 17, 1971, Ser. No. 116,245
Int. Cl. H01q 13/10
U.S. Cl. 343—771 8 Claims



This invention provides a leaky coaxial cable suitable for vehicle communication. The leaky coaxial cable of this invention has on the surface of its outer conductor a number of slots which are positioned zigzag at a cycle approaching λg/2 (λg: guide wave-length of the coaxial cable) and leaks a part of the electromagnetic energy propagating in the coaxial cable in the form a vertical polarized wave through the slots.

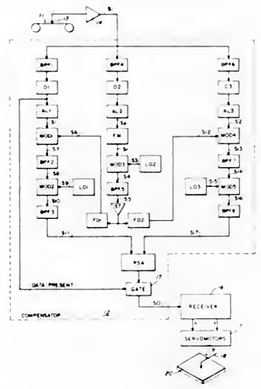
This invention further provides a method of manufacturing such a leaky coaxial cable and a vehicle communication system using such a leaky coaxial cable.

3,810,187
CAPPED ANTENNA OF THE OFFSET CASSEGRAINIAN TYPE
Nhu Bui Hai, Paris, France, assignor to Thomson-CSF, Paris, France
Filed Apr. 18, 1973, Ser. No. 352,332
Claims priority, application France, Apr. 21, 1972, 72.14251
Int. Cl. H01q 19/14
U.S. Cl. 343—781 4 Claims



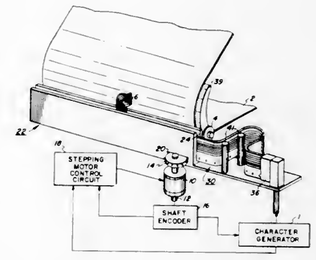
In this antenna, the auxiliary reflector and the aperture of the primary source are located above the main reflector. A cap having a metal layer and an inner absorbent layer covers and surrounds the aperture of the primary source and the whole of the auxiliary reflector. In addition to its radioelectric function, the cap thus also plays the part of a radome.

3,810,188
FREQUENCY DEVIATION COMPENSATION SYSTEM
T. A. O. Gross, Lincoln, and Stewart W. Wilson, Concord, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Oct. 2, 1972, Ser. No. 294,316
Int. Cl. G11b 31/00
U.S. Cl. 346—33 MC 19 Claims



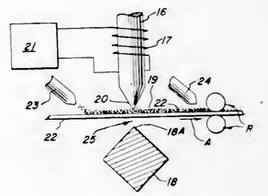
A compensation system for reducing the effects of frequency deviations, produced by wow and flutter, for example, in recorded signals. The information signals are recorded together with a signal at a pilot frequency. In reproduction, signals derived from the information and pilot signals are cross-modulated to substantially diminish the frequency deviations experienced as a result of relative differences in recording and playback speeds.

3,810,189
PRINTING APPARATUS EMPLOYING STEPPING MOTOR CONTROL SYSTEM
John H. Casperson, and George N. Tsilibes, both of Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed July 3, 1972, Ser. No. 268,354
Int. Cl. G01d 15/06
U.S. Cl. 346—74 ES 9 Claims



A stepping motor control system for controlling the bi-directional movement of a plurality of styli across a recording medium. The control system includes a feedback path for energizing selected styli at predetermined intervals whereby substantially distortion free characters are printed on the recording medium. The styli, in a preferred embodiment, are etched on a strip of insulating material and driven by the stepping motor within a slotted support member.

3,810,190
MAGNETIC THROUGH-FIELD APPARATUS AND PROCESS FOR PRINTING BY IMBEDDING PARTICLES IN A RECORD MEDIUM
Alfred F. Leatherman, Columbus, Ohio, assignor to William C. Heller, Jr., Milwaukee, Wis.
Continuation-in-part of Ser. No. 67,810, Aug. 28, 1970, abandoned, and a continuation-in-part of Ser. No. 506,960, Nov. 9, 1965, Pat. No. 3,526,708. This application Feb. 4, 1972, Ser. No. 223,534
Int. Cl. G01d 15/12
U.S. Cl. 346—74 MP 26 Claims

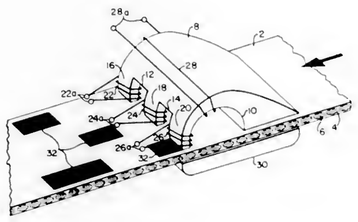


A printing method and apparatus employs a high frequency magnetic through-field of high strength for effecting lodging of magnetic particles on a record medium. The control or shape determining field pole is located on the same side of the record medium as the toner.

3,810,191
MULTI-STYLUS THROUGH FIELD RECORDING HEAD

Norman L. Stauffer, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 26, 1972, Ser. No. 300,961
Int. Cl. G11b *5/22*; **G01d** *15/12*
U.S. Cl. 346—74 MC **5 Claims**

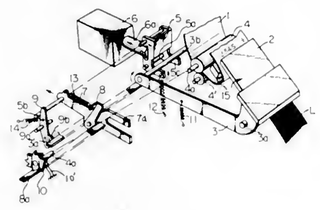


A magnetic recording head for recording on a magnetically responsive recording medium is arranged to incorporate a core structure of high magnetic retentivity material with individual core members being magnetized by a respective winding to produce a magnetic flux through the magnetically responsive recording medium. A flux return path is arranged to distribute the magnetic flux in the return path to a flux density level which is ineffective to produce a recording on a recording medium and is arranged to provide a flux return path on the other side of the recording medium from the magnetic recording head. A common bias and reset winding is arranged on the core structure and is separately energized to normally bias the core structure to a magnetic state which is ineffective to produce a recording on the recording medium during the absence of a signal on the individual windings on the core members and to reset the core structure to a non-recording state after the core members have been placed in a recording state by a signal applied to the respective windings on the core members.

3,810,192
THERMOSENSITIVE LINE PRINTER

Katsuhiko Okabe, Tokorozawa, Japan, assignor to Kabushikikaisha Copal, Tokyo, Japan

Filed June 21, 1973, Ser. No. 372,109
Claims priority, application Japan, June 29, 1972, 47-76883
Int. Cl. G01d *15/24*
U.S. Cl. 346—79 **4 Claims**

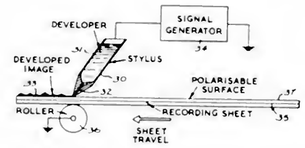


The thermosensitive line printer has a printing head provided with a thermally activated dot-matrix capable of printing a line of letters on a thermosensitive recording sheet upon receipt of a signal from the printer, a head receiving pad and a sheet feeding mechanism provided with a ratchet. In order to operate in succession the printing head for moving the same toward the pad for the printing operation and moving away from the pad for feeding the sheet and the sheet feeding mechanism for feeding the sheet intermittently while the printing head is held apart from the pad, a single electromagnet is operatively connected to a driving lever for reciprocal movement thereof each time the electromagnet is energized which lever is in turn operatively connected to a head supporting lever, a ratchet driving lever and a hook lever so that, upon application of a signal to the electromagnet, the driving lever is actuated to drive the head supporting lever, the ratchet driving lever and the hook lever in timed relation so that the printing operation is effected during the head is urged against the pad and, after the head is moved apart from the pad and temporarily held in that position by the hook lever, and, after the deenergization of the electromagnet, the driving lever is returned to its initial position so that the ratchet is driven by the ratchet driving lever to feed the sheet while the head is held apart from the pad and, at the end of the return movement of the driving lever, the hook lever is released to free the head supporting lever to urge the head against the pad so as to be ready for the next line printing.

3,810,193
BITTING CARD FOR DATA RECORDING

Kenneth A. Metcalfe, and Ian E. Smith, both of Lockleys, Australia, assignors to The Commonwealth of Australia, c/o The Secretary, Department of Supply, Canberra, Australia

Filed Sept. 30, 1969, Ser. No. 862,417
Claims priority, application Australia, Sept. 30, 1968, 44093/68
Int. Cl. B41m *5/20*; **B44d** *1/18*; **G03g** *13/10*
U.S. Cl. 346—74 ES **1 Claim**



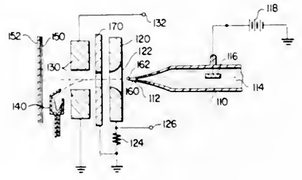
A method of data recording on bitting cards or sheets or other material which consists in traversing the material with a recording element on which is impressed an electrical signal which does not exceed 70 volts, the surface on which the recording takes place having a bulk resistivity not exceeding 10^{16} ohm cm.^{2} whereby to avoid holding of unwanted electrical characteristics on the sheet and whereby recording takes place without corona or gas effects present when high voltage is used, and then developing the resultant image to produce a permanent recoverable record of the impressed signal.

3,810,194
LIQUID JET PRINTER HAVING A DROPLET DETECTING DEVICE

Kazuyoshi Tokunaga; Takahiro Yamada, both of Hitachi; Tetuo Doi, Tokyo, and Tetsuo Takahashi, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 25, 1973, Ser. No. 372,902
Claims priority, application Japan, June 23, 1972, 47-62365
Int. Cl. G01d *15/18*
U.S. Cl. 346—75 **12 Claims**

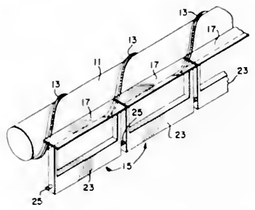
An ink jet printer includes a device for generating a pulse in response to a droplet formation or movement, in order to synchronize the operation of a deflection means or a pattern generating means of the ink jet printer with the pulse from the droplet detecting means. The ink droplet detecting means has an electro-conductive plate, which can be used as an accelerating electrode, and a resistor through which the electro-conductive plate is connected to a voltage supply for applying a voltage between the ink to be issued out and the electro-conductive plate.



3,810,195
HELICAL BAR PRINTER LOGIC CIRCUITRY

Henry P. Kilroy, Smithtown, and Harold J. Murphy, Centerport, both of N.Y., assignors to Potter Instrument Company, Inc., Plainview, N.Y.

Continuation of Ser. No. 39,404, May 21, 1970, abandoned.
This application Aug. 28, 1972, Ser. No. 284,274
Int. Cl. G01d *9/42*
U.S. Cl. 346—101 **8 Claims**



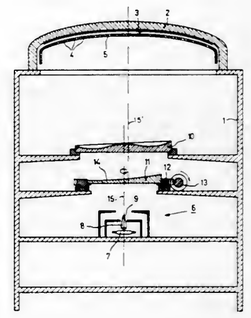
In a printer which selectively prints in response to binary coded input character signals, a plurality of rigidly supported, lightweight blades repeatedly strike a continuously rotating helical bar, printing dot patterns. A movable, lightweight coil fixed to each blade respectively and disposed in a magnetic field drives the blade. Logic circuits, which control the hammers to print alphanumeric characters, include a read only memory which stores binary signal sets representing dot patterns to be printed in rows to compose alphanumeric characters. In response to the received binary characters, addresses in the read only memory are selected to compose the corresponding alphanumeric characters. The binary signal sets at the selected addresses are read out to shift registers, one corresponding to each hammer. The signals in the shift register are read serially out of the shift registers and control actuation of the corresponding hammers as they are read out.

3,810,196
EXPOSURE DEVICE FOR MANUFACTURING A DISPLAY SCREEN OF A COLOUR TELEVISION PICTURE TUBE, COMPRISING A ROTATING LENS

Piet Gerard Joseph Barten, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 25, 1972, Ser. No. 247,280
Claims priority, application Netherlands, May 14, 1971, 7106619
Int. Cl. G03b *27/00*
U.S. Cl. 95—1 R **4 Claims**

An exposure device for display screens having either a rotationally symmetric lens, a plane parallel plate or a prismatic plate that rotates during the exposure operation of the device to provide exposed dots on the screen that are of smaller dimensions than the apertures in the mask employed.



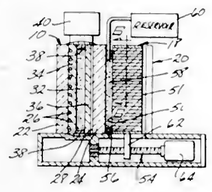
3,810,197
METHOD AND SYSTEM FOR INTER-CHARACTER SPACE MODIFICATION TO ADJUST THE LENGTH OF A LINE OF COPY TO FIT AN ALLOTTED LINE LENGTH

John G. Piccone, Pleasanton, Calif., assignor to The Singer Company, New York, N.Y.

Filed June 2, 1972, Ser. No. 259,163
Int. Cl. B41b *21/36*
U.S. Cl. 95—4.5 **8 Claims**

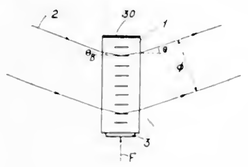
A method and system particularly adapted for use by phototypesetting machines for adjusting the length of a line of copy to fit a line length allotted for such copy by changing intercharacter spacing of the words in the copy. This fine control of copy line length is provided by changing intercharacter spacing of the words of the copy when a coarse control has been provided by the approximate harmony of the point size of the characters to be used, the allotted line length, and the line length of the copy. Initially, the length of the line of copy is determined with normal inter-character and inter-word spacing without setting the copy. Then the difference between this length and the allotted line length is converted into the amount of linear distance which is to be added to each character or to be subtracted from each character space in the line of copy. The line of copy is then set on a photosensitive medium by the phototypesetter with constant predetermined linear distance subtracted or added to each character space of the line of copy so as to precisely adjust the length of the copy line to fit the allotted line length. A particular font arrangement is utilized in the system to generate data related to the linear space allotted for each character in the line of copy.

3,810,198
DATA PRINTER
Harold E. Camp, Toledo, Ohio, and John D. Grier, Bridgeton, N.J., assignors to Owens-Illinois, Inc., Toledo, Ohio
Division of Ser. No. 574, Jan. 5, 1970, Pat. No. 3,749,487. This application Apr. 9, 1973, Ser. No. 349,025
Int. Cl. B41b *21/14*
U.S. Cl. 95—4.5 **2 Claims**



A visual data handling system incorporating a visual display device to provide an illuminated display of data. A print-through device utilizing a matrix of light conducting elements transfers the illuminated display of data to a light responsive type printer. This illumination transfer can be selectively interrupted by a turn-off mechanism, which does this by maneuvering the print-through device. Also, the light conducting elements can incorporate lasing devices to intensify the illumination.

3,810,199
HIGH SPEED OPTICAL PRINTER
Roger J. Torguet, Paris, France, assignor to Thomson-CSF, Paris, France
Continuation of Ser. No. 129,343, March 30, 1971, abandoned. This application Nov. 20, 1972, Ser. No. 307,831
Claims priority, application France, Apr. 1, 1970, 70.11705
Int. Cl. B41b *21/26*
U.S. Cl. 95—4.5 **7 Claims**

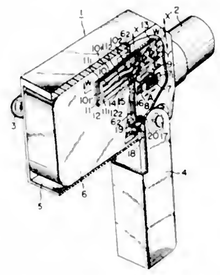


The invention relates to optical printers for printing onto a photosensitive substrate a succession of characters arranged in parallel lines.

The optical printer according to the invention comprises a matrix of radiant energy sources capable of forming planar patterns representative of the characters to be printed; the pencils of radiant energy emerging from the matrix are transmitted toward the substrate across an afocal optical system wherein an acousto optical deviator element is positioned.

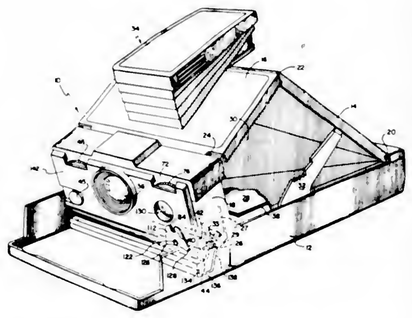
3,810,200
PHOTOGRAPHIC CAMERA HAVING AN AUTOMATIC EXPOSURE ELEMENT SETTING DEVICE
Keiichi Sakaguchi, and Noritsugu Hirata, both of Yokohama, Japan, assignors to Cannon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 16, 1972, Ser. No. 307,040
Int. Cl. G01j *1/04*; G03b *17/26*
U.S. Cl. 95—31 FS **11 Claims**

A camera loadable with a notched magazine is provided with a loading chamber including a pair of opposed side walls. A plurality of mutually insulated, substantially parallel sensing electrodes are mounted on one of the side walls. The sensing electrodes are biased transversely toward the other side wall for contacting the notched surface of the magazine when the latter is loaded into the chamber, thereby completing a selected switching path to the exposure control circuit of the



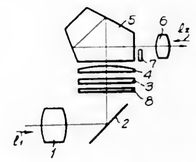
camera in accordance with the film sensitivity coded into the notch geometry. The cumulative transverse biasing force applied to the notched wall of the magazine by all of the sensing electrodes retains the camera in operating position against the opposite chamber wall at the same time that the sensing electrode selected by the notch geometry completes the required path to the exposure control circuit.

3,810,201
AUTOMATIC RETURN MECHANISM FOR MANUALLY ADJUSTABLE TRIM ASSEMBLY
Edwin H. Land, Cambridge, and Lawrence M. Douglas, South Easton, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Continuation-in-part of Ser. No. 168,672, Aug. 3, 1971, abandoned. This application Apr. 24, 1972, Ser. No. 246,851
Int. Cl. G03b *19/02, 17/04, 17/18*
U.S. Cl. 95—10 C **38 Claims**



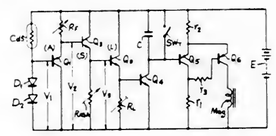
An automatic return mechanism for a manually adjustable trim assembly is provided for use in conjunction with a camera having an automatic exposure control system. In the preferred embodiment of the present invention, the camera is foldable and includes a number of housing members interconnected for mutual movement between an erected configuration and a folded configuration for convenient carrying and storage. The automatic return mechanism is disposed within one of the housing members and operates in response to return of the camera into its folded configuration.

3,810,202
LIGHT-MEASURING METHOD AND STRUCTURE FOR CAMERAS
Naoyuki Uno, Kawagoe-shi, and Tadazumi Sakazaki, Tokyo, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Nov. 27, 1972, Ser. No. 309,779
Claims priority, application Japan, Dec. 1, 1971, 46-97499
Int. Cl. G03b *7/08*
U.S. Cl. 95—10 CT **11 Claims**



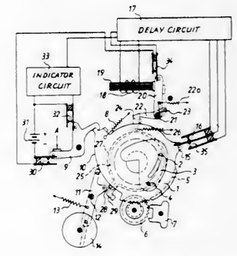
A method and structure for measuring the light travelling through the objective of a single lens reflex camera. A photosensitive unit is situated adjacent a viewfinder of the camera for receiving not only light which travels along a first path through the objective of the camera but also light which travels along a second path through the eyepiece of the viewfinder. The light which travels along one of these paths is treated by being subjected to the action of a light-chopper, so that the photosensitive unit provides an AC signal from the chopped light and a DC signal from the light which is not chopped. These two signals are superimposed and the superimposed signals are subjected to the action of a suitable filter which extracts from the superimposed signals only the light travelling through the objective. Also, it is possible for the AC signal to be rectified and then to achieve the signal corresponding to the light travelling through the objective by subjecting the rectified AC signal and the remaining DC signal to the action of a differential amplifier.

3,810,203
ELECTRICAL CONTROLS FOR CAMERA SHUTTERS
Chiharu Mori, 1, Oyama-cho, Itabashi-ku, Tokyo-to; Katsumi Ota, 8-14, Kamifukuoka 3-chome, Fukuka-machi, Iruma-gun, Saitama-ken, and Hideaki Togawa, 12-21, Yayoi-cho, 4-chome, Nakano-ku, Tokyo-to, all of Japan
Continuation-in-part of Ser. No. 117,000, Feb. 19, 1971, abandoned. This application Nov. 24, 1972, Ser. No. 309,095
Int. Cl. G03b *7/08*
U.S. Cl. 95—10 CT **8 Claims**



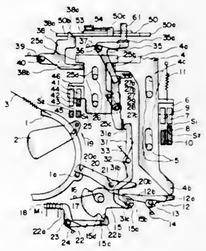
An electrical system for controlling the operation of a camera shutter. The system includes a shutter-operating circuit section controlled directly from a logarithmic expansion circuit section. A logarithmic compression circuit section is provided for receiving light from the object which is to be photographed and for providing a given output. An emitter-follower circuit section is electrically connected between the logarithmic-compression circuit section and the logarithmic-expansion circuit section to receive the output from the former and to perform certain computations determining the input to the latter. A variable resistor means is operatively connected as a load resistance to the emitter-follower circuit section in order introduce into the computations exposure-determing factors in addition to the light at the object. This variable resistor means has a resistance value which changes in accordance with an index function according to the additive APEX system in relation to given conditions such as the diaphragm setting or film speed.

3,810,204
PHOTOGRAPHIC CAMERA WITH AUTOMATIC EXPOSURE CONTROL ARRANGEMENT
Peter Lermann, Narring, and Helmut Durr, Munich, both of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 21, 1972, Ser. No. 308,329
Claims priority, application Germany, Nov. 29, 1971, 2159161
Int. Cl. G03b *9/62, 7/18*
U.S. Cl. 95—10 CE **21 Claims**



Upon pressing of the release button, the diaphragm of the camera is always moved from a fully closed to a fully opened position. The element positioning the diaphragm has a control side with a shape constituting an exposure-time curve. During the movement of the diaphragm, the shutter is opened at a time depending upon the available light. The closing of the shutter is controlled mechanically as a function of the instantaneous position of the diaphragm, that is in accordance with the curve on the side of the element positioning the diaphragm. The exposure time is longer for large diaphragm openings and shorter at small diaphragm openings.

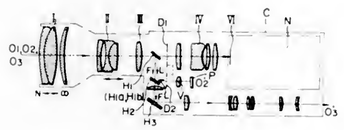
3,810,205
FLASH CONTROL MECHANISM FOR A CAMERA
Toshinori Imura, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan
Filed Sept. 29, 1970, Ser. No. 76,392
Claims priority, application Japan, Oct. 3, 1969, 44-78610; June 2, 1970, 45-47844
Int. Cl. G03b *15/04, 7/08*
U.S. Cl. 95—11 R **7 Claims**



Flash control mechanism automatically switches the connections to elements in an exposure timing circuit in response

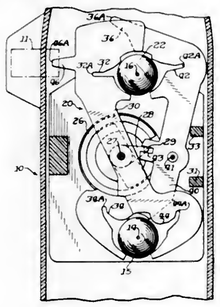
to the detection of object brightness and an electrically responsive mechanism restrains a release member controlling ignition of the flash unit and rotation of the flash indexing socket into an ignition position.

3,810,206
EXPOSURE CONTROL DEVICE
Keiichi Sakaguchi, Yokohama; Atsushi Someya, Tokyo, and Noritsugu Hirata, Yokohoma, all of Japan, assignors to Cann Kabushiki Kaisha, Tokyo, Japan
Filed May 30, 1972, Ser. No. 258,104
Claims priority, application Japan, June 1, 1971, 46-45557
Int. Cl. G03b *7/10, 7/20*
U.S. Cl. 95—10 PO **33 Claims**



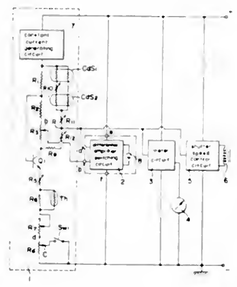
An exposure control device for cameras or the like is provided with means for controlling the exposure light beam incident through an phototaking optical system, means for controlling the photometric light beam incident upon a photoelectric cell and means for controlling the photometric field. The exposure and photometric light beam control means are so located that the optical paths to the variable stops thereof are different in length from each other. The photometric field control means is actuated in response to at least one of the exposure factors, that is the brightness of a subject or field of view, the focal length control of the exposure optical system, and the focusing control of the phototaking optical system in response to a distance from the phototaking optical system to said subject so that the light beam incident upon the photometric light beam control means may be so controlled as to automatically vary the photometric field.

3,810,207
EXPOSURE CONTROL SYSTEM
Arthur C. Mueller, Niles, Ill., assignor to Bell & Howell Company, Chicago, Ill.
Filed Apr. 24, 1972, Ser. No. 246,757
Int. Cl. G03b *9/02, 9/06, 17/20*
U.S. Cl. 95—64 R **7 Claims**



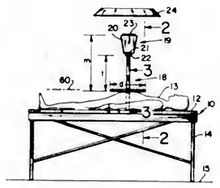
A system for controlling and indicating the exposure condition of film in a camera. The system includes indicia means signaling the existance of an under-exposed or over-exposed condition and iris blade means and aperture control means which cooperate to expose the film in the camera during said underexposed or over-exposed conditions.

3,810,208
PHOTOGRAPHIC CAMERA SCENE BRIGHTNESS INDICATOR
Yasuhiro Nanba, and Masayoshi Sahara, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed July 2, 1973, Ser. No. 375,772
Claims priority, application Japan, June 30, 1972, 47-65047
Int. Cl. G03b *7/08*
U.S. Cl. 95—10 CT **9 Claims**



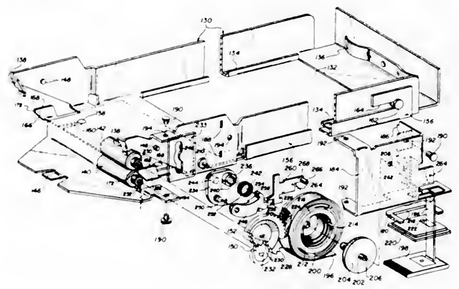
In a photographic camera wherein a shutter is controlled or a shutter speed is indicated by output signals generated according to a quantity of scene light received by light receptive elements and a film sensitivity setting, and, in addition thereto if necessary, a diaphragm aperture setting, an electric circuit is responsive only to signals relating to the scene brightness for indicating whether the scene brightness is lower or higher than a predetermined critical level.

3,810,209
CAMERA POSITIONING APPARATUS
Gerhard I. W. Bahnsen, Box 1297, South Lake Tahoe, Calif.
Filed Oct. 30, 1972, Ser. No. 302,047
Claims priority, application Japan, Oct. 21, 1971, 46-83483
Int. Cl. G03b *17/56*
U.S. Cl. 95—86 **8 Claims**



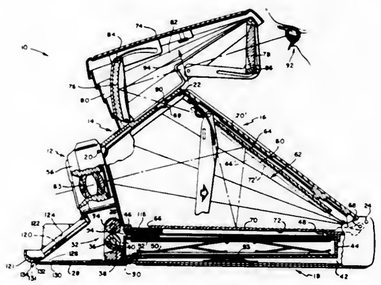
Apparatus including a camera preferably having a fixed focus lens adapted to be directed toward an object to be photographed, with the camera carrying a structure which projects generally toward the object and mounts a focus indicator for indicating to a user the location of a predetermined plane in which a photographic object may be positioned for proper focusing of its image on the camera film. A positioning unit projects beyond the focus indicator for engagement with a support, and is adjustable to vary the spacing of the focus indicator from the support.

3,810,210
FILM UNIT PROCESSING MECHANISM
Henry S. Adamski, Webster, and Guilford E. Kindig, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed July 5, 1972, Ser. No. 268,948
Int. Cl. G03b *17/50*
U.S. Cl. 354—86 **2 Claims**



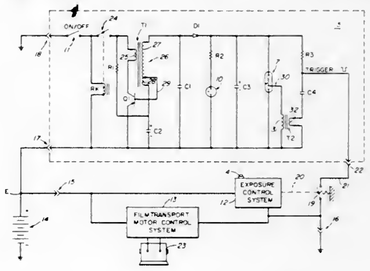
A camera adapted to use a film cartridge containing a plurality of film units that are successively exposable and then processable by being transported through a nip between a pair of juxtaposed pressure members is provided with an improved mechanism, preferably operated by a lanyard, for transporting each film unit from the cartridge into and through the nip to initiate processing of the unit, to separate the image-recording portion of the unit from waste elements thereof, and to return the waste elements to the cartridge; the mechanism has no exposure and double-exposure prevention capability and coordinates the various functions performed.

3,810,211
SELF-DEVELOPING CAMERA SYSTEM
Richard R. Wareham, Marblehead, and Richard Paglia, Carlisle, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Apr. 24, 1972, Ser. No. 246,703
Int. Cl. G03b *17/50*
U.S. Cl. 354—86 **13 Claims**



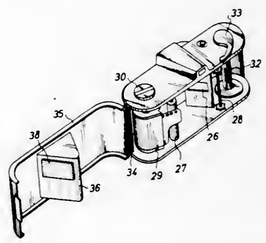
A compact collapsible self-developing camera system having a lens-shutter housing which is displaced from a storage position into an operative positive when the camera is rearranged from its collapsed into its extended condition. A film exit arrangement is offset with respect to the path the film normally assumes in leaving a pair of fluid spreading rollers and a light shielding plate is operative intermediate the rollers and the exit opening to deflect the film towards that exit arrangement. When operative, the light shielding plate further serves to reduce the amount of ambient light which would otherwise be incident upon processed sections of the film and to cooperate with an arrangement on the opposite side of the rollers therefrom to control the movement of a mass of processing fluid across exposed sections of the film unit. The lens-shutter housing displaces the light shielding plate from its operative position when the camera is collapsed so as to then occupy the space which the light shielding plate had occupied when in its operative position.

3,810,212
PREFERENTIAL POWER DISTRIBUTION SYSTEM FOR BATTERY POWERED CAMERA HAVING ELECTRONIC FLASH UNIT
Conrad H. Biber, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Jan. 2, 1973, Ser. No. 320,602
Int. Cl. G03b *15/05*
U.S. Cl. 354—128 **15 Claims**



A preferential power distribution system for a battery powered camera having an electronic exposure control system, a film transport motor, and an electronic flash unit, in which recharging of the flash unit is controlled by a circuit which responds to the voltage of the battery to inhibit recharging when the battery voltage is low.

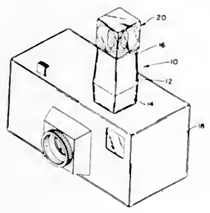
3,810,213
SYSTEM FOR TAKING STEREOPHOTOGRAPHS AND STEREOCAMERA BASED THEREON
Hideto Furuoka, Tokyo, Japan, assignor to Gakken Co., Ltd., Tokyo, Japan
Filed Mar. 14, 1972, Ser. No. 234,603
Claims priority, application Japan, Mar. 16, 1971, 46-14087
Int. Cl. G03b *35/08*
U.S. Cl. 354—115 **1 Claim**



For photographically recording a pair of laterally displaced images of an object or scene on a film for three-dimensional observation in a stereoscope, a pair of optical systems are provided for optically transmitting the images to their predetermined positions on the film. Each of the optical systems includes a lens and a reflector so arranged that the images are

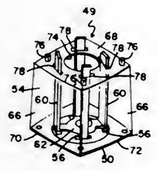
recorded upside down but unreversed as to their rights and lefts. In a stereocamera based on this system, a strip of film is advanced through a predetermined path of travel for recording successive pairs of such laterally displaced images.

3,810,214
FLASH EXTENDER
Harold L. Malone, East Rochester, and Robert J. Bodensteiner, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 24, 1972, Ser. No. 237,837
Int. Cl. G03b *15/04*
U.S. Cl. 354—148 **11 Claims**



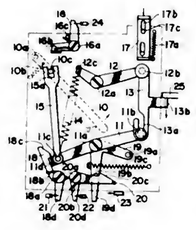
A flash extender, for a photographic camera adapted to receive and actuate a percussively ignitable flashlamp, having a socket, at least one push rod and a base. Insertion of the extender base into the camera flash socket aligns a push rod with the camera flash firing mechanism. Operation of the shutter release mechanism of the camera actuates the camera flash firing mechanism which causes the aligned push rod to be urged upwardly, thereby actuating a percussively ignitable flashlamp held in the socket of the flash extender. In a preferred embodiment, operation of the camera flash indexing mechanism causes rotation of the camera flash socket and the extender therewith to place a fresh flashlamp in firing position.

3,810,215
PERCUSSIVE FLASH EXTENDER
Donald E. Armstrong, c/o GTE Sylvania Incorporated, 1050 E. Broad St., Montoursville, Pa.
Filed June 18, 1973, Ser. No. 370,974
Int. Cl. G03b *19/02*
U.S. Cl. 354—148 **13 Claims**



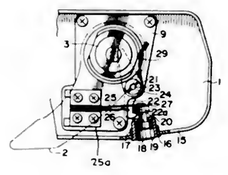
A flash extender assembly for operatively attaching a percussive flashcube to a camera with the flash source sufficiently offset from the camera lens to reduce "red-eye" effect. The extender is a three-piece assembly comprising a retaining base identical to the flashcube base and insertable into a camera socket, a flashcube cover affixed to the retaining base and having its top wall adapted for receiving and detachably retaining the base of an inserted flashcube, and a plurality of rods extending from the retaining base toward the top wall of the cover and interconnected at one end by a flexible web attached to the retaining base. The retaining base has an aperture adjacent each rod through which the respective rod is accessible to be actuated by a flash actuating member in the camera, and each of the rods is aligned with a slot in the top wall of the cover and adapted to move therethrough upon actuation for firing a flashlamp in an inserted flashcube.

3,810,216
DRIVING MECHANISM FOR THE MOVABLE REFLECTOR IN A SINGLE LENS REFLEX CAMERA
Hiroshi Ueda, Nara, Japan, assignor to Minotta Camera Kabushiki Kaisha, Minami-ku, Osaka-shi, Japan
Filed Dec. 12, 1972, Ser. No. 314,458
Claims priority, application Japan, Dec. 17, 1971, 46-101884
Int. Cl. G03b *19/12*
U.S. Cl. 354—156 **13 Claims**



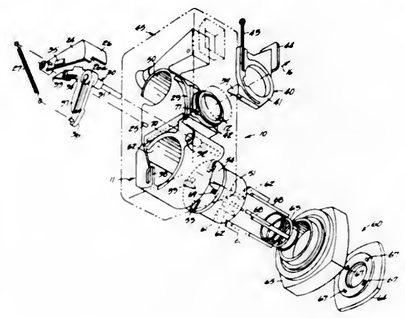
A driving mechanism for the movable reflector in a single lens reflex camera, wherein, when the movable reflector is rotated from a viewing position to a photographing position, in relation to the optical axis, the rotating torque increases proportionally to the increase of the angle of rotation, and when the movable reflector reaches the photographing position, the shutter release is positively effected. In using this mechanism, the movable reflector can be manually operated, and the image condition at the set value of the aperture can be observed in advance. The driving mechanism includes at least one closed loop-type motion system comprising two levers connected at one of their ends by a connecting link and at the other of their ends by a spring.

3,810,217
SWITCH OPERATING DEVICE FOR PHOTOGRAPHIC CAMERAS
Toshiaki Matsumoto, Amagasaki, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan
Filed May 31, 1972, Ser. No. 258,302
Claims priority, application Japan, June 1, 1971, 46-37459
Int. Cl. G03b *19/04*
U.S. Cl. 354—204 **11 Claims**



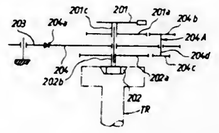
In a photographic camera having a battery power source and an electric circuit includes a normally closed power source switch and an operating button for opening the power source switch. A retaining member retains the power source switch in an open condition when the operating button is operated. A winding lever is movable between a rest position and an operating position and actuates the retaining member when the winding lever is at its rest position to retain the operating button in a position wherein the power source switch is open. When the winding lever is at its operating position the retention of the operating button is released.

3,810,218
CAMERA MECHANISM
James A. Millett, Fountain Valley, Calif., assignor to Bank of Montreal, Los Angeles, Calif.
Filed Oct. 13, 1972, Ser. No. 297,324
Int. Cl. G03b *15/04, 9/44, 17/24*
U.S. Cl. 354—204 **18 Claims**



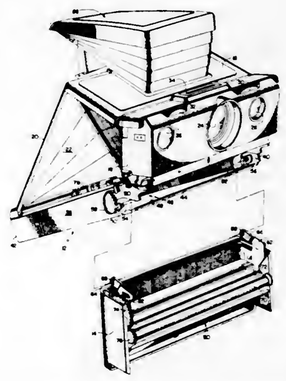
A small miniature camera employs as a primary operating mechanism a spring biased shutter bellcrank which is arranged so one of its arms or pawls operates a pivoted shutter blade and cooperates with the other pawl to control the film advance mechanism to prevent double exposures. Also, the disposition of the pawls is such that one of them may be employed to trigger impulse operated flash cubes in timed relationship with the shutter opened by the other pawl. To avoid complex indexing mechanisms within such a camera an optical indexing feature is provided which employs a separate light path to the edge of a film strip that is controlled by the shutter to mark the developed film strip with a reference mark for subsequent automatic film processing procedures.

3,810,219
FILM TRANSPORTING MECHANISM FOR STILL CAMERAS
Guenter Fauth, Unterhaching, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 11, 1972, Ser. No. 314,277
Claims priority, application Germany, Dec. 9, 1971, 2161078
Int. Cl. G03b *1/62, 19/04*
U.S. Cl. 354—206 **15 Claims**



A film transporting mechanism for use in still cameras wherein a lever or wheel constitutes the input member of a planetary transmission. The sun gear or planet carrier of the transmission is held against rotation by a film scanning device during a first stage of rotation of the input member from its starting position to a fixed end position and while the input member rotates a spur gear or an internal gear by way of one or more planet pinions whereby the spur gear or internal gear rotates the takeup reel in a direction to collect the film. When the transport of film by the length of a frame is completed, the scanning device releases the sun gear or the planet carrier and arrests the spur gear or internal gear to thus terminate the transport of film while the input member continues to rotate toward its fixed end position and drives the sun gear or planet carrier. This enables the input member or a part which derives motion therefrom to perform one or more additional functions, such as the indexing of a multiple flash lamp holder and/or the cocking of a shutter or impeller, subsequent to completion of film transport by the length of a frame. The extent of movement of the input member from its starting to its fixed end position is independent of the angle through which the takeup reel must be rotated in order to advance the film by the length of a frame.

3,810,220
DETACHABLE SPREAD ROLLER HOUSING SECTION
Richard Paglia, Carlisle, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Oct. 24, 1972, Ser. No. 299,668
Int. Cl. G03b *17/52*
U.S. Cl. 354—212 **8 Claims**

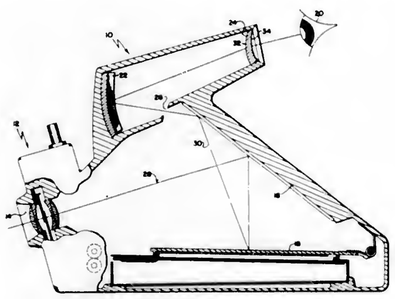


Photographic apparatus of the self-developing type including a first housing section having an open end chamber for receiving a film assemblage and a second housing section having a pair of processing rollers mounted thereon. The second housing section is pivotally coupled to the first housing section by a pair of laterally spaced brackets, each of which has an aperture therein for receiving an inwardly facing projection mounted on the first housing section. The second housing section is readily disconnected from the first housing section by pivoting the second housing section to a film loading position and then flexing one of the brackets to a position wherein the projection is withdrawn from the aperture. The second housing section is readily connected to the first housing section by reversing the aforementioned steps.

3,810,221
VIEWFINDER FOR A REFLEX CAMERA
William T. Plummer, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Nov. 11, 1971, Ser. No. 197,851
Int. Cl. G03b *13/02*
U.S. Cl. 88—1.5 R **14 Claims**

A special eye lens in a viewfinder for a reflex camera compensates for field tilt in a virtual image, thereby minimizing the depth accommodation required of an observer's eye to focus the virtual image at top and bottom. The field tilt stems from an oblique orientation of the axis of the viewfinder at its incidence with a focusing screen in the reflex camera. To compensate for it, a special refracting surface is formed on the eye

lens. The ophthalmic power of the special refracting surface varies with its vertical distance from the axis, causing the power of the eye lens to vary accordingly. A polynomial of at



least the third order best describes the three-dimensional shape of the special refracting surface having mirror symmetry, but not rotational symmetry.

3,810,222

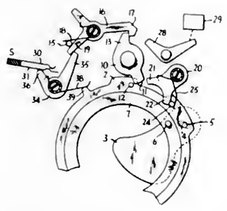
SWITCHING DEVICE FOR ELECTRONIC SHUTTER

Tadashi Nakagawa, Chiba, Japan, assignor to Seiko Koki Kabushiki Kaisha, Chuo-ku, Tokyo, Japan

Filed Nov. 6, 1972, Ser. No. 303,687

Int. Cl. G03b *9/60*

U.S. Cl. 95—53 E **8 Claims**



A camera having an electronic shutter whose exposure time is controlled by a control circuit is provided with a switching device having a first switching state wherein same disconnects an electric power source from the control circuit and a second switching state wherein same connects the electric power source to the control circuit. A switch-actuating lever responds to movement of a shutter release lever to switch the switching device from its first switching state to its second switching state. A biasing spring coacts with the switch-actuating lever to maintain same in a position wherein the switching device is in its first switching state and the biasing spring is compressed in response to movement of the switch-actuating lever into a position wherein same shifts the switching device into its second switching state. The spring energy stored in the biasing spring is then released during movement of the shutter to its open position and the switching device is thereafter maintained in its second switching state independently of the position of the release lever and by the coaction between the switch-actuating lever and the switching device.

3,810,223

OPERATING DEVICE FOR FOCAL PLANE SHUTTER BLADES FOR CAMERA

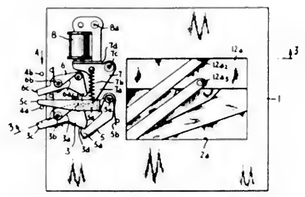
Kiyoshi Kitai, Tokyo; Eiichi Onda, Saitama; Mitsuo Koyama, Chiba; Shinji Nagaoka, Chiba, and Tadashi Nakagawa, Chiba, all of Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 21, 1973, Ser. No. 343,500

Claims priority, application Japan, Mar. 21, 1972, 47-32226

Int. Cl. G03b *9/08*

U.S. Cl. 95—59 **2 Claims**



A focal plane shutter and shutter blade operating devices for a camera. The focal plane shutter has a plurality of shutter blades arranged in two separate groups operated independently of each other as a shutter-opening blade group and a shutter-closing blade group. A shutter blade operating mechanism comprises a pair of separate devices for opening and closing the shutter with the two groups independently of each other driven in the same direction. Each shutter blade-operating device has a slit-forming or aperture-forming shutter blade in each group driven separately from the other shutter blades of the groups. A main shutter blade-driving lever and an auxiliary parallel lever are both pivotally connected to each slit-forming shutter blade in each group of shutter blades. These two levers in each group of shutter blades are connected to the slit-forming blades with pivots in a common plane and with these pivots on the blade spaced equally from the respective centers of rotation of the parallel levers. The parallel levers function in a parallel arrangement to maintain aperture-forming straight edges travelling across the exposure aperture of the shutter uniformly.

3,810,224

FOCAL PLANE SHUTTER FOR CAMERA

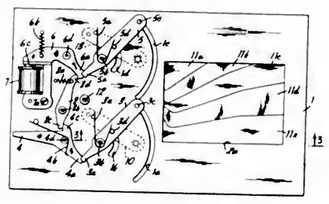
Kiyoshi Kitai, Tokyo; Eiichi Onda, Saitama; Mitsuo Koyama, Chiba; Shinji Nagaoka, Chiba, and Tadashi Nakagawa, Chiba, all of Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 13, 1973, Ser. No. 340,876

Claims priority, application Japan, Mar. 15, 1972, 47-26293

Int. Cl. G03b *9/26*

U.S. Cl. 95—59 **3 Claims**



A focal plane shutter of a camera having two sets or groups of blades. One set of shutter blades opens the shutter aperture and the second set of shutter blades closes the aperture. Both sets of shutter blades are actuated in the same direction for opening the shutter and closing it. The shutter blades are actu-

ated by principal and supplementary driving members of respective driving mechanisms. Each driving mechanism has a principal or main driving lever that drives the shutter blades of a corresponding set of shutter blades except one which is driven stably and uniformly by a corresponding auxiliary driving member.

3,810,225

LENS SHUTTER FOR PHOTOGRAPHIC USE

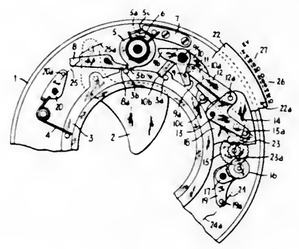
Yukio Nakamura, Yotsukaido, Japan, assignor to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 13, 1972, Ser. No. 305,687

Claims priority, application Japan, Nov. 19, 1971, 46-092912; Nov. 19, 1971, 46-108456; Nov. 19, 1971, 46-108457

Int. Cl. G03b *9/06, 9/24*

U.S. Cl. 95—63 **3 Claims**



A lens shutter for use in a camera for taking photographic exposures. The shutter has a single set of shutter blades for defining an exposure aperture and iris. The blades are operated by a ring actuated by an actuating lever variably positioned angularly by programming means to determine its angular rotation thereby to determine the extent of the opening of the iris. A main lever cooperating with and cammed by a driven main cam variable to angular extents drives the actuating lever and is variably adjusted as to its relationship with a governor variable as to the resistive force it applies as a braking force to the rotation of said ring thereby to control the speed of opening of the blades. A single programming or EV adjusting ring sets all the variable settings simultaneously including the exposure time in different and varied relationships constituting different programs settable by scales that are used in positioning the EV adjusting ring angularly to obtain the desired programs. The EV adjusting ring varies the angular relationship of the main lever and the actuating lever thereby varying the iris setting and one of the variables controlling exposure time, namely the extent of rotation of the shutter blade operating ring.

3,810,226

DEVICE FOR CONTROLLING SHUTTER EXPOSURE TIME

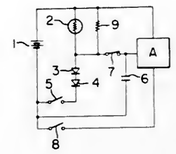
Shigeo Ono, Yokohama, and Ichiro Hamaguchi, Tokyo, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Continuation of Ser. No. 229,127, Feb. 24, 1972, abandoned. This application July 26, 1973, Ser. No. 382,648

Int. Cl. G03b *7/08*

U.S. Cl. 354—51 **6 Claims**

A device for controlling shutter exposure time in an automatic exposure camera includes a storage circuit having a power source, a first switch, a photoconductive element with its resistance variable in accordance with the intensity of light from an object, diodes or resistors serially connected with the photoconductive element and parallel-connected with the power source through the first switch for dividing the voltage of the power source, a capacitor having one of the terminals thereof connected with a point of connection between the photoconductive element and the diodes or resistors for storing a voltage determined by the resistance value of the photoconductive element, a second switch serially connected between the said one terminal of the capacitor and said point of connection so that it is opened before operation of the camera's shutter, and a circuit for controlling the shutter ex-



posure time in accordance with the voltage stored in the capacitor, characterized in that the other terminal of the capacitor remains connected with the power source as long as the second switch is closed.

3,810,227

SHUTTER RELEASE LOCKING DEVICE FOR CAMERA

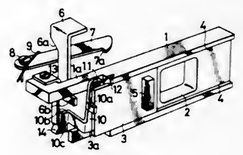
Harumi Tanaka, Kobe, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed June 1, 1972, Ser. No. 258,565

Claims priority, application Japan, June 8, 1971, 46-4648175

Int. Cl. G03b *19/00*

U.S. Cl. 95—11 R **9 Claims**



A device has a lens protecting plate disposed at the front side of an exposure window in horizontally movable manner for opening and closing the window and a shutter release locking member serving also as a first contact member of a switch for opening and closing a power source circuit for an exposure amount control device and the like. While the exposure window is closed, the locking member locks a shutter release member and keeps the switch open, whereas when the exposure window is opened, the locking member is moved in operative relation to the protecting plate at the final stage of its opening action to unlock the shutter release member and close the switch.

3,810,228

PHOTOGRAPHIC ELECTRONIC SHUTTER WITH POWER SWITCH CONTROL DEVICE

Tetsuya Taguchi, Kawasaki, and Mutsunobu Yazaki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 14, 1973, Ser. No. 332,486

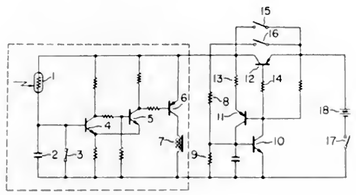
Claims priority, application Japan, Dec. 27, 1972, 47-3925

Int. Cl. G03b *9/62*

U.S. Cl. 95—53 E **8 Claims**

The electronic shutter is operated by a shutter operating circuit, and a battery or the like is connected in series with a power switch which is closed, responsive to winding of the film for advancing the film and opened, in response to operation of a shutter for taking a picture. A second switch is closed responsive to operation of a shutter release button, to connect the battery to the shutter operating circuit. A control circuit is energized, responsive to operation of the second switch, to close a transistorized holding circuit in parallel with the switch

and including the battery and the power switch, so that the shutter operating circuit remains energized even if the shutter release button is released to open the second switch. The



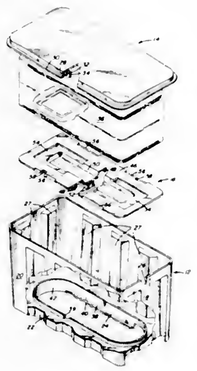
shutter operation circuit and the control circuit are deactivated responsive to opening of the power switch which is effected at the termination of shutter operation.

3,810,229

A LIGHT-TIGHT CARTRIDGE FOR CONTAINING SHEET MATERIAL

Walter B. Dunning, Le Roy; Dale S. Endter; William G. McDonald, both of Rochester, and Arthur C. Rissberger, Jr., Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,448
Int. Cl. G03b *19/10*
U.S. Cl. 95—19 **9 Claims**



A hermetic, light-tight cartridge for containing sheet material containing a light-sensitive element, such as an aperture card. The cartridge is arranged to permit the cards to be withdrawn. The cartridge comprises a body portion having a generally rectangular cross section, a bottom wall portion, and opposed side and end walls connected to the bottom wall portion. The body portion has an open top through which the the cards may be withdrawn and an opening in the bottom wall portion. A removable top is provided for the body portion and a closure member is provided for the opening in the bottom wall. The closure member comprises a support plate disposed within the body portion and having a size generally equal to the size of the sheet material. The closure member is arranged to positively and releasably engage and seal the periphery of the opening in said bottom wall portion and the removable top is arranged to positvely and releasably engage and seal the top edge of the body portion. The closure member has means engageable exterior of the cartridge for movement into and out of engagement with the opening and to lift the sheet material out of the top of the opened cartridge.

ERRATUM

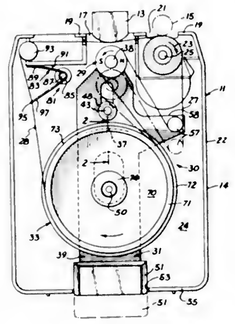
For Class 360—106 see:
Patent No. 3,809,827

3,810,230

DEMAGNETIZER AND CLEANING CARTRIDGE

Donald W. Orlowski, Glenview, and Edward A. Eul, Jr., Northbrook, both of Ill., assignors to Ampex Corporation, Redwood City, Calif.

Filed Jan. 12, 1972, Ser. No. 217,152
Int. Cl. G11b *5/46, 27/24*
U.S. Cl. 360—128 **7 Claims**



A cartridge-shaped unit may be operatively associated with a four or eight track magnetic tape playback and/or recording apparatus to position a cleaning tape and a multi-polar permanent magnet in position for cleaning and demagnetizing a transducer head of the apparatus. The cleaning tape is driven by the capstan and a cam is driven by the cleaning tape to slowly withdraw the magnet which rotates and produces a reversing flux field of diminishing intensity to demagnetize the head. Preferably, the cam includes a spiral grooved section. A stylus cam follower on a slide carrier follows the groove and shifts the carrier to retract the magnet slowly and automatically. Means in the form of a foil is detected by a sensing means in the apparatus thereby causing the head to shift and bring each section of the head associated with a track into contact with the cleaning tape.

3,810,231

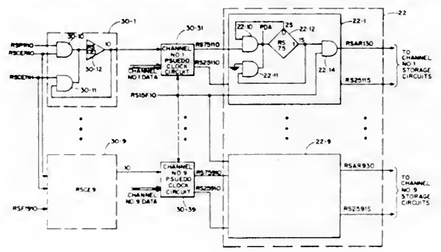
NOISE RECORD PROCESSING FOR PHASE ENCODED DATA

David D. DeVoy, Dedham; George J. Barlow, Tewksbury, and John A. Klashka, Andover, all of Mass., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Jan. 2, 1973, Ser. No. 320,229
Int. Cl. G11b *5/06*
U.S. Cl. 360—40 **22 Claims**

A magnetic tape system includes apparatus for determining when an actual data record should be processed by the system. The apparatus includes a plurality of resettable one shot circuits coupled to receive signals from a corresponding number of information channels. The output signals from the circuits

are combined to produce an average rate output signal and the signal is applied to at least one further resettable one shot circuit which is operative to produce an output signal when the average rate input signal persists for a predetermined number



of frames. The last resettable one shot circuit applies the output signal to the remainder of the system conditioning it to process the subsequently read information signals as part of an actual data record.

3,810,232

MAGNETIC MEMORY READ SYSTEM FOR DIGITAL RECORDINGS

Shirzad Aghazadeh, Los Angeles, Calif., assignor to The Singer Company, New York City, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,730
Int. Cl. G11b *5/02*
U.S. Cl. 340—174.1 H **4 Claims**

A magnetic memory read system for digital recordings is provided which utilizes peak detection principles to reconstruct digital data recorded on a magnetic memory, such as a tape, drum or disc. The read system incorporates magnetic data reconstruction circuitry which employs both zero crossing-detecting means and threshold detection means in two channels which are ultimately combined to accurately detect the output of a magnetic read head at very high and very low peak densities. An enabling signal is developed in the second channel which permits precisely phased signals of the first channel to pass to the output for reconstruction into a corresponding data signal, but which disables the output with respect to spurious signals detected in the first channel, for example, to "shoulders" in the output signal of the read head. These "shoulders" appear as the packing density of the digital recordings on the magnetic medium falls below a particular threshold.

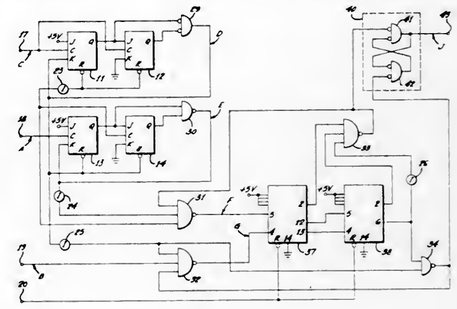
3,810,233

APPARATUS TO DETECT PHASE ENCODED DATA BEING READ FROM A DATA STORAGE SUBSYSTEM

Edward R. Besenfelder, Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed Mar. 9, 1973, Ser. No. 339,813
Int. Cl. G11b *5/02*
U.S. Cl. 360—42 **4 Claims**

The presence of phase encoded data being read from a magnetic medium is detected by an envelope detector employing logic gates, flip-flops and a pair of up/down counters. The detector provides an output signal when the preamble portion of



the data envelope has been received from the magnetic medium. The detector continues to provide an output signal for a predetermined time after the end of the data.

3,810,234

DATA RECOVERY CIRCUIT

Michael Ross Monett, San Jose, Calif., assignor to Memorex Corporation, Santa Clara, Calif.

Filed Aug. 21, 1972, Ser. No. 282,118
Int. Cl. G11b *5/02*
U.S. Cl. 340—174.1 A **21 Claims**

A data recovery system includes means for injection locking a variable frequency oscillator directly with raw data from a magnetic recording disc during the beginning of a read data operation in order to rapidly lock the variable frequency oscillator in phase with the incoming raw data signals. Desirably, the variable frequency oscillator includes an LC oscillator circuit, which provides excellent noise immunity.

3,810,235

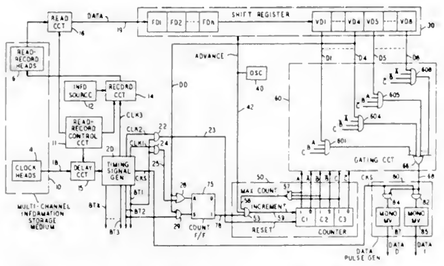
ADAPTIVE DATA READOUT TIMING ARRANGEMENT

John Warren Hopkins, Rahway; Ray Clifford Townley, and Leonard Zimmerman, both of Middletown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 23, 1973, Ser. No. 344,250
Int. Cl. G11b *5/00*
U.S. Cl. 340—174.1 B **16 Claims**

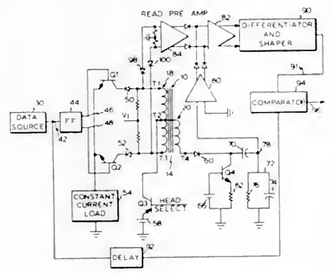
Fixed and variable data bit position shifts in a memory system are compensated for by an adaptive readout strobe timing arrangement. One check bit transition per word is employed during readout to position the data bit stream relative to the recorded clock via an active shift register driven by an

asynchronous external clock. The number of shift register cells through which each data word flows is determined



digitally by a counter which measures the shift between the word check bit transition and a corresponding recorded clock bit.

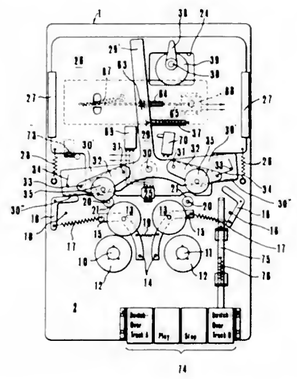
3,810,236
DATA RECORDING AND VERIFICATION SYSTEM
Noah Horowitz; Donald Stupeck, both of Los Angeles, and Lubomir Novak, Woodland Hills, all of Calif., assignors to Sperry Rand Corporation, New York, N.Y.
Continuation of Ser. No. 133,036, April 12, 1972, abandoned.
This application Sept. 21, 1972, Ser. No. 290,833
Int. Cl. G11b *5/46*
U.S. Cl. 360—53 **7 Claims**



A digital data recording and verification system for use in moving magnetic medium recording systems such as tape or disc. The recording and verification system includes a magnetic head having a first winding used for writing (which may also be used for reading) information onto the medium and a second winding coupled thereto which may be used for erasing previously recorded information. As current, in response to input data, is driven through the first winding to produce flux changes in the head core, a voltage is induced in the second winding. This induced voltage is compared with the input data to verify, on a bit-by-bit basis, that the recorded data matches the input data.

3,810,237
TAPE RECORDER
Yoshikuni Nozawa, Nagano, Japan, assignor to Sankyo Kogaku Kogyo Kabushiki Kaisha, Nagano, Japan
Filed Oct. 17, 1969, Ser. No. 867,234
Int. Cl. G11b *15/26*
U.S. Cl. 274—4 D **6 Claims**

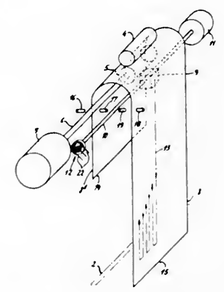
A tape cassette loading tape recorder in which a multi-track magnetic tape provided with a plurality of tape tracks may undergo an automatic change in the direction of tape travel and head channels may be switched over from one to the other according to the directional change of tape travel. The tape recorder includes a pair of capstan shafts adapted to alternately drive the tape in opposite directions of tape travel, and a movable base plate having thereon a rockable operating lever to bring alternately any one of pinch rollers into engagement with its associated capstan shaft, a magnetic head provided with head channels, a head channel selecting switch means, and a tape-end detecting switch means. The movable base plate, upon loading of the cassette on the tape recorder, moves forwardly towards the cassette thereby making tape-to-head engagement to make the tape recorder ready for recording and play-back operation. On the contrary, the movable



base plate, upon completion of recording or play-back for all tape tracks, moves away from the tape cassette which is in turn released from a co-operating relation with the tape recorder. The tape recorder is further provided with a cassette loading means which is manually or automatically movable from a non-operative position to an operative position or vice versa. In addition, there are provided in the tape recorder a cam mechanism to control the operational sequence of the tape recorder elements as described above, and another cam mechanism to control the movement of the cassette loading means, both of mechanisms being electrically actuated by loading of the tape cassette to the tape recorder.

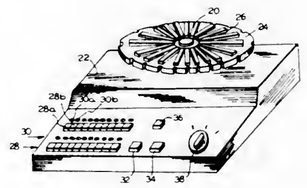
3,810,238
DICTATING MACHINE USING A MULTI-TRACK MAGNETIC STRIP AND HAVING A PHASING CONTROL MEANS
Marcel Jules Helene Staar, 479, Avenue Louise, Brussels, Belgium
Filed Apr. 24, 1972, Ser. No. 246,927
Claims priority, application Belgium, Apr. 23, 1971, 766204
Int. Cl. G11b *15/18*
U.S. Cl. 179—100.2 MD **11 Claims**

A dictating machine includes a recording and reading head for making and reading recordings on a magnetic strip. A reversible electric drive motor rotates a drive roller which engages the magnetic strip and moves the strip longitudinally past the head in alternate directions. A positioning device in the form of a shaft having an endless screwthread and driven by an electric drive motor serves to stop the head transversely of the direction of movement of the magnetic strip so that recordings on the strip are made and read along a series of longitudinal tracks. A detector switch is provided to ensure that each position of the head corresponds to a respective direction of movement of the strip. A control mechanism including a pair of photoelectric cells and respective lamps are used to detect the ends of the strip and to control the operation of the drive motor and/or the positioning device in response to the detection of an end of the strip whereby to



reverse the direction of movement of the strip and/or initiate the stepping of the head into another position.

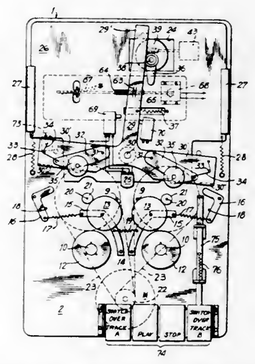
3,810,239
AUTOMATIC CASSETTE CHANGER
Isao Kozu; Hidetoshi Kurihara, and Tetsuo Hino, all of Osaka, Japan, assignors to Natsushita Electric Industrial Co. Ltd., Osaka, Japan
Division of Ser. No. 140,761, May 6, 1971. This application Sept. 19, 1972, Ser. No. 291,363
Claims priority, application Japan, May 6, 1970, 45-38780
Int. Cl. G11b *5/00*
U.S. Cl. 360—92 **8 Claims**



An automatic cassette changer has a rotary tray for storing a plurality of cassettes, a tape deck for playback of the cassettes, and tray driving means for rotating the rotary tray. Index means is provided for restricting the rotation of the rotary tray so as to position a selected single cassette at a first position. Cassette exchanging means transports the single cassette from the first position to an operative position to engage the single cassette with the tape deck. A motor drives the tray driving means and the cassette exchanging means, and clutch means is provided which is responsive to the index means upon restriction of the rotary tray by the index means so as to disengage the motor from the tray driving means and to couple the motor with the cassette exchanging means.

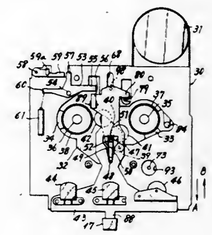
3,810,240
TAPE RECORDER
Yoshikuni Nozawa, Nagano, Japan, assignor to Sankyo Kogaku Kogyo Kabushiki Kaisha, Nagano, Japan
Division of Ser. No. 867,234, Oct. 17, 1969. This application Dec. 29, 1970, Ser. No. 102,527
Int. Cl. G11b *15/26*
U.S. Cl. 360—96 **2 Claims**

A tape cassette loading tape recorder in which a multi-track magnetic tape provided with a plurality of tape tracks may undergo an automatic change in the direction of tape travel and head channels may be switched over from one to the other according to the directional change of tape travel. The tape recorder includes a pair of capstan shafts adapted to alternately drive the tape in opposite directions of tape travel, and a movable base plate having thereon a rockable operating lever to bring alternately any one of pinch rollers into engagement with its associated capstan shaft, a magnetic head provided with head channels, a head channel selecting switch means, and a tape-end detecting switch means. The movable base plate, upon loading of the cassette on the tape recorder, moves forwardly towards the cassette thereby making tape-to-head engagement to make the tape recorder for recording and play-back operation. On the contrary, the movable base plate, upon completion of recording or play-back for all tape tracks,



moves away from the tape cassette which is in turn released from a co-operating relation with the tape recorder. The tape recorder is further provided with a cassette loading means which is manually or automatically movable from a non-operative position to an operative position or vice versa. In addition, there are provided in the tape recorder a cam mechanism to control the operational sequence of the tape recorder elements as described above, and another cam mechanism to control the movement of the cassette loading means, both cam mechanisms being electrically actuated by loading of the tape cassette to the tape recorder.

3,810,241
MODE CHANGEOVER APPARATUS FOR A MINIATURE TYPE CASSETTE TAPE RECORDER
Sanjiro Murata, No. 10-60, 3 chome, Kami-Osaki, Tokyo, Japan
Filed Jan. 7, 1971, Ser. No. 104,718
Claims priority, application Japan, May 9, 1970, 45-39008; May 9, 1970, 45-44718; May 9, 1970, 45-44719
Int. Cl. G11b *15/02, 15/10*
U.S. Cl. 360—96 **6 Claims**



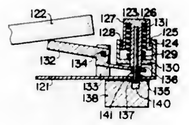
In a miniature type cassette tape recorder, a mode changeover apparatus can perform changeover operation between a recording or reproducing mode, tape fast forwarding mode, tape rewinding mode, and stop mode etc. by operating a single

operating button. In accordance with operation of the operating button, a driving plate on which magnetic heads and a pinch roller are mounted slides in a longitudinal direction or swings in a lateral direction. By the lateral swinging movement of the driving plate, one of two idlers provided between two pulleys adapted for rotating spools contained within a cassette is brought into contact with one of the two pulleys to effect fast forwarding or rewinding of the tape.

3,810,242
CASSETTE-TYPE MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS

Hisao Ikeda, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 783,947, Dec. 16, 1968, Pat. No. 3,622,162. This application July 15, 1971, Ser. No. 163,039
Claims priority, application Japan, Feb. 12, 1968, 43-9323; Feb. 12, 1968, 43-9327
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 C **4 Claims**

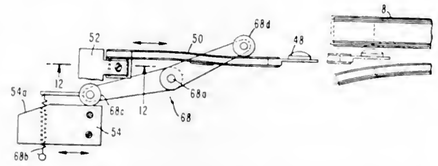


A tape cassette ejecting device for use with a small-sized cassette-type magnetic recording and reproducing apparatus in which a cassette lifting means is operatively connectable with an operation mode change-over lever of the apparatus for selecting the state of operation to allow lifting of a cassette mounted in the apparatus only in its inoperative state. The ejecting device comprises a manual push button carried on a base plate of the apparatus over the change-over lever movable along the base plate for causing pivotal movement of the lifting means, and a projection provided in the button for rendering it immovable. The blocking projection is loosely received into an opening specified in the change-over lever when the lever is displaced in its inoperative state.

3,810,243
SELECTIVELY TENSIONED TRANSDUCER ASSEMBLY FOR OPERATION IN COMPLIANT RELATION TO INDIVIDUAL MEMORY DISCS OF A PARTITIONABLE AGGREGATE OF ROTATING FLEXIBLE DISCS

Bernard W. McGinnis, Poughkeepsie, and Anthony W. Orlando, Highland, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 2, 1973, Ser. No. 375,986
Int. Cl. G11b *5/60*
U.S. Cl. 340—174.1 E **4 Claims**

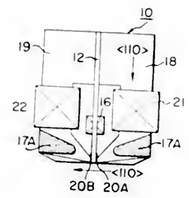


A resiliently suspended magnetic transducer (head) with distinctive convex contours is positioned to form a hydrodynamic bearing relative to the surfaces of randomly selected object discs in a continuously rotating laminar assembly of several hundred flexible discs. The normally contiguous discs are spread partially open by flexure at randomly selected interfaces. The head operates in the work space formed by such flexure. When the spring tension on the head suspension is suitably adjusted ("tuned") a hydrodynamically lubricated dimple intimately complementing the head contour forms in the rotational path of the object disc at head interface. The dimple displacement is generally greater than a disc thickness. A constant tension empirically determined enables the head to operate with satisfactory conformality and lubrication relative to all but a small number of end-positioned discs. By not using these end discs as working records the "TUNING0* tension may be pre-adjusted and maintained at a constant level. Alternately, the tension could be dynamically "tuned" or servoed to permit effective working operation relative to the end discs.

3,810,244
CROSS TYPE MAGNETIC HEAD

Tachio Hasegawa, Chichibu, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, and Canon Denshi Kabushiki Kaisha, Chichibu-shi, both of Japan

Filed Sept. 10, 1971, Ser. No. 179,285
Claims priority, application Japan, Sept. 14, 1970, 45/80712; Sept. 14, 1970, 45/80711
Int. Cl. G11b *5/26*
U.S. Cl. 360—118 **8 Claims**



A cross type magnetic head of the present invention includes a magnetic record or record-reproduce head core and an erase head core. The magnetic record or record-reproduce head core consists of a pair of magnetic record or record-reproduce head core members fixed to each other in side-to-side abutting relationship so as to form a front gap. The erase head core consists of a pair of erase head core members of high magnetic resistance and high magnetic permeability disposed so as to cross the magnetic record or record-reproduce head core in the vicinity of the front gap. Thus, erased tracks can be formed along the opposite side edges of a magnetized recorded track provided by the magnetic record or record-reproduce head core.

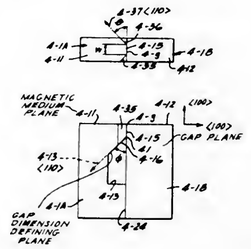
3,810,245
SINGLE CRYSTAL FERRITE MAGNETIC HEAD

Kazunori Ozawa, and Katsumasa Takahashi, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed June 13, 1972, Ser. No. 262,343
Claims priority, application Japan, June 28, 1971, 46-47071; June 28, 1971, 46-47072
Int. Cl. G11b *5/22*
U.S. Cl. 360—127 **22 Claims**

A single crystal ferrite material magnetic head for a video tape recorder or other device which is formed with a pair of half-cores with an opening between them for winding and in which the magnetic gap by which the magnetic tape passes is formed of surfaces which are uniform and which have minimum breakage and roughness due to the fact that the planes on which the ferrite single crystal material is cut coincides with the orientation of the crystals of the material which gives the minimum breakage and cracking. Experimental tests

have indicated that single crystal ferrite material may be cut or ground on certain planes with greater ease thus resulting in less breakage, fracture and cracking than on other planes,

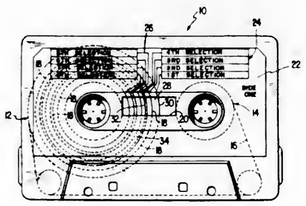


and, the present invention provides magnetic cores which are so formed that the transducing gap takes advantage of these discoveries and results in improved magnetic heads.

3,810,246
REELABLE MAGNETIC TAPE HAVING EDGE MARKED CUE INDICIA FOR DIRECT VIEWING IN THE REELED CONDITION

Wayne B. Stone, Jr., Bethesda, Md., and Alan Beaumont, Stamford, Conn., assignors to Indexette Tapes, Inc., New York, N.Y.

Filed Nov. 17, 1971, Ser. No. 199,475
Int. Cl. G11b *5/78, 27/34*
U.S. Cl. 260—134 **10 Claims**



Cue indicia applied to one or both side edges of a magnetic tape may be directly viewed through the conventional cartridge viewing window as the tape is being reeled in either direction.

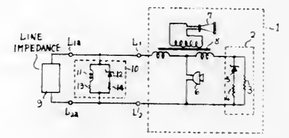
The application of edge marked cue indicia may be perfomed automatically in conjunction with the recording of commercially pre-recorded tapes, automatically in conjunction with cartridge tape loading or manually in the case of home recorded tapes.

3,810,247
TELEPHONE SET CIRCUIT

Yasuhiro Ono, Niza, Japan, assignor to Iwasaki Tsushinki Kabushiki Kaisha, a/k/a Iwatsu Electric Co., Ltd., Tokyo-to, Japan

Filed Sept. 27, 1971, Ser. No. 184,121
Claims priority, application Japan, Sept. 30, 1970, 45-85074
Int. Cl. H04m *1/00*
U.S. Cl. 179—81 R **16 Claims**

A telephone set circuit having a talking circuit formed by a transmitter, a receiver, an induction coil and a balancing network. The induction coil serves to couple the receiver and the transmitter in conjugate relationship between a two-line subscriber's line and the balancing network. The balancing network includes a series-connected combination of a nonlinear resistance element and an ohmic resistance. A control circuit formed into a four terminal network is connected in cascade with terminals of the talking circuit. The control circuit is formed by use of an inductance element or an inductance circuit for compensating the capacitive component of the sub-

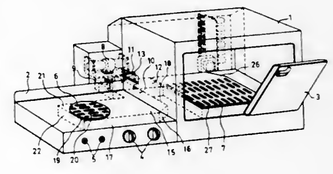


scriber's line, to which the telephone set circuit is connected, and a nonlinear resistance element for controlling the value of the inductance element or the inductance circuit in accordance with the supplied direct current of the subscriber's line.

3,810,248
MICROWAVE HEATING APPARATUS

Per Olov G. Risman, Vastra, Sweden, and Lars O. Rosengren, Washington, D.C., assignors to Husgvarna Vapenfabriks Aktiebolag, Huskvarna, Sweden

Filed Oct. 12, 1971, Ser. No. 188,015
Claims priority, application Sweden, Oct. 19, 1970, 14061/70
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 **7 Claims**



A microwave heating apparatus is disclosed, the apparatus being provided with a treatment chamber, a microwave source, and a wave guide having a mode converter. A first section of the wave guide connected to the treatment chamber is joined to a second section connected to the microwave source and has a rectangular cross-sectional area with sides approximately equal to a and b under formation of a so-called H-bend, the first section having a cross-sectional area in the form of a rectangle with sides approximately equal to $n \times a$ and b, where $n = 2, 3, 4$, etc., and wherein the H-bend between two outer sides of the respective wave guide sections have a corner-plate parallel to the rectangle side b of the wave guide cross-section areas and form inside obtuse angles with the outer side. The apparatus ensures spreading and distribution of the radiation in the treatment chamber with an even intensity.

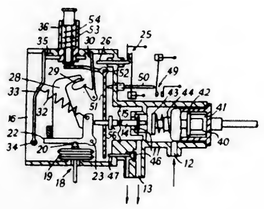
3,810,249
GAS/ELECTRIC CONTROL MECHANISM

Eric McGowan, Shepperton, England, assignor to United Gas Industries Limited, London, England

Filed Feb. 14, 1972, Ser. No. 226,046
Claims priority, application Great Britain, Mar. 5, 1971, 6085/71
Int. Cl. F27d *11/00*
U.S. Cl. 219—279 **8 Claims**

A control mechanism particularly for use with an absorption-type refrigerator of the kind which has provision for heat-

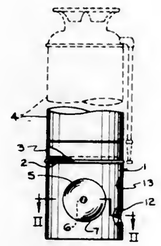
ing powered both by gas and by electricity, either of which may be used to the exclusion of the other. The control mechanism operates both an electrical switch for the electricity power and a gas valve for the gas supply by a common mechanical linkage under the influence of a temperature sensor, so that whichever heating method is selected the control mechanism needs no adjustment.



3,810,250
ACCESSORY TO FIRE EXTINGUISHER

Roger McGregor, 2205 Nicolas Perrot, Montreal, Quebec, Canada

Filed Jan. 17, 1973, Ser. No. 324,327
Int. Cl. F21v *33/00*
U.S. Cl. 240—6.4 R **5 Claims**



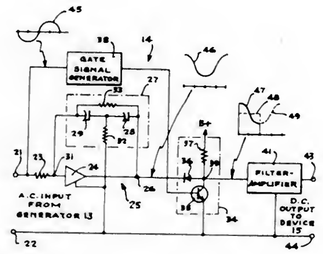
The invention relates to an accessory for a fire-extinguisher in the form of an attachment to the base, comprising a container for at least one and as many as three lamps with reflectors, all of which are activated by batteries and may, by means of a switch, be employed in the event of a fire to illuminate the direction of the jet from the fire extinguisher.

3,810,251
PRECISION CONSTANT SPEED CONTROL FOR VARIABLE SPEED PRIME MOVER

Carl G. Blanyer, Thousand Oaks, Calif., assignor to Abex Corporation, New York, N.Y.

Filed Jan. 3, 1972, Ser. No. 215,063
Int. Cl. H02p *9/04*
U.S. Cl. 290—40 **7 Claims**

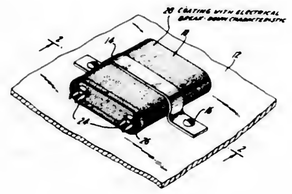
A precision constant-speed control for a motor or other prime mover driving an output shaft and equipped with a speed control device, such as a servo valve, reponsive to an applied D.C. control signal. The precision control includes a prime signal generator developing a prime electrical signal having a frequency that varies with changes in the shaft speed; the prime signal is applied to a solid-state synchronous gating detector, having a filter connected to its output, to develop a D.C. control signal which varies in amplitude as a linear function of the frequency of the prime signal. This control signal is applied to the speed control device to maintain the prime mover speed constant within about one percent.



3,810,252
GROUND BONDED APPARATUS

Edwin S. Leister, Maplewood; George F. Kovach, Union, both of N.J., and William M. Robinson, New Bedford, Mass., assignors to Duralac Chemical Corporation, by said Leister and Kovach and Cornell-Dubilier Electric Corporation, both of Newark, N.J., by said Robinson

Filed Apr. 23, 1973, Ser. No. 353,632
Int. Cl. H02h *7/16*
U.S. Cl. 317—12 R **8 Claims**

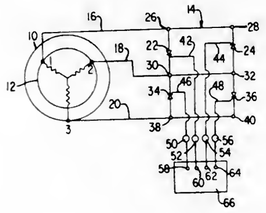


An electrical device includes a metal container enclosing an electrical component, especially a capacitor having a metal container enclosing a capacitor winding separated by electrical insulation from the metal container. A bracket clamps the device to a grounded metal support, the bracket and the support constituting grounding and mounting means. A corrosion-resistant coating covers the metal container. This coating has low electrical resistance (compared to usual paint) and it has a break-down characteristic causing a short-circuit to be formed between the metal container and the grounding and mounting structure in case an electrical fault should develop in the electrical insulation separating the container from the electrical component in the container. The short-circuit prevents the rise of container-to-ground voltage to a dangerous level despite possibly high ground-fault currents, e.g., 120 amperes. Preferred coatings use heat-degradable resins to impart corrosion resistance. With such coatings break-down occurs when the container voltage rises no more than 10 volts above ground.

3,810,253
MOTOR SPEED CONTROL

Jose D. Vergara, San Ismael No. 845, Jardines de los Arels; Ramon Galvan, lo. Circunvalacion Div. Nte. No. 177 col. Independencia, and Fausto Leal, Calle 16 No. 8 U. Clemente Orojes, all of Guadalajara, Mexico

Continuation-in-part of Ser. No. 174,326, Aug. 24, 1971, abandoned, Continuation-in-part of Ser. No. 174,327, Aug. 24, 1971. This application Oct. 25, 1972, Ser. No. 300,862
Int. Cl. H02k *17/16*
U.S. Cl. 318—237 **25 Claims**

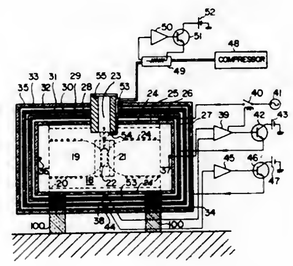


An electronic speed control device for controlling the speed of three phase motors of the wound rotor type includes a plurality of electronic elements each adapted to regulate the amount of the alternating current passed therethrough and induced to an associated phase of the rotor. The electronic elements provide a controlled short circuiting for all three phases of the rotor due to the setup of unidirectional current paths related to the biasing of the current. Each electronic element has a gate electrode connected to a master control circuit to be enabled thereby and thus pass a controlled current in the appropriate amount and at the precise time with a substantial suppression of the Joulean effect. The control circuit is integral within a motor housing and rotates with a shaft supporting the rotor. Slip rings may be utilized to provide electrical connections between the gate electrodes and the master control circuit which may be also exterior of the motor housing.

3,810,254
THERMOSTATIC SYSTEM FOR NUCLEAR GYROMAGNETIC RESONANCE SPECTROSCOPIC PERMANENT MAGNET APPARATUS

Yoshiharu Utsumi, and Hideaki Terui, both of Katsuta, Japan, assignors to Hitachi-Ltd., Tokyo, Japan

Filed July 7, 1972, Ser. No. 269,738
Claims priority, application Japan, July 10, 1971, 46-51303
Int. Cl. G01n *27/78*
U.S. Cl. 324—0.5 R **27 Claims**

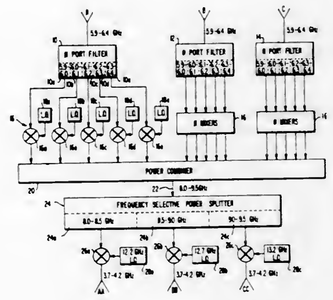


A thermostatic system for nuclear gyromagnetic resonance spectroscopic permanent magnet apparatus comprising a thermostatic oven structure consisting of a first and second thermostatic ovens enclosing a permanent magnet is disclosed. The temperature of the first thermostatic oven is controlled and maintained at a predetermined temperature higher than ambient temperature. The second thermostatic oven is disposed between the permanent magnet and the first thermostatic oven, and its temperature is controlled and maintained at a predetermined temperature higher than the temperature of the first thermostatic oven. In this manner, the permanent magnet is held at a temperature substantially equal to the temperature of the second thermostatic oven.

3,810,255
FREQUENCY TRANSLATION ROUTING COMMUNICATIONS TRANSPONDER

Marvin Richard Wachs, Rockville; Arnold L. Berman, Kensington, and Christoph E. Mahle, Rockville, all of Md., assignors to Communications Satellite Corporation, Washington, D.C.

Filed June 10, 1971, Ser. No. 151,656
Int. Cl. H04b *1/59, 1/66*
U.S. Cl. 325—3 **5 Claims**



Frequency bands in spot beams received by a satellite transponder are routed to transmitted spot beams. Every band in all received beams are frequency translated into separate bands within the transponder. The separate bands result in a total bandwidth within the transponder equal to the number of received spot beams times the bandwidth of each spot beam. The total bandwidth is then divided among the transmitters — each divided portion being reconverted into the transmitter bandwidth. Routing of a single receive band is accomplished by mixing the band with a local oscillator signal having a frequency whose value causes the mixer output to assume a particular band within the total bandwidth — the particular band being diverted to the transmitted spot beam of interest.

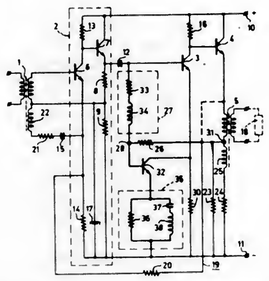
3,810,256
TRANSISTOR AMPLIFIER FOR BROAD-BAND INFORMATION SIGNALS

Willem Van Doorn, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 28, 1973, Ser. No. 336,623
Claims priority, application Netherlands, Mar. 17, 1972, 7203557
Int. Cl. H03f *1/08*
U.S. Cl. 330—28 **10 Claims**

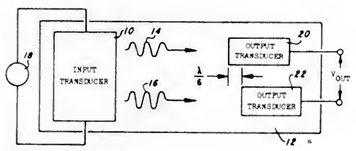
A broad-band transistor amplifier comprising a negative feedback circuit for maximum negative feedback as well as a circuit with which in the manner of a negative feedback exclusively the distortion products occurring in the output signal of

the amplifier are subjected to a feedback for the purpose of additionally reducing these distortion products. To this end the transistor amplifier includes a cascade arrangement of two



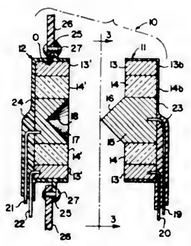
impedances whose common connection point is connected to the input of a phase inverter stage which injects the distortion products in phase opposition into the output circuit of the amplifier.

3,810,257
ACOUSTIC SURFACE WAVE TRANSDUCER CONFIGURATION FOR REDUCING TRIPLE TRANSIT SIGNALS
William Stanley Jones, Bramhall, England, and Clinton Sylvester Hartmann, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Feb. 1, 1973, Ser. No. 328,568
Int. Cl. H03h 9/26, 9/30, 9/32
U.S. Cl. 333—30 R **11 Claims**



An acoustic surface wave transducer configuration characterized by substantial elimination of triple transit reflection output signal related components is provided. The configuration includes two parallel acoustic channels on a suitable substrate. First and second output transducers are defined respectively in the channels, and are off set by one sixth of an acoustic wavelength. The main signal is substantially unaffected whereas triple transit signals are 180° out of phase and electrically cancel.

3,810,258
QUICK CONNECT ELECTRICAL COUPLER
William R. Mathauser, P. O. Box 5, Sun Valley, Idaho
Filed July 11, 1972, Ser. No. 270,803
Int. Cl. H01r 11/30
U.S. Cl. 339—12 R **9 Claims**



A unique quick connect electrical coupler, comprising a female coupling half having electrical contact means, magnet means and tapered recess means therein. A male coupling half having electrical contact means and magnet means therein and tapered projecting means adapted to be received in said recess means in said female coupling half to automatically align said male and female coupling halves relative to one another, said electrical contact means and said magnet means in said male and female coupling halves being in contacting alignment with one another when said coupling halves are coupled together, and said tapered projecting means and recess means preventing lateral displacement of the coupling halves relative to one another when they are coupled together.

DESIGNS

MAY 7, 1974

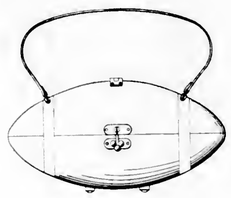
231,584
SHOE SOLES
Thomas A. Edmonds, Abingdon, Md., assignor to Bata Shoe Company, Inc., Belcamp, Md.
Filed Feb. 28, 1972, Ser. No. 230,179
Term of patent 14 years
Int. Cl. D2—04
U.S. Cl. D2—320



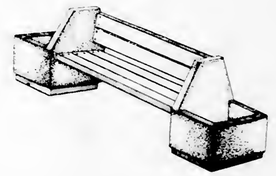
231,585
INDICATOR BELT
Masao Yoshimura, Inglewood, Calif., assignor to The Mailbox, Inc., Los Angeles, Calif.
Filed Dec. 6, 1972, Ser. No. 312,597
Term of patent 14 years
Int. Cl. D2—07
U.S. Cl. D2—380



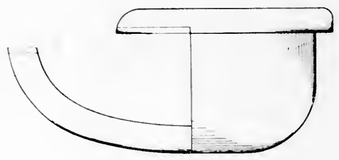
231,586
HANDBAG OR THE LIKE
Cecilio I. Lazo de la Vega, P.O. Box 554, Valdosta, Ga. 31601
Filed Mar. 30, 1972, Ser. No. 239,845
Term of patent 14 years
Int. Cl. D3—01
U.S. Cl. D3—87 F



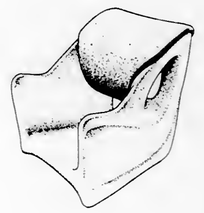
231,587
COMBINED BENCH AND MULTIPLE PLANTER UNIT
Emmett R. Herrera, Ventura, Calif. (32 Museum Way, San Francisco, Calif. 94114)
Filed Oct. 16, 1972, Ser. No. 298,000
Term of patent 14 years
Int. Cl. D6—01
U.S. Cl. D6—4



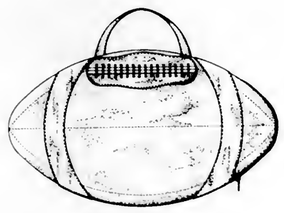
231,588
TABLE ATTACHABLE SEAT FOR A CHILD
Lawrence A. Hanley, 715 A St., Coeur d'Alene, Idaho 83814
Filed Apr. 20, 1972, Ser. No. 246,114
Term of patent 14 years
Int. Cl. D6—01
U.S. Cl. D6—9



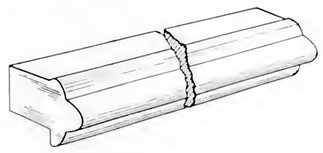
231,589
CHILD SAFETY SEAT
Milton W. Bloom, Toronto, Ontario, Canada, assignor to Donlee Manufacturing Industries Limited, Toronto, Ontario, Canada
Filed Aug. 31, 1972, Ser. No. 285,489
Term of patent 14 years
Int. Cl. D6—01
U.S. Cl. D6—9



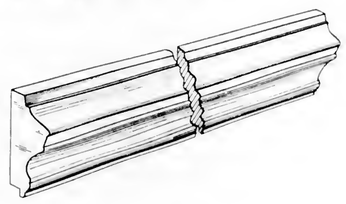
231,590
COMBINED TOTE BAG AND STADIUM SEAT CUSHION OR SIMILAR ARTICLE
Opal I. McKinney, R.R. 4, Grayson, Ky. 41143
Filed Jan. 17, 1973, Ser. No. 324,438
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D6—202



231,591
PICTURE FRAME MOULDING
Johannes Vihma, Toronto, Ontario, Canada, assignor to Artistic Woodwork Co. Ltd., Downsview, Ontario, Canada
Filed Jan. 8, 1973, Ser. No. 322,089
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—246



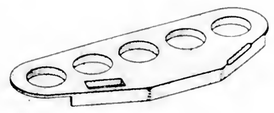
231,592
PICTURE FRAME MOULDING
Johannes Vihma, Toronto, Ontario, Canada, assignor to Artistic Woodwork Co. Ltd., Downsview, Ontario, Canada
Filed Jan. 8, 1973, Ser. No. 322,090
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—246



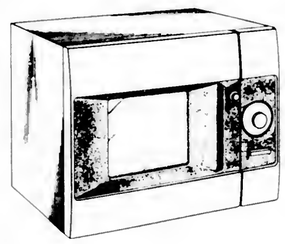
231,593
TOOTHBRUSH KIT
Philip D. Ockerman, 812 Barrie, Flint, Mich. 48507
Filed July 10, 1972, Ser. No. 269,990
Term of patent 7 years
Int. Cl. D6—*04*
U.S. Cl. D6—94



231,594
BEVERAGE SERVING TRAY
Leo H. Demers, 22847 Poplar Beach, St. Clair Shores, Mich. 48081
Filed Jan. 26, 1973, Ser. No. 326,726
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—71



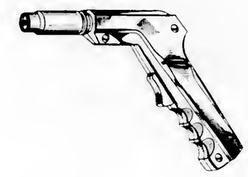
231,595
PORTABLE MICROWAVE OVEN OR SIMILAR ARTICLE
Raymond W. Young, 4227 Alton Road 40207, and Thomas J. Binzer, 7600 S. Bernard Way 40291, both of Louisville, Ky.
Continuation-in-part of design application Ser. No. 316,852, Dec. 20, 1973, which is a continuation-in-part of design application Ser. No. 316,882, Dec. 20, 1972, both now abandoned. This application Aug. 3, 1973, Ser. No. 385,606
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—128



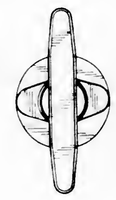
231,596
SPOON OR SIMILAR ARTICLE
Ellen B. Manderfield, Syracuse, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Jan. 15, 1973, Ser. No. 323,861
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—150



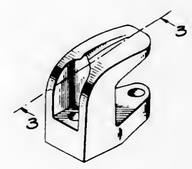
231,597
WELDING GUN FOR SHIELDED ARC WELDING
Wilhelm Dinse, 2 Hamburg 70, Konigsreihe 12, Hamburg, Germany
Filed June 1, 1972, Ser. No. 258,919
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



231,598
DOOR ROTOR LOCK ASSEMBLY OR SIMILAR ARTICLE
Lyle M. Northrup, New Hampton, Iowa, assignor to Lynor Engineering, Inc.
Filed July 17, 1973, Ser. No. 380,103
Term of patent 7 years
Int. Cl. D8—*07, 06*
U.S. Cl. D8—109



231,599
BEAM CLAMP BODY
Raymond M. Rumble, Girard, Ohio, assignor to Michigan Hanger Company, Inc., Hubbard, Ohio
Filed June 19, 1973, Ser. No. 371,410
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—235



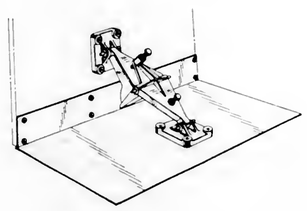
231,600
AWNING GUARD ROLLER ASSEMBLY FOR RECREATIONAL VEHICLE DOORS OR THE LIKE
Ray E. Mullis, Greensboro, N.C., assignor to Pine State Tool and Machine Co., Inc., Greensboro, N.C.
Filed June 18, 1973, Ser. No. 371,059
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—238



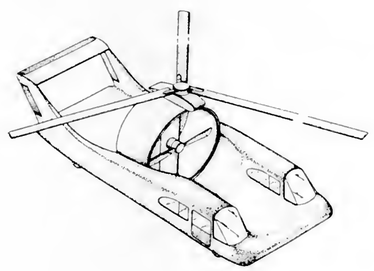
231,601
CONTAINER FOR LIQUIDS OR THE LIKE
Daniel S. Cvacho, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed Mar. 20, 1972, Ser. No. 236,548
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216



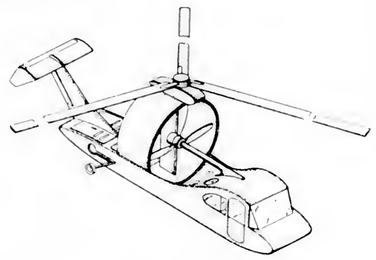
231,602
BOAT PLANING FIN
Niklas F. Zetterberg, 156 Muerdago Road, Topanga, Calif. 90290
Filed May 11, 1972, Ser. No. 252,530
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D12—70



231,603
ROTARY WING AIRCRAFT OR THE LIKE
Alexander Krivka, 4201 Crownfield Court, Westlake Village, Calif. 91360
Original design application Apr. 1, 1969, Ser. No. 17,089, now Patent No. 22,696, dated Aug. 31, 1971, which is a continuation-in-part of abandoned design application Ser. No. 8,165, Aug. 8, 1967. Divided and this application June 18, 1970, Ser. No. 23,552
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—73



231,604
ROTARY WING AIRCRAFT OR THE LIKE
Alexander Krivka, 4201 Crownfield Court, Westlake Village, Calif. 91360
Original design application Apr. 1, 1969, Ser. No. 17,089, now Patent No. 221,696, dated Aug. 31, 1971, which is a continuation-in-part of abandoned design application Ser. No. 8,165, Aug. 8, 1967. Divided and this application June 22, 1970, Ser. No. 23,592
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—73



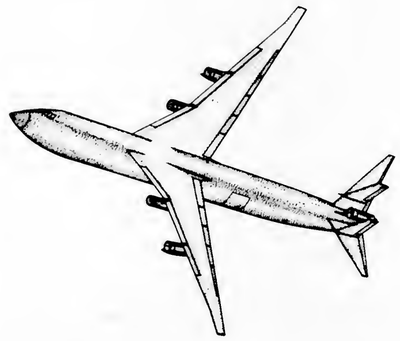
231,605
AIRPLANE
Fred D. Frajola, Bellevue, and Robert P. Norton, Mercer Island, Wash., assignors to The Boeing Company, Seattle, Wash.
Filed May 12, 1972, Ser. No. 252,965
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—80



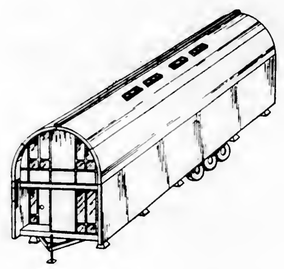
231,606
AIRPLANE
David G. Blattner, Mercer Island, and Robert H. Drinnon, Kent, Wash., and Stefano P. Ruocco, Finale Ligure, Italy, assignors to The Boeing Company, Seattle, Wash.
Filed June 8, 1972, Ser. No. 261,142
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—80



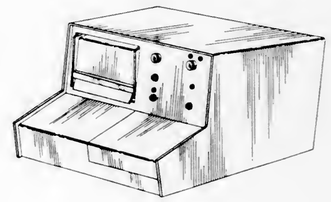
231,607
AIRCRAFT
Lawrence Bernard Rellis, 10460 SW. 163rd St., Miami, Fla. 33157
Filed Oct. 19, 1972, Ser. No. 300,856
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—80



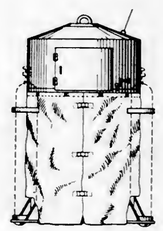
231,608
MOBILE BUILDING STRUCTURE
Richard A. Barlow, Springfield, Va. (2008 Dundee Road, Rockville, Md. 20850)
Filed Dec. 29, 1971, Ser. No. 213,795
Term of patent 7 years
Int. Cl. D12—*10*
U.S. Cl. D12—103



231,609
OPTICAL ELECTROPHORESIS SCANNER
Jan A. Vanden Broek, Ann Arbor, and George W. Toma, Dexter, Mich., assignors to Transidyne General Corporation, Ann Arbor, Mich.
Continuation-in-part of design application Ser. No. 149,133, June 1, 1971, now Patent No. 225,990. This application Oct. 19, 1972, Ser. No. 298,968
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D16—2 C



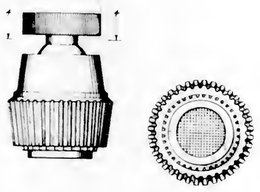
231,610
SEISMIC GAS EXPLODER
Delbert W. Donmeyer, Plano, Tex., assignor to Atlantic Richfield Company, New York, N.Y.
Filed Feb. 14, 1972, Ser. No. 226,369
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



231,611
FISH HOLDER
Proctor N. Carter, 930 Fairmont, Jefferson City, Mo. 65101
Filed Jan. 8, 1973, Ser. No. 321,845
Term of patent 7 years
Int. Cl. D22—*30*
U.S. Cl. D22—30



231,612
FAUCET SPRAY-AERATOR
Donald W. Doman, Janesville, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Aug. 3, 1972, Ser. No. 277,798
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35



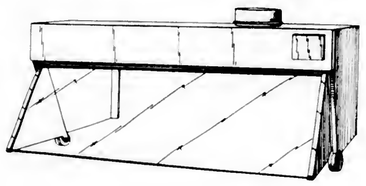
231,613
PILOT'S HEADSET HAVING RECEIVER AND TRANSMITTER
Richard H. Sarber, Ukiah, Calif., assignor to Multitech International Corporation, Oakland, Calif.
Filed Jan. 13, 1972, Ser. No. 217,718
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 H



231,614
ROOF-MOUNTED AIR CONDITIONING UNIT
Walter E. Woods and Paul E. Hammann, Bettendorf, Iowa, assignors to American Air Filter Company, Inc., Louisville, Ky.
Filed Feb. 4, 1972, Ser. No. 223,816
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—139



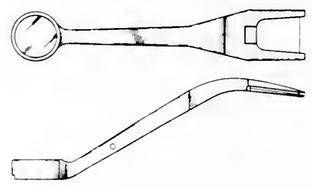
231,615
KITCHEN HOOD
Arne Nygard, Goteborg, and Stig Svensson, Jonkoping, Sweden, assignors to Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden
Filed July 31, 1972, Ser. No. 276,361
Claims priority, application Sweden Feb. 7, 1972
Term of patent 14 years
Int. Cl. D23—*04*; D24—*01*
U.S. Cl. D23—151



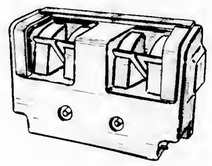
231,616
CAPSULE FOR DENTAL MATERIALS OR SIMILAR ARTICLE
Stephen L. Hiltebrant, Rocky River, and Reinhold Wilhelm Petruschke and Reinhold William Petruschke, Kirtland, Ohio, assignors to The Columbus Dental Manufacturing Company, Columbus, Ohio
Filed Aug. 22, 1972, Ser. No. 282,673
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—1 A



231,617
COMBINATION DENTAL FLOSS HOLDER AND MIRROR
Jack R. Lucas, 6500 Sepulveda Blvd., Van Nuys, Calif. 91401
Filed Jan. 4, 1973, Ser. No. 320,995
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—1 D



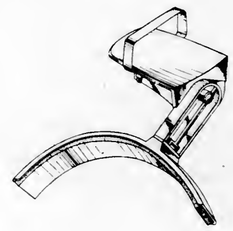
231,618
PORTABLE TRANSMITTER FOR REMOTE CONTROL OF ELECTRICALLY OPERATED EQUIPMENT
James Lindsay, Jr., Maple Heights, Ohio, Robert L. Lind, San Jose, Calif., and David E. Scott, Royal Oak, Mich., assignors to Square D Company, Park Ridge, Ill.
Filed July 12, 1973, Ser. No. 378,757
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13 R



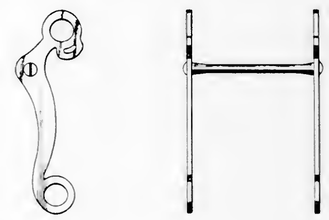
231,619
TRANSCRIBING UNIT FOR A DICTATION SYSTEM
Harry S. Kwiatkowski, Jr., Altamonte Springs, Fla. (513 W. Colonial Drive, Orlando, Fla. 32804)
Filed July 26, 1971, Ser. No. 166,325
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—14 B



231,620
TELEPHONE HAND-SET SUPPORT
Lyle H. Van Dyke, P.O. Box 14841, Portland, Oreg. 97214
Filed Jan. 10, 1972, Ser. No. 216,867
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



231,621
BRIDLE BIT
Mitchel R. Braley, 504 South 74 East Ave., Tulsa, Okla. 74115
Filed Aug. 9, 1971, Ser. No. 170,417
Term of patent 14 years
Int. Cl. D30—*04*
U.S. Cl. D30—21



231,622
DOLL
Rouben T. Terzian and Marvin I. Glass, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Nov. 20, 1972, Ser. No. 308,183
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R



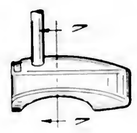
231,623
DOLL
Marvin I. Glass and Kathy A. Dunn, Chicago, Ill., assignors to Marvin Glass & Associates
Filed Jan. 8, 1973, Ser. No. 322,078
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R



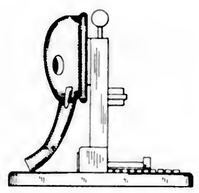
231,624
PUTTER
H. Douglas Wilmoth, Lakewood, Colo., assignor to The Lange Company, Broomfield, Colo.
Filed Nov. 19, 1971, Ser. No. 200,667
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 CB



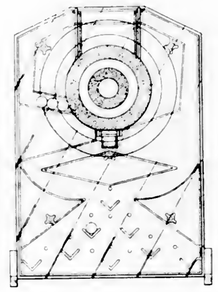
231,625
GOLF PUTTER
Frank D. Werner, Box SR9, Jackson, Wyo. 83001
Filed Sept. 15, 1972, Ser. No. 289,422
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 CB



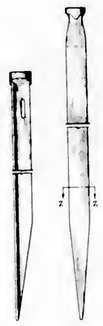
231,626
THERAPEUTIC EXERCISER
Charles Dennis Flanigan, San Jose, Calif., assignor to Overly Manufacturing Company, Greensburg, Pa.
Filed Dec. 4, 1972, Ser. No. 311,961
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 K



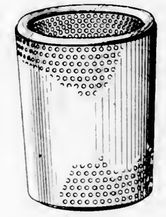
231,627
BOARD FOR A COMBINED DART AND PINBALL GAME
Bernard J. Cagan, Torrance, Calif., assignor to Placo Products Company, Torrance, Calif.
Filed Mar. 7, 1973, Ser. No. 338,648
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 LL



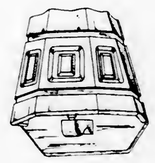
231,628
PLANT STAKE
Dennis Michael Bartels, Leawood, Kans., assignor to Mid-West Enterprises, Inc., Leawood, Kans.
Filed Dec. 30, 1971, Ser. No. 214,503
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D35—1



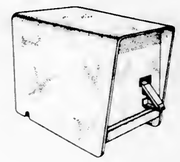
231,629
CANDLE HOLDER
Richard A. Schultz, Kansas City, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo.
Filed Oct. 17, 1972, Ser. No. 300,397
Term of patent 14 years
Int. Cl. D26—*01*
U.S. Cl. D48—2



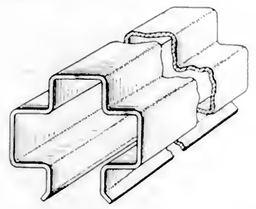
231,630
WALL LAMP
George Sherry, 18480 Santa Alberta Circle, Fountain Valley, Calif. 92708
Filed Apr. 16, 1973, Ser. No. 351,514
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—4 B



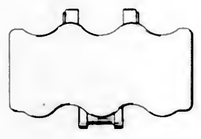
231,631
TICKET DISPENSER
Richard H. Burns, Troy, Ohio, assignor to The Hobart Manufacturing Company, Troy, Ohio
Filed Apr. 26, 1972, Ser. No. 247,928
Term of patent 14 years
Int. Cl. D31
U.S. Cl. D52—2 R



231,632
CONVEYOR SUPPORT CHANNEL
James Price Minns, Christies Beach, South Australia, Australia, assignor to Consolidated Standard Conveyor Systems Pty. Ltd., North Plympton, South Australia, Australia
Filed May 16, 1972, Ser. No. 253,918
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D55—1 C



231,633
LINK FOR CONVEYOR
Hisao Totani, Kawaguchi, Japan, assignor to Pulton Chain Co., Ltd., Kawaguchi-shi, Japan
Filed July 25, 1972, Ser. No. 274,917
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D55—1 C



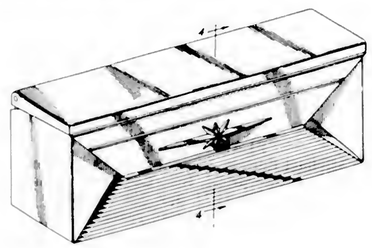
231,634
FONT OF TYPE
Clayton A. Stahlka, Eggertsville, N.Y., assignor to Andco Incorporated, Buffalo, N.Y.
Filed May 2, 1972, Ser. No. 249,747
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D64—12 B



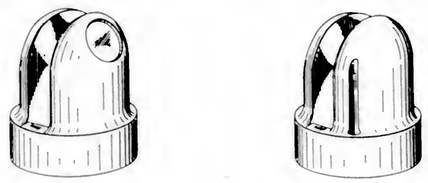
231,635
TYPEWRITER
Richard H. Penney, New York, N.Y., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Jan. 12, 1973, Ser. No. 322,977
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11 A



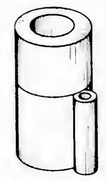
231,636
MAILBOX
Murray M. Fibus, Youngstown, Ohio, assignor to Steel City Corporation, Youngstown, Ohio
Filed May 25, 1972, Ser. No. 257,071
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D74—9 R



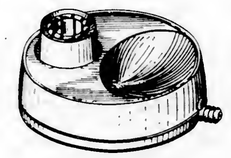
231,637
PAPER AND PENCIL HOLDER
Alwin John Stahel II, New Brighton, Minn., assignor to The Holes-Webway Co., St. Cloud, Minn.
Filed Aug. 14, 1972, Ser. No. 280,325
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—5 A



231,638
COMBINED CLIP DISPENSER AND PENCIL HOLDER
Robert M. Leedy, 7 Martindale Road, Short Hills, N.J. 07078
Filed Dec. 4, 1972, Ser. No. 311,651
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—5 A



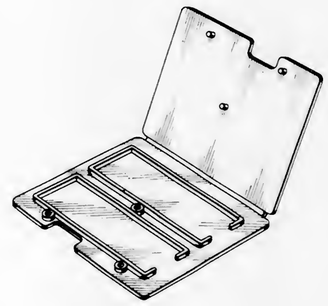
231,639
PORTABLE DOUCHE APPARATUS
Vincent J. Gambello, New York, N.Y., assignor to Pulsatron Corporation, Forest Hills, N.Y.
Filed Mar. 16, 1973, Ser. No. 342,272
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D83—1 P



231,640
SMOKING PIPE OR THE LIKE
Richard W. Kahler, Clinton, Md., assignor to Surf and Psych, Inc., College Park, Md.
Filed May 25, 1973, Ser. No. 364,145
Term of patent 14 years
Int. Cl. D27—*02*
U.S. Cl. D85—8 A



231,641
SHIPPING CONTAINER FOR MICROSCOPIC SLIDES OR THE LIKE
Niels Kristian Johan Christiansen, 20 Vesterbrogade, 1620 Copenhagen, Denmark
Filed Feb. 9, 1971, Ser. No. 114,095
Claims priority, application Denmark Dec. 23, 1970
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—1 D



231,642
SHIPPING CONTAINER FOR MISCROSCOPIC SLIDES OR THE LIKE
Nils Kristian Johan Christiansen, 20 Vesterbrogade, 1620 Copenhagen, Denmark
Filed Mar. 10, 1971, Ser. No. 123,117
Claims priority, application Denmark Dec. 23, 1970
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—1 D



231,643
RESINOUS DEEP TEXTURED DECORATIVE LAMINATE SHEET
Jack August Willard, Hamilton, Ohio, assignor to Formica Corporation, Cincinnati, Ohio
Filed Dec. 7, 1972, Ser. No. 313,022
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D87—3 G



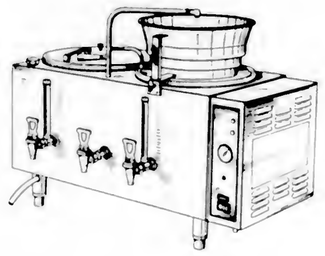
231,644
TUFTING MACHINE CLIP
Randel P. Smith, Chattanooga, Tenn., assignor to The Singer Company, New York, N.Y.
Filed July 12, 1971, Ser. No. 161,410
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D92—15



231,645
TUFTING MACHINE CLIP
Paul Eugene Jolley, Chattanooga, Tenn., assignor to The Singer Company, New York, N.Y.
Filed Jan. 8, 1973, Ser. No. 321,599
Int. Cl. D15—*06*
Term of patent 14 years
U.S. Cl. D92—15



231,646
COFFEE URN
William M. Bardeau, 44 Princess Margaret Blvd., Islington, Ontario, Canada
Filed June 29, 1972, Ser. No. 267,611
Claims priority, application Canada Jan. 7, 1972
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D94—3 B



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 7TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Aagesen, Elvin A. Vehicle mountable area cleaner. 3,808,632, Cl. 15-340.000.

Aaron, Albert Glenn, to Passpoint Corporation. Control system for automatic vehicle washing installation. 3,809,919, Cl. 307-41.000.

Aas, Helge Hakonsonn; and Kolflaath, Jorgen August, to Spigerverk, Christiana. Process for refining technical grade silicon and ferrosilicon by continuous extraction. 3,809,548, Cl. 75-101.00r.

AB Motala Verkstad: *See—*
Thorsson, Lars-Ake Olof; and Jarvenson, Erik Borje, 3,809,577.

Abbey, Anthony, to American Cyanamid Company. Antibiotic-stable liquid protein supplements containing non-protein nitrogen, phosphorus and a tetracycline antibiotic. 3,809,751, Cl. 424-227.000.

Abbey, Harold G. Four-stroke and two-stroke rotary internal combustion engine. 3,809,024, Cl. 123-8.450.

Abel, Heinz, to Ciba-Geigy AG. Process for dyeing fiber mixtures of polyester and wool. 3,809,532, Cl. 8-21.00c.

Abex Corporation: *See—*
Blanyer, Carl G., 3,810,251.
Frank, Earl E.; and Graham, Glenn R., 3,809,188.

Abraham, Samuel V. Contact lens for viewing fluorescent eye tissue. 3,809,092, Cl. 128-305.000.

Abraham, Samuel V. Surgical tool. 3,809,093, Cl. 128-305.000.

Abrams, Andrew M., to Union Camp Corporation. Ring accessory for an educational device. 3,808,737, Cl. 46-221.000.

Academic Associates, Inc.: *See—*
DiMeo, Frank N., 3,809,865.

Ackerman, Don; and Grossman, Martin, to Economy Color Card Co. Inc. Wallpaper display apparatus. 3,808,710, Cl. 35-55.000.

Acme Conveyor Company, Inc.: *See—*
Downing, Thomas P., 3,809,388.

Acton, Frank J.: *See—*
Marbach, Walter V.; Acton, Frank J.; Eichin, Harry P.; and Winokur, Louis L., 3,809,576.

Adachi, Richard R.: *See—*
Howard, Wayne H.; Young, Donald R.; and Adachi, Richard R., 3,809,871.

Adalbert, Gerhard: *See—*
Linder, Ernst; Adalbert, Gerhard; and Hess, Juergen, 3,809,511.

Adams & Westlake Company, The: *See—*
Ehret, Yale W.; and Anderson, Russell O., 3,808,742.

Adams, Crawford W.; and Holt, David T., deceased (by Holt, Myrtle, executrix). Elevator bracket for outboard motor 248/004.000. 3,809,343, Cl. .

Adamski, Henry S.; and Kindig, Guilford E., to Eastman Kodak Company. Film unit processing mechanism. 3,810,210, Cl. 354-86.000.

Addressograph-Multigraph Corporation: *See—*
Neuman, Henry J., 3,809,559.

Adler, Hermann, to Haefely, Emil, & Cie AG. Apparatus for focussing the beam of a particle accelerator. 3,810,030, Cl. 328-228.000.

Aerolite Electronics Corporation: *See—*
Schubert, Howard C., 3,810,171.

Aeschlimann, Pierre; Fresard, Marcel; and Jimenez, Antonio, to Mefina S.A. Electric ironing press. 3,809,851, Cl. 219-243.000.

Afanasov, Erik Eduardovich: *See—*
Levin, Igor Anatolievich; Levin, Anatoly Yakovlevich; Fedorov, Nikolai Evstigneevich; Rogov, Iosif Alexandrovich; Afanasov, Erik Eduardovich; and Turyansky, Eduard Grigorievich, 3,809,341.

Agfa-Gevaert Aktiengesellschaft: *See—*
Fauth, Guenter, 3,810,219.
Lermann, Peter; and Durr, Helmut, 3,810,204.

Agfa-Gevaert N.V.: *See—*
Natens, Luc Yves, 3,809,911.
Van Doorselaer, Marcel Karel, 3,809,906.

Aghazadeh, Shirzad, to Singer Company, The. Magnetic memory read system for digital recordings. 3,810,232, Cl. 360-42.000.

Ahlgren, Erick L.: *See—*
Schweppe, Joseph L.; McMorris, Arthur H.; and Ahlgren, Erick L., 3,809,120.

Aho, Alfred Vaino; and Ullman, Jeffery David, to Bell Telephone Laboratories, Incorporated. Shift-shuffle memory system with rapid sequential access. 3,810,112, Cl. 240-172.500.

Aihara, Ryuzo; Ota, Susumu; and Kobauashi, Nobuyuki, to Nihon Denshi Kabushiki Kaisha. Field emission type electron gun. 3,810,025, Cl. 328-10.000.

Air-Way Manufacturing Company: *See—*
Jaquette, Robert D., 3,808,664.

Aisin Seiki Company Limited: *See—*
Kazoaka, Kenichi, 3,809,416.

Aisin Seiki Kabushiki Kaisha: *See—*
Inada, Masami; and Ando, Masamoto, 3,809,437.
Mori, Masanori, 3,809,198.
Takaeda, Hisanobu; and Satomoto, Atsushi, 3,809,492.

Akai, Shin-Ichi; Mori, Hideki; Takahashi, Nobuo; and Iguchi, Shin-Ichi, to Sumitomo Electric Industries, Ltd. Method for continuously growing epitaxial layers of semiconductors from liquid phase. 3,809,584, Cl. 148-172.000.

Akesson, Yngve Reinhold, to Produits Findus S.A. Apparatus for controlling the feed of loose material. 3,809,209, Cl. 198-167.000.

Aktiebolaget Jonkopings Vacuumindustri: *See—*
Ek, Sigvard, 3,809,275.

Aktiebolaget Svenska Flaktfabriken: *See—*
Carlsson, Mats, 3,808,661.

Aktiengesellschaft Electrolux: *See—*
Eber, Nicolas, 3,808,834.

Aktiengesellschaft Jungbunzlauer Spiritus- und Chemische Fabrik: *See—*
Kabil, Adel J., 3,809,612.

Akwell Industries, Incorporated: *See—*
Povlacs, Lawrence J.; and Crawley, William B., 3,809,090.

Albany International Corporation: *See—*
Kershaw, Thomas N., 3,809,961.

Alexander, Gordon A., to Emhart Corporation. Mortise lock having freely movable external manipulator. 3,808,849, Cl. 70-149.000.

Alfa-Laval AB: *See—*
Andersson, Jarl Anders, 3,809,156.
Stenstrom, Lennart Arvid, 3,809,844.
Stenstrom, Lennart Arvid, 3,809,845.

Alfano, Bernardino M.: *See—*
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F.; Muck, Anthony M.; and Alfano, Bernardino M., 3,808,880.

Alger, Martin J., Jr.; and Dunn, Nelson H., to General Signal Corporation. Bonded bronze-iron liners for steel cylinder barrel and method of making same. 3,808,659, Cl. 29-156.4wl.

All-Steel Inc.: *See—*
Beaver, Donald V., 3,809,449.

Allemand, Pierre; and Hovasse, Christian, to Rhone-Progil. Product and process for preparing improved binders containing slag. 3,809,665, Cl. 260-29.60s.

Allen, Redfield W.; and Weckesser, Louis B., to United States of America, Navy. Compact transpiration cooling system. 3,808,833, Cl. 62-467.000.

Allen, Terence. Sedimentometer. 3,809,885, Cl. 250-357.000.

Allen-Bradley Company: *See—*
Kiffmeyer, William W., 3,810,118.
Markley, Theodore J., 3,810,104.

Allet-Coche, Pierre. Jean-Jacques Goupel Containers. 3,809,225, Cl. 206-220.000.

Allied Chemical Corporation: *See—*
Sansing, James Earl; and Novotny, Joseph, 3,809,653.
Sievenpiper, Frederic L., 3,809,533.
Sievenpiper, Frederick L.; and Bement, Elmore L., 3,809,536.

Allied Controls Company, Inc., mesne: *See—*
Hoge, Henri H., 3,809,984.

Allis-Chalmers Corporation: *See—*
Berg, David A., 3,809,122.
Cook, Eugene B., 3,809,324.
Schott, Robert E.; and Longshore, Donald W., 3,808,810.

Allison, Birt, Jr.; Daniels, Calvin L.; and Moss, James H., Jr., to Cosden Oil & Chemical Company. Hydrogenation of polystyrene. 3,809,687, Cl. 260-93.50a.

Allison, Gordon H., Jr.; and Greaf, Clarence V., to Magnavox Company, The. Television combat game. 3,809,395, Cl. 273-1.00e.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
Pucher, Walter, 3,809,959.
Sjoberg, Sven; Fagerstad, Herlov; and Weng, August, 3,809,938.

Almendarez, Charles. Clasp. 3,808,651, Cl. 24-260.000.

Alps Electric Co., Ltd.: *See—*
Ogasaware, Shoji; and Tamate, Teruzo, 3,808,896.
Yanaga, Makoto, 3,810,052.

Alquist, Henry E., to Phillips Petroleum Company. Stratified charge spark ignition internal combustion engine with exhaust recycle. 3,809,039, Cl. 123-119.00a.

Aluminum Company of America: *See—*
Jacobs, Stanley C., 3,809,794.
Pekarek, William R., 3,809,347.

Alvine, Charles E., to Electro Systems Engineering, Inc. Self-container kidney dialysis apparatus. 3,809,241, Cl. 210-87.000.

Amana Refrigeration Inc.: *See—*
Foerstner, Richard A., 3,809,486.

Amazon Natural Drug Company, The: *See—*
Persios, Georgia J., 3,809,749.

Amazonen-Werke, H. Dreyer,: *See—*

Dreyer, Heinz, 3,809,316.

Ambrico, Louis Edward; Katsafouros, Stavros George; Kleen, Bergert George; and Lamoureux, William Roger, to International Business Machines Corporation. Sine wave deflection system for correcting pincushion distortion. 3,809,947, Cl. 315-276.00d.

Amemiya, Kunio: *See—*
Arimoto, Heiji; Goto, Tokujo; Amemiya, Kunio; and Seki, Tunekatu, 3,808,618.

Amerace Esna Corporation: *See—*
Flanagan, Robert M., 3,809,487.

American Cyanamid Company: *See—*
Abbey, Anthony, 3,809,751.
Hansen, Lloyd Frank, 3,809,084.
Richmond, Henry, 3,809,674.
Schmitt, Edward Emil; Polistina, Rocco Albert; and Forgione, Peter Salvatore, 3,809,605.
Schmitt, Edward Emil; and Capozza, Richard Carl, 3,809,616.
Schmitt, Edward Emil, 3,809,617.
Schmitt, Edward Emil; and Polistina, Rocco Albert, 3,809,683.

American Cyanamid Company, mesne: *See—*
Torgeson, William Lee, 3,809,294.

American Hoechst Corporation: *See—*
Horner, Ellwood J., 3,809,105.

American Home Products Corporation: *See—*
Bush, John W.; and Pyrz, Edmund J., 3,809,756.

American Potato Company: *See—*
Mathias, James J.; and Holland, Robert L., 3,809,758.

American Standard Inc.: *See—*
Jesernig, William J.; and Arstikaitis, Arunas A., 3,808,776.

Amerind MacKissic: *See—*
MacKissic, Albert E.; and Kolb, Robert C., 3,809,323.

AMF Incorporated: *See—*
Rogers, Philip A., 3,808,879.

AMP Incorporated: *See—*
Lockard, Joseph Larue; and Rose, William Henry, 3,809,830

Ampoules, Inc.: *See—*
Hurschman, Alfred A., 3,809,082.

Anderson, Andrew W., to Scandia Packaging Machinery Company. Method and apparatus for conveying a container. 3,809,210, Cl 198-179.000.

Anderson, Gordon C.: *See—*
Preston, Frederick A.; Tarbox, Philip B.; and Anderson, Gordon C., 3,808,790.

Anderson, John Alfred, to Procter & Gamble Company, The. Hair setting process. 3,809,098, Cl. 132-7.000.

Anderson, Norman J.; Decker, John L.; and Manuelso, Jon R., to Zurn Industries, Inc. Flexible disc coupling for tandem coupling assembly. 3,808,837, Cl. 64-13.000.

Anderson, Philip A.: *See—*
Jereb, Richard F.; and Anderson, Philip A., 3,809,044.

Anderson, Russell O.: *See—*
Ehret, Yale W.; and Anderson, Russell O., 3,808,742.

Andersson, Hans; and Edet, Hakon. Biological toilet. 3,808,609, Cl. 4-133.000.

Andersson, Jarl Anders, to Alfa-Laval AB. Heat exchanging plate with pressed ridges. 3,809,156, Cl. 165-167.000.

Ando, Masamoto: *See—*
Inada, Masami; and Ando, Masamoto, 3,809,437.

Andress, Harry J., Jr., to Mobile Oil Corporation. Organic compositions containing aminoguanidine antioxidants. 3,809,719, Cl. 260-564.00f.

Andrews, George J.; and Rosen, Harold A., to Hughes Aircraft Company. Spin stabilized vehicle and solar cell arrangement therefor. 3,809,337, Cl. 244-1.0ss.

Andrews, Peter. Health, surface, water and/or material protective device. 3,809,175, Cl. 180.69.100.

Andrezejak, Sigmund L.; Orehoski, Michael A.; Shapland, James T., and Szumilas, Raymond S., to United States Steel Corporation. Method of opening an intermediate vessel nozzle for continuous casting. 3,809,146, Cl. 164-66.000.

Andrus, Donald M.: *See—*
Tierney, Peter R.; Lohman, Arthur F.; and Andrus, Donald M., 3,810,181.

Angelstrand, Sten Borje: *See—*
Aslund, Nils Robert Dahr; Pettersson, Sven-Olof; and Angelstrand, Sten Borje, 3,809,482.

Anlegg & Maskin A/S: *See—*
Kolderup, Edward; and Eidsmo, Jacob, 3,809,344.

Anthony, William H.; and Popplewell, James M., to Olin Corporation. Erosion-corrosion resistant aluminum radiator clad tubing. 3,809,155, Cl. 165-133.000.

APM Corporation: *See—*
Nadler, Bernard David; and Cotter, Mitchell A., 3,810,106.

Apostolakis, Anthony: *See—*
Reed, Joseph; Shapiro, Jonas M.; Iliakidis, Athanassious; and Apostolakis, Anthony, 3,809,816.

Arafune, Hisayuki: *See—*
Hosoya, Minoru; Hama, Tatsuharu; and Arafune, Hisayuki, 3,808,957.

Araki, Yoshihiko; Sato, Naotake; and Takahashi, Mikio, to Nippon Oil Company Limited. Emulsion polymerization of diolefins and vinyl compounds in the presence of alginate metal salts to produce high polymer concentration, low viscosity latexes. 3,809,662, I. 260-17.4bb.

Arbeck Industrial & Mining Equipment Co. Limited: *See—*
Hubbard, Elbert G., 3,809,438.

Arctic Pac, Inc.: *See—*
Schmit, Justin M., 3,809,290.

Arcudi, Joseph, to Becton, Dickinson and Company. Child safety package. 3,809,220, Cl. 206-484.000.

Arens, Egidius, to Fried. Krupp Gesellschaft beschrankter Haftung. Circuit arrangement for forming a time sequence of signals. 3,810,082, Cl. 340-6.00r.

Arimoto, Heiji: *See—*
Kimura, Hiroshiro; Arimoto, Heiji, Nara, Hirohisa; Miyamatsu, Tsugio, and Kitajima, Mitsuo, 3,809,131.
Arimoto, Heiji; Goto, Tokujo; Amemiya, Kunio; and Seki, Tunekatu, to Unitika Ltd. Method for continuous dyeing of yarns. 3,808,618, Cl. 8-149.000.

Arjas, Olavi, to Sarvis Oy. Bottle crate. 3,809,279, Cl. 220-21.000.

Armstrong Cork Company: *See—*
Hazeley, James E., 3,809,358.
Ollinger, James C.; and Wasson, Kenneth L., 3,808,763.

Armstrong, Doanld E. Percussive flash extender. 3,810,215, Cl. 354-148.000.

Arnold, William A.; and Miller, Roger E. Residential alarm system. 3,810,163, Cl. 340-310.00r.

Aronoff, Elihu J.; and McLaughlin, Ernest O. Method of painting polyolefin substrate. 3,809,569, Cl. 117-93.310.

Arora, Vinod K.: *See—*
Gregerson, David A.; and Arora, Vinod K., 3,809,510.

Arpin, Lee James, to Bell Telephone Laboratories, Incorporated. Video sync separator. 3,809,808, Cl. 178-7.30s.

Arrow Manufacturing Company, Inc.: *See—*
Ferguson, Howard, 3,809,216.

Arstikaitis, Arunas A.: *See—*
Jesernig, William J.; and Arstikaitis, Arunas A., 3,808,776.

Arvey Corporation: *See—*
Kooi, Edward; Odynski, George, and Stage, Leo J., 3,809,603.

Arvin Industries, Inc.: *See—*
Kasprzak, Vincent, 3,809,805.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Sato, Hideo; and Sugaya, Yoshiharu, 3,809,685

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Uno, Naoyuki, 3,810,202.
Wakamiya, Shunichiro; and Itoh, Kiyoshi, 3,809,459.

Asakawa, Shigeo: *See—*
Murakami, Junzo, Asakawa, Shigeo; and Takeuchi, Keiji, 3,810,158.

Ashbrook, Clifford L. Powder measuring and dispensing device. 3,808,939, Cl. 86-28.000.

Ashkin, Arthur, and Dziedzic, Joseph Martin, to Bell Telephone Laboratories, Incorporated. Devices employing the interaction of laser light with magnetic domains. 3,810,131, Cl. 340-174.0yc.

Askew, John Thomas, to Flashbacks, Inc. Decorative plastic finish. 3,809,568, Cl. 117-38.000.

Aslund, Nils Robert Dahr; Pettersson, Sven-Olof; and Angelstrand, Sten Borje, to Saab-Scania Aktieholag. Signal-compensating system for measuring machines, in which photographic plates are examined by a photo-electric method. 3,809,482, Cl. 356-205.000.

Aspinall, Arnold; Spruce, David Gordon; and Lynam, John Thomas, to National Research Development Corporation. Earth polarization meter with voltage control during current injection. 3,810,000, Cl. 324-1.000.

Associated International Corporation: *See—*
LaMoreux, Clarence E., 3,808,695.

Aston Electronic Developments Limited: *See—*
Atkin, Laurence Walter, 3,810,166.

Atkin, Laurence Walter, to Aston Electronic Developments Limited. Electronic character generating system. 3,810,166, Cl. 340-324.0ad.

Atkinson, Ward J.; and Kozinski, Richard C., to General Motors Corporation. Thermally actuated suction throttling valve. 3,808,830, Cl. 62-217.000.

Atomic Energy of Canada Limited: *See—*
Clarke, Robert L.; and Van Dyk, Gerk Gerry, 3,809,904.

Auble, Ronald E.; and Kimmet, Gary J., to Gleason Works, The. Method and apparatus for monitoring condition of cutting blades. 3,809,870, Cl. 235-151.300.

Audichron Company, The: *See—*
Walker, Walter P.; Cobb, Douglas R.; and Cofer, Frank H., Jr., 3,809,810.

Auer, Robert T.: *See—*
Lohr, Raymond J.; and Auer, Robert T., 3,809,406.

Augustine, Robert J.: *See—*
Unger, John J.; Augustine, Robert J.; and Khaja, Farees U., 3,809,285.

Aurora Corporation of Illinois: *See—*
Craver, Albert F., 3,809,055.

Ausnit, Steven. Permanently closable fastener. 3,808,649, Cl. 24-201.00c.

Automatic Druckmaschinenfabrik: *See—*
Staamann, Otto, 3,808,971.

Automatic Liquid Packaging, Inc.: *See—*
Komendowski, Henry, 3,809,289.

Avantek, Inc.: *See—*
Gill, Walter J.; and Mellenger, James A., 3,809,817.

Avco Corporation: *See—*
Davis, Henry, Jr.; and Church, Donald E., 3,810,090.
Locke, Edward V.; and Gerry, Edward T., 3,810,043.

Avery Products Corporation: *See—*

Christiansen, James O., 3,808,718.

Avery, William L., to Burlington Industries, Inc. Data collection system. 3,810,101, Cl. 340-172.500.

Avon, Eric Joseph; and Rabow, Jack Jacob. Refrigeration unit. 3,808,827, Cl. 62-59.000.

Azukas, John Joseph: *See—*
Klass, Donald Leroy; and Azukas, John Joseph, 3,809,615.

Baba, Hirotoshi: *See—*
Miyanishi, Noritake; Kubota, Shigeru; Baba, Hirotoshi; and Takahashi, Masahiro, 3,809,201.

Bachmann, Robert Theophil, to Luwa A.G. Apparatus for drying fluent materials. 3,808,701, Cl. 34-179.000.

Bacon, Kenneth H., Jr.; and Bacon, Kenneth H., Sr. Tornado warning device. 3,810,137, Cl. 340-224.000.

Bacon, Kenneth H., Sr.: *See—*
Bacon, Kenneth H., Jr.; and Bacon, Kenneth H., Sr., 3,810,137.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Mueller-Tamm, Heinz; Urban, Friedrich; Frielingsdorf, Hans; Nickl, Johann; Schweier, Guenther; and Kohnle, Josef, 3,809,657.

Badische Anilin-& Soda-Fabrik Aktiengesellschaft: *See—*
Daeuble, Manfred; Greif, Norbert; and Fikentscher, Rolf, 3,809,717.

Baedke, Dale E. Cord holder. 3,809,349, Cl. 248-51.000.

Baer, Jurgen; Sommer, Dieter; and Toplak, Ernst, to Brown Boveri & Company Limited. Gas-cooled electrical generator. 3,809,934, Cl. 310-53.000.

Baglai, Boris Ivanovich. Nonpulsating fluid-flow pump. 3,809,507, Cl. 417-488.000.

Bahnsen, Gerhard I. W. Camera positioning apparatus. 3,810,209, Cl. 354-80.000.

Bailey, Dunn M.: *See—*
Harper, Ernest A.; and Bailey, Dunn M., 3,808,826.

Baillargeon, Victor: *See—*
Delisle, Jules; and Baillargeon, Victor, 3,809,811.

Baitinger, Utz G.; and Najmann, Knut K., to International Business Machines Corporation. Monolithic storage multi-emitter transistors with different width bases. 3,810,123, Cl. 340-173.0ff.

Bakelite Xylonite Limited: *See—*
Taylor-Brown, Terence John; and Jack, James, 3,809,594.

Baker Perkins Inc.: *See—*
Krenke, Norman O.; and Sims, De Witt, 3,809,265.

Baker, Thompson A.; Balsiger, Melvin M.; Considine, Kevin T.; and Litsjo, Herbert E., to Tektronix, Inc. Electron-beam tube including a thermionic-field emission cathode for a scanning electron microscope. 3,809,899, Cl. 250-311.000.

Balamuth, Lewis; Kuris, Arthur; and Karatjas, Manual, to Ultrasonic Systems, Inc. Ultrasonic kits and motor systems. 3,809,977, Cl. 318-116.000.

Balandin, Jury Mikhailovich: *See—*
Dolgy, Andrei Emelyanovich; Balandin, Jury Mikhailovich; Shelepchikov, Viktor Vasilievich; and Shutov, Vladimir Ivanovich, 3,809,340.

Balcombe, Bobby L.: *See—*
Blore, James H.; and Balcombe, Bobby L., 3,808,843.

Balder, Norman J. Telescopic measurement transfer device. 3,808,690, Cl. 33-1.0cc.

Bales, Russell C., Sr. Cylinder sleeve puller and inserter. 3,808,666, Cl. 29-252.000.

Ball Brothers Research Corporation: *See—*
Krutsinger, Jack K.; Bullai, Carl N.; and Munson, Robert E., 3,810,183.

Ballmatic Corporation: *See—*
Winton, Herbert D., 3,809,035.

Balluff, Robert N.; and Stormont, James D., to Tenneco Inc. Downflow catalytic converter for engine exhaust gases. 3,809,539, Cl. 23-288.00f.

Balsiger, Melvin M.: *See—*
Baker, Thompson A.; Balsiger, Melvin M.; Considine, Kevin T.; and Litsjo, Herbert E., 3,809,899.
Stock, W. Riley; Balsiger, Melvin M.; and Beran, William G., 3,809,888.

Balz, Gunther W.; and Leipold, Forrest P., to Roto-Finish Company. Method and apparatus for manufacture of solid abrasive chips. 3,808,744, Cl. 51-3.000.

Bank of Montreal, mesne: *See—*
Millett, James A., 3,810,218.

Bannies, Hans E., to Plummer, Walter A. Seam operating tool. 3,808,665, Cl. 29-243.500.

Banyai, Albert. Centrifugal pump structure. 3,809,491, Cl. 415-88.000.

Barber-Colman Company: *See—*
Engelke, Roger P.; and Zille, Marvin H., 3,809,314.

Barbin, Dennis Dale: *See—*
Gabby, John Lester; Barbin, Dennis Dale; and Lowe, Jack Brunner, 3,809,764.

Baril, Michel; and Legendre, Jacques, to Thomson-CSF. Resistive power load. 3,810,048, Cl. 333-2.00r.

Barkalow, Clare E.: *See—*
Mosley, Kenneth C.; and Barkalow, Clare E., 3,808,706.

Barkdull, Howard L., Jr. Bridge construction. 3,808,624, Cl. 14-1.000.

Barker, George E.: *See—*
Unland, Mark L.; and Barker, George E., 3,809,743.

Barlow, George J.: *See—*
De Voy, David D.; Barlow, George J.; and Klashka, John A., 3,810,231.

Barnes, Phillip C., Jr.; and Holaday, Charles E., to United States of America, Agriculture. Pneumatic apparatus for blanching heated or roasted peanuts. 3,808,964, Cl. 99-518.000.

Barrett, John E.: *See—*
Haines, Robert C.; Barrett, John E.; and Stevens, Eric H., 3,809,402.

Barrett, William T.; and Potter, Newton I., to Wehr Corporation. Magnetic refuse separator. 3,809,239, Cl. 209-111.800.

Barron, Daniel. Propagation loss measuring device. 3,810,079, Cl. 340-3.00r.

Barry, Thomas Ian: *See—*
Gaskell, Philip Hedley; Lythgoe, Stanley; Irlam, Philip Sidney; Miller, Robert Percy; and Barry, Thomas Ian, 3,809,543.

Bartels, John H. Motor speed control apparatus for an electrically powered vehicle. 3,809,975, Cl. 318-39.000.

Barten, Piet Gerard Joseph, to U.S. Philips Corporation. Exposure device for manufacturing a display screen of a colour television picture tube, comprising a rotating lens. 3,810,196, Cl. 354-1.000.

Barthel, Hans: *See—*
Siebers, Gunter; Prenzel, Karl; and Barthel, Hans, 3,808,738.

Barthelemy, Gabriel: *See—*
Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie; Barthelemy, Gabriel; Cinquanta, Alain; and Drapeau, Yves, 3,809,372.

Barthelemy, Robert Lucien, to Etat Francais. System for detecting weak information signals in noisy receiver signals. 3,810,029, Cl. 328-167.000.

Basard, Robert; and Dalbera, Michel R. J., to International Standard Electric Corporation. Range-controlled variable gain device for pulse radar receiver. 3,810,178, Cl. 343-16.00m.

BASF Wyandotte Corporation: *See—*
Boehmer, Matthew A., 3,809,152.

Basf Wynadotte Corporation: *See—*
Niu, Hsien Ying; and Weipert, Eugene A., 3,809,723.

Bass, Merlyn Duane; and Boushek, Sidney Joseph, Jr., to Deere & Company. Harvesting platform suspension system. 3,808,781, Cl. 56-15.900.

Basse, Philip, to Comstron Corporation. Sensitive wide band voltmeters. 3,810,015, Cl. 324-120.000.

Bastian, Clyde E., Jr., to Global Marine Inc. Method of clearing a path through ice. 3,808,997, Cl. 114-40.000.

Baswell, Harlen L.: *See—*
Hays, John D.; Baswell, Harlen L.; Combs, Jerry A.; and Brown, Dale G., 3,809,989.

Batista, Roy I., to TRW Inc. Diffusion bonding apparatus. 3,809,309, Cl. 228-44.000.

Battelle Memorial Institute: *See—*
Gillot, Jacques; and Lux, Benno, 3,809,635.

Battini, Roberto: *See—*
Clementi, Anacleto; and Battini, Roberto, 3,809,688.

Baudouin, Pascal, to Mobil Oil Corporation. Grease composition. 3,809,647, Cl. 252-28.000.

Baumann, Dieter: *See—*
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, 3,809,660.

Baumann, Hans D., to Masoneilan International, Inc. High pressure soft seat valve. 3,809,362, Cl. 251-332.000.

Baumann, Ludwig. Appliance for bubbling compressed air through a liquid, particularly water in a bathing tub and the like. 3,809,073, Cl. 128-66.000.

Baumann, Wilfried. Cutting machine for cutting flat materials. 3,808,921, Cl. 83-155.000.

Baumgardner, John D.; and Ebeling, Dorothy J., to Donnelly Mirrors, Inc. View expanding and directing optical system. 3,809,461, Cl. 350-302.000.

Baumgardner, John D.; and Ebeling, Dorothy J., to Donnelly Mirrors, Incorporated. View expanding and directing optical system. 3,809,462, Cl. 350-302.000.

Baumgartner, Werner; Keller, Wolfgang; and Schnoeller, Manfred, to Siemens Aktiengesellschaft. Induction heating coil for a zone heating process. 3,809,846, Cl. 219-10.790.

Baus, Wolfgang: *See—*
Dobner, Reinhold; Willenbacher, Erich; and Baus, Wolfgang, 3,808,995.

Baxter Laboratories, Inc., mesne: *See—*
Pearce, Larry Neil, 3,808,969.

Bayer Aktiengesellschaft: *See—*
Erdmenger, Rudolf; Ullrich, Martin; and Hederich, Manfred, 3,809,140.
Lenz, Gunther; Krimm, Heinrich; and Schnell, Hermann, 3,809,679.
Sasse, Klaus; and Frohberger, Paul-Ernst, 3,809,763.

BBA Group Limited: *See—*
Smales, Herbert, 3,809,200.

Beatrice Foods Co., mesne: *See—*
Lindner, Henry J., 3,809,434.

Beaumont, Alan: *See—*
Stone, Wayne B., Jr.; and Beaumont, Alan, 3,810,246.

Beaumont, William, Hospital: *See—*
Cook, Kenneth J., 3,809,982.

Beaver, Donald V., to All-Steel Inc. Foundation framework for metal office furniture. 3,809,449, Cl. 312-194.000.

Beaver, William D.; and Lewis, Herbert O., to Comtec Economation, mesne. Method of automatically adjusting the frequency of crystal resonators. 3,808,752, Cl. 51-319.000.
Beck, Kurt-Gunther: *See*—
Wackerbarth, Folkard; and Beck, Kurt-Gunther, 3,809,620.
Beckens, Alfred. Fruit harvesting apparatus. 3,808,786, Cl. 56-329.000.
Becker, Alvin L. Fireplace unit. 3,809,058, Cl. 126-120.000.
Becker, Bernhard. Portable rod or true bender. 3,808,867, Cl. 72-321.000.
Becker, Jean-Jacques: *See*—
Heiler, Wolfgang; Muller, Rudolf; and Becker, Jean-Jacques, 3,808,993.
Becton, Dickinson and Company: *See*—
Arcudi, Joseph, 3,809,220.
Becton, Dickinson and Company, mesne: *See*—
White, James A., 3,810,152.
Beddoe, Stanley, to Plessey Handel und Investments A.G. Momentary switch with serpentine movable and coil spring stationary contacts. 3,809,839, Cl. 200-160.000.
Begemann, Carl J., to Philip Morris Incorporated. Cigarette packaging. 3,809,227, Cl. 206-264.000.
Beggs, James H.: *See*—
Kabat, Jules M.; and Beggs, James H., 3,810,096.
Behman, Stephen Barry; and Goldstein, Stephen, to International Business Machines Corporation. Memory system restoration. 3,810,129, Cl. 340-173.0dr.
Bell & Howell Company: *See*—
Mueller, Arthur C., 3,810,207.
Bell Canada: *See*—
Johnston, Walter Daniel, 3,809,818.
Bell Canada-Northern Electric Research Limited: *See*—
Springthorpe, Anthony John, 3,809,010.
Bell, Gunter; and Gehrmann, Werner, to Klockner-Werke AG. Hydraulic double telescoping mine prop. 3,808,946, Cl. 91-168.000.
Bell, James Alexander Evert: *See*—
Opratko, Vaclav; Bell, James Alexander Evert; and Ferrajuolo, Roberto Vincenzo, 3,809,549.
Bell, Oliver A., Jr., to Colt Industries Operating Corporation. Method and apparatus for electrical discharge machining. 3,809,847, Cl. 219-69.00p.
Bell, Oliver A., Jr., to Colt Industries Operating Corporation. Digitally controlled power supply for electrical discharge machining apparatus. 3,809,848, Cl. 219-69.00l.
Bell Telephone Laboratories, Incorporated: *See*—
Aho, Alfred Vaino; and Ullman, Jeffery David, 3,810,112.
Arpin, Lee James, 3,809,808.
Ashkin, Arthur; and Dziedzic, Joseph Martin, 3,810,131
Bobeck, Andrew Henry, 3,810,132.
Bobeck, Andrew Henry; and Danylchuk, Irynej, 3,810,133.
Chandross, Edwin Arthur; Fork, Richard Lynn; Kaminow, Ivan Paul; and Tomlinson, Walter John, III, 3,809,686.
Chandross, Edwin Arthur; Pryde, Carolie Anne; Tomlinson, Walter John, III; and Weber, Heinz Paul, 3,809,732.
Chang, Tao-Yuan; and Wood, Obert Reeves, II, 3,810,042.
Hansen, Ralph Holm, 3,809,675.
Hopkins, John Warren; Townley, Ray Clifford; and Zimmerman, Leonard, 3,810,235.
Kalet, Irving; and Weinstein, Stephen Brant, 3,810,021.
Pferd, William; and Witt, Eugene Francis, 3,810,141.
Schneider, Herbert Anton, 3,810,130.
Bell, William H., to Hughes Aircraft Company. Along track terrain avoidance contouring system. 3,810,175, Cl. 343-7.0ta.
Belohouhek, Bohuslav; and Linda, Josef, to Tos Hostivar, Narodni podnik. Machine tool for heavy counter-balanced crankshafts. 3,808,745, Cl. 51-3.000.
Beloit Corporation: *See*—
Skinner, David I., 3,809,133.
Bement, Elmore L.: *See*—
Sievenpiper, Frederick L.; and Bement, Elmore L., 3,809,536
Bemsel, Walter; and Schreiner, Hermann, to Porsche, Dr.-Ing. H.c.F., KG. Electrical control circuit for a central warning light of motor vehicles. 3,810,086, Cl. 340-52.00f.
Bender, Harry. Disposable dental implement. 3,809,103, Cl. 132-93.000.
Bender, Lloyd F. Rotatable spray nozzle assembly. 3,809,317, Cl. 239-251.000.
Bendix Corporation, The: *See*—
Eifler, Raymond J., 3,810,071.
Luchaco, David G., 3,809,028.
Beneditti, Albert L. Attachment for distributing rock dust. 3,809,439, Cl. 302-53.000.
Benjamin, John Stanwood, to International Nickel Company, Inc., The. Superalloys by powder metallurgy. 3,809,545, Cl. 75-.50r.
Bennet, Tom Joachim, to Morgardshammar Aktiebolag. Method and apparatus for cold drawing or rolling of metal wire rod. 3,808,864, Cl. 72-235.000.
Bennett Equipment Corporation: *See*—
Bennett, John E., 3,809,427.
Bennett, John E., to Bennett Equipment Corporation. Vehicle body mount. 3,809,427, Cl. 296-35.00r.
Bennett, Ronald W., to General Motors Corporation. Pressure balanced hydraulic brake booster. 3,808,817, Cl. 60-548.000.
Bennett, Stewart, to Polaroid Corporation. Emergency ejection system for automatic transparency processing and projection apparatus. 3,809,464, Cl. 352-74.000.
Bennett, William Frederick. Apparatus and method for measuring intelligence. 3,809,069, Cl. 128-2.10b.
Bennion, Don U.; and West, Leonard R., to Industrial Development & Design. Flaw detection system using microwaves. 3,810,005, Cl. 324-58.50a.
Beran, William G.: *See*—
Stock, W. Riley; Balsiger, Melvin M.; and Beran, William G., 3,809,888.
Berg, David A., to Allis-Chalmers Corporation. Hydraulic coupling. 3,809,122, Cl. 137-614.060.
Berg Mfg. & Sales Co.: *See*—
Klimek, Boleslaw, 3,809,441.
Berg, Winfred M. Transmission belt. 3,808,901, Cl. 74-231.00c.
Berkin, Harvey: *See*—
Cooper, Julius; and Berkin, Harvey, 3,808,730.
Berlat, Norman R., to Union Carbide Corporation. Process for making silicon metal. 3,809,571, Cl. 117-106.00a.
Berman, Arnold L.: *See*—
Wachs, Marvin Richard; Berman, Arnold L.; and Mahle, Christoph E., 3,810,255.
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F.; Mack, Anthony M.; and Alfano, Bernardino M., to Foster Wheeler Corporation. Apparatus for testing dimensional variations in a test specimen. 3,808,880, Cl. 73-90.000.
Berndt, Hans-Detlef: *See*—
Kerb, Ulrich; Wiechert, Rudolf; Eder, Ulrich; and Berndt, Hans-Detlef, 3,809,690.
Berney, Joseph C. Casing machine and method. 3,808,770, Cl. 53-47.000.
Berry, Jean-Luc, to Remy, E. P., et Cie. Method of aseptic packing a food product. 3,809,768, Cl. 426-309.000.
Bertea Corporation: *See*—
Henry, Augustus P., 3,809,502.
Bertilsson, Britt-Marie Elisabeth: *See*—
Mattsson, Ove Henning; and Bertilsson, Britt-Marie Elisabeth, 3,809,718.
Bertram, Leroy W.; Loomis, Russell M.; and Gaikowski, Michael D., to Unarco Industries, Inc. Carriage assembly for bulkheads. 3,808,982, Cl. 105-376.000.
Bertrand, Francois Robert, to Medial de Toledo & Cie. Method of treating diseases of the mucous membrane using compounds of a thiazolidine carboxylic acid and pharmaceutical preperations thereof. 3,809,754, Cl. 424-270.000.
Besancenot, Serge. Projector. 3,809,470, Cl. 353-113.000.
Besenfelder, Edward R., to Honeywell Information Systems Inc. Apparatus to detect phase encoded data being read from a data storage subsystem. 3,810,233, Cl. 360-42.000.
Bessiere, Pierre Etienne, to Precision Mecanique Labinal. Machine for fashioning the structures of flexible products, and products fashioned thereby. 3,809,199, Cl. 93-84.000
Bessire, H. et J. J., S.A.: *See*—
Bessire, Jean-Jacques, 3,809,976.
Bessire, Jean-Jacques, to Bessire, H. et J. J., S.A. Method and apparatus for synchronizing a three phase motor. 3,809,976, Cl. 318-78.000.
Betterton, Bruce E.: *See*—
Cofer, Daniel B.; and Betterton, Bruce E., 3,809,902.
Betts, Kenneth H., to Construction Specialties, Inc. Floor mat. 3,808,628, Cl. 15-215.000.
Betts, Max William; and Robinson, Fran, to Courtaulds Limited. Knitting method. 3,808,841, Cl. 66-172.00r.
Beurer, Robert John; and Jeffery, Philip Auriol Edgar, to United Aircraft Corporation. Winch system for helicopter. 3,809,334, Cl. 242-158.300.
Beverly, William C., Jr.: *See*—
Emmons, Donald R.; and Beverly, William C., Jr., 3,809,922.
Bevilacqua, Frank: *See*—
Krawiec, Donald Michael; and Bevilacqua, Frank, 3,809,609.
Beyer, Lewis R. Loose-leaf binder construction. 3,809,485, Cl. 402-31.000.
Bhutani, Harish K.; Oda, Albert Y.; and Hughes, Ronald A., to Menasco Manufacturing Company. Missile repositioning system. 3,808,942, Cl. 89-1.800.
Biber, Conrad H., to Polaroid Corporation. Preferential power distribution system for battery powered camera having electronic flash unit. 3,810,212, Cl. 354-128.000.
Bibl, Klaus, to Lowell Technological Institute Research Foundation. Font of digital, or other, characters and method for pattern printing thereof. 3,810,095, Cl. 340-146.30a.
Bidwell, Robert E.; and Kurtz, Leonard D., to Deknatel, Inc., mesne. Surgical drainage system. 3,809,085, Cl. 128-275.000.
Biggs, Eugene S., to Dynapac Inc. Dispenser for flares and the like. 3,808,941, Cl. 89-1.50r.
Billarant, Patrick; Goubeau, Robert; and Langlois, Jacques, to Velcro France. Separable fastening sheet. 3,808,648, Cl. 24-204.000.
Birresborn, Gunter: *See*—
Drebes, Friedrich-Wilhelm; and Birresborn, Gunter, 3,809,619.
BK & K Enterprises, Inc.: *See*—
Bost, Charles H., 3,809,915.
Black and Decker Manufacturing Company, The: *See*—
Schrock, Martin Omer; and Burkholder, Robert Flohr, 3,808,676.

Black, Arthur L., to Ingersoll-Rand Company. Coupling means. 3,808,911, Cl. 74-597.000.
Black Body Corporation: *See*—
Wells, Harold D., 3,809,859.
Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis, to Unifoam A.G. Apparatus for the continuous production of strands of polymeric foam. 3,809,512, Cl. 425-4.00c.
Blair, David E., to Du Pont de Nemours, E. I., and Company. Capillary viscometer. 3,808,877, Cl. 73-55.000.
Blancett, Thomas B. Pipe crimping attachment. 3,808,870, Cl. 72-413.000.
Blanyer, Carl G., to Abex Corporation. Precision constant speed control for variable speed prime mover. 3,810,251, Cl. 290-40.000.
Blaschke, Anthony J. Kitchen accessory for automobiles. 3,809,425, Cl. 296-22.000.
Blau K.G. Fabrik fur Kraftfahrzeugteile: *See*—
Blau, Werner; and Gerdes, Theo, 3,809,282.
Blau, Werner; and Gerdes, Theo, to Blau K.G. Fabrik fur Kraftfahrzeugteile. Closure cover with pressure relief means. 3,809,282, Cl. 220-44.00r.
Bleeker, Raymond A., to Westinghouse Electric Corporation. Multiple height space divider system and connector assembly therefor. 3,809,142, Cl. 160-135.000.
Blewitt, Donald D., to Westinghouse Electric Corporation. High voltage current limiting fuse including heat removing means. 3,810,063, Cl. 337-166.000.
Blezard, Robert C.; and Millard, William E., to Smithfield Fibers, Inc. Three-strand yarn knitting machine and method of knitting. 3,808,840, Cl. 66-87.000.
Bloedorn, Arthur R., to Hewlett-Packard Company. Phase lock loop for locking on highest amplitude signal. 3,810,036, Cl. 331-15.000.
Blore, James H.; and Balcombe, Bobby L., to Phillip Fibers Corporation. Double knit fabric. 3,808,843, Cl. 66-196.000.
BMR Security Products Corporation: *See*—
Walters, Russell W., 3,808,850.
Bobeck, Andrew Henry, to Bell Telephone Laboratories, Incorporated. Integrated bubble expansion detector and dynamic guard rail arrangement. 3,810,132, Cl. 340-174.0eb.
Bobeck, Andrew Henry; and Danylchuk, Irynej, to Bell Telephone Laboratories, Incorporated. Magnetic domain replicator arrangement. 3,810,133, Cl. 340-174.0tf.
Bocchimuzzo, Anthony: *See*—
Haugsjaa, Paul O.; Heller, Adam; Nelson, William F.; and Bocchimuzzo, Anthony, 3,809,828.
Bocher, Dominique; and Faure, Robert. Pharmaceutical composition for treating mental fatique containing arginine-potassium phospho citro glutamate and method of using the same. 3,809,759, Cl. 424-317.000.
Bodensteiner, Robert J.: *See*—
Malone, Harold L.; and Bodensteiner, Robert J., 3,810,214.
Bodine, Albert G. Pile driving utilizing standing wave vibrations. 3,808,820, Cl. 61-53.500.
Boehmer, Matthew A., to BASF Wyandotte Corporation. Automotive cooling systems. 3,809,152, Cl. 165-51.000.
Boehner, Beat: *See*—
Dawes, Dag; and Boehner, Beat, 3,809,701.
Boeing Company, The: *See*—
Manca, Michael E.; and Drinnon, Robert H., 3,809,178.
Boekkooi, Anton; and Westerveld, Willem, to U.S. Philips Corporation. Closed reflector provided with incandescent lamp. 3,809,942, Cl. 313-113.000.
Boersma, Robert Paul; Mendicino, Frank Dominic; and Omietanski, George Michael, to Union Carbide Corporation. Process for producing silazane compounds. 3,809,713, Cl. 260-448.20e.
Boggs, Weldon C., to Food Research & Equipment Company. Liquid heating tank with safety control. 3,809,858, Cl. 219-331.000.
Boicey, James H.; Mattimoe, Paul T.; and Schmoeger, Otto J., Jr., to Libbey-Owens-Ford Company. Laminated windshield with built-in antenna. 3,810,184, Cl. 343-713.000.
Boisserand, Raymond. Device for the connection of cylindrical members. 3,809,413, Cl. 285-348.000.
Bolt Associates, Inc.: *See*—
Chelminski, Stephen V., 3,808,822.
Chelminski, Stephen V., 3,808,823.
Bond, Herbert M.; and Ring, Charles E., to Buckbee-Mears Company. Electroforming apparatus including an anode housing with a perforate area for directing ion flow towards the cathode. 3,809,642, Cl. 204-275.000.
Bonds, James Vaull; and McCaskill, John Walton, to Rockwell International Corporation. Well completion apparatus and method. 3,809,158, Cl. 166-250.000.
Bonnel, Arthur John, Sr., to Digitec, Inc. Clamping device. 3,808,915, Cl. 81-5.10r.
Bonnet, Frederick W., to Union Carbide Corporation. Rotary fluid contactor. 3,809,375, Cl. 261-87.000.
Bookwalter, George N., to United States of America, Agriculture. Method for preparing a liquid iron-fortifying composition. 3,809,773, Cl. 426-380.000.
Booth, Jack J., to Branch, William C. Stadium filler. 3,809,292, Cl. 222-146.00c.
Bopp & Reuther GmbH: *See*—
Pfundstein, Karl; and Fallert, Erich, 3,809,361.
Borders, Bert: *See*—
Rivkowich, Harold; Rehman, Warren C.; Knapp, William; and Borders, Bert, 3,809,769.
Borg-Warner Corporation: *See*—
Hoppesch, Joseph P., 3,809,067.
Borie, Robert: *See*—
Carbonnel, Henri; and Borie, Robert, 3,809,497.
Bosch, Robert, G.m.b.H.: *See*—
Burkel, Rainer; and Scheyhing, Hans, 3,809,956.
Daumueller, Hans; and Kretschmer, Heinz, 3,809,880.
Gotsch, Dieter; Hahner, Reinhard; Kirn, Manfred; and Lederer, Hans, 3,808,904.
Knapp, Heinrich; and Schwartz, Reinhard, 3,809,036.
Linder, Ernst; Adalbert, Gerhard; and Hess, Juergen, 3,809,511.
Sauer, Joseph, 3,808,903.
Scheidel, Wolfgang; and Steinmann, Helmut, 3,809,151.
Bosje, Jan. Purifying plant for sewage. 3,809,242, Cl. 210-195.000.
Bost, Charles H., to BK & K Enterprises, Inc. Electrical power delay and cutout circuit. 3,809,915, Cl. 307-10.0at.
Bott, Frank Bouckley, to British Steel Corporation. Industrialised building structure. 3,808,755, Cl. 52-92.000.
Bottini, Michael Lucien, to Monsanto Company. Opto-isolator devices and method for the fabrication thereof. 3,808,673, Cl. 29-577.000.
Bottjer, Richard E.; Johnson, Delp W.; Poole, William F.; and Storm, James P., to Johnson, Delf W., Poole & Storm, Architects. Folding contoured wall. 3,808,754, Cl. 52-70.000.
Bouniot, Albert. Process for producing alkoxy aldehydes. 3,809,722, Cl. 260-602.000.
Bourg, Haden J., Jr.; and Nicholson, James F.; deceased (by Cromwell, Roy D.; administrator), to Westinghouse Electric Corporation. Photoemitter structure including porous layer of photoemissive material. 3,809,941, Cl. 313-94.000.
Boushek, Sidney Joseph, Jr.: *See*—
Bass, Merlyn Duane; and Boushek, Sidney Joseph, Jr., 3,808,781.
Bowen, Edward Valentine; and Simkins, Derek, to GKN Transmissions Limited. Joint structures in or for rotary shafts. 3,808,838, Cl. 64-27.0nm.
Bower, Clayton G. Tractor hoist. 3,809,367, Cl. 254-144.000.
Bowers, George L., to General Motors Corporation. Gearing with vibration damping means. 3,808,906, Cl. 74-443.000.
Bowman, Cader E.; and Lapins, Daniel W., to Olin Corporation. Collapsible camp stove. 3,809,054, Cl. 126-38.000.
Bowman, E. W., Incorporated: *See*—
Bowman, Edward W. (Bowman, Murial B., and Bowman, Michael Edward, executors of said Bowman, Edward Woodrow, assors. to), 3,809,544.
Bowman, Edward W., Bowman, Murial B., and Bowman, Michael Edward, executors of said Bowman, Edward Woodrow, assors. to Bowman, E. W., Incorporated. Method and apparatus for heating, annealing, tempering, decorating and handling glassware. 3,809,544, Cl. 65119.000.
Boyd, James V.: *See*—
Taylor, Edwin K.; and Boyd, James V., 3,809,320.
Boyle, Marian F.: *See*—
Boyle, Robert G.; and Boyle, Marian F., 3,808,612.
Boyle, Robert G.; and Boyle, Marian F. Inflatable toilet seat. 3,808,612, Cl. 4-239.000.
Brabant, Omer E. Auto frame pulling apparatus. 3,808,866, Cl. 72-309.000.
Bracey, Kenneth Edward George: *See*—
Gilbert, Ronald Albert; Petrie, James Alexander; and Bracey, Kenneth Edward George, 3,808,913.
Bradford, Larry David: *See*—
Keener, Arthur; Bradford, Larry David; Gary, Laverne E.; McLeon, John W.; and Carter, Billy W., 3,808,958.
Bradshaw, Jennings H. Paint supplying apparatus for paint rollers. 3,809,484, Cl. 401-185.000.
Braginetz, Paul A. Mechanical geometric generator for trochoids employing a bi-linear radial co-ordinate system. 3,808,944, Cl. 90-15.00a.
Brambring, Dieter Ferdinand, to Moller, J. D., Optische Werke GmbH, Firma. Microsurgical operating unit. 3,809,454, Cl. 350-84.000.
Branch, William C.: *See*—
Booth, Jack J., 3,809,292.
Brandenburg, Wilson C., Jr. Electrical (H.V.) distributor cap contacts for spark ignited combustion engines. 3,810,074, Cl. 339-100.000.
Brandt, Edison R., to Polaroid Corporation. Flash cube adapter. 3,809,878, Cl. 240-1.300.
Branson, Charles D., to Robertshaw Controls Company. Fuel control system and pressure regulator construction therefor and method for operating the same. 3,809,313, Cl. 236-15.00a.
Bratland, Arthur O. T. Method for the production of foodstuffs in the form of powders. 3,809,765, Cl. 426-358.000.
Braun Aktiengesellschaft: *See*—
Cobarg, Claus Christian; and Schindler, Hans, 3,808,741.
Engelstatter, Heinz, 3,809,954.
Bravo, Ricardo; and Street, I. C. Holder. 3,809,351, Cl. 248-210.000.
Bredehorn, Friedrich; and Doge, Heinz, to Rheinstahl Eggers-Kehrhahn GmbH. Safety arrangement for escalator handrails and the like. 3,809,206, Cl. 198-16.00r.
Breiling, Hans Georg; and Warnow, Detlef, to Dragerwerk, AG. Method and apparatus for mixing gases under pressure particularly for respirators and medical devices. 3,809,109, Cl. 137-88.000.
Breinlinger, Richard H.: *See*—
Villalobos, Luis F.; Harano, Allen A.; and Breinlinger, Richard H., 3,809,868.
Brennan, James A., to Mobil Oil Corporation. Wide-temperature range ester lubricants. 3,809,652, Cl. 252-56.00r.

Brett, James E., to Purex Corporation, Ltd. High throughput filter having multiposition valve. 3,809,247, Cl. 210-278.000.
Briant, Bob B., to United States of America, Navy. Digital code translator apparatus. 3,810,154, Cl. 340-347.0dd.
Bridgestone Tire Company Limited: *See—*
Tateisi, Tamotu; Ueda, Shigeo; and Kuwabara, Masayoshi, 3,809,128.
Brinly-Hardy Co., Inc.: *See—*
Doering, Charles W.; and Smith, Samuel W., 3,808,627.
British Aircraft Corporation: *See—*
Cook, Ronald; Guppy, John Reginald; and Howells, John D., 3,810,027.
British Steel Corporation: *See—*
Bott, Frank Bouckley, 3,808,755.
Britz, Galen C.: *See—*
Peterson, Arthur H.; and Britz, Galen C., 3,809,442.
Broadbent, Carl D.: *See—*
Michaelson, Stanley D.; and Broadbent, Carl D., 3,809,430.
Brock, James Donald, to CMI Corporation. Asphalt preparation plant. 3,809,373, Cl. 259-154.000.
Bron Elektronik AG: *See—*
Haberthur, Walter, 3,809,968.
Broner, Hans J.: *See—*
Doll, Henri Georges; and Broner, Hans J., 3,809,070.
Brown Boveri & Company Limited: *See—*
Baer, Jurgen; Sommer, Dieter; and Toplak, Ernst, 3,809,934.
Oberle, Arthur, 3,809,126.
Brown, Christopher Robert; George, Terence Malcolm; and Norton, David John, to Westinghouse Brake and Signal Company, Limited. Static relaying circuit. 3,809,930, Cl. 307-311.000.
Brown Company: *See—*
Vanderlugt, Thomas, Jr., 3,809,310.
Brown, Dale G.: *See—*
Hays, John D.; Baswell, Harlen L.; Combs, Jerry A.; and Brown, Dale G., 3,809,989.
Brown, Francis L. Rapid transit system. 3,808,979, Cl. 104-131.000.
Brown, Preston R. Telephone alarm signalling system. 3,809,813, Cl. 179-5.00r.
Brown, Ronald E.; and Oakes, James A., to General Motors Corporation. Method of making contact bumps on flip-chips. 3,809,625, Cl. 204-15.000.
Brown, William B.; and Campbell, Gregory A., to General Motors Corporation. Interrupted current electrodeposition of paints. 3,809,634, Cl. 204-181.000.
Brown, William Keith; and Stanback, Harris I., to Square D Company. Ground current powered ground fault protector. 3,809,962, Cl. 317-18.00d.
Brown, Woodrow I. Portable traffic delineator. 3,809,007, Cl. 116-63.00p.
Bruan, Oskar J., to Xerox Corporation. Reproduction machine fuser assembly. 3,809,861, Cl. 219-469.000.
Bruce, George Brebber: *See—*
Hutchinson, Royal Edward; and Bruce, George Brebber, 3,808,766.
Bruckner, Hermann: *See—*
Kral, Rudolf; and Bruckner, Hermann, 3,809,016.
Bruhlet, Paul; and Quillet, Gerard, to Compagnie Francaise de Raffinage and Wendel-Sidelor. Injection of liquid fuels into shaft furnaces. 3,809,524, Cl. 431-181.000.
Brumlik, George C. Multi-element self-gripping channel. 3,808,646, Cl. 24-87.00r.
Brunner, Heinrich, to Maschinenfabrik Wifag. Device for guiding printed paper webs from a printing machine. 3,809,303, Cl. 226-197.000.
Brunsch, Gunter, to Siemens Aktiengesellschaft. Optoelectric signal coupler. 3,810,034, Cl. 330-59.000.
Brunswick Corporation: *See—*
Lanpheer, Richard A., 3,808,807.
Morgan, Edward J., 3,809,027.
Bruski, Richard Scott: *See—*
Lewis, Clifford Jackson; and Bruski, Richard Scott, 3,809,547.
Bryant, Robert G.: *See—*
Neunherz, Herbert W.; and Bryant, Robert G., 3,809,414.
Bryjak, Edmunt: *See—*
Lesniak, Chryzant; and Bryjak, Edmunt, 3,809,377.
Buan, Danilo P., to Velo-Bind, Inc. Hand operated multiple die punch. 3,808,933, Cl. 83-588.000.
Buchmuller, Josef: *See—*
Muncke, Ludwig; Buchmuller, Josef; and Stieler, Konrad, 3,808,949.
Buckbee-Mears Company: *See—*
Bond, Herbert M.; and Ring, Charles E., 3,809,642.
Stene, Ronald M., 3,809,626.
Buhrke, Rolfe E.: *See—*
Chang, Gregory I.; Buhrke, Rolfe E.; Rice, Verner K.; and Mele, John J., 3,810,121.
Bulharowski, John Francis, to GTE Sylvania Incorporated. Film frame position detector. 3,809,807, Cl. 178-7.200.
Bullai, Carl N.: *See—*
Krutsinger, Jack K.; Bullai, Carl N.; and Munson, Robert E., 3,810,183.
Bunker Ramo Corporation: *See—*
Coppola, John, 3,809,838.
Metzinger, Leonard L., 3,808,905.
Burger, Hans, to Fischer, Georg, Aktiengesellschaft. Tension supervisory apparatus for conveyor transport systems detecting breakage or malfunction in a cable or the like. 3,809,832, Cl. 200-61.180.
Burgers, August. Frame for covering a wall break-through intended to receive a door or the like. 3,808,758, Cl. 52-212.000.
Burk, Robert L.; and Hotchkiss, Jack G. Coolant heated oven for use with vehicle engines. 3,809,059, Cl. 126-19.500.
Burke, William R.; McCall, Frank S.; Clark, Kenneth G.; De Pass, Ernest T.; and Friend, William H., to Union Camp Corporation. Method and apparatus for the continuous manufacture of collapsible cellular partitions. 3,809,593, Cl. 156-257.000.
Burkel, Rainer; and Scheyhing, Hans, to Bosch, Robert, G.m.b.H. Apparatus for electrical determination of differential speed of two rotating members. 3,809,956, Cl. 317-6.000.
Burkholder, Robert Flohr: *See—*
Schrock, Martin Omer; and Burkholder, Robert Flohr, 3,808,676.
Burlington Industries, Inc.: *See—*
Avery, William L., 3,810,101.
Burns, David C.: *See—*
Murray, Thomas R.; and Burns, David C., 3,809,607.
Burpee, Lee E.; and Paynter, Donald A. Detection system. 3,810,172, Cl. 343-5.0pd.
Burr, Robert C.: *See—*
Fanta, George F.; and Burr, Robert C., 3,809,664.
Burroughs Corporation: *See—*
Eisenberg, Mark F.; and Harmon, William J., Jr., 3,809,952.
Burson, Bob O.; and Phelon, Russell Dale, to Phelon, R. E., Company, Inc. Ignition triggering circuit with automatic advance. 3,809,040, Cl. 123-148.00e.
Busch, Gerhard. Machine for squeeze drying washed ink rollers. 3,808,966, Cl. 100-106.000.
Bush, John W.; and Pyrz, Edmund J., to American Home Products Corporation. Lower calorie candy. 3,809,756, Cl. 426-201.000.
Butler, Walter J.; and Puckette, Charles McD., to General Electric Company. Recirculation mode analog bucket-brigade memory system. 3,810,126, Cl. 340-173.0rc.
Buttaravoli, Philip M. E-Med Corporation Resuscitator. 3,809,079, Cl. 128-145.700.
Buttriss, Albert T., to Eaton Corporation. Liquid level monitor. 3,808,887, Cl. 73-293.000.
Buzga, Ondrej: *See—*
Rosberg, Frantisek; Linda, Josef; Buzga, Ondrej; Dusek, Miloslav; and Cvetler, Jiri, 3,808,749.
Byers, Donald W.; Petry, Chester H., Jr.; Nordstrom, Carl G.; and Hensley, James Carl, to Byers Photo Equipment Company. Punch-out film mount. 3,808,722, Cl. 40-152.000.
Byers Photo Equipment Company: *See—*
Byers, Donald W.; Petry, Chester H., Jr.; Nordstrom, Carl G.; and Hensley, James Carl, 3,808,722.
Byram, George W., to United States of America, Navy. Apparatus for the generation of Bessel function signals. 3,809,876, Cl. 235-197.000.
Calabrese, Anthony J.; Stettler, Wayne J.; and Zwiren, Jan Marie, to Menley & James Laboratories, Ltd. Color selector device. 3,809,785, Cl. 35-28.300.
California Microwave, Inc.: *See—*
Lance, Drew R., 3,810,046.
Calspan Corporation: *See—*
Weatherston, Roger C., 3,808,835.
Cam-Fram Tool Co., Inc.: *See—*
Franz, Robert W.; and Zielnicki, John J., 3,810,057.
Cameron, Ian Lewis, to Cefilac Compagnie du Filage des Metaux et des Joints Curty. Hydraulic presses. 3,808,859, Cl. 72-31.000.
Cammack, Thomas A.; Donahue, William J.; and Gratton, Peter D., to United States of America, Navy. Dual function bomb. 3,808,972, Cl. 102-7.200.
Camp, Harold E.; and Grier, John D., to Owens-Illinois, Inc. Data printer. 3,810,198, Cl. 354-12.000.
Campbell, Gregory A.: *See—*
Brown, William B.; and Campbell, Gregory A., 3,809,634.
Campbell, Richard D. Series of shirt cuff assemblies. 3,808,605, Cl. 2-123.000.
Canada Packers Limited: *See—*
Khouw, Boen Tie; and Kesler, Johan Peter, 3,809,748.
Canadian Marconi Company: *See—*
Kwong, Michael, 3,809,877.
Canadian Patents and Development Limited: *See—*
Faurschou, Donald K.; Misener, Donald C.; Pope, James C.; and Hadden, Richard, 3,809,639.
Cane, Albert: *See—*
Shapero, Wallace H.; and Cane, Albert, 3,809,661.
Canfield, Russell, to Tuflok, Inc. Chain-type door fastening device. 3,809,418, Cl. 292-264.000.
Cannon Kabushiki Kaisha: *See—*
Sakaguchi, Keiichi; and Hirata, Noritsugu, 3,810,200.
Canon Denishi Kabushiki Kaisha: *See—*
Hasagawa, Tachio, 3,810,244.
Canon Kabushiki Kaisha: *See—*
Hasagawa, Tachio, 3,810,244.
Sakaguchi, Keiichi; Someya, Atsushi; and Hirata, Noritsugu, 3,810,206.
Taguchi, Tatsuya, 3,809,330.
Taguchi, Tatsuya; and Yazaki, Mutsunobu, 3,810,228.
Canron, Inc.: *See—*

Stewart, John Kenneth, 3,808,976.
Caplan, David. Portable bidet. 3,808,608, Cl. 4-7.000.
Capozza, Richard Carl: *See—*
Schmitt, Edward Emil; and Capozza, Richard Carl, 3,809,616.
Carbonnel, Henri; and Le Frere, Jean-Paul, to Groupement Atomique Alsocienne Atlantique. Installation for the treatment and movement of liquid metals. 3,809,379, Cl. 266-34.00v.
Carbonnel, Henri; and Borie, Robert, to Groupement Atomique Alsacienne Atlantique. Conduction pump for conveying corrosive metals. 3,809,497, Cl. 417-50.000.
Cardwell, Paul H.: *See—*
Kane, William S.; and Cardwell, Paul H., 3,809,624.
Carlson, Harold C. R. Spring tester. 3,808,885, Cl. 73-161.000.
Carlsson, Mats, to Aktiebolaget Svenska Flaktfabriken. Device for fastening a bearing in a construction made of plate or structural steel. 3,808,661, Cl. 29-200.00p.
Carmichael, Eldon W., to Doorcraft Inc. Door frame assembly and door frame section thereof. 3,808,759, Cl. 52-212.000.
Carnes, James Edward: *See—*
Duffy, Michael Thomas; and Carnes, James Edward, 3,809,574.
Carothers, William F., to Wilson Industries, Inc. Positive rotation cleanout apparatus and method. 3,809,161, Cl. 166-301.000.
Carpenter, James W.; Mee, John D.; and Heseltine, Donald W., to Eastman Kodak Company. Novel cyanine dyes with fused imidazols nuclei. 3,809,691, Cl. 260-240.00e.
Carpentier, John H.; and Rose, Frederick A., to Joerns Furniture Company. Electric hospital bed. 3,808,613, Cl. 5-63.000.
Carr, Harry A. Magnetic keeper accessory for wrench sockets. 3,808,918, Cl. 81-125.000.
Carrier Corporation: *See—*
Pilarczyk, Karol, 3,809,493.
Carter, Billy W.: *See—*
Keener, Arthur; Bradford, Larry David; Gary, Laverne E.; McLeon, John W.; and Carter, Billy W., 3,808,958.
Carter, William M.: *See—*
Schillreff, George H.; Grayson, Lawrence E.; and Carter, William M., 3,808,940.
Cartledge, Charles F., to Jacobs Manufacturing Company, The. Rocker arm engine brake system. 3,809,033, Cl. 123-90.460.
Case, J. I., Company: *See—*
Harding, Ray S., 3,809,118.
Casperson, John H.; and Tsilibes, George N., to Xerox Corporation. Printing apparatus employing stepping motor control system. 3,810,189, Cl. 346-74.0es.
Castro, Rodolfo; and Toscano, Esteban J. Method of material holding and smoke removal for a laser cutter. 3,808,672, Cl. 29-559.000.
Cataldo, Roy S., to General Motors Corporation. Dual combustion engine and cycle. 3,808,818, Cl, 60-620.000.
Cato Oil and Grease Co.: *See—*
Park, Wayne Austin; and Oswalt, Leon Marvin, 3,809,280.
Cave, Gordon Milford, to Coplastix Limited. Valve. 3,809,119, Cl. 137-527.800.
Cefilac Compagnie du Filage des Metaux et des Joints Curty: *See—*
Cameron, Ian Lewis, 3,808,859.
Ceglie, Gaetano J.: *See—*
Jolly, Michael D.; Jasovsky, George A.; Ceglie, Gaetano J.; Nacci, Anthony T.; and Schechter, Harold, 3,809,770.
Celanese Corporation: *See—*
Vogelfanger, Elliot A.; and Nathanson, Bennett, 3,809,591.
Central Steel Works (Peterborough), Limited: *See—*
Csumrik, Joseph D., 3,809,278.
Centre Electronique Horloger, S.A.: *See—*
Vittoz, Eric Andre, 3,809,929.
Vittoz, Eric Andre, 3,810,006.
Ceskoslovenska Akademie Ved.: *See—*
Jarolim, Vaclav; Slama, Karel; and Sorm, Frantisek, 3,809,710.
Ceyrat, Bernard, to Etat Francais represente par le Ministre Charge de la Defense National Delegation Ministericlle pour l'Armement. Electrically actuated priming device. 3,809,964, Cl. 102-28.00r.
CFC Products, Inc.: *See—*
Cochran, Gary D.; Crosby, David A.; and Franken, Peter A., 3,809,886.
Chabon, Irwin. Intrautcrine contraceptive device. 3,809,076, Cl. 128-130.000.
Chamberlain, James D.: *See—*
Szalanczy, Andras; Shrader, Erwin F.; Shoffner, Bruce M.; and Chamberlain, James D., 3,809,901.
Chance, A. B., Company: *See—*
Hubbard, David G., 3,810,060.
Chandross, Edwin Arthur; Fork, Richard Lynn; Kaminow, Ivan Paul; and Tomlinson, Walter John, III, to Bell Telephone Laboratories, Incorporated. Transparent media capable of photoinduced refractive index changes and their application to light guides and thelike. 3,809,686, Cl. 260-89.50a.
Chandross, Edwin Arthur; Pryde, Carolie Anne; Tomlinson, Walter John, III; and Weber, Heinz Paul, to Bell Telephone Laboratories Incorporated. Photo-locking technique for producing integrated optical circuits. 3,809,732, Cl. 264-22.000.
Chang, Gregory I.; Buhrke, Rolfe E.; Rice, Verner K.; and Mele, John J., to GTE Automatic Electric Laboratories, Incorporated. Timing generator cirucit for central data processor of digital communication system. 3,810,121, Cl. 340-172.500.
Chang, Tao-Yuan; and Wood, Obert Reeves, II, to Bell Telephone Laboratories, Incorporated. Tunable infrared molecular lasers optically pumped by a hydrogen-bromide laser. 3,810,042, Cl. 331-94.500.
Channell, Glen L., to Hydraulics Unlimited Manufacturing Co. Scissor frame assembly. 3,809,429, Cl. 298-17.00s.
Chao, Kwei C., to Standard Oil Company. Enzymic degradation of nucleic acids in SCP materials. 3,809,776, Cl. 426-431.000.
Chaplin, Arthur H.: *See—*
Hershberg, David E.; Chaplin, Arthur H.; and Dewland, Joseph F., 3,810,038.
Chappell, Albert R., to Metalife Company, The. Dispenser having air vent clean-out. 3,809,293, Cl. 222-148.000.
Chappelle, Warner A.; and Stead, Jerry A. Garment bags. 3,809,194, Cl. 190-41.00b.
Charland, Telesphore L.: *See—*
Seetoo, Winston R.; Weide, Roman K.; and Charland, Telesphore L., 3,808,670.
Chase, Russell C. Apparatus for drawing ellipses. 3,808,691, Cl. 33-30.00g.
Chase-Shawmut Company, The: *See—*
Kozacka, Frederick J., 3,810,062.
Salzer, Erwin, 3,810,061.
Salzer, Erwin, 3,810,077.
Chatanier, Michel Jean; Leynaert, Jacky Robert; and Thiriot, Alain Roger. Hygrometer. 3,808,888, Cl. 73-336.500.
Chayka, George A.; Persson, Eric J.; and Ziobro, Norbert M., to Western Electric Company, Incorporated. Test probe for semiconductor devices. 3,810,016, Cl. 324-158.00p.
Chelminski, Stephen V., to Bolt Associates, Inc. Process and system for increasing load-bearing capacity of soil. 3,808,822, Cl. 61-63.000.
Chelminski, Stephen V., to Bolt Associates, Inc. Process and system for increasing load-bearing capacity of soil. 3,808,823, Cl. 61-63.000.
Chemische Werke Huls Aktiengesellschaft: *See—*
Kriestan, Wolfgang; and Heinz, Scholten, 3,809,678.
Chen, Wen-Sieh: *See—*
Liu, Hsing-Ching, 3,809,107.
Cherubim, Justin Lawrence, to Mechanical Technology Incorporated. Hydrodynamic foil bearings. 3,809,443, Cl. 308-9.000.
Chevron Research Company: *See—*
Fries, Bernard A., 3,809,898.
Hotten, Bruce W., 3,809,648.
Kemp, Jacob D.; and Mulaskey, Bernard F., 3,809,728.
Chezem, Jimmie A. Occupant safeguarding door stop. 3,809,419, Cl. 292-338.000.
Chick, Orest Nicholas; and Means, Graham Neville, to Polymer Corporation Limited. Compositions of polymeric materials. 3,809,666, Cl. 260-29.70d.
Chida, Shinpei: *See—*
Ogawa, Shimeo; Shinozaki, Koji; and Chida, Shinpei, 3,809,203.
Chierici, Osvaldo F.; and Winters, Frederick, to Holland Company. Coupler positioning device for sliding sill cushion underframe cars. 3,809,251, Cl. 213-15.000.
Chmela, John F.: *See—*
Fohrman, Seymour F.; and Chmela, John F., 3,809,311.
Cho, Boong Y.; Sturkol, Elmer W.; and Wier, Keith E., to Industrial Nucleonics Corporation. Radiation gauge. 3,809,903, Cl. 250-358.000.
Choate, William Clay: *See—*
Ewing, William Steele, Jr.; Ellis, Thomas Walter; and Choate, William Clay, 3,810,162.
Choay S.A.: *See—*
Thely, Maurice H., 3,809,760.
Chordas, Joseph L. Compression splice for electrically coupling electrical conductors. 3,810,078, Cl. 339-268.00r.
Chough, Euiwon; Deverse, Frank T.; Konrad, Franz; Kurtz, John A.; and Manchester, Russell C., to Cogar Corporation. Mounting block for semiconductor wafers. 3,809,050, Cl. 125-35.000.
Chow, Yut. Fastening device. 3,808,645, Cl. 24-71.0sk.
Christiansen, Henning: *See—*
Palma, Joseph; and Christiansen, Henning, 3,809,231.
Christiansen, James O., to Avery Products Corporation. Baggage tag-and-check device for airlines and the like. 3,808,718, Cl. 40-2.00r.
Chromalloy American Corporation: *See—*
Mal, M. Kumar; and Tarkan, Stuart E., 3,809,540.
Chromy, Franz, to Palar (Curacao) N.V. Expansion dowel construction. 3,808,938, Cl. 85-83.000.
Chrysler Corporation: *See—*
Florence, Dennis E.; Winders, Frank R., Jr.; and Wontrobski, Charles E., 3,810,089.
Chubb, John Norman; and Sinton, Ernest Kennedy, to United Kingdom Atomic Energy Authority. Display systems. 3,809,948, Cl. 315-27.0gd.
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., to Gulf Research & Development Company. Oxidative sweetening of hydrocarbons with a calcined catalyst containing copper, iron and oxygen. 3,809,643, Cl. 208-191.000.
Churan, Roy G., to Vulcan Plastics, Inc. Reusable plastic snap-on closure. 3,809,284, Cl. 220-60.00r.
Church, Donald E.: *See—*
Davis, Henry, Jr.; and Church, Donald E., 3,810,090.
Ciaffone, Charles P., to CPC Engineering Corporation. Process for conveyance of ash. 3,809,436, Cl. 302-20.000.
Cianciolo, Alfred D.; Sabatine, Donald J.; and Trotz, Samuel I., to Olin Corporation. Mercury containing aluminum hydride composition and process of making. 3,809,587, Cl. 149-109.000.

Ciba-Geigy AG: *See—*
Abel, Heinz, 3,809,532.
Porret, Daniel; and Fatzer, Willy, 3,809,696.
Wick, Arnold, 3,809,705.

Ciba-Geigy Corporation: *See—*
Dawes, Dag; and Boehner, Beat, 3,809,701.
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, 3,809,660.

Cimber, Hugo S. Aspirator needle injector. 3,809,095, Cl. 128-347.000.

Cinquanta, Alain: *See—*
Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie; Barthelemy, Gabriel; Cinquanta, Alain; and Drapeau, Yves, 3,809,372.

Citizen Watch Company Limited: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; and Yanagawa, Yoshihiki, 3,808,792.

Ciurea, Serban, 20% to Lee, Raymond, Organization, Inc., The. Combination cup cooler and warmer. 3,808,825, Cl. 62-3.000.

Clancey, Stephen M., to Eaton Corporation. Viscous coupling. 3,809,197, Cl. 192-58.00b.

Clanton, John S., to International Telephone and Telegraph Corporation. Electro-optical transmission line. 3,809,908, Cl. 250-551.000.

Clark, Kenneth G.: *See—*
Burke, William R.; McCall, Frank S.; Clark, Kenneth G.; De Pass, Ernest T.; and Friend, William H., 3,809,593.

Clarke, Robert L.; and Van Dyk, Gerk Gerry, to Atomic Energy of Canada Limited. Method for non-destructive densitometric measurement of small volumes inside irregularly shaped non-uniform objects. 3,809,904, Cl. 250-358.000.

Clayton, Benjamin; and Thurman, Benjamin H. Tobacco smoke filter. 3,809,097, Cl. 131-10.700.

Clementi, Anacleto; and Battini, Roberto, to Snam Progetti, S.p.A. Process for the polymerization of olefine at high pressure in tubular reactors. 3,809,688, Cl. 260-94.90r.

Clifton, Clyde J.: *See—*
Dobson, Richard D., Sr.; and Clifton, Clyde J., 3,809,505.

Clouse, Leland Francis, 20% to Lee, Raymond, Organization, Inc., The. Low voltage warning system. 3,810,144, Cl. 340-248.00c.

C.M. Systems, Incorporated: *See—*
Oeming, Joseph A.; Heffrom, Allan J.; and Estry, Arthur L., 3,808,653.

CMI Corporation: *See—*
Brock, James Donald, 3,809,373.

Coaker, Antony W. M.; and Cowell, Elmer E., to Monsanto Company. Lubricated thermoplastic resin compositions. 3,809,667, Cl. 260-31.80r.

Cobarg, Claus Christian; and Schindler, Hans, to Braun Aktiengesellschaft. Operating means for electro-mechanically ignited lighters. 3,808,741, Cl. 431-256.000.

Cobb, Douglas R.: *See—*
Walker, Walter P.; Cobb, Douglas R.; and Cofer, Frank H., Jr., 3,809,810.

Cochran, Gary D.; Crosby, David A.; and Franken, Peter A., to CFC Products, Inc. Dynamic tomography with movable table. 3,809,886, Cl. 250-323.000.

Cofer, Daniel B.; and Betterton, Bruce E., to Southwire Company. Method and apparatus for detecting incipient short circuit conditions in electrolytic cells. 3,809,902, Cl. 250-338.000.

Cofer, Frank H., Jr.: *See—*
Walker, Walter P.; Cobb, Douglas R.; and Cofer, Frank H., Jr., 3,809,810.

Cogar Corporation: *See—*
Chough, Euiwon; Deverse, Frank T.; Konrad, Franz; Kurtz, John A.; and Manchester, Russell C., 3,809,050.

Cohen, Aaron G.: *See—*
Gay, Derek J.; Smedley, William H.; Cohen, Aaron G.; Dworkin, Darryl R.; Nuttall, Michael W.; and Wilson, Nicol S., 3,808,732.

Cohen, Eli. Sun visor accessory. 3,809,428, Cl. 296-97.00e.

Cohen, Julius; Edelman, Seymour; and Vezzetti, Carol F., to United States of America, Navy. Polymeric pyroelectric detector. 3,809,920, Cl. 307-88.0et.

Colgate-Palmolive Company: *See—*
Elkind, Vincent T.; Hunter, Robert T.; Marder, Herman L.; and Hutchinson, Homer F., 3,809,663.

Colgate-Polmolive Company: *See—*
Gerecht, John Fred, 3,809,659.

Collet, Peter Jacobus, to Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid. Centrifugal compressor. 3,809,499, Cl. 417-78.000.

Collins, Byron R.; and McVey, Charles I., to General Electric Company. High intensity discharge lamp electrode. 3,809,943, Cl. 313-217.000.

Collins, Johnny, to Zenith Radio Corporation. Digital to analog converter television tuning of varactor tuners. 3,810,022, Cl. 325-459.000.

Collins Radio Company: *See—*
Hattendorf, Edwin R., 3,809,867.
Hungerford, Laurence D.; and Marshall, Clarence G., 3,810,100.
Melvin, William J., 3,809,821.
Stephens, Raymond A., 3,809,819.
Stover, Harris A., 3,810,018.

Collmann GmbH & Co. Spezialmaschinenbau KG: *See—*
Steffel, Horst, 3,809,900.

Colt Industries Operating Corporation: *See—*
Bell, Oliver A., Jr., 3,809,847.
Bell, Oliver A., Jr., 3,809,848.

Columbia Broadcasting System Inc.: *See—*
Walker, Robert; and Harris, William, 3,809,806.

Columbia Gas System Service Corporation: *See—*
Malcosky, Norman D., 3,809,506.

Combe Incorporated: *See—*
Lapidus, Herbert, 3,808,637.

Combs, Jerry A.: *See—*
Hays, John D.; Baswell, Harlen L.; Combs, Jerry A.; and Brown, Dale G., 3,809,989.

Combustion Engineering, Inc.: *See—*
Krawiec, Donald Michael; and Bevilacqua, Frank, 3,809,609.

Comer, William Timmey: *See—*
Martin, Tellis Alexander; and Comer, William Timmey, 3,809,697.

Commercial Affiliates, Inc.: *See—*
Ward, Robert C., 3,808,760.

Commissariat a l'Energie Atomique: *See—*
Poujois, Robert, 3,810,031.

Commonwealth of Australia, The, % Secretary Department of Supply, The: *See—*
Metcalfe, Kenneth A.; and Smith, Ian E., 3,810,193.

Communications Satellite Corporation: *See—*
Wachs, Marvin Richard; Berman, Arnold L.; and Mahle, Christoph E., 3,810,255.
Wilkinson, Ernest J., 3,810,185.

Compagnie Francaise de Raffinage: *See—*
Bruhlet, Paul; and Quillet, Gerard, 3,809,524.
Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie; Barthelemy, Gabriel; Cinquanta, Alain; and Drapeau, Yves, 3,809,372.

Compere, Newton L. Rupturable blister pill package with safety backing. 3,809,221, Cl. 206-461.000.

Compu-Sort Systems, Inc.: *See—*
Vulcano, Vincent N., 3,808,931.

Comstron Corporation: *See—*
Basse, Philip, 3,810,015.

Comtec Economation, mesne: *See—*
Beaver, William D.; and Lewis, Herbert O., 3,808,752.

Congoleum Industries, Inc.: *See—*
Palmer, Leon B., 3,809,534.

Connell, Kenneth Percy, to National Cash Register Company. Method of employing a soluble matrix to maintain a plurality of objects in a fixed relationship. 3,808,668, Cl. 29-423.000.

Connett, Hugh H., to Ucote Corporation, mesne. Article for the finishing of leather. 3,809,597, Cl. 161-39.000.

Connors, John J. Gage control method and system for tandem rolling mills. 3,808,857, Cl. 72-8.000.

Connors, John J.; Dolphin, Thomas J.; and Cook, John W. Gage control system and method for tandem rolling mills. 3,808,858, Cl. 72-8.000.

Considine, Kevin T.: *See—*
Baker, Thompson A.; Balsiger, Melvin M.; Considine, Kevin T.; and Litsjo, Herbert E., 3,809,899.

Construction Specialties, Inc.: *See—*
Betts, Kenneth H., 3,808,628.

Container Bins, Inc.: *See—*
Mayers, Gerald K., 3,809,264.

Continental Can Company, Inc.: *See—*
Kehe, Alfred W., 3,809,283.

Continental Oil Company: *See—*
Wiseman, Minor R.; and Schoreder, Rondon L., 3,810,007.
Young, Gary C.; and Ferrell, Howard H., 3,809,159.

Continental Scale Corporation: *See—*
Hutchinson, William Y.; and Kushmuk, Walter P., 3,808,694.
Hutchinson, William Y.; and Kushmuk, Walter P., 3,809,171.

Cook, Eugene B., to Allis-Chalmers Corporation. Gyratory crusher with external dynamic balancing assembly. 3,809,324, Cl. 241-210.000.

Cook, Galen B. Tongue extender. 3,809,094, Cl. 128-321.000.

Cook, John W.: *See—*
Connors, John J.; Dolphin, Thomas J.; and Cook, John W., 3,808,858.

Cook, Kenneth J., to Beaumont, William, Hospital. Centrifuge speed control. 3,809,982, Cl. 318-313.000.

Cook, Robert G.: *See—*
Groth, Clarence N.; Hempel, James N.; Wieczorek, Robert A.; Meyer, Charles F.; and Cook, Robert G., 3,809,965.

Cook, Robert G., to Square D Company. Solid state timing circuit. 3,809,970, Cl. 317-141.00s.

Cook, Ronald; Guppy, John Reginald; and Howells, John D., to British Aircraft Corporation. Signal Processing method and apparatus. 3,810,027, Cl. 328-129.000.

Cooper, Edward Frank. Transmission unit. 3,808,899, Cl. 74-203.000.

Cooper, Julius; and Berkin, Harvey, to Ideal Toy Corporation. Toy oven. 3,808,730, Cl. 46-1.00r.

Cooper, Robert J.; and Dozier, Homer A. Ground anchor for mobile homes. 3,808,756, Cl. 52-156.000.

Cope, James R.; and McCully, Everette R., to International Business Machines Corporation. Field and armature control in a reel motor servomechanism. 3,809,328, Cl. 242-184.000.

Coplastix Limited: *See—*
Cave, Gordon Milford, 3,809,119.

Copper Range Company: *See—*

Pulsifer, Verne, 3,809,148.

Coppola, John, to Bunker Ramo Corporation. Modular push button switch assembly mounted on printed circuit board. 3,809,838, Cl. 200-159.00r.

Cornell-Dubilier Electric Corporation: *See—*
Leister, Edwin S.; Kovach, George F., and Robinson, William m. (said Robinson assor. to), 3,810,252.

Corning Glass Works: *See—*
De Luca, Robert D., 3,810,068.

Corretore, Daniel A., Jr.: *See—*
Ulbing, Cynthia G.; and Corretore, Daniel A., Jr., 3,809,561.

Cosden Oil & Chemical Company: *See—*
Allison, Birt, Jr.; Daniels, Calvin L.; and Moss, James H., Jr., 3,809,687.

Costa, Giacomo; and Mestroni, Giovanni, to Snam Progetti S.p.A. Process for photochemical and thermal production of cobalt complexes. 3,809,632, Cl. 204-158.00r.

Costain, Winston; and Matthews, Vincent. Polyamids. 3,809,670, Cl. 260-37.00n.

Cotter, Mitchell A.: *See—*
Nadler, Bernard David, and Cotter, Mitchell A., 3,810,106.

Cotterell, Robert Frederick Joseph. Method of molding heat-expandable thermo-plastic polymeric resinous granules involving enhanced distribution of the hot gaseous medium in the mold cavity. 3,809,735, Cl. 264-51.000.

Coulter Electronics, Inc.: *See—*
Coulter, Wallact H.; and Hogg, Walter R., 3,810,011.

Coulter, Wallact H.; and Hogg, Walter R., to Coulter Electronics, Inc. Apparatus and method for analyzing the particle volume distribution for a plurality of particles of different size in a quantity of liquid. 3,810,011, Cl. 324-17.00p.

Cournoyer, Roger J. A. Three-way screw driver. 3,809,136, Cl. 145-50.00r.

Courtaulds Limited: *See—*
Betts, Max William; and Robinson, Fran, 3,808,841.

Cowell, Elmer E.: *See—*
Coaker, Antony W. M.; and Cowell, Elmer E., 3,809,667.

Coyotte, Claude Charles: *See—*
Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie, Barthelemy, Gabriel; Cinquanta, Alain, and Drapeau, Yves, 3,809,372.

CPC Engineering Corporation. *See—*
Ciaffone, Charles P., 3,809,436.

Crabtree, Clarence, to Fedders Corporation. Dishwasher with improved spray apparatus. 3,809,106, Cl. 134-176.000.

Cragoe, Edward J., Jr.: *See—*
Schultz, Everett M.; and Cragoe, Edward J., Jr., 3,809,721.

Craig, Robert T. Security device for doors. 3,809,417, Cl. 292-259.000.

Crane, Arthur T., to Xerox Corporation. Dual cord interlock. 3,809,916, Cl. 307-18.000.

Crank, George, to Lilly Industries Ltd. Certain 2-oxazolylthioureas as fungicides. 3,809,755, Cl. 424-272.000

Crankshaft Machine Company: *See—*
Oeming, Joseph A.; Heffrom, Allan J.; and Estry, Arthur L., 3,808,653.

Craver, Albert F., to Aurora Corporation of Illinois. Burner cap assembly. 3,809,055, Cl. 126-39.00h.

Crawford, Wheeler C.; Godfrey, Arthur W.; and Reid, Robert E., to Texaco Inc. Lubricating oil containing an alkylmercaptosuccinimide. 3,809,651, Cl. 252-47.500.

Crawley, William B.: *See—*
Povlacs, Lawrence J.; and Crawley, William B., 3,809,090.

Creative Logic Corporation. *See—*
Renzo, Peter C., 3,809,894

Crees, Silas Ray. Apparatus for drawing conductor wires through conduits. 3,809,366, Cl. 254-134.3fi.

Crescent Insulated Wire & Cable Company, Inc.: *See—*
Pearson, Stanley, 3,809,802

Crickmer, Charles D. Adjustable tongs. 3,809,424, Cl. 294-113.000.

Cromwell, Roy D.: *See—*
Bourg, Haden J., Jr.; and Nicholson, James F., 3,809,941.

Crosby, David A.: *See—*
Cochran, Gary D.; Crosby, David A.; and Franken, Peter A., 3,809,886.

Croslin, Michael E., to Grumman Data Systems Corporation. Dispensing apparatus. 3,809,296, Cl. 222-309.000.

Crouch, Donald W., to General Electric Company. Vacuum-type electric circuit interrupter. 3,809,836, Cl. 200-144.00b.

Crowley, Lee Francis; Presky, Dennis Robert; and Missenda, Andrew Michael, to RCA Corporation. Automatic squelch tail eliminator for tone coded squelch systems. 3,810,023, Cl. 325-478.000.

Crown Zellerback Corporation: *See—*
Kendall, Burt C., 3,809,223.

Csumrik, Joseph D., to Central Steel Works (Peterborough), Limited. Collapsible shipping container. 3,809,278, Cl. 220-4.00f.

Csuros, Zoltan; and Petro, Jozsef to Magyor Tudomanyos Akademia. Process for the preparation of Raney-metal catalysts having high activity. 3,809,658, Cl. 252-472.000.

Culp, Stuart David, to General Electric Company. Memory bit drive circuitry providing common terminating impedance to a sense line. 3,810,134, Cl. 340-174.0pw

Cuprak, Thomas. Snap plate for football. 3,809,399, Cl. 273-55.00r.

Curley, John L.: *See—*
Nibby, Chester M.; Manton, John C.; and Curley, John L., 3,809,884.

Cvetler, Jiri: *See—*
Rosberg, Frantisek; Linda, Josef; Buzga, Ondrej; Dusek, Miloslav; and Cvetler, Jiri, 3,808,749.

Daeuble, Manfred; Greif, Norbert; and Fikentscher, Rolf, to Badische Anilin-& Soda-Fabrik Aktiengesellschaft. Sulfonated phenol ethers. 3,809,717, Cl. 260-512.00r.

Dahlquist, James E.; and Medal, Richard J., to Rauland-Borg Corporation. Private automatic telephone system with dial and dialless telephones. 3,809,824, Cl. 179-37.000.

Daido Metal Company Ltd.: *See—*
Morisaki, Nobukazu, 3,809,551.

Daimler-Benz AG: *See—*
Lamm, Heinz, 3,809,509.

Daimler-Benz Aktiengesellschaft: *See—*
Frankle, Gerhard, 3,809,045.
Lamm, Heinz, 3,809,021.
Renner, Hermann; and Sacco, Bruno, 3,808,743.

Dalbera, Michel R. J.: *See—*
Basard, Robert; and Dalbera, Michel R. J., 3,810,178.

Dale Electro-Systems, Incorporated: *See—*
Tirrell, C. Barry; and Reid, Walter L., Jr., 3,809,966.

D'Alfonso, Nunzio: *See—*
Meurer, Siegfried; Emmerling, Wolfram; and D'Alfonso, Nunzio, 3,809,031.

Dalmasso, Claudio, to Olivetti, Ing. C., & C., S.p.A. Terminal leads for integrated circuit package and method for producing a frame of said leads. 3,808,679, Cl. 29-625.000.

Damodaran, Nandyelath; Moffatt, John; Jones, Gordon; and Howarth, George, to Syntex (U.S.A.) Inc. Synthetic polyoxin type nucleosides and methods of preparing. 3,809,689, Cl. 260-211.50r.

Damon Corporation: *See—*
Kosowsky, David L., 3,809,068.

Dana Corporation: *See—*
Young, Richard N., 3,809,038.

Daniels, Calvin L.: *See—*
Allison, Birt, Jr.; Daniels, Calvin L.; and Moss, James H., Jr., 3,809,687.

Danylchuk, Irynej: *See—*
Bobeck, Andrew Henry; and Danylchuk, Irynej, 3,810,133.

Dassler, Adolf. Running sole of flexible synthetic material for sports shoes. 3,808,713, Cl. 36-32.000.

Dau, Paul, & Co.: *See—*
Wick, Henning, 3,809,972.

Daumueller, Hans; and Kretschmer, Heinz, to Bosch, Robert, G.m.b.H. Illuminating unit for use on motor vehicles. 3,809,880, Cl. 240-8.200.

Dautsch, Ralph, to Nippon Gakki Seizo Kabushiki Kaisha. Computor organ using parallel processing. 3,809,788, Cl. 84-1.010.

Dautsch, Ralph, to Nippon Gakki Seizo Kabushiki Kaisha. Computor organ using harmonic limiting. 3,809,789, Cl. 84-1.010.

Dautsch, Ralph, to Nippon Gakki Seizo Kabushiki Kaisha. Implementation of combined footage stops in a computor organ. 3,809,790, Cl. 84-1.010.

Dautsch, Ralph, to Nippon Gakki Seizo Kabushiki Kaisha. Production of celeste in a computor organ. 3,809,792, Cl. 84-1.240.

Davenport, Richard Waldron, to Uniroyal, Inc. Reaction product of 2-vinyl-5-norbornone with hexaholocyclopentadienes. 3,809,725, Cl. 260-648.00c.

Davidson, Morris J.: *See—*
Nick, Charles F.; and Davidson, Morris J., 3,808,882.

Davies, Anthony Roger, to Plessey Handel und Investments A.G. Flow-control arrangements in axial-cylinder pumps. 3,808,950, Cl. 91-487.000.

Davis, Henry, Jr.; and Church, Donald E., to Avco Corporation. Pneumatic tire low pressure monitoring and warning system. 3,810,090, Cl. 340-58.000.

Davis, Paul; and Shore, David N., to Sweetheart Plastics, Inc. Disposable plastic dish. 3,809,236, Cl. 206-519.000.

Davison, Robert W.: *See—*
Fantini, Ralph S.; and Davison, Robert W., 3,809,590.

Davolos, Dominick D.; Denker, Jerry B.; and Davolos, Phillip A. Method and means for the detection and identification of low level components of the electrocardiogram complex without loss of reference to the higher level components. 3,809,071, Cl. 128-2.06.

Davolos, Phillip A.: *See—*
Davolos, Dominick D.; Denker, Jerry B.; and Davolos, Phillip A., 3,809,071.

Dawes, Dag; and Boehner, Beat, to Ciba-Geigy Corporation. Triazolylphosphonic and phosphoric esters. 3,809,701, Cl. 260-308.00r.

Dawson, Samuel G.: *See—*
Fowler, Charles F.; and Dawson, Samuel G., 3,809,228.

De Bondt, Leon: *See—*
Denis, Englebert, and De Bondt, Leon, 3,809,469.

De Lanauze, Jacques. Die sawing machine. 3,808,934, Cl. 83-747.000.

De Lorenzo, Joseph F.: *See—*
Reed, Joseph; and De Lorenzo, Joseph F., 3,809,815.

De Luca, Robert D., to Corning Glass Works. Impedance element with magnesium reaction terminal contact and method. 3,810,068, Cl. 338-274.000.

De Montgolfier, Arnaud: *See—*
Salet, Simone; and De Montgolfier, Arnaud, 3,809,909.

De Moude, Adrian J. Pin attachment means for surgical bow. 3,809,074, Cl. 128-84.00r.

De Nora, Oronzio; and De Nora, Vittorio, to De Nora, Oronzio, Impianti Elettrochimici S.p.A. Electrolysis cell with permeable valve metal anode and diaphragms on both the anode and cathode. 3,809,630, Cl. 204-98.000.

De Nora, Oronzio, Impianti Elettrochimici S.p.A.: *See—*
De Nora, Oronzio; and De Nora, Vittorio, 3,809,630.
Messner, Georg; and De Nora, Vittorio, 3,809,629.

De Nora, Vittorio: *See—*
De Nora, Oronzio; and De Nora, Vittorio, 3,809,630.
Messner, Georg; and De Nora, Vittorio, 3,809,629.

De Palma, James John: *See—*
Kurtz, Clark Nelson; and De Palma, James John, 3,809,457.

De Pass, Ernest T.: *See—*
Burke, William R.; McCall, Frank S.; Clark, Kenneth G.; De Pass, Ernest T.; and Friend, William H., 3,809,593.

De Voy, David D.; Barlow, George J.; and Klashka, John A., to Honeywell Information Systems, Inc. Noise record processing for phase encoded data. 3,810,231, Cl. 360-40.000.

Dean, John K., Jr. Rotary power translation machine. 3,809,022, Cl. 123-8.190.

Deaton, David W., to Deaton Medical Company, mesne. Sterile liquid entraining system. 3,809,080, Cl. 128-194.000.

Deaton Medical Company, mesne: *See—*
Deaton, David W., 3,809,080.

Decker, John L.: *See—*
Anderson, Norman J.; Decker, John L.; and Manueso, Jon R., 3,808,837.

Deepsea Ventures, Inc.: *See—*
Kane, William S.; and Cardwell, Paul H., 3,809,624.

Deere & Company: *See—*
Bass, Merlyn Duane; and Boushek, Sidney Joseph, Jr., 3,808,781.
Glider, Lawrence James, 3,809,167.
Hook, Richard Wyane; and Jackson, William Wayne, 3,809,164.
Jackson, James Edward, 3,809,244.
Johnson, Earl Clinton, 3,808,909.
Muncke, Ludwig; Buchmuller, Josef; and Stieler, Konrad, 3,808,949.
Sutherland, Gail Russell; Leonard, Ronald Keith, and Hoeksema, Joe Henry, 3,808,783.

Degrement, Societe Generale d'Epuration & d'Assainissement. *See—*
Savall, Vincent, 3,809,240.

Deknatel, Inc., mesne. *See—*
Bidwell, Robert E.; and Kurtz, Leonard D., 3,809,085.

Del Laboratories, Inc.: *See—*
Farrari, Luigi M., 3,809,226.

Del Norte Technology, Inc.: *See—*
Merrick, James W., 3,810,179.

Delaney, Glenn Allen, Jr.; and Jones, Robert Wayne, to Dresser Industries, Inc. Exhaust muffler for pneumatic tools. 3,809,179, Cl. 181-36.00a.

Delbag-Luftfilter Gesellschaft mit beschrankter Haftung: *See—*
Neumann, Gerhard Max; and Wittemeier, Hans-Joachim (said Neumann assor. to), 3,808,777.

Delisle, Jules; and Baillargeon, Victor, to Universite de Sherbrooke. System for conducting automatically an audiometric test. 3,809,811, Cl. 179-1.00n.

Delligatti, Patrick. Biased return coding drum. 3,808,970, Cl. 101-35.000.

Delvecchio, George D., to Xerox Corporation. Developer seal. 3,809,012, Cl. 118-637.000.

Denbilt Corporation: *See—*
Dennis, Clement O.; and Everhardt, William Franklin, 3,809,592.

Denis, Englebert; and De Bondt, Leon, to GAF Corporation. Slide carrier cycling mechanism for optical projectors and the like. 3,809,469, Cl. 353-106.000.

Denker, Jerry B.: *See—*
Davolos, Dominick D.; Denker, Jerry B.; and Davolos, Phillip A., 3,809,071.

Dennis, Clement O.; and Everhardt, William Franklin, to Denbilt Corporation. Process and apparatus for retreading tires. 3,809,592, Cl. 156-394.000.

Desbois, Roger J. Foot shield for cyclists. 3,808,910, Cl. 74-594.600.

Deseret Pharmaceutical Company, Inc.: *See—*
Loveless, James C., 3,809,081.

Desmarchais, Walter E.: *See—*
Katz, Leonard R.; Landerman, Edgar I.; and Desmarchais, Walter E., 3,809,608.

Deuschle, Fritz: *See—*
Schachet, Eli; and Deuschle, Fritz, 3,809,086.

Deutsch, Daniel H. Method of supporting a hot oil pipeline through permafrost. 3,809,149, Cl. 165-1.000.

Deutsch, Ralph, to Deutsch Research Laboratories, Ltd. Computor organ. 3,809,786, Cl. 84-1.010.

Deutsch Research Laboratories, Ltd.: *See—*
Deutsch, Ralph, 3,809,786.

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Krzyminski, Harald, 3,809,583.
Scholz, Joachim; and Reber, Raudi, 3,810,066.

Deutsche Gold-und Silber-Scheideanstalt vormels Roessler: *See—*
Steinmetz, Gunter; and Thiele, Kurt, 3,809,695.

Deutsche Golf-und Silbert-Scheideanstalt vormals Roessler: *See—*
Udluft, Klaus; Weigert, Wolfgang; Offermanns, Heribert; and Wagner, Hans, 3,809,716.

Deutsche Vergaser Gesellschaft m.b.H. & Co., K G.: *See—*
Durichen, Horst, 3,809,034.

Deverse, Frank T.: *See—*
Chough, Euiwon; Deverse, Frank T.; Konrad, Franz; Kurtz, John A.; and Manchester, Russell C., 3,809,050.

Dewhirst, Donald R.: *See—*
Woodhury, Eric J.; and Dewhirst, Donald R., 3,810,044.

Dewland, Joseph F.: *See—*
Hershberg, David E.; Chaplin, Arthur H.; and Dewland, Joseph F., 3,810,038.

DHJ Industries, Inc.: *See—*
Feitlowitz, Robert D., 3,809,573.

Dicker International, Inc.: *See—*
Pipa, William J., 3,808,733.

Diehl: *See—*
Stutzle, Dietmar; and Weidner, Peter F., 3,808,975.

Diepeveen, John C. Die frame support with heater element. 3,809,860, Cl. 219-385.000.

Dieterich, Peter D.: *See—*
Dieterich, Peter D.; Eiszner, William H., Jr.; and Locke, John P. (said Locke and said Eisgner assors. to said), 3,808,891.
Dieterich, Peter D.; Eiszner, William H., Jr.; and Locke, John P., said Locke and said Eisgner assors. to said Dieterich, Peter D. Apparatus for operating a pressure gauge or the like. 3,808,891, Cl. 73-407.00r.

Dietert, Harry W., to Dietert, Harry W., Co. Apparatus for and method of granular material testing. 3,808,881, Cl. 73-93.000.

Dietert, Harry W., Co.: *See—*
Dietert, Harry W., 3,808,881.

Digital Equipment Corporation: *See—*
Kotok, Alan, Kent, Allan R.; and Gross, David A., 3,810,110.

Digitec, Inc.: *See—*
Bonnel, Arthur John, Sr., 3,808,915

DiLaura, Ercole Thomas. External waste pipe support stand for trailers. 3,809,348, Cl. 248-49.000.

DiMeo, Frank N., to Academic Associates, Inc. Computer terminal plotting apparatus and method. 3,809,865, Cl. 235-151.000.

Dini, Mamiliano, to European Rotogravure Association. Method for sensing the depth of cellular pits formed in a material layer. 3,808,878, Cl. 73-67.80s.

Dobbs, Wallace C. Method and apparatus for manufacturing stuffed and sealed mailing packages. 3,808,768, Cl. 53-31.000.

Dobby Laboratories, Inc.: *See—*
Gundry, Kenneth James, 3,810,035.

Dobner, Reinhold; Willenbacher, Erich; and Baus, Wolfgang, to Pfaff Industriemaschinen GmbH. Sewing machine with differential feed. 3,808,995, Cl. 112-209.000.

Dobras, Bruce W., to Manarch Marking Systems Company, The. Optical reader. 3,809,893, Cl. 250-227.000.

Dobry, Reuven, to Tetley Inc., mesne. Infusion package. 3,809,215, Cl. 206-.500.

Dobson, Richard D., Sr., and Clifton, Clyde J., to McGraw, Ron J. Bitumen pumping apparatus. 3,809,505, Cl. 417-424.000.

Dodd, Paul D.; Lynott, John J.; and Treder, John D., to International Business Machines Corporation. Continuously movable information storage and retrieval systems. 3,809,263, Cl. 214-16.40r.

Doering, Charles W.; and Smith, Samuel W., to Brinly-Hardy Co., Inc Bag carrying structure. 3,808,627, Cl. 15-83.000.

Doge, Heinz: *See—*
Bredehorn, Friedrich; and Doge, Heinz, 3,809,206.

Doi, Shuhei: *See—*
Okawa, Sohei; and Doi, Shuhei, 3,809,671.

Doi, Tetuo. *See—*
Tokunaga, Kazuyoshi; Yamada, Takahiro; Doi, Tetuo, and Takahashi, Tetsuo, 3,810,194.

Dole Electro-Systems, Incorporated: *See—*
Tirrell, C. Barry; and Williams, George B., 3,809,967.
Williams, Lon A.; and Williams, George B., 3,809,969.

Dolgy, Andrei Emelyanovich, Balandin, Jury Mikhailovich; Shelepchikov, Viktor Vasilievich; and Shutov, Vladimir Ivanovich. Devices for mounting an engine on an aircraft pylon. 3,809,340, Cl. 244-54.000.

Doll, Henri Georges; and Broner, Hans J., to Doll Research, Inc. Noninvasive electromagnetic bloodflow measuring system with rejection of noises. 3,809,070, Cl. 128-2.05f.

Doll Research, Inc.: *See—*
Doll, Henri Georges; and Broner, Hans J., 3,809,070.

Dolphin, Thomas J.: *See—*
Connors, John J.; Dolphin, Thomas J.; and Cook, John W., 3,808,858.

Dombroski, James J. Pencil sharpening device. 3,809,137, Cl. 145-3.610.

Donahue, William J.: *See—*
Cammack, Thomas A.; Donahue, William J.; and Gratton, Peter D., 3,808,972.

Donnelly Mirrors, Inc.: *See—*
Baumgardner, John D.; and Ebeling, Dorothy J., 3,809,461.

Donnelly Mirrors, Incorporated: *See—*
Baumgardner, John D.; and Ebeling, Dorothy J., 3,809,462.

Doonan, Nathaniel J.: *See—*
Rigney, Jack C.; Hollis, Samuel H.; and Doonan, Nathaniel J., 3,809,013.

Doorcraft Inc.: *See—*
Carmichael, Eldon W., 3,808,759.

Douglas, Lawrence M.: *See—*
Land, Edwin H.; and Douglas, Lawrence M., 3,810,201.

Dove, Ralph E. Earth working blade with saw teeth. 3,809,135, Cl. 144-34.00f.

Dow Chemical Company, The: *See—*
Routson, Willis G., 3,809,160.

Downey, Rogers B., to Polaroid Corporation. Motion picture processing and projection system employing multi-purpose cassette. 3,809,104, Cl. 134-122.000.

Downing, Thomas P., to Acme Conveyor Company, Inc. Machines for picking a single sheet of material from a stack. 3,809,388, Cl. 271-20.000.

Dowty Fuel Systems Limited: *See—*
Robinson, Keith, 3,808,797.

Doyel, John S. Molding die block. 3,809,356, Cl. 249-155.000.

Dozier, Homer A.: *See—*
Cooper, Robert J.; and Dozier, Homer A., 3,808,756.

Dracket Company, The: *See—*
Gabby, John Lester; Barbin, Dennis Dale; and Lowe, Jack Brunner, 3,809,764.

Dragerwerk, AG: *See—*
Breiling, Hans Georg; and Warnow, Detlef, 3,809,109.

Drapeau, Yves: *See—*
Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie, Barthelemy, Gabriel; Cinquanta, Alain; and Drapeau, Yves, 3,809,372.

Drebes, Friedrich-Wilhelm; and Birresborn, Gunter, to Otto, C., Dr., & Comp. G.m.b.H. Combined wet and dry quenching. 3,809,619, Cl. 201-39.000.

Drella, Charles L.; Fineo, Carlo; Jenssen, Lloyd W.; and Scott, William, Jr., to Johns-Manville Corporation. Inverting and reversing conveyor. 3,808,771, Cl. 53-118.000.

Dresser Industries, Inc.: *See—*
Delaney, Glenn Allen, Jr.; and Jones, Robert Wayne, 3,809,179.
Nick, Charles F.; and Davidson, Morris J., 3,808,882.

Drevici, Noe: *See—*
Drevici, Ulla; and Drevici, Noe, 3,809,778.

Drevici, Ulla; and Drevici, Noe. Process for the complete utilization of cocoa fruits. 3,809,778, Cl. 426-481.000.

Dreyer, Heinz, to Amazonen-Werke, H. Dreyer,. Machine for the distribution of granulated and powdered materials. 3,809,316, Cl. 239-167.000.

Drinnon, Robert H.: *See—*
Manca, Michael E.; and Drinnon, Robert H., 3,809,178.

Driscoll, Kendall L.: *See—*
United States of America, National Aeronautics and Space Administration, 3,809,800.

Druseikis, Frederick, to General Motors Corporation. Actuating mechanism for a depressed park windshield wiper system. 3,808,629, Cl. 15-250.170.

Du Pont de Nemours, E. I., and Company: *See—*
Blair, David E., 3,808,877.
Ferguson, Billy George, 3,808,924.
McMunn, Charles William, III; and Nakayama, Takashi, 3,809,797.

Duchateau, Georges F., to Raffinerie tirlemontoise. Rotary countercurrent solid-liquid extraction apparatus. 3,809,538, Cl. 23-269.000.

Duffy, Michael Thomas; and Carnes, James Edward, to RCA Corporation. Aluminum oxide films for electronic devices. 3,809,574, Cl. 117-201.000.

Dufrene, Alex. Tubing plug. 3,809,157, Cl. 166-185.000.

Dunegan, Ronald G.: *See—*
Grove, Marvin H.; and Dunegan, Ronald G., 3,809,113.

Dunlop Holdings Limited: *See—*
Haines, Robert C.; Barrett, John E., and Stevens, Eric H., 3,809,402.

Dunn, Nelson H.: *See—*
Alger, Martin J., Jr., and Dunn, Nelson H., 3,808,659.

Dunning, Walter B.; Endter, Dale S.; and McDonald, William G., to Eastman Kodak Company. Light-tight cartridge for containing sheet material. 3,810,229, Cl. 354-281.000.

Duralac Chemical Corporation: *See—*
Leister, Edwin S.; Kovach, George F.; and Robinson, William m. (said Leister and said Kovach assors. to), 3,810,252.

Durand Machine Company, Ltd.: *See—*
Hards, John E., 3,808,925.

Durichen, Horst, to Deutsche Vergaser Gesellschaft m.b.H. & Co., K.G. Speed regulator for an internal combustion engine. 3,809,034, Cl. 123-102.000.

Durr, Helmut: *See—*
Lermann, Peter; and Durr, Helmut, 3,810,204.

Dusek, Miloslav: *See—*
Rosberg, Frantisek; Linda, Josef; Buzga, Ondrej; Dusek, Miloslav; and Cvetler, Jiri, 3,808,749.

Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie; Barthelemy, Gabriel; Cinquanta, Alain; and Drapeau, Yves, to Compagnie Francaise de Raffinage. Device for the generation of ultrasonics and their application to the preparation of emulsios. 3,809,372, Cl. 259-4.000.

Dworcan, Manfred: *See—*
Lieb, Solomon Nathan, 3,810,146.

Dworkin, Darryl R.: *See—*
Gay, Derek J.; Smedley, William H.; Cohen, Aaron G.; Dworkin, Darryl R.; Nuttall, Michael W.; and Wilson, Nicol S., 3,808,732.

Dynapac Inc.: *See—*
Biggs, Eugene S., 3,808,941.

Dziedzic, Joseph Martin: *See—*
Ashkin, Arthur; and Dziedzic, Joseph Martin, 3,810,131.

Eagle Electric Mfg. Co., Inc.: *See—*
Ludwig, Melvin S., 3,810,070.

Eallonardo, Charles M., to Varian Associates. Method of fabricating a traveling wave tube. 3,808,677, Cl. 29-600.000.

Eastener Corporation: *See—*
Wandel, Oscar A.; and Mullaney, Frank, 3,809,307.

Eastman Kodak Company: *See—*
Adamski, Henry S.; and Kindig, Guilford E., 3,810,210.
Carpenter, James W.; Mee, John D.; and Heseltine, Donald W., 3,809,691.
Dunning, Walter B.; Endter, Dale S.; and McDonald, William G., 3,810,229.
Kurtz, Clark Nelson; and De Palma, James John, 3,809,457.
Lettan, Richard H.; and McGuire, Robert J., 3,809,460.
Merrill, Stewart H.; and Olson, James R., 3,809,554.
Musser, Harry R.; and Jackson, Winston J., Jr., 3,809,681.
Ulbing, Cynthia G.; and Corretore, Daniel A., Jr., 3,809,561.

Eastmen Kodak Company: *See—*
Malone, Harold L.; and Bodensteiner, Robert J., 3,810,214.

Eaton Corporation: *See—*
Buttriss, Albert T., 3,808,887.
Clancey, Stephen M., 3,809,197.
Moran, Thomas M.; and Paskert, Joseph H., 3,808,635.

Ebdon, Ronald William, to Perry, E. S., Limited. Rocking pendulum. 3,808,793, Cl. 58-130.00r.

Ebeling, Dorothy J.: *See—*
Baumgardner, John D.; and Ebeling, Dorothy J., 3,809,461.
Baumgardner, John D.; and Ebeling, Dorothy J., 3,809,462.

Eber, Nicolas, to Aktiengesellschaft Electrolux. Absorption refrigeration apparatus. 3,808,834, Cl. 62-490.000.

Ecker, Frank A.: *See—*
Hoffmeyer, Knud H., Haffner, Donald G.; and Ecker, Frank A., 3,808,778.

Eckhardt, Hellmuth; and Sauerbier, Reiner. Combined radial axial bearing. 3,809,444, Cl. 308-174.000.

Economy Color Card Co. Inc.: *See—*
Ackerman, Don; and Grossman, Martin, 3,808,710.

Ecos Corporation: *See—*
Portoulas, Peter G., 3,810,003.

Eddy, John W.; and Puccini, Sergio E., to GTE Automatic Electric Laboratories, Incorporated. Communication switching system interlock arrangement. 3,809,822, Cl. 179-18.00e.

Edelman, Seymour: *See—*
Cohen, Julius; Edelman, Seymour; and Vezzetti, Carol F., 3,809,920.

Eder, Ulrich: *See—*
Kerb, Ulrich; Wiechert, Rudolf; Eder, Ulrich; and Berndt, Hans-Detlef, 3,809,690.

Edet, Hakon: *See—*
Andersson, Hans; and Edet, Hakon, 3,808,609.

Edson, Gwynne I.; and Reynolds, Keith R., to GTE Sylvania Incorporated. Gold alloy plating process and solution. 3,809,628, Cl. 204-43.00g.

Edwards, John W.; and Tull, Herbert G., III, to Hoerner Waldorf Corporation. Bag bale. 3,809,235, Cl. 206-499.000.

Ehlichmann, Merlin W., to West Creek Co., Inc. Afterburner construction. 3,808,987, Cl. 110-8.00a.

Ehni, George J., III, to Texas Instruments, Incorporated. Low power DC-DC converter employing intermittent bursts of blocking oscillations. 3,809,994, Cl. 321-2.000.

Ehret, Yale W.; and Anderson, Russell O., to Adams & Westlake Company, The. Window. 3,808,742, Cl. 49-413.000.

Eichin, Harry P.: *See—*
Marbach, Walter V.; Acton, Frank J.; Eichin, Harry P.; and Winokur, Louis L., 3,809,576.

Eidsmo, Jacob: *See—*
Kolderup, Edward; and Eidsmo, Jacob, 3,809,344.

Eifler, Raymond J., to Bendix Corporation, The. Rear release contact retention assembly. 3,810,071, Cl. 339-59.00m.

Eisenberg, Mark F.; and Harmon, William J., Jr., to Burroughs Corporation. Apparatus reducing the power required for scanned display devices. 3,809,952, Cl. 315-169.0tv.

Eiszner, William H., Jr.: *See—*
Dieterich, Peter D.; Eiszner, William H., Jr.; and Locke, John P., 3,808,891.

Ek, Sigvard, to Aktiebolaget Jonkopings Vacuumindustri. Stopper. 3,809,275, Cl. 215-13.00r.

Electro Systems Engineering, Inc.: *See—*
Alvine, Charles E., 3,809,241.

Electro-Craft Corporation: *See—*
Walker, Peter, Jr., 3,809,983.

Electroprint, Inc., mesne: *See—*
Pressman, Gerald L.; and Kittredge, Thomas D., 3,809,556.
Pressman, Gerald L.; and Kittredge, Thomas D., 3,809,557.

Elkind, Vincent T.; Hunter, Robert T.; Marder, Herman L.; and Hutchinson, Homer F., to Colgate-Palmolive Company. Textile sizing, water and oil repellent composition. 3,809,663, Cl. 260-17.4st.

Elliott, David Robert; and Greenway, John Michael. Treatment of yarns. 3,808,652, Cl. 28-1.400.

Elliott, Robert L. Shoe sole protector. 3,808,712, Cl. 36-7.300.

Ellis, Thomas Walter: *See—*
Ewing, William Steele, Jr.; Ellis, Thomas Walter; and Choate, William Clay, 3,810,162.

Elsing, John W. Safety release apparatus. 3,809,369, Cl. 254-173.00r.

Eltra Corporation: *See—*
Hardin, James T., 3,809,995.
Emberson, John Ernest. Drain fitting. 3,809,411, Cl. 285-42.000.
Emco (Great Britain) Limited: *See—*
Hunt, William Allen, 3,809,169.
Emhart Corporation: *See—*
Alexander, Gordon A., 3,808,849.
Emmerling, Wolfram: *See—*
Meurer, Siegfried; Emmerling, Wolfram; and D'Alfonso, Nunzio, 3,809,031.
Emmons, Donald R.; and Beverly, William C., Jr. System for monitoring and controlling substances in fluid bodies. 3,809,922, Cl. 307-118.000.
Endo, Kunio: *See—*
Wakamatsu, Hisato; and Endo, Kunio, 3,809,029.
Endo, Takaya: *See—*
Matsuo, Shunji; Sato, Shui; Endo, Takaya; Kasai, Keiji; and Inoue, Izaburo, 3,808,945.
Endter, Dale S.: *See—*
Dunning, Walter B.; Endter, Dale S.; and McDonald, William G., 3,810,229.
Enekes, Sandor: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.
Energiagazdalkodasi Intezet: *See—*
Heller, Laszlo; Szucs, Laszlo; and Szabo, Zoltan, 3,809,154.
Energiagazdalkodsi Intezet: *See—*
Heller, Laszlo; Szucs, Laszlo; and Szabo, Zoltan, 3,808,775.
Engelke, Roger P.; and Zille, Marvin H., to Barber-Colman Company. Self-powered variable volume air damper control. 3,809,314, Cl. 236-49.000.
Engelke, Wilhelm; and Purr, Gerhard, to Kraftwerk Union Aktiengesellschaft. Steam turbine installation. 3,808,819, Cl. 60-690.000.
Engelstatter, Heinz, to Braun Aktiengesellschaft. Electronic flash unit with automatic flash termination of increased reliability. 3,809,954, Cl. 315-241.000.
England, Alfred W., to Xerox Corporation. Computer input-output system. 3,810,105, Cl. 340-172.500.
Erdman, Jurgen; and Knappe, Hartmut, to Sick, Erwin. Beam scanning object detection system. 3,809,891, Cl. 250-222.00r.
Erdmenger, Rudolf; Ullrich, Martin; and Hederich, Manfred, to Bayer Aktiengesellschaft. Concentration of materials. 3,809,140, Cl. 159-2.00r.
Erixon, Karl Erich Samuel, to Gunnebo Bruks Aktiebolag, mesne. Cartridge magazine for power tools. 3,808,723, Cl. 42-6.000.
Ernst, Richard Robert, to Varian Associates. Nuclear magnetic resonance spectroscopy employing difference frequency measurements. 3,810,001, Cl. 324-.50r.
Ersek, Robert A.; Wall, Donald E.; and Garity, Michael C., to Med General Inc. Sterile sheath apparatus for fiber optic illuminator with compatible lens. 3,809,072, Cl. 128-23.000.
Erwin, Robert Dale, to Mallory, P. R., & Co. Inc. Means preventing continued rotation in a wrong-way direction of rotating member. 3,809,932, Cl. 310-41.000.
Esashi, Hanjiro, to Sony Corporation. Tape cassette. 3,809,219, Cl. 206-55.00k.
ESB Incorporated: *See—*
Venuto, C. Joseph, 3,809,579.
Eskeli, Michael. Heat and steam generator. 3,809,017, Cl. 122-11.000.
Esser, Leonard Jan Maria, to U.S. Philips Corporation. Transversal filter. 3,809,923, Cl. 307-221.00d.
Esso Production Research Company: *See—*
Ilfrey, William T.; and Sheffield, James R., 3,809,170.
Esso Production Research Corporation: *See—*
Kostelnicek, Richard J., 3,810,083.
Esso Research and Engineering Company: *See—*
Horowitz, Hugh H.; and Tyler, William E., III, 3,809,726.
Estes, Phillip Waite, to Riegel Textile Corporation. Process for forming a fluffed fibrous pulp batt. 3,809,604, Cl. 162-100.000.
Estry, Arthur L.: *See—*
Oeming, Joseph A.; Heffrom, Allan J.; and Estry, Arthur L., 3,808,653.
Etablissements Minet: *See—*
Notin, Claude Jacques, 3,808,968.
Etat Francais: *See—*
Barthelemy, Robert Lucien, 3,810,029.
Etat Francais represente par le Ministre Charge de la Defense National Delegation Ministerielle pour l'Armement: *See—*
Ceyrat, Bernard, 3,809,964.
Ethyl Corporation: *See—*
Lerner, Sidney I., 3,809,761.
Eul, Edward A., Jr.: *See—*
Orlowski, Donald W.; and Eul, Edward A., Jr., 3,810,230.
European Rotogravure Association: *See—*
Dini, Mamiliano, 3,808,878.
Euverard, Maynard R., to Velten & Pulver, Inc. Converging and diverging conveyor. 3,809,207, Cl. 198-34.000.
Evans, Anthony C., to Kelsey-Hayes Company. Disk type parking brake. 3,809,190, Cl. 188-722.000.
Evans, James D.: *See—*
Karsten, Fred W.; Evans, James D.; and Pool, Sam Lee, 3,810,148.
Evans, Lee L., to Texas Instruments, Incorporated. Integrated structure amplifier with thermal feedback. 3,809,928, Cl. 307-303.000.
Everhardt, William Franklin: *See—*
Dennis, Clement O.; and Everhardt, William Franklin, 3,809,592.
Evertz, Egon: *See—*
Evertz, Egon; and Seybold, Rolf, 3,808,667.
Evertz, Egon; and Seybold, Rolf, to Evertz, Egon. Method of repairing cracked iron chills. 3,808,667, Cl. 29-402.000.
Ewing, William Steele, Jr.; Ellis, Thomas Walter; and Choate, William Clay, to Texas Instruments Incorporated. Nonlinear classification recognition system. 3,810,162, Cl. 340-172.500.
Exact Weight Scale Co., Inc.: *See—*
Hecox, William, 3,810,122.
Exhibit Homes, Inc.: *See—*
Gallap, Francis, 3,809,357.
Eyelet Specialty Company: *See—*
Landen, William James, 3,809,276.
Fa. Kleinewefers Industrie Companie GmbH: *See—*
Lopata, Karl Peter, 3,808,845.
Fabre, Pierre; Giroud-Garampon, Robert; Gondrand, Michel; and Grenoble, Fernand Raymond, to Tunzini Ameliorair, Thermique, Aeraulique,. Apparatus for the surface coating of objects. 3,809,011, Cl. 118-635.000.
Factory Mutual Research Corporation: *See—*
Herbello, Mario, 3,809,112.
Fader, Seymour, to Robin International, Inc. Two-stage copier. 3,809,476, Cl. 355-113.000.
Fagerstad, Herlov: *See—*
Sjoberg, Sven; Fagerstad, Herlov; and Weng, August, 3,809,938.
Fair, John; and Griswold, James L., said Fair assor. to said Griswold, James L. Trash compactor. 3,808,967, Cl. 100-221.000.
Fallert, Erich: *See—*
Pfundstein, Karl; and Fallert, Erich, 3,809,361.
Fanta, George F.; and Burr, Robert C., to United States of America, Agriculture. Method of preparing starch graft polymers. 3,809,664, Cl. 260-17.4gc.
Fantini, Ralph S.; and Davison, Robert W., to Porter, H. K., Company, Inc. Jet engine starter hose and method of making it. 3,809,590, Cl. 156-149.000.
Farkas, Istvan: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.
Farr, Glyn Phillip Reginald, to Girling Limited. Brake adjusters. 3,809,189, Cl. 188-71.900.
Farrari, Luigi M., to Del Laboratories, Inc. Display package for cosmetics. 3,809,226, Cl. 206-229.000.
Farrell, John J., to Farrell Patent Company. Extrusion die for blowing plastic film. 3,809,515, Cl. 425-133.000.
Farrell Patent Company: *See—*
Farrell, John J., 3,809,515.
Fatzer, Willy: *See—*
Porret, Daniel; and Fatzer, Willy, 3,809,696.
Faure, Robert: *See—*
Bocher, Dominique; and Faure, Robert, 3,809,759.
Faurschou, Donald K.; Misener, Donald C.; Pope, James C.; and Hadden, Richard, to Canadian Patents and Development Limited. Solid electrolyte compact for probe used in quantitative determination of gas dissolved in molten metal. 3,809,639, Cl. 204-195.00s.
Fauth, Guenter, to Agfa-Gevaert Aktiengesellschaft. Film transporting mechanism for still cameras. 3,810,219, Cl. 354-206.000.
Febrer, Carlos Ricci. Device for retaining buttons. 3,808,647, Cl. 24-108.000.
Feddern, Horst, to Fischer, Georg, Aktiengesellschaft. Method to control the moisture content of granular substances. 3,809,564, Cl. 106-38.900.
Fedders Corporation: *See—*
Crabtree, Clarence, 3,809,106.
Fedorov, Nikolai Evstigneevich: *See—*
Levin, Igor Anatolievich; Levin, Anatoly Yakovlevich; Fedorov, Nikolai Evstigneevich; Rogov, Iosif Alexandrovich; Afanasov, Erik Eduardovich; and Turyansky, Eduard Grigorievich, 3,809,341.
Fehr & Reist AG: *See—*
Reist, Walter, 3,809,214.
Feier, Gunter; Koch, Hansjorg; and Suchy, Walter, to Franz Morat GmbH. Store for band-shaped information carriers. 3,809,301, Cl. 226-205.000.
Fein, Harry. Methods and apparatus for generating random time intervals. 3,810,039, Cl. 331-78.000.
Feingold, Michael H., to Polaroid Corporation. Process for the preparation of 3-(3'-lower carboalkoxy-4' hydroxy naphthalidene) naphthalide. 3,809,704, Cl. 260-343.20r.
Feitlowitz, Robert D., to DHJ Industries, Inc. Method for finishing woven and nonwoven fabrics formed of polyester materials. 3,809,573, Cl. 117-138.80f.
Feld, Michael S.: *See—*
Javan, Ali; and Feld, Michael S., 3,809,887.
Fellow, David Frank: *See—*
Johnston, James Stewart; and Fellow, David Frank, 3,810,151.
Ferguson, Billy George, to Du Pont de Nemours, E. I., and Company. Tubular assembly for cutting preumatically propelled filaments. 3,808,924, Cl. 83-199.000.
Ferguson, Howard, to Arrow Manufacturing Company, Inc. Display case. 3,809,216, Cl. 206-45.340.
Ferguson, Robert E.; and Ferguson, Stuart R. Roofing material. 3,809,598, Cl. 161-40.000.
Ferguson, Stuart R.: *See—*

Ferguson, Robert E.; and Ferguson, Stuart R., 3,809,598.
Fergusson, Alexander H. B. Temperature responsive signaling device. 3,810,139, Cl. 340-229.000.
Ferrajuolo, Roberto Vincenzo: *See—*
Opratko, Vaclav; Bell, James Alexander Evert; and Ferrajuolo, Roberto Vincenzo, 3,809,549.
Ferrell, Howard H.: *See—*
Young, Gary C.; and Ferrell, Howard H., 3,809,159.
Ferro Corporation: *See—*
Gornall, Henry A., 3,809,529.
Fiat Societa per Azioni: *See—*
Peruglia, Marco, 3,808,829.
Fichtel & Sachs AG: *See—*
Schulz, Horst; Schwerdhofer, Hans-Joachim; and Look, Gunter, 3,809,195.
Fikentscher, Rolf: *See—*
Daeuble, Manfred; Greif, Norbert; and Fikentscher, Rolf, 3,809,717.
Fikse, Alfred E. Golf miniature game and golfer. 3,809,404, Cl. 273-87.400.
Fineo, Carlo: *See—*
Drella, Charles L.; Fineo, Carlo; Jenssen, Lloyd W.; and Scott, William, Jr., 3,808,771.
Finike Italiana Marposs-Soc. In Accomandita Semplice de Mario Possati & C.: *See—*
Pozzetti, Mario; and Mordini, Claudio, 3,809,874.
Fink, Clyde H. Physical training system. 3,808,707, Cl. 35-29.00a.
Finke Italiana Marposs Soc., In Accomandita Semplice de Mario Possati & Co., mesne: *See—*
Possati, Mario, 3,808,696.
Finley, William W. Apparatus for the programmed treatment of bed wetting. 3,810,140, Cl. 340-235.000.
Finn, Burton C. Manually operated small boat drive. 3,809,006, Cl. 115-24.000.
Fiocchi, Giulio, S.p.A. *See—*
Galluzzi, Giovanni, 3,808,973.
Fire Research Institute, Fire Defence Agency, Ministry of Home Affair *See—*
Takahashi, Satoshi, 3,809,746.
Firestone Tire & Rubber Company, The: *See—*
Wakefield, Lynn B., 3,809,680
Fischer, Georg, Aktiengesellschaft: *See—*
Burger, Hans, 3,809,832.
Feddern, Horst, 3,809,564
Fisher, Arthur I. Shaving system for extended blade life. 3,808,920, Cl. 83-22.000
Fisher, Max; and Gardner, Paul S., to Old Colony Hosiery Mills, Inc. Manufacture of lady's panty hose. 3,808,842, Cl. 66-177.000.
Fishman, William H.; and Linscheer, Wilem G. Anti-obesity process. 3,809,752, Cl. 424-224.000.
Fitzwater, John Herman. Electric fail-safe actuator. 3,808,895, Cl. 74-2.000
Flanagan, Lindley E., Jr. Spinner lure rig. 3,808,726, Cl. 43-42.130.
Flanagan, Robert M., to Amerace Esna Corporation. Resilient retainer system for pavement marker assembly. 3,809,487, Cl. 404-15.000.
Flanders, Robert D. Adjustable self-regulating trolling device. 3,808,727, Cl. 43-43.130.
Flanders, Robert D. Reusable container for bulk materials and other items. 3,809,304, Cl. 229-5.700.
Flashbacks, Inc.: *See—*
Askew, John Thomas, 3,809,568.
Flegel, David D., to Reliance Time Controls, Inc. Temperature controller. 3,810,064, Cl. 337-304.000.
Fleissner, Heinz, to Vepa AG. Apparatus for the continuous treatment of natural and synthetic fibers with a solvent. 3,808,846, Cl. 68-19.100.
Fletcher, H. E., Co.: *See—*
Fletcher, Ralph A., and Oliver, Joseph R., 3,809,049.
Fletcher, Ralph A., and Oliver, Joseph R., to Fletcher, H. E., Co. Apparatus for cutting rough-surfaced stone bodies. 3,809,049, Cl. 125-23.00c.
Flintkote Company, The: *See—*
Lewis, Clifford Jackson; and Bruski, Richard Scott, 3,809,547.
Florence, Dennis E.; Winders, Frank R., Jr.; and Wontrobski, Charles E., to Chrysler Corporation. Discriminating signal warning and selectively operable time delay control system for lighting circuit. 3,810,089, Cl. 340-52.00d.
Foerstner, Richard A., to Amana Refrigeration Inc. Mechanical coupling arrangement. 3,809,486, Cl. 403-374.000.
Fohrman, Seymour F.; and Chmela, John F. Book protector and mailer. 3,809,311, Cl. 229-87.00r.
Foldvari, Janos. Mechanically propelled water craft. 3,809,003, Cl. 115-1.00r.
Foley, William J.: *See—*
Schaad, Howard A.; and Randolph, Richard L., 3,809,825.
Food Packers Equipments Co. Inc.: *See—*
Jones, Lewis H., 3,809,132.
Food Research & Equipment Company: *See—*
Boggs, Weldon C., 3,809,858.
Foote, J. B., Foundry Co., The: *See—*
Hauser, Hans, 3,808,914.
Ford, Fred H.: *See—*
Niemoller, Arthur B., and Ford, Fred H., 3,809,801.
Ford Motor Company: *See—*
Hughes, James R.; and St. John, John H., 3,808,883.
Forgione, Peter Salvatore: *See—*
Schmitt, Edward Emil; Polistina, Rocco Albert; and Forgione, Peter Salvatore, 3,809,605.
Fork, Richard Lynn: *See—*
Chandross, Edwin Arthur; Fork, Richard Lynn; Kaminow, Ivan Paul; and Tomlinson, Walter John, III, 3,809,686.
Formby, John, & Company, Limited: *See—*
Formby, John Albert, 3,809,921.
Formby, John Albert, to Formby, John, & Company, Limited. Phase identifier assembly for endless conveyor control apparatus. 3,809,921, Cl. 307-116.000.
Forss, Kaj G.; Gadd, George Otto; Lundell, Ralf O.; and Williamson, Harry W. Process for the manufacture of protein-containing substances for fodder, foodstuffs and technical applications. 3,809,614, Cl. 195-81.000.
Fortuna, Achille C.; and Persson, Hans-Uno, to Lynch Communication Systems, Inc. Encoder-decoder for PCM systems. 3,810,020, Cl. 325-141.000.
Foster, Eric: *See—*
Pryce, William; and Foster, Eric, 3,808,919.
Foster, Frank H., mesne: *See—*
Sheward, William H., 3,809,408.
Foster, Robert L., 1/2 to Slusher, Meredith W. Tool holder assembly. 3,808,655, Cl. 29-96.000.
Foster Wheeler Corporation: *See—*
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F.; Mack, Anthony M.; and Alfano, Bernardino M., 3,808,880.
Pratt, Harry M.; Magol, Byram J.; and Money, Dudley P., 3,809,018.
Fowler, Charles F.; and Dawson, Samuel G. Temperature probe cover. 3,809,228, Cl. 206-306.000.
Fowler, Walter E. Device for transferring personnel to and from a vessel. 3,808,625, Cl. 14-71.000.
Francis P. Brennan: *See—*
Kennington, Joseph B., 3,809,232.
Francombe, Maurice H.; Wu, Shu Y.; and Takei, William J., to Westinghouse Electric Corporation. Epitaxial growth of thermically expandable films and particularly anisotropic ferro-electric films. 3,808,674, Cl. 29-590.000.
Frank, Earl E.; and Graham, Glenn R., to Abex Corporation. Railroad car retarders. 3,809,188, Cl. 188-62.000.
Franken, Peter A.: *See—*
Cochran, Gary D.; Crosby, David A.; and Franken, Peter A., 3,809,886.
Frankle, Gerhard, to Daimler-Benz Aktiengesellschaft. Automatic flame-starting installation in particular for multi-fuel internal combustion engines. 3,809,045, Cl. 123-179.000.
Franklin Mint Corporation: *See—*
Harrison, Brian G., 3,809,217.
Franz Morat GmbH. *See—*
Feier, Gunter; Koch, Hansjorg; and Suchy, Walter, 3,809,301.
Franz, Robert W.; and Zielnicki, John J., to Cam-Fram Tool Co., Inc. End enclosure for transformers. 3,810,057, Cl. 336-98.000.
Franzen, Jochen: *See—*
Schuy, Klaus Dieter; and Franzen, Jochen, 3,809,896.
French, Park. Swimmer's viewing float. 3,808,621, Cl. 9-310.00h.
Fresard, Marcel: *See—*
Aeschlimann, Pierre; Fresard, Marcel; and Jimenez, Antonio, 3,809,851.
Fried, Josef; Pribyl, Edward J.; and Krapcho, John, to Squibb, E. R., & Sons, Inc. Bis [Para (amino-loweralky-leneoxy) phenyl] alkanols and the salts thereof. 3,809,720, Cl. 260-570.00r.
Fried. Krupp Gesellschaft beschrankter Haftung: *See—*
Arens, Egidius, 3,810,082.
Friedemann, Andreas Zacharias, to Motoren-Werke Mannheim AG, vorm. Benz ABT Stationarer Motorenbau. Heaters for hot-gas engines. 3,808,815, Cl. 60-516.000.
Friedman, Sol. Game apparatus for simulating football, baseball and analogous games. 3,809,405, Cl. 273-88.000.
Friedrich Uhde GmbH: *See—*
Von Semel, Georg; and Schibilla, Eduard, 3,809,744.
Frielingsdorf, Hans: *See—*
Mueller-Tamm, Heinz; Urban, Friedrich, Frielingsdorf, Hans; Nickl, Johann; Schweier, Guenther; and Kohnle, Josef, 3,809,657.
Friend, William H.: *See—*
Burke, William R.; McCall, Frank S.; Clark, Kenneth G.; De Pass, Ernest T.; and Friend, William H., 3,809,593.
Fries, Bernard A., to Chevron Research Company. Method of detecting aircraft fuel line leaks with radioactive gas tracers. 3,809,898, Cl. 250-303.000.
Fritsch, Rudolf Paul. Granulator for granulating plastic strands. 3,808,929, Cl. 83-356.300.
Frohberger, Paul-Ernst: *See—*
Sasse, Klaus; and Frohberger, Paul-Ernst, 3,809,763.
Fromm, Walter James, to Skil Corporation. Hammer drill. 3,809,168, Cl. 173-13.000.
Frost, Robert Ray. Orchard heater. 3,809,057, Cl. 126-59.500.
Frungel, Frank. Arrangement for simulating electrically radiation and light from nuclear explosions. 3,808,704, Cl. 35-1.000.
Frymaster Corporation, The: *See—*
Moore, Lewis Frank; and Price, George McNair, 3,809,062.
Fuller Company: *See—*
Gothe, Walter C., 3,809,212.
Kramm, Douglass J., 3,809,528.

Fulton Industries, Inc.: *See—*
Grove, John L., 3,809,180.
Grove, John L., 3,809,249.
Furnier-& Sperrholzwerk J. F. Werz Jr. KG Werzalig-Pressholzwerk: *See—*
Munk, Edmund E., 3,809,736.
Furst, Marcel, to Newell Industries, Inc. Pliable tape record and reel therefor. 3,809,218, Cl. 206-53.000.
Furuoka, Hideto, to Gakken Co., Ltd. System for taking stereophotographs and stereocamera based thereon. 3,810,213, Cl. 354-115.000.
Fusco, Carl J.: *See—*
Gerrans, William A., 3,809,530.
Gabby, John Lester; Barbin, Dennis Dale; and Lowe, Jack Brunner, to Dracket Company, The. Low calorie topping, spread, and frozen dessert. 3,809,764, Cl. 426-163.000.
Gabler, Rudolf: *See—*
Studinka, Josef; and Gabler, Rudolf, 3,809,682.
Gadd, George Otto: *See—*
Forss, Kaj G.; Gadd, George Otto; Lundell, Ralf O.; and Williamson, Harry W., 3,809,614.
GAF Corporation: *See—*
Denis, Englebert; and De Bondt, Leon, 3,809,469.
Gaikowski, Michael D.: *See—*
Bertram, Leroy W.; Loomis, Russell M.; and Gaikowski, Michael D., 3,808,982.
Gakken Co., Ltd.: *See—*
Furuoka, Hideto, 3,810,213.
Galis, Alex J. Self-propelled haulage vehicle. 3,809,262, Cl. 214-152.000.
Gallap, Francis, to Exhibit Homes, Inc. Mold for forming a laminated plastic panel. 3,809,357, Cl. 249-161.000.
Galluzzi, Giovanni, to Fiocchi, Giulio, S.p.A. Self-propelling projectile for firearms. 3,808,973, Cl. 102-38.000.
Galvan, Ramon: *See—*
Vergara, Jose D.; Galvan, Ramon; and Leal, Fausto, 3,810,253.
Gange, Robert Allen; and Steinmetz, Carl Charles, to RCA Corporation. Corona discharge device. 3,809,974, Cl. 317-262.00a.
Ganiaris, Neiphytos, to Sturthers Scientific and International Corporation. Preparation of coffee. 3,809,775, Cl. 426-427.000.
Ganzhorn U. Stirn Kommanditgesellschaft: *See—*
Turtschan, Alfons, 3,808,772.
Gardiner, Arthur Noel; and Stern, Herman Abraham, to RCA Corporation. Liquid crystal device closure method. 3,808,769, Cl. 53-43.000.
Gardner, Frank H.; Stroup, Norman G.; and Krukow, Eugene J., to International Harvester Company. Reverse lockout. 3,808,784, Cl 56-208.000.
Gardner, Paul S.: *See—*
Fisher, Max; and Gardner, Paul S., 3,808,842.
Garity, Michael C.: *See—*
Ersek, Robert A.; Wall, Donald E.; and Garity, Michael C., 3,809,072.
Garner, Paul Johnson, to Imperial Chemical Industries Limited. Injection moulding machines. 3,809,519, Cl. 425-245.000.
Garrison, Jerome R.: *See—*
Staranick, Steve; and Garrison, Jerome R., 3,809,181.
Gartner, Morton, Tape measure counter. 3,808,692, Cl. 33-140.000.
Garufo, James F. Weather curtain for airplane hangar entrance. 3,809,144, Cl. 160-184.000.
Gary, Laverne E.: *See—*
Keener, Arthur; Bradford, Larry David; Gary, Laverne E.; McLeon, John W.; and Carter, Billy W., 3,808,958.
Gaskell, Philip Hedley; Lythgoe, Stanley; Irlam, Philip Sidney; Miller, Robert Percy; and Barry, Thomas Ian, to Pilkington Brothers Limited. Method of making glass ceramic materials on molten metal support. 3,809,543, Cl. 65-33.000.
Gatts, James D. Infant environmental transition system. 3,809,065, Cl. 128-1.00r
Gaul, Robert G., to Paragon Wire & Cable Corporation. Electric cord coiler. 3,809,331, Cl. 242-100.100.
Gay, Derek J.; Smedley, William B.; Cohen, Aaron G.; Dworkin, Daryl R.; Nuttall, Michael W.; and Wilson, Nicol S., to Mattel, Inc. Portable display toy. 3,808,722, Cl. 46-12.000.
Gazuit, Georges. Loader for tire curing press. 3,809,423, Cl. 294-88.000.
Geary, William M. Bed and pillow assembly. 3,808,615, Cl. 5-338.000.
Gebald, Gregor, to Schlofhorst, W., & Co. Method and device for monitoring the production process of automatic yarn winding machines. 3,809,869, Cl. 235-151.300.
Gebr. Hilgeland: *See—*
Sieben, Karl Heinrich; and Pieper, Wilhelm, 3,808,930.
Gehring, Donald H. Inductorless amplitude modulator and demodulator apparatus. 3,810,047, Cl. 332-31.00r.
Gehrmann, Werner: *See—*
Bell, Gunter; and Gehrmann, Werner, 3,808,946.
Gelin, Robert J., to Owens-Corning Fiberglas Corporation. High speed molding process. 3,809,739, Cl. 264-297.000.
Gem Industries, Inc.: *See—*
Neunherz, Herbert W.; and Bryant, Robert G., 3,809,414.
General Corporation, The: *See—*
Takayama, Takeshi, 3,809,843.
General Dynamics Corporation. *See—*
Schillreff, George H.; Grayson, Lawrence E.; and Carter, William M., 3,808,940.
Somerville, Alvis J.; and Yager, Edwin K., 3,809,480.
General Electric Company: *See—*
Butler, Walter J.; and Puckette, Charles McD., 3,810,126.
Collins, Byron R.; and McVey, Charles L., 3,809,943.
Crouch, Donald W., 3,809,836.
Culp, Stuart David, 3,810,134.
Guth, Lauren W., 3,809,450.
Liberti, Frank N., 3,809,676.
Martin, William S.; and White, Donald R., 3,810,040.
Martin, William S., 3,810,041.
McBroom, Robert C., 3,809,889.
Pitstick, Martin H., 3,809,451.
Reinhard, Donald L., 3,809,729.
Simmons, Russell T., 3,809,862.
Smith, Bart A.; Lass, James L.; and Venier, Dominic A., 3,809,610.
Smith, Cantrell, 3,809,999.
Turner, Prescott K., 3,810,075.
White, Dwain M.; and Klopfer, Howard J., 3,809,673.
General Foods Corporation: *See—*
Howland, Robert F.; Mansky, Michael H.; and Richards, Willie J., 3,809,781.
Jolly, Michael D.; Jasovsky, George A.; Ceglie, Gaetano J.; Nacci, Anthony T.; and Schechter, Harold, 3,809,770.
Stolz, Robert P., 3,809,766.
General Motors Corporation: *See—*
Atkinson, Ward J.; and Kozinski, Richard C., 3,808,830.
Bennett, Ronald W., 3,808,817.
Bowers, George L., 3,808,906.
Brown, Ronald E.; and Oakes, James A., 3,809,625.
Brown, William B.; and Campbell, Gregory A., 3,809,634.
Cataldo, Roy S., 3,808,818.
Druseikis, Frederick, 3,808,629
Pirochta, John F., Jr., 3,809,177.
Spears, Esten W., Jr., 3,808,796.
Stoltman, Donald D., 3,809,019.
Upton, Ernest W., 3,808,809.
Watt, Roy E., 3,809,835.
General Refractories Company: *See—*
Norris, Clarence G., and Merrick, Woodrow W., 3,808,764.
General Signal Corporation: *See—*
Alger, Martin J., Jr.; and Dunn, Nelson H., 3,808,659.
Hansen, Donald J., 3,809,496.
Weisenbach, Charles O., 3,809,501.
George, Terence Malcolm: *See—*
Brown, Christopher Robert; George, Terence Malcolm; and Norton, David John, 3,809,930.
Gerard, Stierlein, to Societe Alsacienne de Constructions Mecaniques de Mulhouse. Device for applying a layer of adhesive on an endless belt in a screen printing machine. 3,809,009, Cl. 118-44.000.
Gerdes, Theo: *See—*
Blau, Werner; and Gerdes, Theo, 3,809,282.
Gerecht, John Fred, to Colgate-Polmolive Company. Amine oxides. 3,809,659, Cl. 252-542.000.
Gerrans, William A., to Fusco, Carl J. Drying apparatus. 3,809,530, Cl. 432-152.000.
Gerry, Edward T.: *See—*
Locke, Edward V.; and Gerry, Edward T., 3,810,043.
Gersch, William R. Animated display apparatus. 3,808,721, Cl. 40-106.520.
Gerstmann, Joseph, to Steam Engine Systems Corporation. Heat exchanger and fluid heater. 3,809,061, Cl. 126-350.00r.
Gezari, Walter A., to International Telephone and Telegraph Corporation, mesne. Sanitary holding sump and method of making. 3,808,996, Cl. 114-.50r.
Gidge, Lester, to Monsanto Company. Non-tear seams produced by radio frequency means. 3,809,596, Cl. 156-380.000.
Gifo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan, Ivan, Geza, Molnar, Jozsef; and Vamost, Jozsef, to Kohaszati, Lenin. Properly weldable, corrosion resistant structural steel of high yield point. 3,809,550, Cl. 75-124.000.
Gilbaugh, John W. Animal trap. 3,808,729, Cl. 43-88.000.
Gilbert & Barker Manufacturing Company: *See—*
Scoville, John Tregay, 3,809,866.
Gilbert, Lee N., to United States of America, Navy. Two position liquid flow control valve. 3,809,127, Cl. 138-44.000.
Gilbert, Ronald Albert; Petrie, James Alexander; and Bracey, Kenneth Edward George, to Rolls-Royce (1971), Limited. Epicyclic gear train. 3,808,913, Cl. 74-801.000.
Gilbert, Seymour G.: *See—*
Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Venkatasubramanian, Kalyanasundram, 3,809,613.
Gilbreth Company: *See—*
Laessig, John, 3,808,702.
Gill, Walter J.; and Mellenger, James A., to Avantek, Inc. Asynchronous quadriphase communications system and method. 3,809,817, Cl. 179-15.0bs.
Gillot, Jacques; and Lux, Benno, to Battelle Memorial Institute. Method of increasing the adhesion of a metal body surface to rubber. 3,809,635, Cl. 204-192.000.
Gilpatrick, Louis O., to United States of America, Atomic Energy Commission. Synthesis of sodium hydroxytrifluoroborate. 3,809,762, Cl. 423-277.000.
Giono-Berber, Paulette, born Crouy-Sur-Ourcq, Michel: *See—*

Thuillier, Yvonne; and Giono-Berber, Paulette, born Crouy-Sur-Ourcq, Michel, 3,809,750.
Girling Limited: *See—*
Farr, Glyn Phillip Reginald, 3,809,189.
Harrison, Anthony William, 3,809,193.
Giroud-Garampon, Robert: *See—*
Fabre, Pierre; Giroud-Garampon, Robert; Gondrand, Michel; and Grenoble, Fernand Raymond, 3,809,011.
Giroux, Jean Louis. Portable barbecue oven. 3,809,051, Cl. 126-9.00r.
G.I.T.A.C.: *See—*
Salet, Simone; and De Montgolfier, Arnaud, 3,809,909.
GKN Group Services, Limited: *See—*
Lloyd, Brian Edwin; and Marsh, Barry John, 3,809,518.
GKN Transmissions Limited: *See—*
Bowen, Edward Valentine; and Simkins, Derek, 3,808,838.
Glass, Marvin, & Associates: *See—*
Morrison, Howard J., 3,808,735.
Terzian, Rouben T.; Glass, Marvin I.; and McKay, Robert S., 3,808,736.
Glass, Marvin I.: *See—*
Terzian, Rouben T.; Glass, Marvin I.; and McKay, Robert S., 3,808,736.
Glaze, Stanley George, to Lucas Aerospace Limited. Electro hydraulic actuator arrangement. 3,808,948, Cl. 91-363.00a.
Gleason Works, The: *See—*
Auble, Ronald E.; and Kimmet, Gary J., 3,809,870.
Glider, Lawrence James, to Deere & Company. Device for positioning a pivotal vehicle bottom guard. 3,809,167, Cl. 172-808.000.
Global Marine Inc.: *See—*
Bastian, Clyde E., Jr., 3,808,997.
Rininger, Paul R., 3,810,081.
Glover, John Benjamin, to Hepworth Iron Company Limited, The. Pipe couplings. 3,809,412, Cl. 285-110.000.
Goddard Industries, Inc.: *See—*
Nelson, Donald R., 3,809,124.
Godfrey, Arthur W.: *See—*
Crawford, Wheeler C., Godfrey, Arthur W.; and Reid, Robert E., 3,809,651.
Godwin, George A., and Wagle, William E., to Sarkes Tarzian Inc. Program timer assembly with improved cam disc face circumferential grooves for abrupt radial displacement. 3,809,831, Cl. 200-38.00c.
Goens, Georges. *See—*
Schmid, August, and Goens, Georges, 3,809,398.
Schmid, August, and Goens, Georges, 3,809,400.
Goldberg, Eugene J., Kramer, Marvin W.; and Licci, Joseph R. Attachment to hair. 3,809,099, Cl. 132-53.000.
Golden Cycle Corporation. *See—*
Wilson, Harold W., 3,809,745.
Golden, Richard L., to Halcon International, Inc. Preparation and recovery of alkylene glycols. 3,809,724, Cl. 260-635.00r.
Goldmacher, Joel E., and Tayag, Miguelita G., to Optel Corporation. Liquid crystal device. 3,809,456, Cl. 350-160.0lc.
Goldman, Arnold J., Kurtin, Stephen L.; and Mead, Carver A., to Lexitron Corporation. Electronic text display and processing system. 3,810,107, Cl. 340-172.500.
Goldman, Robert N. Signal identification system. 3,810,156, Cl. 340-347.0ad
Goldner, Heinz-Dieter, to Hartmann & Braun Aktiengesellschaft. Measuring instrument. 3,810,014, Cl. 324-130.000.
Goldsberry, Fred L., to Lone Star Gas Company. Volumetric flow meter. 3,808,886, Cl. 73-264.000.
Goldstein, Stephen: *See—*
Behman, Stephen Barry; and Goldstein, Stephen, 3,810,129.
Gomita, Minoru: *See—*
Iiyama, Akihiro; and Gomita, Minoru, 3,808,675.
Gondrand, Michel: *See—*
Fabre, Pierre; Giroud-Garampon, Robert; Gondrand, Michel; and Grenoble, Fernand Raymond, 3,809,011.
Gonzalez, Hector. Machine for creating and viewing kaleidoscope images. 3,809,879, Cl. 240-3.100
Good, Richard R.; and Uke, Alan K. Protective cap for diver's air tank. 3,809,353, Cl. 248-346.100
Goodrich, B. F., Company, The: *See—*
Wik, Thomas R., 3,808,660.
Goodwin, Charles M. Universal trouble light support. 3,809,883, Cl. 240-54.00a
Goodyear Tire & Rubber Company, The: *See—*
Hinks, William L., 3,810,159.
Goossens, Donald Leonard. Blower head for flashlight. 3,809,504, Cl. 417-411.000.
Gornall, Henry A., to Ferro Corporation. Endless furnace. 3,809,529, Cl. 432-138.000.
Gothe, Walter C., to Fuller Company. Control for reciprocating grate conveyor. 3,809,212, Cl. 198-232.000.
Goto, Mitsuhiro: *See—*
Yamamura, Katsumi; and Goto, Mitsuhiro, 3,809,872.
Goto, Tokujo: *See—*
Arimoto, Heiji; Goto, Tokujo, Amemiya, Kunio; and Seki, Tunekatu, 3,808,618.
Gotsch, Dieter; Hahner, Reinhard; Kirn, Manfred; and Lederer, Hans. to Bosch, Robert, G.m.b.H. Portable electric impact tool. 3,808,903. Cl. 74-343.000.
Gouba, Alfred J. Link cutting machine. 3,808,636, Cl. 17-1.00f.
Goubeau, Robert: *See—*
Billarant, Patrick; Goubeau, Robert; and Langlois, Jacques, 3,808,648.
Gouge, Edwin. Adjustable clamps. 3,808,643, Cl. 24-19.000.
Goyal, Ramesh Chandra: *See—*
White, Richard M.; and Goyal, Ramesh Chandra, 3,809,931.
Grace, Martin L., to Sperry Rand Corporation. Broad band high efficiency amplifier with improved band width. 3,810,033, Cl. 330-53.000.
Grace, W. R., & Co.: *See—*
Hurst, John, 3,808,762.
Magnotta, Frank; Ketley, Arthur D.; and Kehr, Clifton L., 3,809,633.
Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., to Itek Corporation. Metal photographic plate comprising a photoconductor and process. 3,809,562, Cl. 96-33.000.
Graco Inc.: *See—*
Parson, Ronald F., 3,809,955.
Graf & Cie AG: *See—*
Graf, Werner Franz, 3,808,640.
Graf, Werner Franz, to Graf & Cie AG. Card clothing arrangement. 3,808,640, Cl. 19-113.000.
Graffman, Johan Holger. Drying method and apparatus therefor. 3,808,699, Cl. 34-92.000.
Graham, Clyde B.: *See—*
Mitchner, Joseph L.; Keller, Robert A.; and Graham, Clyde B., 3,808,669.
Graham, Erwin W.; and Graham, Wayne B. Mechanical transducer. 3,808,884, Cl. 73-144.000.
Graham, Glenn R.: *See—*
Frank, Earl E.; and Graham, Glenn R., 3,809,188.
Graham, Wayne B.: *See—*
Graham, Erwin W.; and Graham, Wayne B., 3,808,884.
Gran-A-Stone Co., The; Park Tool Company division: *See—*
Schlough, Thomas L., 3,809,422.
Grant, Frederic F. Radial differential tape drive. 3,808,902, Cl. 74-277.000.
Gratton, Peter D.: *See—*
Cammack, Thomas A.; Donahue, William J.; and Gratton, Peter D., 3,808,972.
Gray, John, to Singer Company, The. Roll and pitch correction for a fixed-antenna doppler system. 3,810,176, Cl. 343-8.000.
Grayson, Lawrence E.: *See—*
Schillreff, George H.; Grayson, Lawrence E.; and Carter, William M., 3,808,940.
Greaf, Clarence V.: *See—*
Allison, Gordon H., Jr.; and Greaf, Clarence V., 3,809,395.
Green Peter L.; Lenfesty, Gordon A.; Talbot, Edmund H.; Joslin, Allen; and Kovacevic, Vukasin, to Imperial Modular Systems, Ltd., mesne. Modular building construction. 3,808,761, Cl. 52-300.000.
Greenberg, Harold L., to United States of America, Navy, mesne. Urethane propellant composition. 3,809,585, Cl. 149-19.400.
Greene, Joseph E.: *See—*
Whelan, James M.; and Greene, Joseph E., 3,809,479.
Greene, Norman D.: *See—*
Rawson, Donald E.; Greene, Norman D.; and Hoylman, H. Wayne, 3,808,889.
Greenway, John Michael: *See—*
Elliott, David Robert; and Greenway, John Michael, 3,808,652.
Greenwood, David L. Compartmented pouch. 3,809,224, Cl. 206-219.000.
Greenwood, Gordon N. Dismantable porch installation. 3,808,757, Cl. 52-184.000.
Gregerson, David A.; and Arora, Vinod K., to Philco-Ford Corporation. Combination pressure relief and anti-slugging valve for a screw compressor. 3,809,510, Cl. 418-201.000.
Greif, Norbert: *See—*
Daeuble, Manfred; Greif, Norbert; and Fikentscher, Rolf, 3,809,717.
Grenoble, Fernand Raymond: *See—*
Fabre, Pierre; Giroud-Garampon, Robert; Gondrand, Michel; and Grenoble, Fernand Raymond, 3,809,011.
Grenoble, William Luster, Jr.: *See—*
Parks, William Louis; Grenoble, William Luster, Jr.; Harjes, Henry Herman, Jr.; and McCarthy, Lawernce James, 3,810,102.
Grier, John D.: *See—*
Camp, Harold E.; and Grier, John D., 3,810,198.
Grieve, Richard A. Brake assembly for vehicle wheel. 3,809,187, Cl. 188-24.000.
Griffith Laboratories, Inc., The: *See—*
Sair, Louis; and Melcer, Irving, 3,809,767.
Griswold, James L.: *See—*
Fair, John; and Griswold, James L., 3,808,967.
Gross, David A.: *See—*
Kotok, Alan; Kent, Allan R.; and Gross, David A., 3,810,110.
Gross, Edward L., Jr.; Pyne, William R.; and Yauger, Donald L. Timer and approach plate holder for aircraft. 3,809,338, Cl. 244-1.00r.
Gross, T. A. O.; and Wilson, Stewart W., to Polaroid Corporation. Frequency deviation compensation system. 3,810,188, Cl. 346-33.0mc.
Grossenbacher, Ernst. Machine for the preparation of drinks. 3,808,961, Cl. 99-281.000.
Grossman, Martin: *See—*
Ackerman, Don; and Grossman, Martin, 3,808,710.

Groth, Clarence N.; Hempel, James N.; Wieczorek, Robert A.; Meyer, Charles F.; and Cook, Robert G., to Square D Company. Solid state relay and timer housing means. 3,809,965, Cl. 317-113.000.
Groupement Atomique Alsacienne Atlantique: *See*—
Carbonnel, Henri; and Borie, Robert, 3,809,497.
Groupement Atomique Alsocienne Atlantique: *See*—
Carbonnel, Henri; and Le Frere, Jean-Paul, 3,809,379.
Grove, John L., to Fulton Industries, Inc. Aerial platform apparatus having pipe grabs. 3,809,180, Cl. 182-2.000.
Grove, John L., to Fulton Industries, Inc. Telescopic crane boom with chain actuation of fly section. 3,809,249, Cl. 212-55.000.
Grove, Marvin H.; and Dunegan, Ronald G., to M & J Valve Company. Sphere handling apparatus and method. 3,809,113, Cl. 137-268.000.
Gruenewald, Bryan J. Apparatus for developing quickness in swinging of a baseball bat. 3,809,397, Cl. 273-26.00b.
Grumman Data Systems Corporation: *See*—
Croslin, Michael E., 3,809,296.
Grunow, Peter; and Sarukhanian, Georg, to Siemens Electrogerate GmbH. Method and apparatus for controlling the drying operation in an appliance such as a dryer, washer-dryer or the like. 3,809,924, Cl 307-125.000.
Gruszka, Raymond Frank, to Western Electric Company. Method of and package for transporting articles. 3,809,233, Cl. 206-328.000.
GTE Automatic Electric Laboratories, Incorporated: *See*—
Chang, Gregory I.; Buhrke, Rolfe E.; Rice, Verner K.; and Mele, John J., 3,810,121.
Eddy, John W.; and Puccini, Sergio E., 3,809,822.
Hutchinson, Homer F., 3,809,963.
Jacobs, Melvin A.; and Taugner, Jack W., 3,809,823.
McLaughlin, Donald W., 3,809,814.
GTE Laboratories Incorporated: *See*—
Haugsjaa, Paul O.; Heller, Adam; Nelson, William F.; and Bocchimuzzo, Anthony, 3,809,828.
GTE Sylvania Incorporated: *See*—
Bulharowski, John Francis, 3,809,807.
Edson, Gwynne I.; and Reynolds, Keith R., 3,809,628.
Lawson, James O.; and Thompson, David F., 3,810,143.
Guardian Packaging Corporation: *See*—
Monia, Victor, 3,809,602.
Guerr, Herbert Control lever assembly. 3,808,908, Cl. 74-489.000.
Guichet, Niles F. Centric relating device and inspection means. 3,808,688, Cl. 32-32.000.
Gulf & Western Industries, Inc.: *See*—
Pearson, Frank Arthur, 3,810,050.
Gulf Research & Development Company: *See*—
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., 3,809,643.
Gundry, Kenneth James, to Dobby Laboratories, Inc. Controlled resistance devices and attenuators. 3,810,035, Cl. 330-86.000.
Gunnebo Bruks Aktiebolag, mesne: *See*—
Erixon, Karl Erich Samuel, 3,808,723.
Gunnerson, Carl L., to Zealot Corporation, The. Adjustable mounting bracket for workpiece. 3,808,748, Cl. 51-219.00r
Guppy, John Reginald: *See*—
Cook, Ronald; Guppy, John Reginald, and Howells, John D., 3,810,027.
Gusaras, Vladas, to Oak Industries, Inc. Door bolt with electric alarm. 3,810,145, Cl. 340-274.000.
Guth, Lauren W., to General Electric Company. Rack level adjustment system in a dishwasher. 3,809,450, Cl. 312-351.000.
Guthans Engineering Co.: *See*—
Guthans, Harold A., 3,808,650.
Guthans, Harold A., to Guthans Engineering Co. Cable locking hooks. 3,808,650, Cl. 24-230.500
Haban, Joseph. Snow thrower with rotatable snow spout. 3,808,715, Cl 37-43.00r.
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, to Ciba-Geigy Corporation. Epoxide resin mixtures of heterocyclic N,N-diglycidyl compounds. 3,809,660, Cl. 260-2.0ep.
Haberthur, Walter, to Bron Elektronik AG. Portable current supply device for flash bulbs and housing means. 3,809,968, Cl. 317-120.000.
Hadden, Richard: *See*—
Faurschou, Donald K., Misener, Donald C.; Pope, James C.; and Hadden, Richard, 3,809,639.
Haefely, Emil, & Cie AG: *See*—
Adler, Hermann, 3,810,030.
Haffner, Donald G.: *See*—
Hoffmeyer, Knud H.; Haffner, Donald G., and Ecker, Frank A., 3,808,778.
Hagiwara, Kenji: *See*—
Tanaka, Yasuhiko; Shimazaki, Yasumi; and Hagiwara, Kenji, 3,808,862.
Hahner, Reinhard: *See*—
Gotsch, Dieter; Hahner, Reinhard, Kirn, Manfred; and Lederer, Hans, 3,808,904.
Hai, Nhu Bui, to Thomson-CSF. Capped antenna of the offset Cassegrainian type. 3,810,187, Cl. 343-781.000.
Haines, Robert C.; Barrett, John E.; and Stevens, Eric H., to Dunlop Holdings Limited. Tennis rackets and frames therefor. 3,809,402, Cl. 273-73.00c.
Hajnal, Steven. Waterless cooking pot. 3,809,063, Cl. 126-373.000.
Halcon International, Inc.: *See*—
Golden, Richard L., 3,809,724.
Hall, Earl B. Inclinometer. 3,808,697, Cl. 33-312.000.
Hall, Merwin Guy. Two bar exerciser. 3,809,394, Cl. 272-80.000.
Hallerback, Stig Lennart, to SKF Industrial Trading and Development Company B.V. Bearing unit. 3,809,445, Cl. 308-184.000.
Hama, Tatsuharu: *See*—
Hosoya, Minoru; Hama, Tatsuharu; and Arafune, Hisayuki, 3,808,957.
Hamada, Yoshitugu; Nakamoto, Yasunori; and Jinno, Seizo, to Yanmar Diesel Engine Co., Ltd. Cylinders of internal-combustion engines. 3,808,955, Cl. 92-169.000.
Hamaguchi, Ichiro: *See*—
Ono, Shigeo; and Hamaguchi, Ichiro, 3,810,226.
Hamilton, Harry A.: *See*—
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., 3,809,643.
Hammerle, Dennis R.: *See*—
Warrish, Edward C.; Walch, Leo M., Jr.; and Hammerle, Dennis R., 3,809,312.
Handford, Carl E. Force multiplying type cross-bow. 3,809,048, Cl. 124-25.000.
Handtmann, Albert, Metallgusswerk, Armaturen- und Fleischereimaschinenfabrik: *See*—
Staudenrausch, Georg, 3,809,500.
Hankele, Allen R., to Hankele Sports Enterprises, Inc. Hockey stick. 3,809,401, Cl. 273-67.00a.
Hankele Sports Enterprises, Inc.: *See*—
Hankele, Allen R., 3,809,401.
Hanotier, Jacques Daniel Victor, and Hanotier, Monique Josephe Simone, to Labofina S.A. Process for the production of alpha-naphthyl esters. 3,809,715, Cl. 260-479.00r.
Hanotier, Monique Josephe Simone: *See*—
Hanotier, Jacques Daniel Victor, and Hanotier, Monique Josephe Simone, 3,809,715.
Hansen, Donald J., to General Signal Corporation. Condensation apparatus. 3,809,496, Cl. 417-40.000.
Hansen, Lloyd Frank, to American Cyanamid Company. Pressurized portable dispenser. 3,809,084, Cl. 128-266.000.
Hansen, Paul E., to Minnesota Mining and Manufacturing Company. Surgical drape. 3,809,077, Cl. 128-132.00d.
Hansen, Ralph Holm, to Bell Telephone Laboratories, Incorporated. Phenylhydrazone antioxidants for polyolefins. 3,809,675, Cl. 260-45.90r.
Hara, Hideo, to Sony Corporation. Electric clock. 3,808,791, Cl. 58-23.00d.
Haradyn, Dan, 20% to Lee, Raymond, Organization, Inc., The. Rotatable disc peg-probe device having an electrical conducting rim switch. 3,809,409, Cl. 273-139.000.
Harano, Allen A.: *See*—
Villalobos, Luis F.; Harano, Allen A.; and Breinlinger, Richard H., 3,809,868.
Harder, Arthur John. Multiple purpose apparatus. 3,808,607, Cl. 4-2.000.
Hardin, James T., to Eltra Corporation. Multiple output alternator. 3,809,995, Cl. 321-5.000.
Harding, Brian: *See*—
Ryffin-Hughes, John Malcolm, Harding, Brian; and Lake, Graham Albert John, 3,809,052.
Harding, Ray S., to Case, J I., Company. Cone disk spring relief valve. 3,809,118, Cl. 137-525.000.
Hards, John E., to Durand Machine Company, Ltd. Rotary veneer clipper. 3,808,925, Cl. 83-346.000.
Harjes, Henry Herman, Jr.: *See*—
Parks, William Louis; Grenoble, William Luster, Jr.; Harjes, Henry Herman, Jr.; and McCarthy, Lawernce James, 3,810,102.
Harmon, William J., Jr.: *See*—
Eisenberg, Mark F.; and Harmon, William J., Jr., 3,809,952.
Harner, Kermit L., to United Aircraft Corporation. Compressor surge sensor. 3,809,490, Cl. 415-28.000.
Harper Development Corporation. *See*—
Harper, Murry D., 3,809,025.
Harper, Ernest A.; and Bailey, Dunn M., to Phillips Petroleum Company. Refrigerator process. 3,808,826, Cl. 62-9.000.
Harper, Murry D., to Harper Development Corporation. Rotary engine having inclined piston and cylinder station axes. 3,809,025, Cl. 123-8.470.
Harris, Edward Paul, to Rosemount Engineering Company Limited. Apparatus for automatically evaluating the voltage at a number of test points sequentially. 3,810,012, Cl. 324-73.00r.
Harris, Harold Ronald. Quick disconnect pressurization apparatus. 3,809,121, Cl. 137-613.000.
Harris, Rano J., Jr.: *See*—
Harris, Rano J., Sr.; and Harris, Rano J., Jr., 3,809,298.
Harris, Rano J., Sr.; and Harris, Rano J., Jr., to Precision Sampling Corporation. Syringe. 3,809,298, Cl. 222-386.000.
Harris, William: *See*—
Walker, Robert; and Harris, William, 3,809,806.
Harris-Intertype Corporation: *See*—
Rana, Victoriano F., 3,809,385.
Zugel, Victor A., 3,809,384.
Harrison, Anthony William, to Girling Limited. Brake adjusters. 3,809,193, Cl. 188-196.0ba.
Harrison, Brian G., to Franklin Mint Corporation. Packaging for flat objects. 3,809,217, Cl. 206-84.000.
Harro assor. to said Gottfried: *See*—
Reissinger, Gottfried; and Reissinger, Harro, 3,808,714.

Hartmann & Braun Aktiengesellschaft: *See*—
Goldner, Heinz-Dieter, 3,810,014.
Hartmann, Clinton Sylvester: *See*—
Jones, William Stanley; and Hartmann, Clinton Sylvester, 3,810,257.
Harwood, William J. Portable guide jig for hand drill. 3,809,489, Cl. 408-110.000.
Hasagawa, Tachio, to Canon Kabushiki Kaisha and Canon Denishi Kabushiki Kaisha. Cross type magnetic head. 3,810,244, Cl. 360-118.000.
Hasegawa, Hakumi: *See*—
Yamaguchi, Yoshihiro; Matsushita, Tomiharu; Noguchi, Masataka; Nakagawa, Junichi; and Hasegawa, Hakumi, 3,808,860.
Hasegawa, Kensuke: *See*—
Motoda, Kenro; and Hasegawa, Kensuke, 3,809,988.
Motoda, Kenro; and Hasegawa, Kensuke, 3,810,008.
Hatebur, F. B., AG: *See*—
Richner, Hans, 3,808,871.
Hattendorf, Edwin R., to Collins Radio Company. Synthesis of bank and pitch signals utilizing rate and acceleration input parameters. 3,809,867, Cl. 235-150.200.
Haugsjaa, Paul O.; Heller, Adam; Nelson, William F.; and Bocchimuzzo, Anthony, to GTE Laboratories Incorporated. Electret transducing device. 3,809,828, Cl. 179-100.4lb.
Haugwitz, Rudiger D.; and Narayanan, Venkatachala L., to Squibb, E. R., & Sons, Inc. (1,3,5)-Thiadiazinobisbenzimidazoles. 3,809,692, Cl. 260-243.00r
Hauner, Friedrich: *See*—
Schneider, Gottfried; and Hauner, Friedrich, 3,808,641.
Hauser, Hans, to Foote, J. B., Foundry Co., The. Engine and transmission with safety system. 3,808,914, Cl. 74-850.000.
Hausler, Rudolf H., and Sampson, Robert W., to Universal Oil Products Company. Apparatus for measuring material fouling of a test specimen. 3,810,009, Cl. 324-65.00r
Havinga, Reginoldus; and Swaters, Pieter Dirk, to Koninklijke Industriele Maatschappij Noury & Van Der Lande N.V. Deventer. Ultraviolet light stabilizers. 3,809,707, Cl. 260-404.000.
Haws Drinking Fountain Company: *See*—
Wright, Allen C., 3,809,315
Hayashi, Yoshihiro, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Passenger vehicle safety belt locking device. 3,809,332, Cl. 242-107.400.
Hayes-Albion Corporation. *See*—
Shepherd, William B., 3,809,258.
Hays, John D., Baswell, Harlen L., Combs, Jerry A.; and Brown, Dale G., to National Cash Register Company, The. Torsional stepping motor and exciter apparatus therefor. 3,809,989, Cl. 318-696.000.
Hazeley, James E., to Armstrong Cork Company. Ceiling system suspension clip and runner. 3,809,358, Cl. 248-317.000.
Healey, Robert A., to International Business Machines Corporation. Stack machanism for a data processor. 3,810,117, Cl. 340-172.500.
Heard, James L., Hoffman, William C.; and Opittek, Eugene W., to Hughes Aircraft Company. Digital scan converter. 3,810,174, Cl. 343-5.0dp.
Hecox, William, to Exact Weight Scale Co., Inc. Read only memory apparatus. 3,810,122, Cl. 340-173.01m.
Hedde, Jean. Switching matrix. 3,810,160, Cl. 340-166.00r.
Hederich, Manfred. *See*—
Erdmenger, Rudolf, Ullrich, Martin, and Hederich, Manfred, 3,809,140.
Hedstrom, Bengt, and Hoden, Ebbe. Diaper. 3,809,089, Cl. 128-287.000.
Heffrom, Allan J.: *See*—
Oeming, Joseph A., Heffrom, Allan J., and Estry, Arthur L., 3,808,653.
Heidecker, Robert F., to Iomec, Inc. Electrical signal filter. 3,810,067, Cl. 328-164.000.
Heidelberger Druckmaschinen Aktiengesellschaft. *See*—
Wirz, Arno, 3,809,389.
Heiler, Wolfgang; Muller, Rudolf; and Becker, Jean-Jacques, to Vestra-Union, S.A. Automatic unit for overcasting or assembling pieces of fabric along seam lines of different forms. 3,808,993, Cl. 112-155.000.
Heimann, Georg. One- and surplus-way magnetic valve with permanent magnet and controls by pulses. 3,809,123, Cl. 137-625.500.
Heinz, Richard. System for controlling number of revolutions of the tape drive in a tape recording and replaying apparatus. 3,809,452, Cl. 318-271.000.
Heinz, Scholten: *See*—
Kriestan, Wolfgang; and Heinz, Scholten, 3,809,678.
Heist, Hans; and Silbereisen, Dieter, to Kalle Aktiengesellschaft. Apparatus for the automatic folding and creasing of sheet material. 3,809,387, Cl. 270-79.000.
Helenurm, Kalju, to Lock, Jonathan, Limited. Adjustable key for cylinder locks. 3,808,853, Cl. 70-411.000.
Heller, Adam: *See*—
Haugsjaa, Paul O.; Heller, Adam; Nelson, William F.; and Bocchimuzzo, Anthony, 3,809,828.
Heller, Laszlo; Szues, Laszlo; and Szabo, Zoltan, to Energiagazdalkodsi Intezet. Apparatus for drying and superheating steam. 3,808,775, Cl. 55-269.000.
Heller, Laszlo; Szues, Laszlo; and Szabo, Zoltan, to Energiagazdalkodasi Intezet. Heat exchanger for transferring heat between gases. 3,809,154, Cl. 165-105.000.
Heller, William C., Jr.: *See*—
Leatherman, Alfred F., 3,810,190.
Helmcke, Conrad; Hermann, Walter; and Kraus, Peter, to Messerschmitt-Bolkow-Blohm GmbH. Conductor for conducting electric signals. 3,809,803, Cl. 174-114.00r.
Hempel, James N.: *See*—
Groth, Clarence N.; Hempel, James N.; Wieczorek, Robert A.; Meyer, Charles F.; and Cook, Robert G., 3,809,965.
Hendler, Nelson: *See*—
Krause, Stephen R.; and Hendler, Nelson, 3,809,985.
Hendrickson, G. Vernon; and Henrickson, Kermit A. Shock absorber mounting for snowmobiles. 3,809,172, Cl. 180-5.00r.
Henning, Michael Laurence, to Plessey Handel und Investments A.G. Light scattering measurement instrument. 3,809,912, Cl. 250-574.000.
Henoch, Bengt, to Institutet for Mikrovagsteknik. Device for continuous measurement and/or monitoring of a dimension of an object of large longitudinal dimension. 3,810,004, Cl. 324-58.50r.
Henrickson, Kermit A.: *See*—
Hendrickson, G. Vernon; and Henrickson, Kermit A., 3,809,172.
Henry, Augustus P., to Bertea Corporation. Pressure transformer. 3,809,502, Cl. 417-225.000.
Henschel, Robert: *See*—
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F., Mack, Anthony M.; and Alfano, Bernardino M., 3,808,880.
Hensley, James Carl: *See*—
Byers, Donald W.; Petry, Chester H., Jr.; Nordstrom, Carl G.; and Hensley, James Carl, 3,808,722.
Hepworth Iron Company Limited, The: *See*—
Glover, John Benjamin, 3,809,412.
Herbello, Mario, to Factory Mutual Research Corporation. Fluid flow control apparatus. 3,809,112, Cl. 137-236.000.
Herbst, Richard, to Krauss-Maffei Aktiengesellschaft. Means for moving the screws of injection units in injection molding machines. 3,808,953, Cl. 92-2.000.
Herman, Joseph L., to Thompson, Emily Herman. Galvanizing technique for wire and the like. 3,809,570, Cl. 117-102.00m.
Hermann, Walter: *See*—
Helmcke, Conrad; Hermann, Walter; and Kraus, Peter, 3,809,803.
Hershberg, David E.; Chaplin, Arthur H., and Dewland, Joseph F., to International Telephone and Telegraph Corporation. System for deriving from a single stable oscillator a plurality of different selectable local oscillator signals. 3,810,038, Cl. 331-60.00.
Herter, George L., to Herter's Inc. All plastic shotshell case with transversely oriented undulations on outer cylindrical surface. 3,808,974, Cl. 102-43.00p.
Herter's Inc.: *See*—
Herter, George L., 3,808,974.
Hertz, Daniel, to Raytheon Company. Analog-to-digital converter level detector. 3,809,925, Cl. 307-235.000.
Heseltine, Donald W.: *See*—
Carpenter, James W.; Mee, John D.; and Heseltine, Donald W., 3,809,691.
Hess, Juergen: *See*—
Linder, Ernst; Adalbert, Gerhard; and Hess, Juergen, 3,809,511.
Hesse, Juergen: *See*—
Wagner, Alfred; and Hesse, Juergen, 3,808,865.
Hetherington, Colin S. Pneumatic pruning shear. 3,808,683, Cl. 30-228.000.
Heuner, Robert Charles; and Niemiec, Stanley Joseph, to RCA Corporation. Liquid crystal display. 3,809,458, Cl. 350-160.01e.
Hewlett-Packard Company: *See*—
Bloedorn, Arthur R., 3,810,036.
Ricci, David W., 3,810,103.
Hibbard, George A. Wet or dry sump motor. 3,808,808, Cl. 60-327.000.
Higashiyama, Kenji; and Hirata, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Device for measuring an activity of silver ions. 3,809,636, Cl. 204-195.00m.
Higashiyama, Kenji; and Hirata, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Device for measuring an activity of cupric ions. 3,809,637, Cl. 204-195.00m.
Higashiyama, Kenji; and Hirata, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Device for measuring an activity of maganous ions. 3,809,638, Cl. 204-195.00m.
Hill, Jack J.: *See*—
Wilk, Richard B.; and Hill, Jack J., 3,809,520.
Hinks, William L., to Goodyear Tire & Rubber Company, The. Apparatus and method to effect reading of a vehicle tire identification pattern. 3,810,159, Cl. 340-146.30r.
Hino, Tetsuo: *See*—
Kozu, Isao; Kurihara, Hidetoshi; and Hino, Tetsuo, 3,810,239.
Hipple, George M., to Robertshaw Controls Company. Snap switch construction and snap blade therefor or the like. 3,809,834, Cl. 200-67.00d.
Hirata, Hiroshi: *See*—
Higashiyama, Kenji; and Hirata, Hiroshi, 3,809,636.
Higashiyama, Kenji; and Hirata, Hiroshi, 3,809,637.
Higashiyama, Kenji; and Hirata, Hiroshi, 3,809,638.
Hirata, Noritsugu: *See*—
Sakaguchi, Keiichi; and Hirata, Noritsugu, 3,810,200.
Sakaguchi, Keiichi; Someya, Atsushi; and Hirata, Noritsugu, 3,810,206.
Hirosawa, Shigeo. Mixer. 3,809,322, Cl. 241-46.170.
Hitachi, Ltd.: *See*—

Hosho, Yukio; Moriya, Hisanori; and Oyama, Yoshishige, 3,809,042.
Kawakami, Kanji; and Kaneko, Eiji, 3,810,135.
Koike, Toshio, 3,809,937.
Sugawara, Hiroyuki; and Kuwabara, Kooji, 3,809,933.
Tokunaga, Kazuyoshi; Yamada, Takahiro; Doi, Tetuo; and Takahashi, Tetsuo, 3,810,194.
Utsumi, Yoshiharu; and Terui, Hideaki, 3,810,254.
Yamazaki, Eiichi; Maruyama, Koichi; Ueda, Toshio; and Nakamura, Tomizo, 3,809,558.
Yasuda, Michio; Makihara, Hiroshi; and Kadota, Shozo, 3,810,093.

Hluchan, Stephen E.; and Villani, Gerard J., to Norton Company. Microfarad range varactor. 3,809,971, Cl. 317-230.000.

Hoden, Ebbe: *See—*
Hedstrom, Bengt; and Hoden, Ebbe, 3,809,089.

Hodgson, Victor Francis: *See—*
Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis, 3,809,512.

Hoeksema, Joe Henry: *See—*
Sutherland, Gail Russell, Leonard, Ronald Keith, and Hoeksema, Joe Henry, 3,808,783.

Hoerner Waldorf Corporation: *See—*
Edwards, John W.; and Tull, Herbert G., III, 3,809,235.
Tull, Herbert G., III, 3,808,965.

Hoesly, David D.: *See—*
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., 3,809,471.

Hoff, Marcian Edward, Jr., to Intel Corporation. Programmable circuit-the method of programming thereof and the devices so programmed. 3,810,127, Cl. 340-173.0sp.

Hoffman, William C.: *See—*
Heard, James L.; Hoffman, William C.; and Opittek, Eugene W., 3,810,174.

Hoffman, William K.; and Kao, Albert Y., to International Business Machines Corporation. Memory accessing system. 3,810,124, Cl. 340-173.00r.

Hoffmann-La Roche Inc.: *See—*
Kerb, Ulrich; Wiechert, Rudolf; Eder, Ulrich; and Berndt, Hans-Detlef, 3,809,690.
Spector, Sidney, 3,809,782.

Hoffmeyer, Knud H.; Haffner, Donald G.; and Ecker, Frank A., to Jacobsen Manufacturing Company. Lawn mowers articularly supported on a tractor. 3,808,778, Cl. 56-7.000.

Hoge, Henri H., to Allied Controls Company, Inc., mesne. Motor speed control system. 3,809,984, Cl. 318-244.000.

Hogg, Walter R.: *See—*
Coulter, Wallace H.; and Hogg, Walter R., 3,810,011.

Holaday, Charles E.: *See—*
Barnes, Phillip C., Jr.; and Holaday, Charles E., 3,808,964

Holland Company: *See—*
Chierici, Osvaldo F.; and Winters, Frederick, 3,809,251.

Holland, Robert L.: *See—*
Mathias, James J.; and Holland, Robert L., 3,809,758.

Hollis, Samuel H.: *See—*
Rigney, Jack C.; Hollis, Samuel H.; and Doonan, Nathaniel J., 3,809,013.

Holmes, Allie B., to Opti-Cap, Inc. Minimizing corrosion of overflow receptacle equipped engine cooling system. 3,809,150, Cl. 165-1.000.

Holophane Company, Inc.: *See—*
Welty, Dale E., 3,809,881.

Holt, David T., deceased. *See—*
Adams, Crawford W.; and Holt, David T., deceased, 3,809,343.

Holt, Myrtle, executrix. *See—*
Adams, Crawford W.; and Holt, David T., deceased, 3,809,343.

Honeywell Inc.: *See—*
Stauffer, Norman L., 3,810,191.

Honeywell Information Systems Inc.: *See—*
Besenfelder, Edward R., 3,810,233.
De Voy, David D.; Barlow, George J.; and Klashka, John A., 3,810,231.
Huettner, Robert E.; and Tymann, Edward B., 3,810,120.
Nibby, Chester M.; Manton, John C.; and Curley, John L., 3,809,884.
Stafford, John P., 3,810,115.

Hoogovens Ijmuiden B.V.: *See—*
Plazier, Nico, 3,809,376.

Hook, Richard Wyane; and Jackson, William Wayne, to Deere & Company. Storage tank and recleaning apparatus for root crop harvesters. 3,809,164, Cl. 171-58.000.

Hoover, William W. Warning sign. 3,810,091, Cl. 340-84.000.

Hopkins, John Warren; Townley, Ray Clifford; and Zimmerman, Leonard, to Bell Telephone Laboratories, Incorporated. Adaptive data readout timing arrangement. 3,810,235, Cl. 360-51.000.

Hoppesch, Joseph P., to Borg-Warner Corporation. Modulation responsive anti-evasion system for breath testers. 3,809,067, Cl. 128-2.00c.

Horine, Angela A. Test for lead. 3,809,537, Cl. 23-230.00r.

Horner, Ellwood J., to American Hoechst Corporation. Apparatus for processing two sides of a printing plate. 3,809,105, Cl. 134-122.000.

Horowitz, Hugh H.; and Tyler, William E., III, to Esso Research and Engineering Company. Olefin separation process. 3,809,726, Cl. 260-677.00a.

Horowitz, Noah; Stupeck, Donald; and Novak, Lubomir, to Sperry Rand Corporation, mesne. Data recording and verification system. 3,810,236, Cl. 360-53.000.

Horsford, Anne; Lewison, George Richard Grant; and Paffett, James Arthur Haines, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Trade and Industry in Her Britannic Majesty's Government of the. Passive roll stabilisers. 3,80,000, Cl. 114-124.000.

Hosho, Yukio; Moriya, Hisanori; and Oyama, Yoshishige, to Hitachi, Ltd. Internal combustion engine equipped with means for reducing the amount of nitrogen oxide which is exhausted from the engine. 3,809,042, Cl. 123-148.00c.

Hosoya, Minoru; Hama, Tatsuharu; and Arafune, Hisayuki, to Kao Soap Co., Ltd. Apparatus for attaching hangers to paper boxes 3,808,957, Cl. 93-36.700.

Hotchkiss, Jack G.: *See—*
Burk, Robert L.; and Hotchkiss, Jack G., 3,809,059

Hotten, Bruce W., to Chevron Research Company. Magnesium phenoxides and lubricants contaming the same. 3,809,648, Cl. 252-32.70e.

Houston Engineering Research Corporation. *See—*
Schweppe, Joseph L., McMorris, Arthur H.; and Ahlgren, Erick L., 3,809,120.

Hovasse, Christian. *See—*
Allemand, Pierre; and Hovasse, Christian, 3,809,665.

Howard, Gerald T.: *See—*
Nichols, Charles E., Jr., and Howard, Gerald T., 3,809,595.

Howard, Wayne H.; Young, Donald R.; and Adachi, Richard R., to United States of America, National Aeronautics and Space Administration. Programmable physiological infusion. 3,809,871, Cl. 235-151.300.

Howarth, George. *See—*
Damodaran, Nandyelath, Moffatt, John, Jones, Gordon; and Howarth, George, 3,809,689.

Howells, John D.: *See—*
Cook, Ronald, Guppy, John Reginald, and Howells, John D., 3,810,027.

Howland, Robert F.; Mansky, Michael H.; and Richards, Willie J., to General Foods Corporation. Soluble coffee of improved stability and flavor. 3,809,781, Cl. 426-384.000.

Hoylman, H. Wayne. *See—*
Rawson, Donald E., Greene, Norman D., and Hoylman, H. Wayne, 3,808,889.

Hoyt, Harold C., Jr., to Meyer Labs, Inc. Electronic traffic signal control system. 3,810,084, Cl. 340-41.00r.

Hubbard, David G., to Chance, A. B., Company. Remote closing power load pickup device. 3,810,060, Cl. 337-155.000.

Hubbard, Elbert G., to Arbeck Industrial & Mining Equipment Co. Limited. Pneumatic conveying apparatus. 3,809,438, Cl. 302-22.000.

Hubbell, Harvey, Incorporated. *See—*
Jaconette, Frank C., Jr., 3,810,069.

Hudkin, Elizabeth J. Mathematical instruction game. 3,808,708, Cl. 35-31.00d.

Huettner, Robert E.; and Tymann, Edward B., to Honeywell Information Systems, Inc. Automatic deactivation device. 3,810,120, Cl. 340-172.500.

Hughes Aircraft Company: *See—*
Andrews, George J.; and Rosen, Harold A., 3,809,337.
Bell, William H., 3,810,175.
Heard, James L., Hoffman, William C., and Opittek, Eugene W., 3,810,174.
Woodbury, Eric J.; and Dewhirst, Donald R., 3,810,044.

Hughes Aircraft Company, mesne. *See—*
Villalobos, Luis F.; Harano, Allen A.; and Breinlinger, Richard H., 3,809,868.

Hughes, Georges C., to Textron, Inc. Monitor and automatic shutoff for gas regulators. 3,809,108, Cl. 137-73.000

Hughes, James R.; and St. John, John H., to Ford Motor Company. Automatic choke testing method. 3,808,883, Cl. 73-118.000.

Hughes, Ronald A.: *See—*
Bhutani, Harish K.; Oda, Albert Y.; and Hughes, Ronald A., 3,808,942.

Huiden, Barend: *See—*
Tebbe, Rolf; and Huiden, Barend, 3,809,345.

Hungerford, Laurence D.; and Marshall, Clarence G., to Collins Radio Company. Looped direct switching system. 3,810,100, Cl. 340-172.500.

Hunt, William Allen, to Emco (Great Britain) Limited. Loading machine impact tool supported by adjustable boom and carriage. 3,809,169, Cl. 173-28.000.

Hunter, Charles G. Shaft for conventional golf club. 3,809,403, Cl. 273-80.00b.

Hunter, Earl K., to United States of America, Navy. Swimmer-dive navigation and reconnaissance device. 3,810,080, Cl. 340-3.00r.

Hunter, Robert T.: *See—*
Elkind, Vincent T.; Hunter, Robert T.; Marder, Herman L.; and Hutchinson, Homer F., 3,809,663.

Hurley, Raymond E., to Owens-Corning Fiberglas Corporation. Apparatus for collection of linear material. 3,808,789, Cl. 57-58.700.

Hurley, Thomas P., to Sprague Electric Company. Multilayer ceramic capacitor and method of terminating. 3,809,973, Cl. 317-258.000.

Hurschman, Alfred A., to Ampoules, Inc. Plunger tack. 3,809,082, Cl. 128-218.00p.

Hurst, John, to Grace, W. R., & Co. Waterstops. 3,808,762, Cl. 52-403.000.

Husqvarna Vapenfabriks Aktiebolag: *See—*
Risman, Per Olov G.; and Rosengren, Lars O., 3,810,248.

Hussain, Anwar; and Truelove, James E., to Interx Research Corporation. Novel ester of [(methylamino) methyl] benzyl alcohol. 3,809,714, Cl. 260-479.00r.

Hutchinson, Homer F.: *See—*
Elkind, Vincent T.; Hunter, Robert T.; Marder, Herman L.; and Hutchinson, Homer F., 3,809,663.

Hutchinson, Homer F., to GTE Automatic Electric Laboratories, Incorporated. Power supply system control circuit. 3,809,963, Cl. 317-22.000.

Hutchinson, Royal Edward; and Bruce, George Brebber. Machine for compacting and packaging waste material. 3,808,766, Cl. 53-24.000.

Hutchinson, William Y.; and Kushmuk, Walter P., to Continental Scale Corporation. Weighing and height measuring device. 3,808,694, Cl. 33-169.00r.

Hutchinson, William Y.; and Kushmuk, Walter P., to Continental Scale Corporation. Weighing scale. 3,809,171, Cl. 177-165.000.

Hutchison, Williston E. Long-term deep submergence battery power supply. 3,809,581, Cl. 136-161.000.

Hutter, Harold Gregory. Sealed coaxial connector. 3,810,076, Cl. 339-177.00r.

Hydraulics Unlimited Manufacturing Co.: *See—*
Channell, Glen L., 3,809,429.

Hydro-Dent Corporation: *See—*
Tauman, Harvey; Sklover, Isadore T.; Tauman, Irving, and Kliment, Charles K., 3,808,686.

Hydrocarbon Research, Inc.: *See—*
Johnson, Axel R., Wolk, Ronald H., and Nongbri, Govanon, 3,809,644.

Ideal Toy Corporation. *See—*
Cooper, Julius; and Berkin, Harvey, 3,808,730.
Leicht, Charles; and Reinertsen, Tormod K., 3,809,396.

Iguchi, Shin-Ichi: *See—*
Akai, Shin-Ichi; Mori, Hideki; Takahashi, Nobuo; and Iguchi, Shin-Ichi, 3,809,584.

Iida, Hirofumi, to Tokyo Gas Company Limited and Nippon Crucible Company Limited. Non-ferrous metal melting furnace. 3,809,378, Cl. 266-33.00r.

Iiyama, Akihiro; and Gomita, Minoru, to Olympus Optical Company, Limited. Method of making pin electrodes for electrostatic recording. 3,808,675, Cl. 29-592.000.

Ikeda, Hisao, to Matsushita Electric Industrial Co., Ltd. Cassette-type magnetic tape recording and reproducing apparatus. 3,810,242, Cl. 360-96.000.

Iles, Brian Rodney: *See—*
Oakes, Vincent; and Iles, Brian Rodney, 3,809,677.

Ilfrey, William T.; and Sheffield, James R., to Esso Production Research Company. Method and apparatus detecting fluid influx in offshore drilling operations. 3,809,170, Cl. 175-7.000.

Iliakidis, Athanassious. *See—*
Reed, Joseph; Shapiro, Jonas M.; Iliakidis, Athanassious; and Apostolakis, Anthony, 3,809,816.

Imperial Chemical Industries Limited. *See—*
Garner, Paul Johnson, 3,809,519.
Sandiford, Denis James Henry; and Smith, Alan George, 3,809,733.

Imperial Knife Associated Companies, Inc.: *See—*
McLaren, Vincent H., Jr.; and Panchal, Navnit, 3,808,917.

Imperial Modular Systems, Ltd.; mesne: *See—*
Green Peter L.; Lenfesty, Gordon A., Talbot, Edmund H.; Joslin, Allen; and Kovacevic, Vukasin, 3,808,761.

Impresciа, Richard J.: *See—*
Wewerka, Eugene M.; Impresciа, Richard J.; and Reiswig, Robert D., 3,809,565.

Imura, Toshinori, to Minolta Camera Kabushiki Kaisha. Flash control mechanism for a camera. 3,810,205, Cl. 354-33.000.

Inada, Masami; and Ando, Masamoto, to Aisin Seiki Kabushiki Kaisha. Anti-skid brake control system. 3,809,437, Cl. 303-21.00f.

Index Industries, Inc.: *See—*
Woodward, Herber Jay, 3,809,191.

Indexette Tapes, Inc.: *See—*
Stone, Wayne B., Jr.; and Beaumont, Alan, 3,810,246.

Industrial Development & Design: *See—*
Bennion, Don U.; and West, Leonard R., 3,810,005.

Industrial Nucleonics Corporation: *See—*
Cho, Boong Y.; Sturkol, Elmer W.; and Wier, Keith E., 3,809,903.

Ingemar, Fernlund; and Stig, Hallerback, to SKF Industrial Trading & Development Company B.V. Holder for an outer race of a roller bearing. 3,809,447, Cl. 308-236.000.

Ingenieurshureau Rodehuis & Verloop N.V.: *See—*
Varekamp, Willem, 3,809,523.

Ingersoll-Rand Company: *See—*
Black, Arthur L., 3,808,911.

Inoue, Izaburo: *See—*
Matsuo, Shunji; Sato, Shui; Endo, Takaya; Kasai, Keiji; and Inoue, Izaburo, 3,808,945.

Institutet for Mikrovagsteknik: *See—*
Henoch, Bengt, 3,810,004.

Integrated Systems Company: *See—*
Kabat, Jules M.; and Beggs, James H., 3,810,096.

Intel Corporation: *See—*
Hoff, Marcian Edward, Jr., 3,810,127.

Interlake, Inc.: *See—*
Shaw, Russell E., 3,808,981.

International Business Machines Corporation: *See—*
Ambrico, Louis Edward; Katsafouros, Stavros George; Kleen, Bergert George; and Lamoureux, William Roger, 3,809,947.
Battinger, Utz G.; and Najmann, Knut K., 3,810,123.
Behman, Stephen Barry; and Goldstein, Stephen, 3,810,129.
Cope, James R.; and McCully, Everette R., 3,809,328.
Dodd, Paul D.; Lynott, John J.; and Treder, John D., 3,809,263.
Healey, Robert A., 3,810,117.
Hoffman, William K.; and Kao, Albert Y., 3,810,124.
Johnson, Oliver D.; and Maynard, Kenneth B., 3,809,410.
Kollar, Ernest P.; Levine, Joel M.; Tagawa, James M.; and Tiao, Hui-Li, 3,809,336.
Krewson, Neil N.; Tait, John B.; and Updike, Bruce M., 3,810,108.
Lafrate, Pasco F.; and Relyea, Vincent L., Jr., 3,808,680.
Mantey, John P., 3,809,335.
McGinnis, Bernard W.; and Orlando, Anthony W., 3,810,243.
Moser, Andreas, 3,810,128.
Neal, Danny Marvin, 3,809,855.
Patel, Arvind M., 3,810,111.
Poley, Neil Myron, 3,809,946.

International Harvester Company: *See—*
Gardner, Frank H.; Stroup, Norman G.; and Krukow, Eugene J., 3,808,784.

International Nickel Company, Inc., The: *See—*
Benjamin, John Stanwood, 3,809,545.

International Standard Electric Corporation: *See—*
Basard, Robert; and Dalhera, Michel R. J., 3,810,178.

International Tapetronics Corporation: *See—*
Jenkins, John P., 3,809,329.

International Telephone and Telegraph Corporation: *See—*
Clanton, John S., 3,809,908.
Hershberg, David E.; Chaplin, Arthur H.; and Dewland, Joseph F., 3,810,038.
Miller, Charles Eveleigh, 3,808,875.

International Telephone and Telegraph Corporation, mesne: *See—*
Gezari, Walter A., 3,808,996.

International Video Corporation: *See—*
Vidovic, Nikola, 3,809,809.

Interstab Limited: *See—*
Oakes, Vincent; and Iles, Brian Rodney, 3,809,677.

Intertechnique S.A.: *See—*
Thomas, Edward W.; Scherzer, Walter Oscar; and Sicard, Fernand, 3,809,897.

Interx Research Corporation: *See—*
Hussain, Anwar; and Truelove, James E., 3,809,714

Inventa AG fur Forschung und Patentverwertung: *See—*
Studinka, Josef; and Gabler, Rudolf, 3,809,682.

Iomec, Inc.: *See—*
Heidecker, Robert F., 3,810,067.

Ipekgil, Ayhan. Automatic control for venetian blind. 3,809,143, Cl. 160-168.000.

Irlam, Philip Sidney: *See—*
Gaskell, Philip Hedley; Lythgoe, Stanley; Irlam, Philip Sidney; Miller, Robert Percy; and Barry, Thomas Ian, 3,809,543.
Lythgoe, Stanley; and Irlam, Philip Sidney, 3,809,542.

Ishida, Kengo; Kawai, Masanobu; and Mukai, Noboru, to Kyowa Hakko Kogyo Co., Ltd. Preparation of seasoning agent. 3,809,780, Cl. 426-60.000.

Ishikawa, Seuti: *See—*
Ohniwa, Kazuhiro; and Ishikawa, Seuti, 3,809,248.

Ishimaru, Toshiyasu, to Osaka University, President of. Process for producing 6-aminopenicillanic acid. 3,809,699, Cl. 260-306.700.

Isotopes, Inc.: *See—*
Seetoo, Winston R.; Weide, Roman K.; and Charland, Telesphore L., 3,808,670.

Itek Corporation: *See—*
Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., 3,809,562.
Nellis, David C., 3,809,910.

Ito, Isao. Windshield wiper for vehicles. 3,808,630, Cl. 15-250.420.

Ito, Shinya, to Kabushiki Kaisha Tokai Rika Denki Seisaku. Device for detecting and indicating a difference in hydraulic pressure. 3,810,142, Cl. 340-242.000.

Ito, Tadahiko: *See—*
Nakamura, Hirokazu; and Ito, Tadahiko, 3,808,806.

Itoh, Kiyoshi: *See—*
Wakamiya, Shunichiro; and Itoh, Kiyoshi, 3,809,459.

Ivan, Geza: *See—*
Gifło, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.

Iwasaki Tsushinki Kabushiki Kaisha; a/k/a Iwatsu Electric Co., Ltd.: *See—*
Ono, Yasuhiro, 3,810,247.

J.W.S. Nominee Company Limited: *See—*
Kerstetter, Virginia Ann; and Mizell, Louis Richard, 3,809,589.

Jack, James: *See—*
Taylor-Brown, Terence John; and Jack, James, 3,809,594.

Jackson, Earl V.: *See—*
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., 3,809,471.

Jackson, James Edward, to Deere & Company. Fuel sediment bowl assembly. 3,809,244, Cl. 210-136.000.

Jackson, Robert B. Fence post support. 3,809,346, Cl. 248-44.000.
Jackson, William Wayne: *See*—
Hook, Richard Wyane; and Jackson, William Wayne, 3,809,164.
Jackson, Winston J., Jr.: *See*—
Musser, Harry R.; and Jackson, Winston J., Jr., 3,809,681.
Jacob, Gernot, to Swiss Aluminium Ltd. Sacrificial anode. 3,809,640, Cl. 204-197.000.
Jacobs Manufacturing Company, The: *See*—
Cartledge, Charles F., 3,809,033.
Jacobs, Melvin A.; and Taugner, Jack W., to GTE Automatic Electric Laboratories, Incorporated. Automatic distribution of subscriber assistance calls. 3,809,823, Cl. 179-27.00d.
Jacobs, Stanley C., to Aluminum Company of America. Fluid sheathed electrode load for use in a corrosive environment. 3,809,794, Cl. 174-11.0bh.
Jacobs, Thomas A., to Tideland Signal Corporation. Navigational light system. 3,810,150, Cl. 340-340.000.
Jacobsen Manufacturing Company: *See*—
Hoffmeyer, Knud H.; Haffner, Donald G.; and Ecker, Frank A., 3,808,778.
Jaconette, Frank C., Jr., to Hubbell, Harvey, Incorporated. Grounding clip for electrical fixtures. 3,810,069, Cl. 339-14.00r.
Jagid, Bruce E., to Power Conversion, Inc. Battery sealing and component connecting method. 3,809,580, Cl. 136-133.000.
James, Horace A. Leaf and rubbish shovel. 3,809,421, Cl. 294-50.800.
Jamet, Edmond; and Jaquard, Paul, to Societe d'Applications Generales d'Electricite et de Mecanique SAGEM. Emitter and receiver devices for remote control of mining machines. 3,810,098, Cl. 340-170.000.
Japan Exlan Company, Limited: *See*—
Shimoda, Keitaro; Kobayashi, Yutaka,; and Sumi, Takehiko, 3,809,738.
Jaquard, Paul: *See*—
Jamet, Edmond; and Jaquard, Paul, 3,810,098.
Jaquette, Robert D., to Air-Way Manufacturing Company. O-ring mounting machine. 3,808,664, Cl. 29-235.000.
Jarolim, Vaclav; Slama, Karel; and Sorm, Frantisek, to Ceskoslovenska Akademie Ved. Esters of 9-0 XA-2,4-alkadienoic acids. 3,809,710, Cl. 260-410.90r.
Jarry Precision Limited: *See*—
Vadeboncoeur, Leo; and Tremblay, Alain, 3,808,900.
Jarvenson, Erik Borje: *See*—
Thorsson, Lars-Ake Olof; and Jarvenson, Erik Borje, 3,809,577.
Jasovsky, George A.: *See*—
Jolly, Michael D.; Jasovsky, George A.; Ceglie, Gaetano J.; Nacci, Anthony T.; and Schechter, Harold, 3,809,770.
Javan, Ali; and Feld, Michael S., to Massachusetts Institute of Technology. Apparatus and method for controlling direction of radiation. 3,809,887, Cl. 250-199.000.
Jeffery, Philip Auriol Edgar: *See*—
Beurer, Robert John; and Jeffery, Philip Auriol Edgar, 3,809,334.
Jenkins, John P., to International Tapetronics Corporation. Tape transport with automatic torque motor brake. 3,809,329, Cl. 242-204.000.
Jensen, Jackie L.: *See*—
Shirley, Howard E.; and Jensen, Jackie L., 3,809,060.
Jenssen, Lloyd W.: *See*—
Drella, Charles L.; Fineo, Carlo; Jenssen, Lloyd W.; and Scott, William, Jr., 3,808,771.
Jereb, Richard F.; and Anderson, Philip A., to Outboard Marine Corporation. Capacitor triggered ignition system. 3,809,044, Cl. 123-148.00e.
Jereb, Richard F., to Outboard Marine Corporation. Non-magnetized ceramic magnetic assembly. 3,810,056, Cl. 335-302.000.
Jesernig, William J.; and Arstikaitis, Arunas A., to American Standard Inc. Dust collector. 3,808,776, Cl. 55-300.000.
Jimenez, Antonio: *See*—
Aeschlimann, Pierre; Fresard, Marcel; and Jimenez, Antonio, 3,809,851.
Jin, Kunio: *See*—
Nimura, Takuo; Jin, Kunio; and Komatsu, Hajime, 3,809,563.
Jinno, Seizo: *See*—
Hamada, Yoshitugu; Nakamoto, Yasunori; and Jinno, Seizo, 3,808,955.
Jinno, Sigeru; and Uchida, Mitsuo, to Toray Industries, Inc. Densimeter. 3,808,893, Cl. 73-452.000.
Joerns Furniture Company: *See*—
Carpentier, John H.; and Rose, Frederick A., 3,808,613.
Johns-Manville Corporation: *See*—
Drella, Charles L.; Fineo, Carlo; Jenssen, Lloyd W.; and Scott, William, Jr., 3,808,771.
Wahlers, James Ludwig; Terry, Rupert Douglas; Scott, William, Jr.; and Simmers, Charles Donald, 3,808,765.
Johnson & Johnson: *See*—
Poncy, George William, 3,809,230.
Johnson, Axel R.; Wolk, Ronald H.; and Nongbri, Govanon, to Hydrocarbon Research, Inc. Multiple stage hydrodesulfurization of residuum. 3,809,644, Cl. 208-210.000.
Johnson, Delf W., Poole & Storm, Architects: *See*—
Bottjer, Richard E.; Johnson, Delp W.; Poole, William F.; and Storm, James P., 3,808,754.
Johnson, Delp W.: *See*—
Bottjer, Richard E.; Johnson, Delp W.; Poole, William F.; and Storm, James P., 3,808,754.
Johnson, Earl Clinton, to Deere & Company. Collapsible link for a tree shear. 3,808,909, Cl. 74-585.000.
Johnson, Marvin M.; and Kuper, Donald G., to Phillips Petroleum Company. Dehydration of 3-methyl-3-buten-1-0l. 3,809,727, Cl. 260-681.000.
Johnson, Oliver D.; and Maynard, Kenneth B., to International Business Machines Corporation. Continuous card form. 3,809,410, Cl. 281-5.000.
Johnston, Billy Ray; and Schescke, William O. Datachable diver's weight. 3,808,824, Cl. 61-70.000.
Johnston, James Stewart; and Fellow, David Frank, to Rosemount Engineering Company Limited. Analogue to digital converters. 3,810,151, Cl. 340-347.0ad.
Johnston, Walter Daniel, to Bell Canada. Means and method for telephone line disconnection in frequency division multiplexing. 3,809,818, Cl. 179-15.0by.
Jolly, Michael D.; Jasovsky, George A.; Ceglie, Gaetano J.; Nacci, Anthony T.; and Schechter, Harold, to General Foods Corporation. Method for producing enhanced soluble foodstuffs. 3,809,770, Cl. 426-362.000.
Jones, Bowan. Swivel caster supported exercising handle apparatus. 3,809,393, Cl. 272-57.00j.
Jones, Gordon: *See*—
Damodaran, Nandyelath; Moffatt, John; Jones, Gordon; and Howarth, George, 3,809,689.
Jones, Harry S. Doublet gem construction. 3,808,836, Cl. 63-32.000.
Jones, Howard W.; and Whitmore, Robert A. Process for preparing as food adjunct for callagen. 3,809,772, Cl. 426-364.000.
Jones, Lewis H., to Food Packers Equipments Co. Inc. Food packing machine. 3,809,132, Cl. 141-122.000.
Jones, Melvin A. Die casting apparatus. 3,809,531, Cl. 432-225.000.
Jones, Robert S.; and Jones, Wesley E. Flooring system for sties and other animal shelters. 3,809,014, Cl. 119-28.000.
Jones, Robert Wayne: *See*—
Delaney, Glenn Allen, Jr.; and Jones, Robert Wayne, 3,809,179.
Jones, Wesley E.: *See*—
Jones, Robert S.; and Jones, Wesley E., 3,809,014.
Jones, William Stanley; and Hartmann, Clinton Sylvester, to Texas Instruments Incorporated. Acoustic surface wave transducer configuration for reducing triple transit signals. 3,810,257, Cl. 333-30.00r.
Jongerius, Hermanus Maria; and Van der Wolk, Rein Willemse, to U.S. Philips Corporation. Low-pressure mercury vapour discharge lamp. 3,809,944, Cl. 313-227.000.
Jordan, James Redmon, to National Research Development Corporation. Digital data processing apparatus. 3,810,113, Cl. 340-172.500.
Joslin, Allen: *See*—
Green Peter L.; Lenfesty, Gordon A.; Talbot, Edmund H., Joslin, Allen; and Kovacevic, Vukasin, 3,808,761.
Joslyn, John V. Musical instrument. 3,809,793, Cl. 84-404.000
Jossic, Alain Francois, to Societe Honeywell Bull. Heating indicating device of an electric motor. 3,809,960, Cl. 317-13.00b.
Jost, Ernest M., to Texas Instruments, Incorporated. Relay. 3,810,059, Cl. 337-25.000.
K-Line Industries, Inc.: *See*—
Kammeraad, James A., 3,809,046.
Kabat, Jules M.; and Beggs, James H., to Integrated Systems Company. Method and system for transmitting data and indicating room status 3,810,096, Cl. 340-147.00r.
Kahil, Adel J., to Aktiengesellschaft Junghunzlauer Spiritus- und Chemische Fabrik. Process for the production of citric acid by submerged fermentation. 3,809,612, Cl. 195-36.00r.
Kabushiki Kaisha Komatsu Seisakusho: *See*—
Kawamura, Eiji; and Taki, Hiroyuki, 3,808,812.
Kabushiki Kaisha Suwa Seikosha: *See*—
Yamamura, Katsumi; and Goto, Mitsuhiro, 3,809,872.
Kabushiki Kaisha Tadano Takkosho: *See*—
Ohniwa, Kazuhiro; and Ishikawa, Seuti, 3,809,248.
Kabushiki Kaisha Tokai Rika Denki Seisaku: *See*—
Ito, Shinya, 3,810,142.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See*—
Hayashi, Yoshihiro, 3,809,332.
Suzuki, Masuru, 3,810,087.
Suzuki, Masuru, 3,810,088.
Takagi, Katsuyuki; and Miwa, Haruo, 3,809,927.
Kabushiki Kaisha Toyota Cjuo Kenkyusho: *See*—
Tanasawa, Yasusi, 3,808,802.
Kabushiki Kaisha Yashica: *See*—
Koboyshi, Katsumi, 3,809,466.
Kabushikikaisha: *See*—
Okabe, Katsuhiko, 3,810,192.
Kadota, Shozo: *See*—
Yasuda, Michio; Makihara, Hiroshi; and Kadota, Shozo, 3,810,093.
Kaerwer, Howard E., Jr.: *See*—
Porter, Frederic E.; and Kaerwer, Howard E., Jr., 3,808,740.
Kalet, Irving; and Weinstein, Stephen Brant, to Bell Telephone Laboratories, Incorporated. Inband generation of digital signal waveforms. 3,810,021, Cl. 325-141.000.
Kali-Chemie Aktiengesellschaft: *See*—
Simoleit, Hartmut; and Schneider, Helmut, 3,809,742.
Kalkowski, Kurt-Ulrich. Utensil having stabilizers for preventing spraying with frying pans, or the like. 3,809,281, Cl. 220-44.00r.
Kalle Aktiengesellschaft: *See*—
Heist, Hans; and Silbereisen, Dieter, 3,809,387.

Moraw, Roland; and Schadlich, Gunther, 3,809,473.
Kallio, Frank H., to Sperry Rand Corporation. Bipolar digital-to-analog converter. 3,810,157, Cl. 340-347.0da.
Kaltenhauser, Ludwig A.; and Tschuggnal, Alfred F. Seal cap. 3,809,277, Cl. 215-320.000.
Kaminow, Ivan Paul: *See*—
Chandross, Edwin Arthur; Fork, Richard Lynn; Kaminow, Ivan Paul; and Tomlinson, Walter John, III, 3,809,686.
Kamiya, Nobuyoshi, to Toyo Enterprises Kabushiki Kaisha. Vehicle drying apparatus. 3,808,703, Cl. 34-229.000.
Kammeraad, James A., to K-Line Industries, Inc. Valve guide stabilizing and sealing insert. 3,809,046, Cl. 123-188.0gc.
Kamogawa, Toshiro: *See*—
Okuno, Noboru; Kamogawa, Toshiro; and Okino, Yoshihiro, 3,809,804.
Kane, William S.; and Cardwell, Paul H., to Deepsea Ventures, Inc. Mixed ore treatment of ocean floor nodule ore and iron sulfidic land based ores. 3,809,624, Cl. 204-105.00m.
Kaneko, Eiji: *See*—
Kawakami, Kanji; and Kaneko, Eiji, 3,810,135.
Kanfer, Herman: *See*—
Ziegler, Charles O., 3,809,064.
Kanter, Jerome J. Protecting ferrous base metal articles against corrosion by treatment with niobium oxide. 3,809,572, Cl. 117-127.000.
Kantor, Frederick W. Rotary thermodymanic apparatus. 3,808,828, Cl. 62-116.000.
Kao, Albert Y.: *See*—
Hoffman, William K.; and Kao, Albert Y., 3,810,124.
Kao Soap Co., Ltd.: *See*—
Hosoya, Minoru; Hama, Tatsuharu; and Arafune, Hisayuki, 3,808,957.
Kappa Holding A.G.: *See*—
Rohan, George Alexander, 3,809,567.
Karatjas, Manual: *See*—
Balamuth, Lewis; Kuris, Arthur, and Karatjas, Manual, 3,809,977.
Karcher, Charles: *See*—
Strauss, Edgar; and Karcher, Charles, 3,809,130.
Kargus, Eugene H., and Zolkoske, Joseph F., Jr. Outboard motor lock., 3,808,851, Cl. 70-232.000.
Karlsson, Stig Erik: *See*—
Widl, Walter Herbert Erwin; and Karlsson, Stig Erik, 3,810,155.
Karsten, Fred W.; Evans, James D.; and Pool, Sam Lee, to Kewp, Inc. Electronic line indicator apparatus. 3,810,148, Cl. 340-323.000.
Kasai, Keiji: *See*—
Matsuo, Shunji, Sato, Shui; Endo, Takaya; Kasai, Keiji; and Inoue, Izaburo, 3,808,945.
Kasprzak, Vincent, to Arvin Industries, Inc. Video bandwidth reduction. 3,809,805, Cl. 178-6.60a.
Kato, Mihoru, and Nagasawa, Masao, to Nippondenso Co., Ltd. Ignition device for use in multiple cylinder internal combustion engine. 3,809,041, Cl. 123-148.00e.
Katsafouros, Stavros George: *See*—
Ambrico, Louis Edward; Katsafouros, Stavros George; Kleen, Bergert George; and Lamoureux, William Roger, 3,809,947.
Katz, Leonard R.; Landerman, Edgar I., and Desmarchais, Walter E., to Westinghouse Electric Corporation. Reactor vessel annealing apparatus. 3,809,608, Cl. 176-87.000.
Kaugars, Girts, to Upjohn Company, The. Thiophenecarbonyl chloride phenylhy drazones. 3,809,703, Cl. 260-332.500.
Kavick, Edward M.: *See*—
Smith, Roy B., Sabo, Alex T.; and Kavick, Edward M., 3,809,184.
Kawai, Masanobu: *See*—
Ishida, Kengo; Kawai, Masanobu; and Mukai, Noboru, 3,809,780.
Kawakami, Kanji; and Kaneko, Eiji, to Hitachi, Ltd. Control circuit of recording and reproducing signals to and from magnetic transducers for magnetic memory apparatus. 3,810,135, Cl. 360-62.000.
Kawamura, Eiji; and Taki, Hiroyuki, to Kabushiki Kaisha Komatsu Seisakusho. Hydraulic control system in a power shift transmission of an endless trail type tractor. 3,808,812, Cl. 60-484.000.
Kazoaka, Kenichi, to Aisin Seiki Company Limited. Door lock mechanism. 3,809,416, Cl. 292-216.000.
Kean Manufacturing Corporation: *See*—
Strain, William E., 3,809,139.
Keener, Arthur; Bradford, Larry David; Gary, Laverne E.; McLeon, John W.; and Carter, Billy W., to Lone Star Container Corporation. Reel forming apparatus. 3,808,958, Cl. 93-49.00r.
Kehe, Alfred W., to Continental Can Company, Inc. Protective score shield for easy opening container. 3,809,283, Cl. 220-54.000.
Kehr, Clifton L.: *See*—
Magnotta, Frank; Ketley, Arthur D.; and Kehr, Clifton L., 3,809,633.
Keley, Roger T.: *See*—
Kiley, Joyce M.; and Keley, Roger T., 3,809,757.
Keller, Robert A.: *See*—
Mitchner, Joseph L.; Keller, Robert A., and Graham, Clyde B., 3,808,669.
Keller, Wolfgang: *See*—
Baumgartner, Werner; Keller, Wolfgang, and Schnoeller, Manfred, 3,809,846.
Kelly, Larry. Gun-leveling device. 3,808,943, Cl. 89-14.00c.
Kelsey-Hayes Company: *See*—
Evans, Anthony C., 3,809,190.
KemaNord AB: *See*—
Mattsson, Ove Henning; and Bertilsson, Britt-Marie Elisabeth, 3,809,718.
Kemp, Jacob D.; and Mulaskey, Bernard F., to Chevron Research Company. Catalyst rejuvenation. 3,809,728, Cl. 260-683.680.
Kenagy, William L., to Wheelabrator Corporation, The. Mechanical finishing and media therefor. 3,808,747, Cl. 51-164.500.
Kendall, Burt C., to Crown Zellerback Corporation. Protected lumber package and method of making same. 3,809,223, Cl. 206-204.000.
Kendall Company, The: *See*—
Tautvaisas, Bonaventura, 3,808,639.
Kennecott Copper Corporation: *See*—
Michaelson, Stanley D.; and Broadbent, Carl D., 3,809,430.
Kennedy, Sterling R. Sewage treatment apparatus. 3,809,245, Cl. 210-207.000.
Kennington, Joseph B., to Francis P. Brennan. Pakcaging brace for washing machines and the like. 3,809,232, Cl. 206-320.000.
Kent, Allan R.: *See*—
Kotok, Alan; Kent, Allan R.; and Gross, David A., 3,810,110.
Kenway Engineering, Incorporated: *See*—
Pipes, George R., 3,809,259.
Kerb, Ulrich; Wiechert, Rudolf; Eder, Ulrich; and Berndt, Hans-Detlef, to Hoffmann-La Roche Inc. 18-(Alkyl-acylamino)-14beta,16beta,20-trihydroxy steroids and methods for their preparation. 3,809,690, Cl. 260-239.500.
Kershaw, Thomas. Air permeability tester. 3,808,876, Cl. 73-38.000.
Kershaw, Thomas N., to Albany International Corporation. Electric outlet sentinel. 3,809,961, Cl. 317-18.00b.
Kerstetter, Virginia Ann; and Mizell, Louis Richard, to I.W.S. Nominee Company Limited. Method for making pile fabric. 3,809,589, Cl. 156-68.000.
Kesler, Johan Peter: *See*—
Khouw, Boen Tie; and Kesler, Johan Peter, 3,809,748.
Ketcham & McDougall, Inc.: *See*—
Osland, James M., 3,808,926.
Ketley, Arthur D.: *See*—
Magnotta, Frank; Ketley, Arthur D.; and Kehr, Clifton L., 3,809,633.
Kewanee Oil Company: *See*—
Szalanczy, Andras; Shrader, Erwin F.; Shoffner, Bruce M.; and Chamberlain, James D., 3,809,901.
Kewp, Inc.: *See*—
Karsten, Fred W.; Evans, James D.; and Pool, Sam Lee, 3,810,148.
Khaja, Farees U.: *See*—
Unger, John J.; Augustine, Robert J.; and Khaja, Farees U., 3,809,285.
Khouw, Boen Tie; and Kesler, Johan Peter, to Canada Packers Limited. Kallikrein isolation and purification. 3,809,748, Cl. 424-110.000.
Kiemle, Horst: *See*—
Pekau, Dietlind; and Kiemle, Horst, 3,809,455.
Kiffmeyer, William W., to Allen-Bradley Company. Programmable matrix controller. 3,810,118, Cl. 340-172.500.
Kiley, Joyce M.; and Keley, Roger T., to Societe d'Assistance Technique pour Produits Nestle S.A. Flavouring agent. 3,809,757, Cl. 426-223.000.
Kilgore, Lee A.; Rateliffe, Robert E. G.; Smith, Henry L.; and Strait, Bernard S., Jr., to Westinghouse Electric Corporation. Starting system for power plants. 3,809,914, Cl. 290-38.000.
Killen, Dennis: *See*—
Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis, 3,809,512.
Kilroy, Henry P.; and Murphy, Harold J., to Potter Instrument Company, Inc. Helical bar printer logic circuitry. 3,810,195, Cl. 346-101.000.
Kimberly-Clark Corporation: *See*—
Kraus, James J., 3,808,700.
Kimmet, Gary J.: *See*—
Auble, Ronald E.; and Kimmet, Gary J., 3,809,870.
Kimura, Eiichi. Wall aerosol spray. 3,809,319, Cl. 239-274.000.
Kimura, Hiroshiro; Arimoto, Heiji; Nara, Hirohisa; Miyamatsu, Tsugio; and Kitajima, Mitsuo, to Unitaka Ltd. Yarn carrier for a weaving machine. 3,809,131, Cl. 139-125.000.
Kindig, Guilford E.: *See*—
Adamski, Henry S.; and Kindig, Guilford E., 3,810,210.
Kioritz Corporation: *See*—
Kobayashi, Torao; and Miyata, Hiromasa, 3,809,185.
Kirkpatriek, George M., to Syracuse University Research Corporation. PPI display system with deflection modulation to reduce spoking. 3,810,173, Cl. 343-5.00r.
Kirn, Manfred: *See*—
Gotsch, Dieter; Hahner, Reinhard; Kirn, Manfred; and Lederer, Hans, 3,808,904.
Kistler Instrumente AG: *See*—
Sonderegger, Hans C., 3,809,488.
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, to Seiko Koki Kabushiki Kaisha. Operating device for focal plane shutter blades for camera. 3,810,223, Cl. 354-250.000.
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, to Sieko Koki Kabushiki Kaisha. Focal plane shutter for camera. 3,810,224, Cl. 354-250.000.
Kitajima, Mitsuo: *See*—
Kimura, Hiroshiro; Arimoto, Heiji; Nara, Hirohisa; Miyamatsu, Tsugio; and Kitajima, Mitsuo, 3,809,131.
Kittredge, Thomas D.: *See*—
Pressman, Gerald L.; and Kittredge, Thomas D., 3,809,556.
Pressman, Gerald L.; and Kittredge, Thomas D., 3,809,557.

Klahr, Carl N. Optical processor for convolution filtering. 3,809,873, Cl. 235-181.000.

Klancnik, Adolph V. Machine tool feed apparatus. 3,809,257, Cl. 214-8.50c.

Klashka, John A.: *See—*
De Voy, David D.; Barlow, George J.; and Klashka, John A., 3,810,231.

Klass, Donald Leroy; and Azukas, John Joseph. Method and means for natural gas detection. 3,809,615, Cl. 195-103.50r.

Kleen, Bergert George: *See—*
Ambrico, Louis Edward; Katsafouros, Stavros George; Kleen, Bergert George; and Lamoureux, William Roger, 3,809,947.

Kleidermacher, Moishe: *See—*
Zieve, Robert M.; Mcginnis, Christopher L.; and Kleidermacher, Moishe, 3,810,119.

Klein, Enrique J.: *See—*
Klein, Enrique J.; and Lee, Myron E. (said Lee assor. to said), 3,809,997.

Klein, Enrique J. Brushless generator. 3,809,936, Cl. 310-171.000.

Klein, Enrique J.; and Lee, Myron E., said Lee assor. to said Klein, Enrique J. Generator system with linear reversible output. 3,809,997, Cl. 322-79.000.

Klein, Gerhart P., to Mallory, P. R., & Co., Inc. Method for making an anode. 3,809,552, Cl. 75-208.00r.

Klein, Harold T.: *See—*
Porter, Wilson B.; and Klein, Harold T., 3,808,916.

Klein, Richard F. Remote control apparatus. 3,809,115, Cl. 137-344.000.

Kleven, Lowell A.: *See—*
Smoot, Charles H., Kleven, Lowell A., and Wirth, Gary J., 3,808,977.

Klimek, Boleslaw, to Berg Mfg. & Sales Co. Modulating application valve. 3,809,441, Cl. 303-52.000.

Kliment, Charles K.: *See—*
Tauman, Harvey; Sklover, Isadore T.; Tauman, Irving; and Kliment, Charles K., 3,808,686.

Klockner-Werke AG: *See—*
Bell, Gunter; and Gehrmann, Werner, 3,808,946.

Klopfer, Howard J.: *See—*
White, Dwain M., and Klopfer, Howard J., 3,809,673

Knaak, Hans, to Rexroth, G. L., GmbH. Regulating apparatus for a hydraulic machine. 3,808,952, Cl. 91-505.000.

Knaak, Ruediger, to Koppers-Wistra-Ofenbau GmbH. Method and arrangement for jointly combusting household refuse and sewage sludge. 3,808,989, Cl. 110-14.000.

Knapp, Heinrich, and Schwartz, Reinhard, to Bosch, Robert, G.m.b.H. Fuel injection apparatus. 3,809,036, Cl. 123-119.00r.

Knapp, Peter A. Piston assembly. 3,808,956, Cl. 92-172.000.

Knapp, William: *See—*
Rivkowich, Harold, Rehman, Warren C., Knapp, William, and Borders, Bert, 3,809,769.

Knappe, Hartmut: *See—*
Erdman, Jurgen; and Knappe, Hartmut, 3,809,891.

Knappstein, Johannes; and Voges, Jan, to Still, Carl, Firma. Apparatus for emptying coke furnace batteries. 3,809,622, Cl. 202-263.000.

Knecht, Fritz, to Teemed A.G. Apparatus for grinding of knives in particular of a hand-knife and cutter-knife. 3,808,746, Cl. 51-128.000.

Knight, John W., to Knight Motor Corporation. Refuse collecting and dispensing vehicle. 3,809,267, Cl. 214-508.000.

Knight Motor Corporation. *See—*
Knight, John W., 3,809,267.

Know-Bremse KG: *See—*
Schelle, Axel, 3,809,252.

Knowsley Engineering Limited: *See—*
Lawrence, Christopher John, 3,809,368.

Kobauashi, Nobuyuki: *See—*
Aihara, Ryuzo; Ota, Susumu; and Kobauashi, Nobuyuki, 3,810,025.

Kobayashi, Torao; and Miyata, Hiromasa, to Kioritz Corporation. Oil feed pump of chain saw. 3,809,185, Cl. 184-15.00r.

Kobayashi, Yutaka,: *See—*
Shimoda, Keitaro; Kobayashi, Yutaka,; and Sumi, Takehiko, 3,809,738.

Kobe Steel Ltd.: *See—*
Miyanishi, Noritake; Kubota, Shigeru; Baba, Hirotoshi; and Takahashi, Masahiro, 3,809,201.
Yamaguchi, Yoshihiro; Matsushita, Tomiharu; Noguchi, Masataka; Nakagawa, Junichi, and Hasegawa, Hakumi, 3,808,860.

Kober, Drago, to Liquid Gas Anlagen Union GmbH. System for use with storage tanks for receiving, delivery or retaining liquified gas. 3,809,153, Cl. 165-62.000.

Koboyshi, Katsumi, to Kabushiki Kaisha Yashica. Motion picture camera with electronic circuitry for single-frame photography. 3,809,466, Cl. 352-169.000.

Koch, Friedrich-Karl; and Rahn, Oskar, to Peltzer & Ehlers. Workpiece conveyor for multistage press. 3,809,255, Cl. 214-1.0bd.

Koch, Hansjorg: *See—*
Feier, Gunter; Koch, Hansjorg; and Suchy, Walter, 3,809,301.

Kock, Theodorus Joannes: *See—*
Muller, Johannes Jacobus; and Kock, Theodorus Joannes, 3,809,709.

Kohaszati, Lenin: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.

Kohner Bros. Inc.: *See—*
Stuhlmann, Albert, 3,808,719.

Kohnle, Josef: *See—*
Mueller-Tamm, Heinz; Urban, Friedrich; Frielingsdorf, Hans; Nickl, Johann; Schweier, Guenther; and Kohnle, Josef, 3,809,657.

Koike, Toshio, to Hitachi, Ltd. Stator for single-phase induction motor. 3,809,937, Cl. 310-184.000.

Koinuma, Tokuju, to Tokyo Shibaura Electric Co., Ltd. Magnetron. 3,809,950, Cl. 315-39.710.

Kolb, Robert C.: *See—*
MacKisste, Albert E.; and Kolb, Robert C., 3,809,323.

Kolderup, Edward; and Eidsmo, Jacob, to Anlegg & Maskin A/S. Mobile drill rig. 3,809,344, Cl. 248-16.000.

Kolflaath, Jorgen August: *See—*
Aas, Helge Hakonsonn; and Kolflaath, Jorgen August, 3,809,548.

Kollar, Ernest P.; Levine, Joel M.; Tagawa, James M.; and Tiao, Hui-Li, to International Business Machines Corporation. Tape transport. 3,809,336, Cl. 242-202.000.

Komaki, Saiji. Apparatus for manufacturing a light-weight concrete panel with pattern designs on its surface. 3,809,516, Cl. 425-150.000.

Komatsu, Hajime: *See—*
Nimura, Takao; Jin, Kunio; and Komatsu, Hajime, 3,809,563.

Komatsu, Masakazu: *See—*
Kubo, Shoichi; and Komatsu, Masakazu, 3,808,678.

Komendowski, Henry, to Automatic Liquid Packaging, Inc. Mixing containers. 3,809,289, Cl. 222-83.000

Kondo, Setsuo: *See—*
Shibata, Katsuhiko; Seika, Yajuro; Sakamoto, Iwao; Yamada, Kango; and Kondo, Setsuo, 3,808,631

Koninklijke Industrieele Maatschappij Noury & Van Der Lande N.V. Deventer: *See—*
Havinga, Reginoldus; and Swaters, Pieter Dirk, 3,809,707.

Konishiroku Photo Industry Co., Ltd.: *See—*
Matsuo, Shunji; Sato, Shui; Endo, Takaya; Kasai, Keiji; and Inoue, Izaburo, 3,808,945.
Nimura, Takao, Jin, Kunio; and Komatsu, Hajime, 3,809,563
Saito, Kaneo, 3,809,890.

Konrad, Franz: *See—*
Chough, Euiwon; Deverse, Frank T.; Konrad, Franz; Kurtz, John A.; and Manchester, Russell C., 3,809,050

Kool, Edward; Odynski, George; and Stage, Leo J., to Arvey Corporation. Laminates and adhesive compositions. 3,809,603, Cl. 161-186.000.

Koppers-Wistra-Ofenbau GmbH: *See—*
Knaak, Ruediger, 3,808,989.

Kopsch, Heinz: *See—*
Schuller, Reinhard; and Kopsch, Heinz, 3,809,907.

Kordik, Kenneth S.: *See—*
Kuo, Benjamin C.; and Kordik, Kenneth S., 3,809,990.

Kosowsky, David I., to Damon Corporation. Container unit for liquid sample. 3,809,068, Cl. 128-2.00f

Kostelnicek, Richard J., to Esso Production Research Corporation Self-righting geophone 3,810,083, Cl. 340-8.0lf

Kotok, Alan, Kent, Allan R., and Gross, David A., to Digital Equipment Corporation. Computer system overlap of memory operation. 3,810,110, Cl. 340-172.500.

Kovacevic, Vukasin: *See—*
Green Peter L.; Lenfesty, Gordon A., Talbot, Edmund H.; Joslin, Allen, and Kovacevic, Vukasin, 3,808,761.

Kovach, George F.: *See—*
Leister, Edwin S.; Kovach, George F.; and Robinson, William m., 3,810,252.

Koyama, Mitsuo: *See—*
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,223.
Kitai, Kiyoshi; Onda, Eiichi, Koyama, Mitsuo; Nagaoka, Shinji, and Nakagawa, Tadashi, 3,810,224.

Kozacka, Frederick J., to Chase-Shawmut Company, The. High-voltage fuse having full range clearing ability. 3,810,062, Cl. 337-161.000.

Kozinski, Richard C.: *See—*
Atkinson, Ward J.; and Kozinski, Richard C., 3,808,830.

Kozu, Isao; Kurihara, Hidetoshi; and Hino, Tetsuo, to Matsushita Electric Industrial Co. Ltd. Automatic cassette changer. 3,810,239, Cl. 360-92.000.

Kraftwerk Union Aktiengesellschaft: *See—*
Engelke, Wilhelm; and Purr, Gerhard, 3,808,819.
Kral, Rudolf; and Bruckner, Hermann, 3,809,016.

Kral, Edward F., Jr. Swim starting block with adjustable handle. 3,809,392, Cl. 272-57.00r.

Kral, Rudolf; and Bruckner, Hermann, to Kraftwerk Union Aktiengesellschaft. Steam generator with flat combustion chamber bottom. 3,809,016, Cl. 122-6.00a.

Kramer, Marvin W.: *See—*
Goldberg, Eugene J.; Kramer, Marvin W.; and Licci, Joseph R., 3,809,099.

Kramer, Vance M. Apparatus for making corrugated tubing. 3,809,522, Cl. 425-387.000.

Kramm, Douglass J., to Fuller Company. Apparatus for cooling solid particulate material. 3,809,528, Cl. 432-80.000.

Krapcho, Johy: *See—*
Fried, Josef; Pribyl, Edward J.; and Krapcho, Johy, 3,809,720.

Kraus, James J., to Kimberly-Clark Corporation. Rotary drying drum and method. 3,808,700, Cl. 34-124.000.

Kraus, Peter: *See—*
Helmcke, Conrad; Hermann, Walter; and Kraus, Peter, 3,809,803.

Krause, Gerhard, to Siemens Aktiengesellschaft. Integrated attenuation elements. 3,810,049, Cl. 333-81.00r.

Krause, Stephen R.; and Hendler, Nelson, to Pro-Lect, Inc. Solid state A/C motor protector system. 3,809,985, Cl. 318-490.000.

Krauss-Maffei Aktiengesellschaft: *See—*
Herbst, Richard, 3,808,953.

Krauss-Maffei AG. *See—*
Schuller, Reinhard; and Kopsch, Heinz, 3,809,907.

Krawiec, Donald Michael, and Bevilacqua, Frank, to Combustion Engineering, Inc. Twisted tape flow deflector in nuclear reactor fuel assembly. 3,809,609, Cl. 176-78.000

Krawitt, Donald R. Medical sensor device for insertion in body cavities. 3,809,066, Cl. 128-2.00r.

Krenke, Norman O.; and Sims, De Witt, assignor Perkins Inc. Bakery product depanning apparatus. 3,809,265, Cl. 214-309 000.

Kretschmer, Heinz: *See—*
Daumueller, Hans and Kretschmer, Heinz, 3,809,880.

Krewson, Neil N., Jr., and Updike, Bruce M., to International Business Machines Corporation. Processor utilizing a holographic array and a persistent addressable storage unit for high speed searching, 3,810,108, Cl. 340-172.500.

Kriestan, Wolfgang; and Heinz, Scholten, to Chemische Werke Huls Aktiengesellschaft. Polylaurallactam with improved resistance to the effects of heat, oxygen and light 3,809,678, Cl. 260 45.85r.

Krimm, Heinrich: *See—*
Lenz, Gunther, Krimm, Heinrich; and Schnell, Hermann, 3,809,679.

Kristen, Reiner; and Liska, Manfred, to Siemens Aktiengesellschaft. Electric motor construction. 3,809,935, Cl. 310-68.000.

Krock, Richard H., and Richmond, William J., to Mallory, P. R., & Co., Inc. Method of making hollow cast articles from metal alloys having long freezing ranges. 3,808,671, Cl. 29-526.500.

Kroh, Elizabeth H.: *See—*
Plunkett, George B.; Plunkett, Patricia M.; Kroh, Loren H.; and Kroh, Elizabeth H., 3,808,855

Kroh, Loren H.: *See—*
Plunkett, George B., Plunkett, Patricia M.; Kroh, Loren H., and Kroh, Elizabeth H., 3,808,855

Krukow, Eugene J.: *See—*
Gardner, Frank H.; Stroup, Norman G.; and Krukow, Eugene J., 3,808,784

Krutsinger, Jack K., Bullat, Carl N., and Munson, Robert E., to Ball Brothers Research Corporation. Dual slot antenna device 3,810,183, Cl. 343-708.000

Krzyminski, Harald, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Solid agent for boriding metals. 3,809,583, Cl. 148-6.350.

Kubo, Shoichi, and Komatsu, Masakazu, to Matsushita Electric Industrial Co., Ltd. Method of making pressure-sensitive resistor element. 3,808,678, Cl. 29-610.000

Kubota, James: *See—*
Zajac, Donald M., and Kubota, James, 3,810,073

Kubota, Shigeru: *See—*
Miyanishi, Noritake; Kubota, Shigeru; Baba, Hirotoshi; and Takahashi, Masahiro, 3,809,201

Kuhlmann-Schafer, Wilhelm, to Preussag Aktiengesellschaft. Process for the production of permanent magnets. 3,809,145, Cl. 164-49.000.

Kuhn, Jean. Arrangement for making knotted chain stitch seam. 3,808,994, Cl. 112-199.000.

Kunert, Heinz, Moebs, Heinz, and Sauer, Gerd, to Saint-Gobain Industries. Motor vehicle windshield with incorporated antenna. 3,810,180, Cl. 343-713.000.

Kuo, Benjamin C., and Kordik, Kenneth S., to Warner Electric Brake and Clutch Company. Electric motor adapted for both stepping and continuous operation. 3,809,990, Cl. 318-696.000.

Kupcikevicius, Vytautas, and Myles, Michael Joseph, to Union Carbide Corporation. Method and apparatus for producing a large sausage product having a pre-flattened end. 3,808,638, Cl. 17-35.000.

Kuper, Donald G.: *See—*
Johnson, Marvin M.; and Kuper, Donald G., 3,809,727.

Kurauchi, Noritaka: *See—*
Nakahara, Tsuneo, Kurauchi, Noritaka, and Nagao, Taehiro, 3,810,186.

Kurick, James F., to Libby-Owens-Ford Company. Glass shipping rack. 3,809,234, Cl. 206-448.000.

Kurihara, Hidetoshi: *See—*
Kozu, Isao, Kurihara, Hidetoshi; and Hino, Tetsuo, 3,810,239.

Kuris, Arthur: *See—*
Balamuth, Lewis; Kuris, Arthur, and Karatjas, Manual, 3,809,977.

Kuroda, Masataka: *See—*
Yoshida, Kenichi; and Kuroda, Masataka, 3,809,796.

Kurosaka, Takashi: *See—*
Sasakura, Tetsugoro; and Kurosaka, Takashi, 3,809,623.

Kurtin, Stephen L.: *See—*
Goldman, Arnold J.; Kurtin, Stephen L.; and Mead, Carver A., 3,810,107.

Kurtz, Clark Nelson; and De Palma, James John, to Eastman Kodak Company. Radiation-redistributive devices. 3,809,457, Cl. 350-128.000.

Kurtz, John A.: *See—*
Chough, Euiwon; Deverse, Frank T.; Konrad, Franz; Kurtz, John A.; and Manchester, Russell C., 3,809,050.

Kurtz, Leonard D.: *See—*
Bidwell, Robert E.; and Kurtz, Leonard D., 3,809,085.

Kushmuk, Walter P.: *See—*
Hutchinson, William Y.; and Kushmuk, Walter P., 3,808,694.
Hutchinson, William Y.; and Kushmuk, Walter P., 3,809,171.

Kuwabara, Kooji: *See—*
Sugawara, Hiroyuki; and Kuwabara, Kooji, 3,809,933.

Kuwabara, Masayoshi: *See—*
Tateisi, Tamotu; Ueda, Shigeo; and Kuwabara, Masayoshi, 3,809,128.

Kwong, Michael, to Canadian Marconi Company. Indicator pointer. 3,809,877, Cl. 240-1.0lp.

Kyoto University: *See—*
Nakajima, Masamitsu, 3,810,037.

Kyowa Hakko Kogyo Co., Ltd.: *See—*
Ishida, Kengo; Kawai, Masanobu; and Mukai, Noboru, 3,809,780.
Takayama, Kenichiro; and Tomiyama, Tomoko, 3,809,611.

Labofina S.A.: *See—*
Hanotier, Jacques Daniel Victor; and Hanotier, Monique Josephe Simone, 3,809,715.
Van Doorne, Guy Camille, 3,809,649.

Laessig, John, to Gilbreth Company. Heat shrink tunnel for ensuring uniform shrinkage of heat shrinkable bands on articles of various sizes. 3,808,702, Cl. 34-218.000.

Lafosse, Claude, to Saint-Gobain Carnaud Interplastic. Apparatus for blow moulding. 3,809,521, Cl. 425-326.00b.

Lafrate, Pasco F.; and Relyea, Vincent L., Jr., to International Business Machines Corporation. Continuous processing for substrate manufacture. 3,808,680, Cl. 29-625.000.

Lake, Graham Albert John: *See—*
Ryffin-Hughes, John Malcolm; Harding, Brian; and Lake, Graham Albert John, 3,809,052.

Lambert, Adelor A. Combination signalling and advertising system. 3,810,164, Cl. 340-332.000

Lamm, Heinz, to Daimler-Benz Aktiengesellschaft. Rotary-piston injection-type internal combustion engine. 3,809,021, Cl. 123-8.090.

Lamm, Heinz, to Daimler-Benz AG. Rotary piston internal combustion engine, especially of trochoidal construction. 3,809,509, Cl. 418-60.000

LaMoreux, Clarence E., to Associated International Corporation. Testing and measuring apparatus for vehicle wheel front end assembly. 3,808,695, Cl. 33-169.00r.

Lamoureux, William Roger: *See—*
Ambrico, Louis Edward; Katsafouros, Stavros George; Kleen, Bergert George; and Lamoureux, William Roger, 3,809,947.

Lance, Bruce J. Tube bending apparatus. 3,808,856, Cl. 72-7.000.

Lance, Drew R., to California Microwave, Inc. Microwave source. 3,810,046, Cl. 332-19.000.

Land, Edwin H.; and Douglas, Lawrence M., to Polaroid Corporation. Automatic return mechanism for manually adjustable trim assembly. 3,810,201, Cl. 354-23.000.

Landen, William James, to Eyelet Specialty Company. Plastic bottle and cap construction. 3,809,276, Cl. 215-332.000.

Landerman, Edgar L.: *See—*
Katz, Leonard R.; Landerman, Edgar L.; and Desmarchais, Walter E., 3,809,608.

Landry, James A. Ice rink. 3,808,831, Cl. 62-235.000.

Landstingens Inkopscentral: *See—*
Thorsson, Lars-Ake Olof; and Jarvenson, Erik Borje, 3,809,577.

Lane, Byron D. Vent mounting device. 3,809,350, Cl. 248-57.000.

Lang, Charles W.; and O'Hara, Peter J., to Singer Company, The. Digital position sensor. 3,810,136, Cl. 340-199.000.

Langlois, Jacques: *See—*
Billarant, Patrick; Goubeau, Robert; and Langlois, Jacques, 3,808,648.

Lanpheer, Richard A., to Brunswick Corporation. Tuning arrangement for outboard motor. 3,808,807, Cl. 60-313.000.

Lapidus, Herbert, to Combe Incorporated. Depilation device. 3,808,637, Cl. 17-1.00d.

Lapins, Daniel W.: *See—*
Bowman, Cader E.; and Lapins, Daniel W., 3,809,054.

Larson, Lester M. Thermoplastic splint or cast. 3,809,600, Cl. 161-109.000.

Lass, James L.: *See—*
Smith, Bart A.; Lass, James L.; and Venier, Dominic A., 3,809,610.

Lauckhardt, Gerhard: *See—*
Muhlbach, Anton; and Lauckhardt, Gerhard, 3,809,306.

Laughrey, Richard A.: *See—*
Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., 3,809,562.

Lauterbach, Heinrich, to Trola-Kunststoffer-Zeugnisse GmbH & Co. Furniture fitting, specifically for detachable suspension of a sliding door from a guide rail. 3,808,633, Cl. 16-87.00r.

Law, John M.; Stricker, Alfred A.; and Von Kaenel, Walter. Automatic pin insertion and bonding to a metallized pad on a substrate surface. 3,808,681, Cl. 29-628.000.
Lawrence, Christopher John, to Knowsley Engineering Limited. Marine winch. 3,809,368, Cl. 254-150.00r.
Lawson, James O.; and Thompson, David F., to GTE Sylvania Incorporated. Temperature compensated fluid sensor. 3,810,143, Cl. 340-244.00r.
Le Frere, Jean-Paul: *See*—
Carbonnel, Henri; and Le Frere, Jean-Paul, 3,809,379.
Leach, John M. Case palletizer. 3,809,254, Cl. 214-6.00p.
Leal, Fausto: *See*—
Vergara, Jose D.; Galvan, Ramon; and Leal, Fausto, 3,810,253.
Leatherman, Alfred F., to Heller, William C., Jr. Magnetic through-field apparatus and process for printing by imbedding particles in a record medium. 3,810,190, Cl. 346-74.0mp.
Lebra, Jacques: *See*—
Rouge, Serge; and Lebra, Jacques, 3,808,898.
Lederer, Hans: *See*—
Gotsch, Dieter; Hahner, Reinhard; Kirn, Manfred; and Lederer, Hans, 3,808,904.
Lee, Kyu-Yawp. Urea supplemented paunch content with trichloroacetic acid protein precipitant. 3,809,779, Cl. 426-335.000.
Lee, Myron E.: *See*—
Klein, Enrique J.; and Lee, Myron E., 3,809,997.
Lee, Raymond, Organization, Inc.: *See*—
Saucier, Len, 3,808,894.
Lee, Raymond, Organization, Inc., The: *See*—
Ciurea, Serban, 3,808,825.
Clouse, Leland Francis, 3,810,144.
Haradyn, Dan, 3,809,409.
Lindsten, George O., 3,808,617.
Rundberg, Sten I., 3,809,321.
Lee, Raymond, Organizations, Inc., The. *See*—
Rakaska, Bertha R., 3,809,448.
Lee, William S. Moving system. 3,809,261, Cl. 214-38.0cc.
Lefever, Richard M., to Teledyne, Inc. Dispensing container for wire or the like. 3,809,333, Cl. 242-129.000.
Legendre, Jacques. *See*—
Baril, Michel; and Legendre, Jacques, 3,810,048.
Lehr, David. Safety stopper. 3,809,273, Cl. 215-9.000.
Leicht, Charles; and Reinertsen, Tormod K., to Ideal Toy Corporation. Balance game. 3,809,396, Cl. 273-1.00r.
Leipold, Forrest P.: *See*—
Balz, Gunther W.; and Leipold, Forrest P., 3,808,744.
Leister, Edwin S., Kovach, George F.; and Robinson, William m., said Leister and said Kovach assors. to Duralac Chemical Corporation and said Robinson assor. to Cornell-Dubilier Electric Corporation. Ground bonded apparatus. 3,810,252, Cl. 317-12.00r.
Lemoigne, Pierre Marcel. Parachute. 3,809,342, Cl. 244-145.000.
Lenfesty, Gordon A.: *See*—
Green Peter L., Lenfesty, Gordon A., Talbot, Edmund H.; Joslin, Allen; and Kovacevic, Vukasin, 3,808,761.
Lenoir, Franz N., to Miller Printing Machinery Co. Sheet gripper apparatus for a cutting and creasing press. 3,809,390, Cl. 271-204.000.
Lenz, Gunther; Krimm, Heinrich; and Schnell, Hermann, to Bayer Aktiengesellschaft. High molecular weight linear aromatic polyesteramides. 3,809,679, Cl. 260-47.0cz.
Leonard, Ronald Keith: *See*—
Sutherland, Gail Russell; Leonard, Ronald Keith; and Hoeksema, Joe Henry, 3,808,783.
Leonheart, William H. All terrain vehicle. 3,809,004, Cl. 115-1.00r.
Lepelletier, Pierre Andre Georges, to Societe Anonyme Francaise du Ferodo. Hydrostatic unit with variable cylinder-capacity and transmission incorporating said unit. 3,808,811, Cl. 60-444.000.
Lermann, Peter; and Durr, Helmut, to Agfa-Gevaert Aktiengesellschaft. Photographic camera with automatic exposure control arrangement. 3,810,204, Cl. 354-29.000.
Lerner, Sidney L., to Ethyl Corporation. Method for reducing plasma lipid levels. 3,809,761, Cl. 424-330.000.
Lesniak, Chryzant, and Bryjak, Edmunt. Rotary vessel furnace. 3,809,377, Cl. 266-18.000.
Lettan, Richard H.; and McGuire, Robert J., to Eastman Kodak Company. Optical control mechanism. 3,809,460, Cl. 350-254.000.
Lever Brothers Company: *See*—
Muller, Johannes Jacobus; and Kock, Theodorus Joannes, 3,809,709.
Levin, Anatoly Yakovlevich: *See*—
Levin, Igor Anatolievich; Levin, Anatoly Yakovlevich; Fedorov, Nikolai Evstigneevich; Rogov, Iosif Alexandrovich; Afanasov, Erik Eduardovich; and Turyansky, Eduard Grigorievich, 3,809,341.
Levin, Igor Anatolievich; Levin, Anatoly Yakovlevich; Fedorov, Nikolai Evstigneevich; Rogov, Iosif Alexandrovich; Afanasov, Erik Eduardovich; and Turyansky, Eduard Grigorievich. Device for removing ice from surfaces of thin-walled structures. 3,809,341, Cl 244-134.00r.
Levine, Joel M.: *See*—
Kollar, Ernest P., Levine, Joel M.; Tagawa, James M.; and Tiao, Hui-Li, 3,809,336.
Lewis, Clifford Jackson; and Bruski, Richard Scott, to Flintkote Company, The. Electric furnace steelmaking process using oxide of boron additive. 3,809,547, Cl. 75-11.000.
Lewis, Herbert O.: *See*—
Beaver, William D.; and Lewis, Herbert O., 3,808,752.
Lewis, Royce C., Jr. Closed wound suction apparatus having biased plate members. 3,809,087, Cl. 128-278.000.
Lewis, Royce C., Jr.; and Martin, Kelsey. Closed wound suction system. 3,809,498, Cl. 417-63.000.
Lewison, George Richard Grant: *See*—
Horsford, Anne; Lewison, George Richard Grant; and Paffett, James Arthur Haines, 3,809,000.
Lexitron Corporation: *See*—
Goldman, Arnold J.; Kurtin, Stephen L.; and Mead, Carver A., 3,810,107.
Leynaert, Jacky Robert: *See*—
Chatanier, Michel Jean; Leynaert, Jacky Robert; and Thiriot, Alain Roger, 3,808,888.
Libbey-Owens-Ford Company: *See*—
Boicey, James H.; Mattimoe, Paul T.; and Schmoeger, Otto J., Jr., 3,810,184.
Libby-Owens-Ford Company: *See*—
Kurick, James F., 3,809,234.
Liberti, Frank N., to General Electric Company. Thermally stable flame retardant polycarbonate composition comprising a polycarbonate and a stabilizer. 3,809,676, Cl. 260-45.75r.
Licci, Joseph R.: *See*—
Goldberg, Eugene J.; Kramer, Marvin W.; and Licci, Joseph R., 3,809,099.
Lichtblau, George Jay. Electronic security system. 3,810,147, Cl. 340-280.000.
Lieb, Solomon Nathan, 75% to Dworcan, Manfred. Alarm system for the safety of non-swimmers. 3,810,146, Cl. 340-279.000.
Liechty, Karl E., to Xerox Corporation. Pre-development exposure assembly. 3,809,472, Cl. 355-3.00r.
Liepa, Alexander L., to Procter & Gamble Company, The. Method of and apparatus for making substantially uniformly shaped flakes. 3,808,962, Cl. 99-323.400.
Lightolier Incorporated: *See*—
Woloski, Leonard E., 3,810,085.
Lilly Industries Ltd.: *See*—
Crank, George, 3,809,755.
Linda, Josef: *See*—
Belohoubek, Bohuslav; and Linda, Josef, 3,808,745.
Rosberg, Frantisek; Linda, Josef; Buzga, Ondrej; Dusek, Miloslav; and Cvetler, Jiri, 3,808,749.
Linde Aktiengesellschaft: *See*—
Reyhing, Jorg; and Rohde, Wilhelm, 3,808,773.
Linde, John P., to Reminton Arms Company, Inc. Firing mechanism for firearms. 3,808,724, Cl. 42-42.00r.
Linder, Ernst; Adalbert, Gerhard; and Hess, Juergen, to Bosch, Robert, GmbH. Valve arrangement for a compressor. 3,809,511, Cl. 418-259.000.
Lindner, Henry J., to Beatrice Foods Co., mesne. Bicycle wheel with rim and hub mounted reflector. 3,809,434, Cl. 301-37.00r.
Lindsten, George O., 30% to Lee, Raymond, Organization, Inc., The. Combination plier tool. 3,808,617, Cl. 7-6.200.
Linkskog, Bo Gosta, to Sandvik Aktiebolag. Adjustable cutting tool 3,808,656, Cl. 29-106.000.
Linscheer, Wilem G.: *See*—
Fishman, William H., and Linscheer, Wilem G., 3,809,752.
Liquid Gas Anlagen Union GmbH: *See*—
Kober, Drago, 3,809,153.
Liska, Manfred: *See*—
Kristen, Reiner; and Liska, Manfred, 3,809,935.
Litsjo, Herbert E.: *See*—
Baker, Thompson A., Balsiger, Melvin M., Considine, Kevin T., and Litsjo, Herbert E., 3,809,899.
Litton Business Systems, Inc.: *See*—
Madison, Theodore, 3,809,205.
Litton, Garfield G. Measuring device. 3,808,892, Cl. 73-427.000.
Litton Systems, Inc.: *See*—
Reed, Joseph; and De Lorenzo, Joseph F., 3,809,815.
Reed, Joseph; Shapiro, Jonas M.; Iliakidis, Athanassious; and Apostolakis, Anthony, 3,809,816.
Liu, Hsing-Ching: *See*—
Liu, Hsing-Ching, 3,809,107.
Liu, Hsing-Ching, to Liu, Hsing-Ching and Chen, Wen-Sieh. Multifunctional umbrella cap. 3,809,107, Cl. 135-48.000.
Lloyd, Brian Edwin; and Marsh, Barry John, to GKN Group Services, Limited. Production of bodies from synthetic plastics materials. 3,809,518, Cl. 425-244.000.
Lock, Jonathan, Limited: *See*—
Helenurm, Kalju, 3,808,853.
Lockard, Joseph Larue; and Rose, William Henry, to AMP Incorporated. Sealed thumbwheel selector switch. 3,809,830, Cl. 200-11.0tw.
Locke, Edward V.; and Gerry, Edward T., to Avco Corporation. Method of operating closed-cycle carbon dioxide lasers in which carbon monoxide is used to prevent degradation of performance. 3,810,043, Cl. 331-94.500.
Locke, John P.: *See*—
Dieterich, Peter D.; Eiszner, William H., Jr.; and Locke, John P., 3,808,891.
Locke, Philip F. Electronic siren system. 3,810,169, Cl. 340-384.00e.
Loerop, Jack C. Ventilator and simulated structure panel. 3,809,141, Cl. 160-89.000.
Loersch, Johannes. Device for associating mounts for slide transparencies. 3,809,386, Cl. 270-58.000.

Loffler, Herbert. Protective cap of synthetic material for mouths of containers, particularly corked wine bottles. 3,809,365, Cl. 253-38.00r.
Logdon, Charles. Incinerator for refuse material. 3,808,986, Cl. 110-8.00r.
Lohman, Arthur F.: *See*—
Tierney, Peter R.; Lohman, Arthur F.; and Andrus, Donald M., 3,810,181.
Lohr, Raymond J.; and Auer, Robert T., to Marx, Louis, & Co., Inc., mesne. Tether-ball support assembly. 3,809,406, Cl. 273-95.00a.
Lokka, Jens Leif. Valve for introduction of additional air into internal combustion engines. 3,809,037, Cl. 123-119.0db.
Lone Star Container Corporation: *See*—
Keener, Arthur; Bradford, Larry David; Gary, Laverne E.; McLeon, John W.; and Carter, Billy W., 3,808,958.
Lone Star Gas Company: *See*—
Goldsberry, Fred L., 3,808,886.
Longshore, Donald W.: *See*—
Schott, Robert E.; and Longshore, Donald W., 3,808,810.
Look, Gunter: *See*—
Schulz, Horst, Schwerdhofer, Hans-Joachim; and Look, Gunter, 3,809,195.
Loomis, Russell M.: *See*—
Bertram, Leroy W.; Loomis, Russell M.; and Gaikowski, Michael D., 3,808,982.
Looney, John H., to Xerox Corporation. Snap roller. 3,808,658, Cl. 29-110.000.
Lopata, Karl Peter, to Fa. Kleinewefers Industrie Companie GmbH. Sealing arrangement for pressurized gas or vapour containers for material webs which are to be continuously treated. 3,808,845, Cl. 68-5.00e.
Lorenz, Dieter: *See*—
Olsen, Willi; and Lorenz, Dieter, 3,809,795.
Loveless, James C., to Deseret Pharmaceutical Company, Inc. Obturator. 3,809,081, Cl. 128-214.400.
Lovgren, Gosta Hjalmar Fredrik; and Lundell, Ove Vilmer, to Monark-Crescent AB. Motorcycle with protected exhaust pipe system. 3,809,174, Cl. 180-64.00a.
Lowd, George L.; and Lowd, Robert T. Platform support. 3,809,183, Cl. 182-186.000.
Lowd, Robert T.: *See*—
Lowd, George L.; and Lowd, Robert T., 3,809,183.
Lowe, Jack Brunner: *See*—
Gabby, John Lester, Barbin, Dennis Dale; and Lowe, Jack Brunner, 3,809,764.
Lowell Technological Institute Research Foundation: *See*—
Bibl, Klaus, 3,810,095.
Lowrance, Darrell J., to Lowrance Electronics, Inc. Automatic down rigger. 3,808,731, Cl. 43-4.000.
Lowrance Electronics, Inc.: *See*—
Lowrance, Darrell J., 3,808,731.
Loyzim, Robert James, to Superior Electric Company, The. Power supply for a stepping motor. 3,809,991, Cl. 318-696.000.
Lucas Aerospace Limited. *See*—
Glaze, Stanley George, 3,808,948.
Simmons, John Richard; and Westbury, Roy, 3,808,947.
Lucas, Joseph, (Industries) Limited. *See*—
Taylor, John Sassons, 3,808,800.
Lucas, Roy N., to Petrolite Corporation. Pollution-free gas turbine system. 3,808,795, Cl. 60-39.500.
Lucas, William P., to Robertshaw Controls Company. Temperature responsive device. 3,808,816, Cl. 60-530.000.
Luchaco, David G., to Bendix Corporation, The. Fuel cutoff circuit responsive to engine deceleration conditions for use in conjunction with the fuel delivery system for an internal combustion engine. 3,809,028, Cl. 123-32.0ea.
Ludena, Octaviano Roa. Steam cooker. 3,808,963, Cl. 99-417.000.
Ludwig, Melvin S., to Eagle Electric Mfg. Co., Inc. Terminal connector for electric extension cord. 3,810,070, Cl. 339-36.000.
Ludwig, Robert L. Attachment for chain saw. 3,808,684, Cl. 30-382.000.
Lundahl, Ezra C., Inc.: *See*—
Lundahl, Ezra Cordell, 3,809,269
Lundahl, Ezra Cordell, to Lundahl, Ezra C., Inc. Side press hay wagon. 3,809,269, Cl. 214-519.000.
Lundell, Ove Vilmer: *See*—
Lovgren, Gosta Hjalmar Fredrik; and Lundell, Ove Vilmer, 3,809,174.
Lundell, Ralf O.: *See*—
Forss, Kaj G.; Gadd, George Otto; Lundell, Ralf O.; and Williamson, Harry W., 3,809,614.
Lutz, David Edward. Load-transfer device. 3,809,268, Cl. 214-512.000.
Luwa A.G.: *See*—
Bachmann, Robert Theophil, 3,808,701.
Lux, Benno: *See*—
Gillot, Jacques; and Lux, Benno, 3,809,635.
Lynam, John Thomas: *See*—
Aspinall, Arnold; Spruce, David Gordon; and Lynam, John Thomas, 3,810,000.
Lynch Communication Systems, Inc.: *See*—
Fortuna, Achille C.; and Persson, Hans-Uno, 3,810,020.
Lynott, John J.: *See*—
Dodd, Paul D.; Lynott, John J.; and Treder, John D., 3,809,263.
Lyon & Healy, Inc.: *See*—
Palma, Joseph; and Christiansen, Henning, 3,809,231.
Lythgoe, Stanley: *See*—
Gaskell, Philip Hedley; Lythgoe, Stanley; Irlam, Philip Sidney; Miller, Robert Percy; and Barry, Thomas Ian, 3,809,543.
Lythgoe, Stanley; and Irlam, Philip Sidney, to Pilkington Brothers Limited. Glass ceramic materials. 3,809,542, Cl. 65-33.000.
M & J Valve Company: *See*—
Grove, Marvin H.; and Dunegan, Ronald G., 3,809,113.
Mac Close, Joe: *See*—
Rogers, Frank J.; and Mac Close, Joe, 3,809,737.
Mac Kenzie, Robert Douglas; and Tilford, Charles Hormon, to Richardson-Merrell Inc. Antithromobotic agents. 3,809,753, Cl. 424-250.000.
Machek, John A., to Wagner Electric Corporation. Anti-skid mechanism. 3,809,125, Cl. 137-625.650.
Machida, Takayasu: *See*—
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; and Yanagawa, Yoshihiki, 3,808,792.
Macintyre, John S.: *See*—
Wiesler, Mordechai; and Macintyre, John S., 3,810,017.
Mack, Anthony M.: *See*—
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F.; Mack, Anthony M.; and Alfano, Bernardino M., 3,808,880.
Mackal, Glenn H. Inflation manifold. 3,809,288, Cl. 222-5.000.
MacKissic, Albert E.; and Kolb, Robert C., to Amerind MacKissic. Disintegration apparatus. 3,809,323, Cl. 291-101.700.
Macy, Robert W., II. Fluid transmission. 3,808,814, Cl. 60-487.000.
Madison, Theodore, to Litton Business Systems, Inc. Powered type action with a cam arrestor. 3,809,205, Cl 197-16.000.
Magee, Edward F.: *See*—
Membrino, Robert J.; and Magee, Edward F., 3,808,711.
Magill, John Willett. Self-contained mobile passenger bridge for airplane loading and unloading operations. 3,808,626, Cl. 14-71.000.
Maginnis, Christopher L.: *See*—
Zieve, Robert M.; Maginnis, Christopher L.; and Kleidermacher, Moishe, 3,810,119.
Magnavox Company, The: *See*—
Allison, Gordon H., Jr.; and Greaf, Clarence V., 3,809,395.
Magne, Frank C.; Mod, Robert R.; Sumrell, Gene; and Parker, Winfred E., to United States of America, Agriculture. N-Substituted fatty acid amide lubricants. 3,809,706, Cl. 260-403.000.
Magnetic Analysis Corporation. *See*—
Mansson, Sven E., 3,809,998.
Suhr, Peter J.; Spierer, Edward D.; and Mhatre, Girish P., 3,809,987.
Magnotta, Frank; Ketley, Arthur D.; and Kehr, Clifton L., to Grace, W. R., & Co. Chain extended polythioether polyene photocurable compositions. 3,809,633, Cl. 204-159.140.
Magol, Byram J.: *See*—
Pratt, Harry M.; Magol, Byram J.; and Money, Dudley P., 3,809,018.
Magyor Tudomanyos Akademia: *See*—
Csuros, Zoltan; and Petro, Jozsef, 3,809,658.
Mahle, Christoph E.: *See*—
Wachs, Marvin Richard; Berman, Arnold L.; and Mahle, Christoph E., 3,810,255.
Maida, Osamu, to Nippon Kagaku K.K. Exposure determining device. 3,809,981, Cl. 318-294.000.
Maier, Alfred E.: *See*—
Walker, Eugene J.; and Maier, Alfred E., 3,810,051.
Maki, Eino J., to Sterling Drug Inc. Safety bottle closure. 3,809,272, Cl. 215-9.000.
Makihara, Hiroshi: *See*—
Yasuda, Michio; Makihara, Hiroshi; and Kadota, Shozo, 3,810,093.
Mal, M. Kumar; and Tarkan, Stuart E., to Chromalloy American Corporation. Sintered steel bonded titanium carbide tool steel characterized by an improved combination of transverse rupture strength and resistance to thermal shock. 3,809,540, Cl. 29-182.800.
Malcosky, Norman D., to Columbia Gas System Service Corporation. Hermetically sealed pump. 3,809,506, Cl. 417-439.000.
Mall, Gunther, to Pfaff Industriemaschinen GmbH. Device for feeding the cloth in a sewing system for the production of open darts. 3,808,992, Cl. 112-121.150.
Mallory, P. R., & Co. Inc.: *See*—
Erwin, Robert Dale, 3,809,932.
Klein, Gerhart P., 3,809,552.
Krock, Richard H.; and Richmond, William J., 3,808,671.
Malone, Harold L.; and Bodensteiner, Robert J., to Eastmen Kodak Company. Flash extender. 3,810,214, Cl. 354-148.000.
Malyon, Brian R., to Selectro-Micro Company Limited. Information retrieval apparatus. 3,809,302, Cl. 226-33.000.
Mamiya Koki Kabushiki Kaisha: *See*—
Negishi, Masataka, 3,809,992.
Manarch Marking Systems Company, The: *See*—
Dobras, Bruce W., 3,809,893.
Manca, Michael E.; and Drinnon, Robert H., to Boeing Company, The. Clamshell exhaust nozzle and sound deflector. 3,809,178, Cl. 181-33.0hc.
Manchester, Russell C.: *See*—
Chough, Euiwon; Deverse, Frank T.; Konrad, Franz; Kurtz, John A.; and Manchester, Russell C., 3,809,050.
Mann, Douglas M. Dental model trimmer. 3,808,750, Cl. 51-273.000.
Mansky, Michael H.: *See*—

Howland, Robert F.; Mansky, Michael H.; and Richards, Willie J., 3,809,781.

Mansson, Sven E., to Magnetic Analysis Corporation. Current regulator for pulse eddy current tester. 3,809,998, Cl. 323-4.000.

Mantey, John P., to International Business Machines Corporation. Web movement control in a reel-to reel web transport. 3,809,335, Cl. 242-186.000.

Manton, John C.: *See—*
Nibby, Chester M.; Manton, John C.; and Curley, John L., 3,809,884.

Manueso, Jon R.: *See—*
Anderson, Norman J.; Decker, John L.; and Manueso, Jon R., 3,808,837.

Manz, August Frederick, to Union Carbide Corporation. Method for short circuit metal transfer arc welding. 3,809,853, Cl. 219-137.000.

Maran, Armand C. Rotary abrasive tool and coated abrasive disc and backing assembly therefor. 3,808,753, Cl. 51-358.000.

Marathon Rollers, Incorporated: *See—*
Menges, Louis J.; and Wolff, Robert H., 3,808,657.

Marbach, Walter V.; Acton, Frank J.; Eichin, Harry P.; and Winokur, Louis L., to Union Carbide Corporation. Method and apparatus for moisturizing shirred casing sticks. 3,809,576, Cl. 134-42.000.

Marcinko, Frank V.: *See—*
Tarne ja, Krishan S.; and Marcinko, Frank V., 3,809,582.

Marcoviteh, Jacob. Forming of articles by rolling. 3,808,863, Cl. 72-199.000.

Marder, Herman L.: *See—*
Elkind, Vincent T.; Hunter, Robert T.; Marder, Herman L.; and Hutchinson, Homer F., 3,809,663.

Markley, Theodore J., to Allen-Bradley Company. Programmable magnetics for a numerical control system. 3,810,104, Cl. 340-172.500.

Marley, Brian George, to Reserach Laboratories of Australia Pty. Limited. Method for electrophotographic exposure. 3,809,555, Cl. 96-1.00r.

Marrie, Paul, to S A R L. Etud. Food-comminution device. 3,809,325, Cl. 241-278.00r.

Marsh, Barry John: *See—*
Lloyd, Brian Edwin; and Marsh, Barry John, 3,809,518.

Marshall, Clarence G.: *See—*
Hungerford, Laurence D.; and Marshall, Clarence G., 3,810,100.

Martens, Ernst: *See—*
Sellers, Frederick, Thorsteinson, Marvin; and Martens, Ernst, 3,809,513.

Martin, Johann. Device in particular for drawing sheet-metal. 3,808,872, Cl. 72-453.000.

Martin, Kelsey: *See—*
Lewis, Royce C., Jr.; and Martin, Kelsey, 3,809,498.

Martin, Louis E., to Societe Anonyme Poclain. Hydraulic motors. 3,808,951, Cl. 91-492.000.

Martin, Tellis Alexander; and Comer, William Timmey, to Mead Johnson & Company. 1,4-Bis-acylpiperazines. 3,809,697, Cl. 260-268.000.

Martin, William S.; and White, Donald R., to General Electric Company. Multi-color face-pumped liquid laser device. 3,810,040, Cl. 331-94.500.

Martin, William S., to General Electric Company. Face-pumped liquid laser device. 3,810,041, Cl. 331-94.500.

Martini, Leo J., to Master Fence Fittings, Inc. Tension band. 3,809,371, Cl. 256-47.000.

Maruyama, Koichi: *See—*
Yamazaki, Eiichi; Maruyama, Koichi; Ueda, Toshio; and Nakamura, Tomizo, 3,809,558.

Maruyama Mfg. Co., Ltd.: *See—*
Uchiyama, Ryoji, 3,809,508.

Marx, Louis, & Co., Inc., mesne: *See—*
Lohr, Raymond J.; and Auer, Robert T., 3,809,406.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
Meurer, Siegfried; Emmerling, Wolfram; and D'Alfonso, Nunzio, 3,809,031.

Maschinenfabrik Rieter AG: *See—*
Wust, Olivier, 3,809,326

Maschinenfabrik Wifag: *See—*
Brunner, Heinrich, 3,809,303.

Mason, Paul B., to Polaroid Corporation. Motion picture system. 3,809,465, Cl. 352-78.00r.

Masoneilan International, Inc.: *See—*
Baumann, Hans D., 3,809,362.

Massachusetts Institute of Technology: *See—*
Javan, Ali; and Feld, Michael S., 3,809,887.

Master Fence Fittings, Inc.: *See—*
Martini, Leo J., 3,809,371.

Master Packaging Equipment, Inc.: *See—*
Reid, Laurie M., 3,808,767.

Matej, Ronald J., to Prutton Corporation. End working machine tool. 3,808,623, Cl. 10-21.000.

Mathauser, William R. Quick connect electrical coupler. 3,810,258, Cl. 339-12.00r.

Mathias, Donald L. Book holder and shield. 3,809,352, Cl. 248-451.000.

Mathias, James J.; and Holland, Robert L., to American Potato Company. Process for producing clusters of dehydrated potato agglomerates. 3,809,758, Cl. 426-285.000.

Matles, Arthur L. Bone splint. 3,809,075, Cl. 128-92.00a.

Matsumoto, Akio; and Someno, Kenji, to Mitsui Mining & Smelting Co., Ltd. Fishing net having a large specific gravity. 3,808,725, Cl. 43-7.000.

Matsumoto, Toshiaki, to Minolta Camera Kabushiki Kaisha. Switch operating device for photographic cameras. 3,810,217, Cl. 354-204.000.

Matsuo, Shunji; Sato, Shui; Endo, Takaya; Kasai, Keiji; and Inoue, Izaburo, to Konishiroku Photo Industry Co., Ltd. Light-sensitive silver halide color photographic emulsion. 3,808,945, Cl. 96-100.000.

Matsushita Electric Industrial Co., Ltd.: *See—*
Higashiyama, Kenji; and Hirata, Hiroshi, 3,809,636.
Higashiyama, Kenji; and Hirata, Hiroshi, 3,809,637.
Higashiyama, Kenji; and Hirata, Hiroshi, 3,809,638.
Ikeda, Hisao, 3,810,242.
Kozu, Isao; Kurihara, Hidetoshi; and Hino, Tetsuo, 3,810,239.
Kubo, Shoichi; and Komatsu, Masakazu, 3,808,678.
Okubo, Tsuneo; Nakamura, Shoichi; and Mori, Eizo, 3,809,918.
Okuno, Noboru; Kamogawa, Toshiro; and Okino, Yoshihiro, 3,809,804.

Matsushita Electric Works, Ltd.: *See—*
Yoshioka, Hideoki, 3,809,837.

Matsushita, Tomiharu: *See—*
Yamaguchi, Yoshihiro; Matsushita, Tomiharu; Noguchi, Masataka; Nakagawa, Junichi; and Hasegawa, Hakumi, 3,808,860.

Matsuzawa, Hideo; and Tokutomi, Takashi, to Mitsubishi Rayon Co., Ltd. Recovering methacrylic acid and methanol. 3,809,645, Cl. 210-21.000.

Mattel, Inc.: *See—*
Gay, Derek J.; Smedley, William H.; Cohen, Aaron G.; Dworkin, Darryl R., Nuttall, Michael W.; and Wilson, Nicol S., 3,808,732.
Shapero, Wallace H.; and Cane, Albert, 3,809,661.

Matthews, Vincent: *See—*
Costain, Winston; and Matthews, Vincent, 3,809,670.

Mattimoe, Paul T.: *See—*
Boicey, James H.; Mattimoe, Paul T.; and Schmoeger, Otto J., Jr., 3,810,184.

Mattsson, Ove Henning; and Bertilsson, Britt-Marie Elizabeth, to KemaNord AB. Crotonamide derivatives suitable as agents for control of plant diseases. 3,809,718, Cl. 260-562.00s.

Mayers, Gerald K., to Container Bins, Inc. Method of loading cargo containers. 3,809,264, Cl. 214-302.000.

Maynard, Kenneth B.: *See—*
Johnson, Oliver D.; and Maynard, Kenneth B., 3,809,410.

Mazzei, Alessandro: *See—*
Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, 3,809,684.

McBroom, Robert C., to General Electric Company. Image intensifier compensated for earth's magnetic field. 3,809,886, Cl. 250-213.0vt.

McCabe, Thomas C. Device for delimbing trees. 3,809,134, Cl. 144-2.00z.

McCall, Frank S.: *See—*
Burke, William R.; McCall, Frank S.; Clark, Kenneth G.; De Pass, Ernest T.; and Friend, William H., 3,809,593.

McCarthy, Lawernce James: *See—*
Parks, William Louis; Grenoble, William Luster, Jr.; Harjes, Henry Herman, Jr.; and McCarthy, Lawernce James, 3,810,102.

McCaskill, John Walton. *See—*
Bonds, James Vaull; and McCaskill, John Walton, 3,809,158.

McCord Corporation: *See—*
Weller, Peter A., 3,809,420.

McCormick, Harold E.: *See—*
Prasse, Herbert F.; and McCormick, Harold E., 3,809,546.

McCully, Everette R.: *See—*
Cope, James R.; and McCully, Everette R., 3,809,328.

McD Hess, Alexander. Projecting device hitting means. 3,809,047, Cl. 124-1.000.

McDonald, William G.: *See—*
Dunning, Walter B.; Endter, Dale S.; and McDonald, William G., 3,810,229.

McGinnis, Bernard W.; and Orlando, Anthony W., to International Business Machines Corporation. Selectively tensioned transducer assembly for operation in compliant relation to individual memory discs of a partitionable aggregate of rotating flexible discs. 3,810,243, Cl. 360-98.000.

McGlashan, Kenneth W., to Pemcor, Inc. Deflection yoke having relatively adjustable core and coils. 3,810,053, Cl. 335-212.000.

McGowan, Eric, to United GAs Industries Limited. Gas/electric control mechanism. 3,810,249, Cl. 219-279.000.

McGraw, Ron J.: *See—*
Dobson, Richard D., Sr.; and Clifton, Clyde J., 3,809,505.

McGregor, Roger. Accessory to fire extinguisher. 3,810,250, Cl. 240-6.40r.

McGuire, Robert J.: *See—*
Lettan, Richard H.; and McGuire, Robert J., 3,809,460.

McKay, Robert S.: *See—*
Terzian, Rouben T.; Glass, Marvin I.; and McKay, Robert S., 3,808,736.

McLane, Jack E., to Wirtz Manufacturing Company, Inc. Degassing mechanism for battery grid casting machine. 3,810,[illegible] Cl. 29-204.000.

McLaren, Vincent H., Jr.; and Panchal, Navnit, to Imperial Knife Associated Companies, Inc. Electric can opener. 3,808,917, Cl. 82-47.000.

McLaughlin, Donald W., to GTE Automatic Electric Laboratories, Incorporated. Local control panel for data recorder. 3,809,814, Cl. 179-8.00a.

McLaughlin, Ernest O.: *See—*
Aronoff, Elihu J.; and McLaughlin, Ernest O., 3,809,569.

McLeod, Duncan T. Ski propelling device. 3,809,173, Cl. 180-5.00r.

McLeon, John W.: *See—*
Keener, Arthur; Bradford, Larry David; Gary, Laverne E.; McLeon, John W.; and Carter, Billy W., 3,808,958.

McMorris, Arthur H.: *See—*
Schweppe, Joseph L.; McMorris, Arthur H.; and Ahlgren, Erick L., 3,809,120.

McMunn, Charles William, III, and Nakayama, Takashi, to Du Pont de Nemours, E. I., and Company. Seal ring compositions electronic packages made therewith. 3,809,797, Cl. 174-52.00s.

McNeil Corporation: *See—*
Pamer, Karl A., 3,809,382.

McVey, Charles I.: *See—*
Collins, Byron R., and McVey, Charles I., 3,809,943.

McWilliams, Larry L., to S&M Enterprises Inc. Shredder adaptor. 3,808,782, Cl. 56-16.900.

Meacham, James H., to Westinghouse Electric Corporation. Method and circuit for monitoring and detecting sweep signal failure. 3,810,024, Cl. 328-8.000.

Mead, Carver A.: *See—*
Goldman, Arnold J.; Kurtin, Stephen L.; and Mead, Carver A., 3,810,107.

Mead Johnson & Company: *See—*
Martin, Tellis Alexander; and Comer, William Timmey, 3,809,697.

Means, Graham Neville: *See—*
Chick, Orest Nicholas; and Means, Graham Neville, 3,809,666.

Mechanical Technology Incorporated: *See—*
Cherubim, Justin Lawrence, 3,809,443.

Med General Inc.: *See—*
Ersek, Robert A.; Wall, Donald E.; and Garity, Michael C., 3,809,072.

Medal, Richard J.: *See—*
Dahlquist, James F.; and Medal, Richard J., 3,809,824.

Medal de Toledo & Cie: *See—*
Bertrand, Francois Robert, 3,809,754.

Mee, John D.: *See—*
Carpenter, James W.; Mee, John D.; and Heseltine, Donald W., 3,809,691.

Mefina S.A.: *See—*
Aeschlimann, Pierre; Fresard, Marcel; and Jimenez, Antonio, 3,809,851.

Megna, Salvatore J. Wig. 3,809,100, Cl. 132-53.000.

Meisenheimer, Raymond L. Load balancing voltage regulator. 3,809,996, Cl. 322-28.000.

Melcer, Irving: *See—*
Sair, Louis; and Melcer, Irving, 3,809,767.

Mele, John J.: *See—*
Chang, Gregory I.; Buhrke, Rolfe E.; Rice, Verner K.; and Mele, John J., 3,810,121.

Mellenger, James A.: *See—*
Gill, Walter J.; and Mellenger, James A., 3,809,817.

Melvin, William J., to Collins Radio Company. Three-channel data modem apparatus. 3,809,821, Cl. 179-15.00r.

Membrino, Robert J., and Magee, Edward F., to Singer Company, The. Collision avoidance radar simulator system. 3,808,711, Cl. 35-10.400.

Memorex Corporation. *See—*
Monett, Michael Ross, 3,810,234.

Menasco Manufacturing Company: *See—*
Bhutani, Harish K.; Oda, Albert Y.; and Hughes, Ronald A., 3,808,942.

Mendicino, Frank Dominic: *See—*
Boersma, Robert Paul; Mendicino, Frank Dominic; and Omietanski, George Michael, 3,809,713.

Menges, Louis J., and Wolff, Robert H., to Marathon Rollers, Incorporated. Hickey roll and method of making same. 3,808,657, Cl. 29-120.000.

Menley & James Laboratories, Ltd.: *See—*
Calabrese, Anthony J.; Stettler, Wayne J.; and Zwiren, Jan Marie, 3,809,785.

Mercer, Austin Cartwright, Jr., to Mercer Pneumatic Tools Limited. Bar feed mechanism. 3,809,253, Cl. 214-1.00s.

Mercer Pneumatic Tools Limited: *See—*
Mercer, Austin Cartwright, Jr., 3,809,253.

Merck & Co., Inc.: *See—*
Schultz, Everett M.; and Cragoe, Edward J., Jr., 3,809,721.

Mercurio, Leonard. Pilfer-resistant lock construction, having segmented cylinder. 3,808,854, Cl. 70-419.000.

Merrick, James W., to Del Norte Technology, Inc. Radar trilateralization position locators. 3,810,179, Cl. 343-6.51c.

Merrick, Woodrow W.: *See—*
Norris, Clarence G.; and Merrick, Woodrow W., 3,808,764.

Merrill, Stewart H.; and Olson, James R., to Eastman Kodak Company. Dry electrostatic toner composition and process of developing. 3,809,554, Cl. 96-1.0sd.

Merry Companies Incorporated: *See—*
Nichols, Charles E., Jr.; and Howard, Gerald T., 3,809,595.

Messer Griesheim GmbH: *See—*
Roeder, George; and Schmidt, Claus, 3,809,308.

Messerschmitt-Bolkow-Blohm GmbH: *See—*
Helmcke, Conrad; Hermann, Walter; and Kraus, Peter, 3,809,803.

Messner, Georg; and De Nora, Vittorio, to De Nora, Oronzio, Impianti Elettrochimici S.p.A. Process and apparatus for the production of alkali metal chlorates. 3,809,629, Cl. 204-95.000.

Mestroni, Giovanni: *See—*
Costa, Giacomo; and Mestroni, Giovanni, 3,809,632.

Metalife Company, The: *See—*
Chappell, Albert R., 3,809,293.

Metallurgical Exoproducts Corporation: *See—*
Rocher, George, 3,809,355.
Rocher, George; and Vayda, Pierre Andre, 3,809,380.

Metcalfe, Kenneth A.; and Smith, Ian E., to Commonwealth of Australia, The, & Secretary Department of Supply, The. Bitting card for data recording. 3,810,193, Cl. 346-76.0es.

Metzinger, Leonard L., to Bunker Ramo Corporation. Worm drive for electrically wound clock. 3,808,905, Cl. 74-425.000.

Meurer, Siegfried; Emmerling, Wolfram; and D'Alfonso, Nunzio, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Air compressing self-igniting fuel injection internal combustion engine. 3,809,031, Cl. 123-32.00r.

Meyer, Charles F.: *See—*
Groth, Clarence N.; Hempel, James N.; Wieczorek, Robert A.; Meyer, Charles F.; and Cook, Robert G., 3,809,965.

Meyer, Charles F.; and Retzer, Kenneth W., to Square D Company. Direct current electromagnetic switch. 3,809,958, Cl. 317-11.00e.

Meyer Labs, Inc.: *See—*
Hoyt, Harold C., Jr., 3,810,084.

Mhatre, Girish P.: *See—*
Suhr, Peter J.; Spierer, Edward D.; and Mhatre, Girish P., 3,809,987.

Michaelson, Stanley D.; and Broadbent, Carl D., to Kennecott Copper Corporation. Slope cave leaching of exposed or near-surface mineralized deposits. 3,809,430, Cl. 299-5.000.

Michigan Instrument, Inc.: *See—*
Mosley, Kenneth C.; and Barkalow, Clare E., 3,808,706.

Microdot Inc.: *See—*
Moore, Marvin W., 3,810,072.

Microform Data Systems, Inc.: *See—*
Moritz, Jules G., 3,809,468.

Mihalik, Nandor. Electrostatographic copying apparatus. 3,809,474, Cl. 355-11.000.

Miksitz, Frank J., to Universal Feeders, Inc. Gravity discharge apparatus. 3,809,286, Cl. 222-1.000.

Millard, William E.: *See—*
Blezard, Robert C.; and Millard, William E., 3,808,840.

Miller, Charles Eveleigh, to International Telephone and Telegraph Corporation. Densitometer and probe therefor. 3,808,875, Cl. 73-32.000.

Miller, Chauncey S., to Sperry Rand Corporation. Multifrequency communication system for fading channels. 3,810,019, Cl. 325-40.000.

Miller, Gerald K.; and Rautiola, Norman A., to Nartron Corporation. Directional signal with cam switch actuators. 3,809,833, Cl. 200-61.270.

Miller, Gerlad K.; and Rautiola, Norman A., to Nartron Corporation. Audio-visual signal device. 3,810,149, Cl. 340-326.000.

Miller, Gordon H., to Texaco Inc. Process for the trimerization of nitriles. 3,809,693, Cl. 260-248.0cs.

Miller, Maurice E. Hydraulically operated weight control. 3,809,165, Cl. 172-328.000.

Miller Printing Machinery Co.: *See—*
Lenoir, Franz N., 3,809,390.

Miller, Robert Percy: *See—*
Gaskell, Philip Hedley; Lythgoe, Stanley; Irlam, Philip Sidney; Miller, Robert Percy; and Barry, Thomas Ian, 3,809,543.

Miller, Roger E.: *See—*
Arnold, William A.; and Miller, Roger E., 3,810,163.

Millet, William G. Method of making dental restorations and pontic member therefor. 3,808,687, Cl. 32-2.000.

Millett, James A., to Bank of Montreal, mesne. Camera mechanism. 3,810,218, Cl. 354-203.000.

Milonas, Janet O.: *See—*
Milonas, Timothy S.; and Milonas, Janet O., 3,809,740.

Milonas, Timothy S.; and Milonas, Janet O. Flower candle molding process. 3,809,740, Cl. 264-306.000.

Minnesota Mining and Manufacturing Company: *See—*
Hansen, Paul E., 3,809,077.
Peterson, Arthur H.; and Britz, Galen C., 3,809,442.
Sanders, James F., 3,809,854.
Stivers, David A., 3,809,672.
Yarian, Dean R., 3,809,668.

Minolta Camera Kabushiki Kaisha: *See—*
Imura, Toshinori, 3,810,205.
Matsumoto, Toshiaki, 3,810,217.
Nanba, Yasuhiro; and Sahara, Masayoshi, 3,810,208.
Tanaka, Harumi, 3,810,227.
Ueda, Hiroshi, 3,810,216.

Minor, Paul S., to Parkson Corporation. Controlled reaction systems. 3,809,708, Cl. 260-409.000.

Minster Machine Company, The: *See—*
Voorhees, John E.; and Schockman, Robert L., 3,808,912.

Miram, George V.; and Mizuhara, Yosuke M., to Varian Associates. Gridded electron tube employing cooled ceramic insulator for mounting control grid. 3,809,939, Cl. 313-39.000.

Miram, George V.; and Woolsey, Samuel W., to Varian Associates. Method for preserving electron gun assemblies. 3,809,957, Cl. 313-7.000.
Miramontes C., Luis E. Process for the conversion of exhaust gases of the internal combustion engines into harmless products. 3,808,805, Cl. 60-274.000.
Misener, Donald C.: *See—*
Faurschou, Donald K.; Misener, Donald C.; Pope, James C.; and Hadden, Richard, 3,809,639.
Miskin, Richard B., to Miskin Scraper Works, Inc. Bale loader. 3,809,256, Cl. 214-6.00b.
Miskin Scraper Works, Inc.: *See—*
Miskin, Richard B., 3,809,256.
Missenda, Andrew Michael: *See—*
Crowley, Lee Francis; Presky, Dennis Robert; and Missenda, Andrew Michael, 3,810,023.
Mitchell, Robert S., to Monsanto Company. Methods of scale inhibition. 3,809,654, Cl. 252-180.000.
Mitchner, Joseph L.; Keller, Robert A.; and Graham, Clyde B., to National Cash Register Company. Method for assembling a print head. 3,808,669, Cl. 29-466.000.
Mitsubishi Jidosha Kogyo Kabushiki Kaisha: *See—*
Nakamura, Hirokazu; and Ito, Tadahiko, 3,808,806.
Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Shibata, Katsuhiko; Seika, Yujuro; Sakamoto, Iwao; Yamada, Kango; and Kondo, Setsuo, 3,808,631.
Mitsubishi Petrochemical Co., Ltd.: *See—*
Okawa, Sohei; and Doi, Shuhei, 3,809,671.
Mitsubishi Rayon Co., Ltd.: *See—*
[illegible]
Matsumoto, Akio; and Someno, Kenji, 3,808,725.
Mitsui Mining Company, Limited: *See—*
Yamamoto, Masami, 3,809,318.
Miwa, Haruo: *See—*
Takagi, Katsuyuki; and Miwa, Haruo, 3,809,927.
Miyamatsu, Tsugio: *See—*
Kimura, Hiroshiro, Arimoto, Heiji, Nara, Hirohisa, Miyamatsu, Tsugio, and Kitajima, Mitsuo, 3,809,131.
Miyanishi, Noritake; Kubota, Shigeru, Baba, Hirotoshi, and Takahashi, Masahiro, to Kobe Steel Ltd. Modulating valve for vehicle transmission systems. 3,809,201, Cl. 192-109.00f.
Miyata, Akira, Okubo, Hideyo, Tomita, Chikayoshi, and Suzuki, Akio, to Nippon Kokan Kabushiki Kaisha. Electroplating apparatus with plating vessel having protrusions and recesses. 3,809,641, Cl. 204-213.000.
Miyata, Hiromasa: *See—*
Kobayashi, Torao; and Miyata, Hiromasa, 3,809,185.
Mizell, Louis Richard: *See—*
Kerstetter, Virginia Ann; and Mizell, Louis Richard, 3,809,589.
Mizuhara, Yosuke M.: *See—*
Miram, George V.; and Mizuhara, Yosuke M., 3,809,989.
Mobil Oil Corporation: *See—*
Baudouin, Pascal, 3,809,647.
Brennan, James A., 3,809,652.
Sayles, Francis S., 3,809,650.
Mobile Oil Corporation: *See—*
Andress, Harry J., Jr., 3,809,719.
Mochida, Yasunori, to Nippon Gakki Seizo Kabushiki Kaisha. Tone generator system. 3,809,787, Cl. 84-1.010.
Mod, Robert R.: *See—*
Magne, Frank C.; Mod, Robert R.; Sumrell, Gene, and Parker, Winfred E., 3,809,706.
Moebs, Heinz: *See—*
Kunert, Heinz; Moebs, Heinz, and Sauer, Gerd, 3,810,180.
Moffatt, John: *See—*
Damodaran, Nandyelath, Moffatt, John, Jones, Gordon, and Howarth, George, 3,809,689.
Mohrhauser, John P., and Strazza, Richard W. Push button combination lock. 3,808,852, Cl. 70-285.000.
Moiroux, Auguste. Internal combustion engines. 3,809,030, Cl. 123-32.00k.
Moller, J. D., Optische Werke GmbH, Firma. *See—*
Brambring, Dieter Ferdinand, 3,809,454.
Molloy, Martin: *See—*
Vignini, Walter R.; and Molloy, Martin, 3,809,829.
Molnar, Jozsef: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal, Sziklavari, Janos, Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.
Moltzak, George C. Boat with bow outdrive and vertically swingable bow plane. 3,808,998, Cl. 114-66.50r.
Monark-Crescent AB: *See—*
Lovgren, Gosta Hjalmar Fredrik; and Lundell, Ove Vilmer, 3,809,174.
Monett, Michael Ross, to Memorex Corporation. Data recovery circuit. 3,810,234, Cl. 360-51.000.
Money, Dudley P.: *See—*
Pratt, Harry M.; Magol, Byram J., and Money, Dudley P., 3,809,018.
Monia, Victor, to Guardian Packaging Corporation. Saran adhered to butadiene-styrene polymers. 3,809,602, Cl. 161-165.000.
Monsanto Company: *See—*
Bottini, Michael Lucien, 3,808,673.
Coaker, Antony W. M.; and Cowell, Elmer E., 3,809,667.
Gidge, Lester, 3,809,596.
Mitchell, Robert S., 3,809,654.
Phillips, Wendell Gary, 3,809,702.
Unland, Mark L.; and Barker, George E., 3,809,743.
Montacie, Marcel, to Union Industrielle Blanzy-Ouest. Rotary tool head for a continuous boring machine. 3,809,432, Cl. 299-85.000.
Montagna, Angelo A.: *See—*
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., 3,809,643.
Moore, Lewis Frank; and Price, George McNair, to Frymaster Corporation, The. Cooking system. 3,809,062, Cl. 126-369.000.
Moore, Marvin W., to Microdot Inc. Socket. 3,810,072, Cl. 339-88.00r.
Moore, Samuel, & Company: *See—*
Smith, Roy B.; Sabo, Alex T.; and Kavick, Edward M., 3,809,184.
Moran, Thomas M.; and Paskert, Joseph H., to Eaton Corporation. Self retaining knob. 3,808,635, Cl. 16-121.000.
Moraw, Roland; and Schadlich, Gunther, to Kalle Aktiengesellschaft. Method of reproducing a relief image. 3,809,473, Cl. 355-9.000.
Mordini, Claudio: *See—*
Pozzetti, Mario; and Mordini, Claudio, 3,809,874.
Morgan, Edward J., to Brunswick Corporation. Internal combustion engine. 3,809,027, Cl. 123-30.00r.
Morgardshammar Aktiebolag: *See—*
Bennet, Tom Joachim, 3,808,864.
Mori, Chiharu; Ota, Katsumi; and Togawa, Hideaki. Electrical controls for camera shutters. 3,810,203, Cl. 354-24.000.
Mori, Eizo: *See—*
[illegible]
Akai, Shin-Ichi; Mori, Hideki; Takahashi, Nobuo; and Iguchi, Shin-Ichi, 3,809,584.
Mori, Kenichi; and Takebe, Hisao, to Tokyo Shibaura Electric Co. Ltd. Character type discriminator for character readers. 3,810,094, Cl. 340-146.30d.
Mori, Masanori, to Aisin Seiki Kabushiki Kaisha. Clutch disc with coil and rubber springs. 3,809,198, Cl. 192-106.200.
Moribe, Kamataro, to Nagata, D., Co., Ltd. One way positive clutch with one way friction brake. 3,809,196, Cl. 192-12.00b.
Morisaki, Nobukazu, to Daido Metal Company Ltd. Aluminum and tin base bearing alloy. 3,809,551, Cl. 75-140.000.
Moritz, Jules G., to Microform Data Systems, Inc. Film strip reader. 3,809,468, Cl. 353-26.000.
Moriya, Hisanori: *See—*
Hosho, Yukio, Moriya, Hisanori, and Oyama, Yoshishige, 3,809,042.
Morris, Floyd D., and Rich, Barry S., to Ultronic Systems Corporation. Storage and space availability apparatus for a data processing printout system. 3,810,109, Cl. 340-172.500.
Morris, George O., 1/2 to Offenhauser, Fred C. Internal combustion engine manifold. 3,809,032, Cl. 123-52.00m.
Morris, James C. Friction keepers for wheels and structures utilizing them. 3,809,435, Cl. 301-112.000.
Morris, Louis, Jr.: *See—*
White, Dale, and Morris, Louis, Jr., 3,810,058.
Morrison, Howard J., to Glass, Marvin, & Associates. Movable figure toy. 3,808,735, Cl. 46-135.00r.
Mortensen, Don. Shower curtain guard device. 3,808,610, Cl. 4-149.000.
Moser, Andreas, to International Business Machines Corporation. Semiconductor switching and storage device. 3,810,128, Cl. 340-173.00r.
Mosley, Kenneth C., and Barkalow, Clare E., to Michigan Instrument, Inc. Pneumatic lung analog. 3,808,706, Cl. 35-17.000.
Moss, James H., Jr.: *See—*
Allison, Birt, Jr.; Daniels, Calvin L.; and Moss, James H., Jr., 3,809,687.
Motoda Electronics Co., Inc.: *See—*
Motoda, Kenro; and Hasegawa, Kensuke, 3,809,988.
Motoda Electronics Co., Ltd.: *See—*
Motoda, Kenro; and Hasegawa, Kensuke, 3,810,008.
Motoda, Kenro; and Hasegawa, Kensuke, to Motoda Electronics Co., Inc. Automatic load weight balancing system. 3,809,988, Cl. 318-646.000.
Motoda, Kenro; and Hasegawa, Kensuke, to Motoda Electronics Co., Ltd. Apparatuses for detecting failure in a potentiometer circuit. 3,810,008, Cl. 324-62.000.
Motoren-Werke Mannheim AG, vorm. Benz ABT Stationarer Motorenbau: *See—*
Friedemann, Andreas Zacharias, 3,808,815.
Motorola, Inc.: *See—*
Nation, Melvin S., 3,808,642.
Mozes, Alexander. Detector device for detecting unintentional urination. 3,809,078, Cl. 128-138.00a.
Mueller, Arthur C., to Bell & Howell Company. Exposure control system. 3,810,207, Cl. 354-42.000.
Mueller Co.: *See—*
Rhodes, Robert L., 3,809,363.
Mueller, John W.; and Pearson, William M. Underground valve having below-surface parts removable from above-surface position. 3,809,114, Cl. 137-315.000.
Mueller-Tamm, Heinz; Urban, Friedrich; Frielingsdorf, Hans; Nickl, Johann; Schweier, Guenther; and Kohnle, Josef, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Catalyst system for the polymerization of olefins. 3,809,657, Cl. 252-429.00c.

Muhl, Andrew H. Temperature control system for an electrode type liquid heater. 3,809,857, Cl. 219-286.000.
Muhlbach, Anton; and Lauckhardt, Gerhard, to USM Corporation. Apparatus for rounding welded edge seams. 3,809,306, Cl. 228-5.000.
Muir, Gregory A.; and Scherer, Craig J. Method and system for visually conveying alarm information. 3,810,097, Cl. 340-164.000.
Mukai, Noboru: *See—*
Ishida, Kengo; Kawai, Masanobu; and Mukai, Noboru, 3,809,780.
Mulaskey, Bernard F.: *See—*
Kemp, Jacob D.; and Mulaskey, Bernard F., 3,809,728.
Mulasmajic, Dzemal. Anti-friction vehicle support system. 3,809,433, Cl. 301-1.000.
Mullaney, Frank: *See—*
Wandel, Oscar A.; and Mullaney, Frank, 3,809,307.
Muller, Hans. Fermentation installation. 3,809,618, Cl. 195-140.000.
Muller, Johannes Jacobus; and Koek, Theodorus Joannes, to Lever Brothers Company. Interesterification of glycerides in the presence of an aliphatic ketone. 3,809,709, Cl. 260-410.700.
Muller, Rudolf: *See—*
Heiler, Wolfgang; Muller, Rudolf; and Becker, Jean-Jacques, 3,808,993.
Muller, Walter, to Ruti Machinery Works Ltd.; formerly Casper Honegger Ruti. Device for transferring a portion of weft thread to a weft inserting means. 3,809,129, Cl. 139-12.000.
Muller, Willi, to Siemens Aktiengesellschaft. Electro-optical device for [illegible]
Muller-Schenck, [illegible]
individual items. 3,809,287, Cl. 221-66.000.
Munafo, Vincent J. Electrical apparatus providing self-teaching assistance. 3,809,784, Cl. 35-9.00b.
Muncke, Ludwig; Buchmuller, Josef; and Stieler, Konrad, to Deere & Company. Axial piston hydraulic motor. 3,808,949, Cl. 91-473.000.
Munk, Edmund E., to Furnier-& Sperrholzwerk J. F. Werz Jr. KG Werzalig-Pressholzwerk. Method of producing molded elements with parts of different thicknesses for fibrous mixtures. 3,809,736, Cl. 264-120.000.
Munson, Robert E.: *See—*
Krutsinger, Jack K.; Bullai, Carl N.; and Munson, Robert E., 3,810,183.
Murakami, Junzo; Asakawa, Shigeo; and Takeuchi, Keiji, to Tokyo Shibauro Electric Co., Ltd. Decoding system. 3,810,158, Cl. 340-347.0da.
Murata, Sanjiro. Mode changeover apparatus for a miniature type cassette tape recorder. 3,810,241, Cl. 360-96.000.
Murphy, Harold J.: *See—*
Kilroy, Henry P., and Murphy, Harold J., 3,810,195.
Murray, Thomas R.; and Burns, David C., to Westinghouse Electric Corporation. Reactor vessel in-service inspection assembly. 3,809,607, Cl. 176-19.00r.
Musser, Harry R., and Jackson, Winston J., Jr., to Eastman Kodak Company. Brominated bisphenol a diethanol polyforman. 3,809,681, Cl. 260-52.000.
Mustakas, Gus C., to United States of America, Agriculture. Process for obtaining full-fat oilseed-protein beverages. 3,809,771, Cl. 426-364.000.
Myles, Michael Joseph: *See—*
Kupcikevicius, Vytautas, and Myles, Michael Joseph, 3,808,638.
Nacci, Anthony T.: *See—*
Jolly, Michael D.; Jasovsky, George A.; Ceglie, Gaetano J.; Nacci, Anthony T.; and Schechter, Harold, 3,809,770.
Nadella: *See—*
Pitner, Alfred, 3,809,446.
Nadler, Bernard David; and Cotter, Mitchell A., to APM Corporation. System for storing tone patterns for audible retrieval. 3,810,106, Cl. 340-172.500.
Nagao, Tachiro: *See—*
Nakahara, Tsuneo; Kurauchi, Noritaka; and Nagao, Tachiro, 3,810,186.
Nagaoka, Shinji: *See—*
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,223.
Kitai, Kiyoshi; Onda, Eiichi, Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,224.
Nagasawa, Masao: *See—*
Kato, Mihoru; and Nagasawa, Masao, 3,809,041.
Nagasawa, Masao, to Nippondenso Co., Ltd. Contactless ignition system for internal combustion engines. 3,809,043, Cl. 123-148.00e.
Nagata, D., Co., Ltd.: *See—*
Moribe, Kamataro, 3,809,196.
Nagy, Charles E.; and Nagy, John F. Automatic coupling mechanism for submarines dirigibles and other like buoyant vehicles. 3,809,002, Cl. 114-235.00b.
Nagy, John F.: *See—*
Nagy, Charles E.; and Nagy, John F., 3,809,002.
Najmann, Knut K.: *See—*
Baitinger, Utz G.; and Najmann, Knut K., 3,810,123.
Nakagawa, Junichi: *See—*
Yamaguchi, Yoshihiro; Matsushita, Tomiharu; Noguchi, Masataka; Nakagawa, Junichi; and Hasegawa, Hakumi, 3,808,860.
Nakagawa, Tadashi: *See—*
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,223.
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,224.
Nakagawa, Tadashi, to Sieko Koki Kabushiki Kaisha. Switching device for electronic shutter. 3,810,222, Cl. 354-226.000.
Nakahara, Tsuneo; Kurauchi, Noritaka; and Nagao, Tachiro, to Sumitomo Electric Industries, Ltd. Leaky coaxial cable. 3,810,186, Cl. 343-771.000.
Nakajima, Fumio: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; and Yanagawa, Yoshihiki, 3,808,792.
Nakajima, Masamitsu, to Kyoto University. Traveling-wave type power addition circuit. 3,810,037, Cl. 331-55.000.
Nakajima, Shigeo, to Taiheiyo Coal Mining Co., Ltd. Driving device for ranging-type coal planers. 3,809,431, Cl. 299-34.000.
Nakamoto, Yasunori: *See—*
Hamada, Yoshitugu; Nakamoto, Yasunori; and Jinno, Seizo, 3,808,955.
Nakamura, Hirokazu; and Ito, Tadahiko, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Exhaust gas purifying device. 3,808,806, Cl. 60-288.000.
Nakamura, Shoichi: *See—*
Okubo, Tsuneo; Nakamura, Shoichi; and Mori, Eizo, 3,809,918.
Nakamura, Tomizo: *See—*
Yamazaki, Eiichi; Maruyama, Koichi; Ueda, Toshio; and Nakamura, Tomizo, 3,809,558.
Nakamura, Yukio, to Seiko Koki Kabushiki Kaisha. Lens shutter for photographic use. 3,810,225, Cl. 354-252.000.
McGuire, James [illegible]
[illegible]
3,809,797.
Nakayama, Yoshiaki: *See—*
Yamada, Hirohide; and Nakayama, Yoshiaki, 3,810,114.
Nanba, Yasuhiro; and Sahara, Masayoshi, to Minolta Camera Kabushiki Kaisha. Photographic camera scene brightness indicator. 3,810,208, Cl. 354-60.000.
Nara, Hirohisa: *See—*
Kimura, Hiroshiro, Arimoto, Heiji; Nara, Hirohisa; Miyamatsu, Tsugio; and Kitajima, Mitsuo, 3,809,131.
Narayanan, Venkatachala L.: *See—*
Haugwitz, Rudiger D.; and Narayanan, Venkatachala L., 3,809,692.
Nartron Corporation: *See—*
Miller, Gerald K.; and Rautiola, Norman A., 3,809,833.
Miller, Gerlad K.; and Rautiola, Norman A., 3,810,149.
Nash, Charles F.: *See—*
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F.; Mack, Anthony M.; and Alfano, Bernardino M., 3,808,880.
Natens, Luc Yves, to Agfa-Gevaert N.V. Method of measuring optical density. 3,809,911, Cl. 250-571.000.
Nathanson, Bennett: *See—*
Vogelfanger, Elliot A.; and Nathanson, Bennett, 3,809,591.
Nation, Melvin S., to Motorola, Inc. Locking clip for fastening an article to a belt or the like. 3,808,642, Cl. 24-3.00f.
National Cash Register Company: *See—*
Connell, Kenneth Percy, 3,808,668.
Mitchner, Joseph L.; Keller, Robert A.; and Graham, Clyde B., 3,808,669.
National Cash Register Company, The: *See—*
Hays, John D., Baswell, Harlen L.; Combs, Jerry A.; and Brown, Dale G., 3,809,989.
Stansbrey, John J., 3,809,606.
National Research Development Corporation: *See—*
Aspinall, Arnold, Spruce, David Gordon; and Lynam, John Thomas, 3,810,000.
Jordan, James Redmon, 3,810,113.
Navarro, Jorge Roca. Roasting device. 3,809,053, Cl. 126-25.00r.
Neal, Danny Marvin, to International Business Machines Corporation. Thermal sensing apparatus. 3,809,855, Cl. 219-216.000.
Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid: *See—*
Collet, Peter Jacobus, 3,809,499.
Neel, Jean; and Papillon, Bernard, to Societe Rhone-Progil. Dry cleaning of textiles. 3,809,535, Cl. 8-142.000.
Negishi, Masataka, to Mamiya Koki Kabushiki Kaisha. Circuit for storing a representation of an incident light quantity in a camera. 3,809,992, Cl. 320-1.000.
Neil, Peter C., to Standard Oil Company (Indiana). Transporting and trimmer apparatus for plastin film having thermoformed articles therein. 3,808,927, Cl. 83-228.000.
Nellis, David C., to Itek Corporation. Microfilm frame selection circuitry. 3,809,910, Cl. 250-561.000.
Nelson, Donald R., to Goddard Industries, Inc. Mixing valve. 3,809,124, Cl. 137-625.410.
Nelson, Rodney W., to Robertshaw Controls Company. Automatic pilot valve magnet contact construction. 3,810,054, Cl. 335-220.000.
Nelson, William F.: *See—*
Haugsjaa, Paul O.; Heller, Adam; Nelson, William F.; and Bocchimuzzo, Anthony, 3,809,828.
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., to Xerox Corporation. Photoelectrophoretic imaging apparatus with correction for parallax. 3,809,471, Cl. 355-3.00p.

Neugebauer, Gerhard, to Wiegand, Alexander, Armaturen- und Manometerfabrik. Pressure transmitting device. 3,808,890, Cl. 73-406.000.

Neuman, August. Sewer opening adapter means. 3,808,611, Cl. 4-255.000.

Neuman, Henry J., to Addressograph-Multigraph Corporation. Liquid amine-type developer for diazotype materials. 3,809,559, Cl. 96-49.000.

Neuman, Henry J. Amine-type developer for diazotype materials. 3,809,560, Cl. 96-49.000.

Neumann, Gerhard Max; and Wittemeier, Hans-Joachim, said Neumann assor. to Delbag-Luftfilter Gesellschaft mit beschrankter Haftung. Overhead air filter. 3,808,777, Cl. 55-473.000.

Neunherz, Herbert W.; and Bryant, Robert G., to Gem Industries, Inc. Trip lock. 3,809,414, Cl. 292-4.000.

Newell Industries, Inc.: *See*—
Furst, Marcel, 3,809,218.

Newgent, Jack S. Golf course water collector apparatus. 3,808,739, Cl. 47-1.500.

Newman, James W., to Windings, Inc. Sealed package of flexible material and method of making the same. 3,809,222, Cl. 206-398.000.

Newman, Roger. Portable heater for an automobile. 3,809,527, Cl. 432-62.000.

Nibby, Chester M.; Manton, John C., and Curley, John L., to Honeywell Information Systems, Inc. Apparatus and method for a variable memory cycle in a data processing unit. 3,809,884, Cl. 340-172.500.

Nichols, Charles E., Jr.; and Howard, Gerald T., to Merry Companies Incorporated. Concrete block or the like with multiple brick facing and method of making the same. 3,809,595, Cl. 156-267.000.

Nicholson, James F.: *See*—
Bourg, Haden J., Jr.; and Nicholson, James F., 3,809,941

Nick, Charles F.; and Davidson, Morris J., to Dresser Industries, Inc. Engine torque control system. 3,808,882, Cl. 73-117.300.

Nickl, Johann. *See*—
Mueller-Tamm, Heinz, Urban, Friedrich, Frielingsdorf, Hans, Nickl, Johann; Schweier, Guenther, and Kohnle, Josef, 3,809,657.

Niemiec, Stanley Joseph. *See*—
Heuner, Robert Charles, and Niemiec, Stanley Joseph, 3,809,458.

Niemoller, Arthur B.; and Ford, Fred H., to Westinghouse Electric Corporation. Post-type insulator assembly for enclosed electric bus. 3,809,801, Cl. 174-99.00b.

Nihon Denshi Kabushiki Kaisha: *See*—
Aihara, Ryuzo, Ota, Susumu, and Kobauashi, Nobuyuki, 3,810,025.

Nihon Kikai Kogiyo Co., Ltd.: *See*—
Yamamoto, Masami, 3,809,318.

Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio, and Yanagawa, Yoshihiki, to Citizen Watch Company Limited. Drive mechanism of an electric timepiece. 3,808,792, Cl. 58-28.00a.

Nimura, Takao; Jin, Kunio; and Komatsu, Hajime, to Konishiroku Photo Industry Co., Ltd. Method for processing light-sensitive silver halide color photographic materials. 3,809,563, Cl. 96-22.000.

Nogret, Gilbert, to Rhone-Poulenc S.A. Fluid separation apparatus and membrane support frames therefor. 3,809,246, Cl. 210-232.000.

Nippon Crucible Company Limited. *See*—
Iida, Hirofumi, 3,809,378.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Dautsch, Ralph, 3,809,788.
Dautsch, Ralph, 3,809,789.
Dautsch, Ralph, 3,809,790.
Dautsch, Ralph, 3,809,792.
Mochida, Yasunori, 3,809,787.
Uchiyama, Yasuji, 3,809,791.

Nippon Kagaku K.K.: *See*—
Maida, Osamu, 3,809,981.
Ono, Shigeo, and Hamaguchi, Ichiro, 3,810,226.

Nippon Kokan Kabushiki Kaisha: *See*—
Miyata, Akira, Okubo, Hideyo, Tomita, Chikayoshi, and Suzuki, Akio, 3,809,641.

Nippon Oil Company Limited. *See*—
Araki, Yoshihiko, Sato, Naotake, and Takahashi, Mikio, 3,809,662.

Nippon Steel Corporation. *See*—
Tanaka, Yasuhiko, Shimazaki, Yasumi, and Hagiwara, Kenji, 3,808,862.

Nippondenso Co., Ltd.: *See*—
Kato, Mihoru; and Nagasawa, Masao, 3,809,041
Nagasawa, Masao, 3,809,043.

Nishino, Rintaro, to Tamura Electric Works, Ltd. Luminous display panel with geometric segment matrix and diffuser panel. 3,810,168, Cl. 340-383.000.

Nishizawa, Jun-Ichi, to Semiconductor Research Foundation. Method of and device for controlling optical conversion in semiconductor. 3,809,953, Cl. 317-235.00n

Niu, Hsien Ying; and Weipert, Eugene A., to Basf Wynadotte Corporation. Stabilization of polyoxyalkylene polyethers. 3,809,723, Cl. 260-611.500.

Noguchi, Masataka: *See*—
Yamaguchi, Yoshihiro; Matsushita, Tomiharu, Noguchi, Masataka; Nakagawa, Junichi, and Hasegawa, Hakumi, 3,808,860.

Nongbri, Govanon: *See*—
Johnson, Axel R.; Wolk, Ronald H., and Nongbri, Govanon, 3,809,644.

Nordli, Bjarne; Oftedal, Tor Audun; and Wulvik, Erik A. Heating unit. 3,809,526, Cl. 432-36.000.

Nordstrom, Carl G.: *See*—
Byers, Donald W.; Petry, Chester H., Jr., Nordstrom, Carl G.; and Hensley, James Carl, 3,808,722.

Norris, Clarence G., and Merrick, Woodrow W., to General Refractories Company. Refractory brick having a metal casing. 3,808,764, Cl. 52-575.000.

North American Rockwell Corporation: *See*—
White, Stanley A.; and Raper, Hubert L., 3,810,182.

Northern Electric Company, Limited. *See*—
Pryce, William; and Foster, Eric, 3,808,919.

Northrup, King & Co.: *See*—
Porter, Frederic E.; and Kaerwer, Howard E., Jr., 3,808,740.

Norton Company: *See*—
Hluchan, Stephen E.; and Villani, Gerard J., 3,809,971.

Norton, David John: *See*—
Brown, Christopher Robert; George, Terence Malcolm; and Norton, David John, 3,809,930.

Notin, Claude Jacques, to Etablissements Minet Press-devices. 3,808,968, Cl. 100-264.000

Nottingham, Frank O., Jr. Phase adapter. 3,809,980, Cl. 318-220.00r.

Novak, Lubomir. *See*—
Horowitz, Noah; Stupeck, Donald, and Novak, Lubomir, 3,810,236.

Novotny, Joseph: *See*—
Sansing, James Earl, and Novotny, Joseph, 3,809,653.

Nozawa, Yoshikuni, to Sankyo Kogaku Kogyo Kabushiki Kaisha. Tape recorder. 3,810,237, Cl. 360-96.000.

Nozawa, Yoshikuni, to Sankyo Kogaku Kogyo Kabushiki Kaisha. Tape recorder. 3,810,240, Cl. 360-96.000.

Nunez, Julio de Castro. Machine for the continuous manufacture of hollow elements. 3,809,514, Cl. 425-112.000.

Nuova San Giorgio S.p.A.: *See*—
Viglione, Giovanni, 3,808,788.

Nuttall, Michael W.. *See*—
Gay, Derek J., Smedley, William H., Cohen, Aaron G., Dworkin, Darryl R., Nuttall, Michael W., and Wilson, Nicol S., 3,808,732.

Oak Industries, Inc.. *See*—
Gusaras, Vladas, 3,810,145.

Oakes, James A.. *See*—
Brown, Ronald E., and Oakes, James A., 3,809,625.

Oakes, Vincent, and Iles, Brian Rodney, to Interstab Limited. Stabilisation of vinyl polymers. 3,809,677, Cl. 260-45.75k.

Oberg, Anders B., to Svenska Dataregister AB. Article coding system. 3,809,863, Cl. 235-61.11e.

Oberle, Arthur, to Brown Boveri & Company Limited. Combined emergency stop and governor valve for controlling fluid flow to a turbo-machine. 3,809,126, Cl. 137-630.140.

Occidental Energy Development Company, mesne. *See*—
Symons, Philip C., 3,809,578.

Oda, Albert Y.. *See*—
Bhutani, Harish K., Oda, Albert Y., and Hughes, Ronald A., 3,808,942.

Odynski, George. *See*—
Kooi, Edward, Odynski, George, and Stage, Leo J., 3,809,603.

Oeming, Joseph A., Heffron, Allan J., and Estry, Arthur L., 1/2 to C.M. Systems, Incorporated and 1/2 to Crankshaft Machine Company. Divided drive single spindle crankshaft machine. 3,808,653, Cl. 82-9.000.

Offenhauser, Fred C.. *See*—
Morris, George O., 3,809,032.

Offermanns, Heribert. *See*—
Udluft, Klaus, Weigert, Wolfgang, Offermanns, Heribert, and Wagner, Hans, 3,809,716.

Officine Savio S.p.A.: *See*—
Savio, Luciano, 3,809,213.

Oftedal, Tor Audun: *See*—
Nordli, Bjarne, Oftedal, Tor Audun; and Wulvik, Erik A., 3,809,526.

Ogasaware, Shoji; and Tamate, Teruzo, to Alps Electric Co., Ltd. Preset device of UHF tuner. 3,808,896, Cl. 74-10.600.

Ogawa, Shimeo, Shinozaki, Koji, and Chida, Shinpei, to Yamura Kabushiki Kaisha Shinkoseisakusho. Chinese character (Kanji) teleprinter or a Chinese character (Kanji) punching typewriter or similar apparatus. 3,809,203, Cl. 197-1.00a.

Ogawa, Shimeo, to Yamura Kabushiki Kaisha Shinkoseisakusho. Keyboard system for Chinese character teleprinter, Chinese character typewriter, monotype etc. 3,809,204, Cl. 197-1.00a.

O'Hara, Peter J.: *See*—
Lang, Charles W.; and O'Hara, Peter J., 3,810,136.

Ohlhoff, Hans-Jurgen, to Wieland-Werke AG. Circular saw machines. 3,808,922, Cl. 83-168.000.

Ohma, John Raymond. Crank system. 3,808,897, Cl. 74-44.000.

Ohniwa, Kazuhiro; and Ishikawa, Seuti, to Kabushiki Kaisha Tadano Takkosho. Boom extension means. 3,809,248, Cl. 212-55.000.

Ohta, Masanori. Method for treating oil-containing wastes. 3,809,631, Cl. 204-149.000.

Okabe, Katsuhiko, to Kabushikikaisha. Thermosensitive line printer. 3,810,192, Cl. 346-79.000.

Okawa, Sohei; and Doi, Shuhei, to Mitsubishi Petrochemical Co., Ltd. Method for antiblocking high pressure process polyethylene film. 3,809,671, Cl. 260-41.00r.

Okino, Yoshihiro: *See*—
Okuno, Noboru; Kamogawa, Toshiro; and Okino, Yoshihiro, 3,809,804.

Okubo, Hideyo: *See*—
Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, 3,809,641.

Okubo, Tsuneo; Nakamura, Shoichi; and Mori, Eizo, to Matsushita Electric Industrial Co., Ltd. Program apparatus. 3,809,918, Cl. 307-41.000.

Okuno, Noboru; Kamogawa, Toshiro; and Okino, Yoshihiro, to Matsushita Electric Industrial Co., Ltd. Automatic switching device for EVR players. 3,809,804, Cl. 178-5.20d.

Old Colony Hosiery Mills, Inc.: *See*—
Fisher, Max; and Gardner, Paul S., 3,808,842.

Oldfield, Howard P., to Worcester Textile Company. Apparatus for controlling the amount of elastic stretch in stretch woolens. 3,808,844, Cl. 68-5.00d.

Olin Corporation: *See*—
Anthony, William H.; and Popplewell, James M., 3,809,155
Bowman, Cader E.; and Lapins, Daniel W., 3,809,054.
Cianciolo, Alfred D.; Sabatine, Donald J.; and Trotz, Samuel I., 3,809,587.

Oliver, Joseph R.: *See*—
Fletcher, Ralph A.; and Oliver, Joseph R., 3,809,049.

Olivetti, Ing C., & C., S.p.A.: *See*—
Dalmasso, Claudio, 3,808,679.

Ollinger, James C.; and Wasson, Kenneth L., to Armstrong Cork Company. Direct attachment of acoustical suspension runners to metal deck roof. 3,808,763, Cl. 52-481.000.

Olsen, Willi, and Lorenz, Dieter, to Siemens Aktinegesellschaft. Means for adjusting a conductor in high voltage electrical equipment. 3,809,795, Cl. 174-28.000.

Olson, James R.: *See*—
Merrill, Stewart H.; and Olson, James R., 3,809,554.

Olsson, Anders E. I. Pressure reduction valve. 3,809,111, Cl. 137-503.000.

Olympus Optical Company, Limited: *See*—
Iyama, Akihiro, and Gomita, Minoru, 3,808,675.

Omietanski, George Michael: *See*—
Boersma, Robert Paul; Mendicino, Frank Dominic; and Omietanski, George Michael, 3,809,713.

Omni Spectra, Inc.. *See*—
Zajac, Donald M., and Kubota, James, 3,810,073.

Onda, Eiichi: *See*—
Kita, Kiyoshi; Onda, Eiichi, Koyama, Mitsuo, Nagaoka, Shinji, and Nakagawa, Tadashi, 3,810,223.
Kita, Kiyoshi, Onda, Eiichi, Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,224.

Onda, Mitsuo: *See*—
Nikando, Akira, Onda, Mitsuo, Machida, Takayasu; Nakajima, Fumio, and Yanagawa, Yoshihiki, 3,808,792.

Ono, Shigeo, and Hamaguchi, Ichiro, to Nippon Kagaku K.K. Device for controlling shutter exposure time. 3,810,226, Cl. 354-51.000.

Ono, Yasuhiro, to Iwasaki Tsushinki Kabushiki Kaisha; a/k/a Iwatsu Electric Co., Ltd. Telephone set circuit. 3,810,247, Cl. 179-81.00r.

Oota, Shiro, and Yonezawa, Keitaro. Pressure responsive valve. 3,809,117, Cl. 137-493.600.

Opittek, Eugene W.: *See*—
Heard, James L.; Hoffman, William C.; and Opittek, Eugene W., 3,810,174.

Opratko, Vaclav, Bell, James Alexander Evert; and Ferrajuolo, Roberto Vincenzo. Acid leaching of lateritic ore. 3,809,549, Cl. 75-101.00r.

Optel Corporation: *See*—
Goldmacher, Joel E., and Tayag, Miguelita G., 3,809,456.

Opti-Cap, Inc.: *See*—
Holmes, Allie B., 3,809,150.

Orban, Jean: *See*—
Vital, Zoltan; and Orban, Jean, 3,809,951.

Orehoski, Michael A.: *See*—
Andrezejak, Sigmund L.; Orehoski, Michael A.; Shapland, James T.; and Szumilas, Raymond S., 3,809,146.

Orlando, Anthony W.: *See*—
McGinnis, Bernard W.; and Orlando, Anthony W., 3,810,243.

Orlowski, Donald W.; and Eul, Edward A., Jr. Ampex Corporation. Demagnetizer and cleaning cartridge. 3,810,230, Cl. 360-128.000.

Osaka University, President of: *See*—
Ishimaru, Toshiyasu, 3,809,699.

Osland, James M., to Ketchum & McDougall, Inc. Automatic letter opener. 3,808,926, Cl. 83-356.100.

Osman, Martin S., to Polaroid Corporation. Film transport system for photographic cassette having self-contained film processing system. 3,809,327, Cl. 242-71.000.

Ostfeld, David Martin; and Togneri, Mauro Guiseppe. Data handling system. 3,810,153, Cl. 340-347.0ad.

Oswalt, Leon Marvin: *See*—
Park, Wayne Austin; and Oswalt, Leon Marvin, 3,809,280.

Ota, Katsumi: *See*—
Mori, Chiharu; Ota, Katsumi; and Togawa, Hideaki, 3,810,203.

Ota, Susumu: *See*—
Aihara, Ryuzo; Ota, Susumu; and Kobauashi, Nobuyuki, 3,810,025.

Otto, C., Dr., & Comp. G.m.b.H.: *See*—
Drebes, Friedrich-Wilhelm; and Birreshorn, Gunter, 3,809,619.
Wackerbarth, Folkard; and Beck, Kurt-Gunther, 3,809,620.

Outboard Marine Corporation: *See*—
Jereb, Richard F., and Anderson, Philip A., 3,809,044.
Jereb, Richard F., 3,810,056.

Owens-Corning Fiberglas Corporation: *See*—
Gelin, Robert J., 3,809,739.
Hurley, Raymond E., 3,808,789.

Owens-Illinois, Inc.: *See*—
Camp, Harold E.; and Grier, John D., 3,810,198.
Pei, Yu K., 3,809,599.

Oyaba, Takashi, to Pioneer Electronic Corporation. Multiple cartridge tape recorder/reproducer head shifting assembly. 3,809,827, Cl. 360-106.000.

Oyama, Yoshishige: *See*—
Hosho, Yukio; Moriya, Hisanori; and Oyama, Yoshishige, 3,809,042.

Ozawa, Kazunori, and Takahashi, Katsumasa, to Sony Corporation. Single crystal ferrite magnetic head. 3,810,245, Cl. 360-127.000.

Padilla, Benjamin A. Conveyor system. 3,809,211, Cl. 198-192.00r.

Paffett, James Arthur Haines: *See*—
Horsford, Anne; Lewison, George Richard Grant; and Paffett, James Arthur Haines, 3,809,000.

Paglia, Richard: *See*—
Warehani, Richard R.; and Paglia, Richard, 3,810,211.

Paglia, Richard, to Polaroid Corporation. Detachable spread roller housing section. 3,810,220, Cl. 354-212.000.

Pai, David H.: *See*—
Berman, Irwin; Henschel, Robert; Pai, David H.; Nash, Charles F.; Mack, Anthony M.; and Alfano, Bernardino M., 3,808,880.

Palar (Curacao) N.V.: *See*—
Chromy, Franz, 3,808,938.

Palma, Joseph; and Christiansen, Henning, to Lyon & Healy, Inc. Harp truck. 3,809,231, Cl. 206-314.000.

Palmer, Leon B., to Congoleum Industries, Inc. Process of making indentation recovery polyvinyl chloride surface covering by reacting the cellulosic felt backing with a cross-linking agent and product produced thereby. 3,809,534, Cl. 8-115.600.

Pamer, Karl A., to McNeil Corporation. Fluid thrust device. 3,809,382, Cl. 267-65.00a.

Panchal, Navnit: *See*—
McLaren, Vincent H., Jr.; and Panchal, Navnit, 3,808,917.

Papillon, Bernard: *See*—
Neel, Jean; and Papillon, Bernard, 3,809,535.

Papst-Motoren KG, Ltd., Co.: *See*—
Schlicker, Volker; and Wrobel, Gunter, 3,809,503.

Paragon Wire & Cable Corporation: *See*—
Gaul, Robert G., 3,809,331.

Pariel, Jean-Marie: *See*—
Wang, Robert; and Pariel, Jean-Marie, 3,809,525.

Park, Lester D.: *See*—
Rothfuss, Robert G.; and Park, Lester D., 3,808,620.

Park, Wayne Austin; and Oswalt, Leon Marvin, to Cato Oil and Grease Co. Closures for containers. 3,809,280, Cl. 220-42.00c.

Parker, Winfred E.: *See*—
Magne, Frank C.; Mod, Robert R.; Sumrell, Gene; and Parker, Winfred E., 3,809,706.

Parks, William Louis; Grenoble, William Luster, Jr.; Harjes, Henry Herman, Jr.; and McCarthy, Lawernce James, to Telserve Inc. System for transmission and analysis of biomedical data. 3,810,102, Cl. 340-172.500.

Parkson Corporation. *See*—
Minor, Paul S., 3,809,708.

Parson, Ronald F., to Graco Inc. Safety circuit for electrostatic spray gun. 3,809,955, Cl. 317-3.000.

Paskert, Joseph H.: *See*—
Moran, Thomas M.; and Paskert, Joseph H., 3,808,635.

Passpoint Corporation: *See*—
Aaron, Albert Glenn, 3,809,919.

Patel, Arvind M., to International Business Machines Corporation. Data coding with stable base line for recording and transmitting binary data. 3,810,111, Cl. 340-172.500.

Patentverwertungs- und Finanzierungsgesellschaft Serania AG: *See*—
Schmid, August; and Goens, Georges, 3,809,400.

Paynter, Donald A.: *See*—
Burpee, Lee E.; and Paynter, Donald A., 3,810,172.

Pearce, Larry Neil, to Baxter Laboratories, Inc., mesne. Replicating apparatus with locking means. 3,808,969, Cl. 101-72.000.

Pearson, Frank Arthur, to Gulf & Western Industries, Inc. Relay clutch timer. 3,810,050, Cl. 335-75.000.

Pearson, Stanley, to Crescent Insulated Wire & Cable Company, Inc. Round electric cable for severe environmental operation and method of manufacture thereof. 3,809,802, Cl. 174-103.000.

Pearson, William M.: *See*—
Mueller, John W.; and Pearson, William M., 3,809,114.

Peaslee, Robert L. Metal foil-making process. 3,809,553, Cl. 75-213.000.

Pei, Yu K., to Owens-Illinois, Inc. Method for forming glass-ceramic articles. 3,809,599, Cl. 161-1.000.

Pekarek, William R., to Aluminum Company of America. Clip and hanger structure for buildings. 3,809,347, Cl. 248-48.100.

Pekau, Dietlind; and Kiemle, Horst, to Siemens Aktiengesellschaft. Coupling device for optical wave guides. 3,809,455, Cl. 350-96.0wg.
Peltonen, Lahja Arvid, to Valmet Oy. Lateral container grabber having carrying pins at the upper corners of the containers. 3,809,270, Cl. 214-621.000.
Peltzer & Ehlers: *See—*
Koch, Friedrich-Karl; and Rahn, Oskar, 3,809,255.
Pemcor, Inc.: *See—*
McGlashan, Kenneth W., 3,810,053.
Pentron Industries, Inc.: *See—*
Sampey, Harry R., 3,809,864.
Perry, E. S., Limited: *See—*
Ebdon, Ronald William, 3,808,793.
Perry, Lawrence. Carton assembling apparatus. 3,808,959, Cl. 93-53.0ac.
Persios, Georgia J., to Amazon Natural Drug Company, The. Topical pharmaceutical composition and method employing sap from the tree croton lechleri. 3,809,749, Cl. 424-195.000.
Persson, Eric J.: *See—*
Chayka, George A.; Persson, Eric J.; and Ziobro, Norbert M., 3,810,016.
Persson, Gert Artur; and Severinsson, Lars Mattis, to Svenska Aktiebolaget Bromsregulator. Force transmitting device of a weighing valve for a vehicle. 3,808,954, Cl. 92-65.000.
Persson, Hans-Uno: *See—*
Fortuna, Achille C.; and Persson, Hans-Uno, 3,810,020.
Persson, Karl Rune, to Sprinter Pack AB. Coupling or lock between two sheets of different materials such as carton and plastic. 3,809,305, Cl. 229-45.000.
Perughia, Marco, to Fiat Societa per Azioni. Delivery limiting valve unit for refrigeration curcuits. 3,808,829, Cl. 62-217.000.
Petcher, Rhett R. Nut harvesting device. 3,808,785, Cl. 56-328.000.
Peters, Armin, to Rohe, A. Method and apparatus for drying washed motor vehicles and for heating the washing and drying stations. 3,808,698, Cl. 34-33.000.
Peterson, Arthur H., and Britz, Galen C., to Minnesota Mining and Manufacturing Company. Low-friction slide bearings. 3,809,442, Cl. 305-14.000.
Peterson, Ronald M. Boat hull construction to provide stern lift. 3,808,999, Cl. 114-66.50s.
Petigara, Ramesh B.: *See—*
Yale, Harry L.; and Petigara, Ramesh B., 3,809,698.
Petrie, James Alexander: *See—*
Gilbert, Ronald Albert; Petrie, James Alexander; and Bracey, Kenneth Edward George, 3,808,913.
Petro, Jozsef: *See—*
Csuros, Zoltan; and Petro, Jozsef, 3,809,658.
Petrolite Corporation: *See—*
Lucas, Roy N., 3,808,795.
Redmore, Derek, 3,809,694.
Petry, Chester H., Jr.: *See—*
Byers, Donald W.; Petry, Chester H., Jr.; Nordstrom, Carl G.; and Hensley, James Carl, 3,808,722.
Pettersson, Sven-Olof: *See—*
Aslund, Nils Robert Dahr; Pettersson, Sven-Olof; and Angelstrand, Sten Borje, 3,809,482.
Pfaff Industriemaschinen GmbH. *See—*
Dobner, Reinhold; Willenbacher, Erich; and Baus, Wolfgang, 3,808,995.
Mall, Gunther, 3,808,992.
Pferd, William; and Witt, Eugene Francis, to Bell Telephone Laboratories, Incorporated. Blast-actuated control system. 3,810,141, Cl. 340-240.000.
Pfundstein, Karl; and Fallert, Erich, to Bopp & Reuther GmbH. Shutoff valve. 3,809,361, Cl. 251-305.000.
Phelon, R. E., Company, Inc.: *See—*
Burson, Bob O.; and Phelon, Russell Dale, 3,809,040.
Phelon, Russell Dale: *See—*
Burson, Bob O.; and Phelon, Russell Dale, 3,809,040.
Phifer, William M. Artist's easel. 3,809,354, Cl. 248-449.000.
Philadelphia Handle Company, Inc.: *See—*
Szabo, Marton J., 3,808,634.
Philco-Ford Corporation: *See—*
Gregerson, David A.; and Arora, Vinod K., 3,809,510.
Philip Morris Incorporated: *See—*
Begemann, Carl J., 3,809,227.
Phillip Fibers Corporation: *See—*
Blore, James H.; and Balcombe, Bobby L., 3,808,843.
Phillips Petroleum Company: *See—*
Alquist, Henry E., 3,809,039.
Harper, Ernest A.; and Bailey, Dunn M., 3,808,826.
Johnson, Marvin M.; and Kuper, Donald G., 3,809,727.
Williams, Ralph P., 3,809,655.
Phillips, Wendell Gary, to Monsanto Company. N,N'-substituted thiooxaamide, S-oxides. 3,809,702, Cl. 260-326.400.
Philo, Kenneth W. Self-powered casing for forming cast-in-place piles. 3,808,821, Cl. 61-53.640.
Piccone, John G., to Singer Company, The. Method and system for inter-character apace modification to adjust the length of a line of copy to fit an allotted line length. 3,810,197, Cl. 354-9.000.
Pielkenrood, Simon, to Pielkenrood-Vinitex N.V. Vibration suppressing table. 3,808,983, Cl. 108-136.000.
Pielkenrood-Vinitex N.V.: *See—*
Pielkenrood, Simon, 3,808,983.
Pieper, Wilhelm: *See—*
Sieben, Karl Heinrich; and Pieper, Wilhelm, 3,808,930.
Pilarczyk, Karol, to Carrier Corporation. Interchangeable compressor drive. 3,809,493, Cl. 415-199.00a.
Pilch, John S., to Ware Machine Works, Inc. Telescopic apparatus. 3,809,250, Cl. 212-55.000.
Pilkington Brothers Limited: *See—*
Gaskell, Philip Hedley; Lythgoe, Stanley; Irlam, Philip Sidney; Miller, Robert Percy; and Barry, Thomas Ian, 3,809,543.
Lythgoe, Stanley; and Irlam, Philip Sidney, 3,809,542.
Pioneer Electronic Corporation: *See—*
Oyaba, Takashi, 3,809,827.
Pipa, William J., to Dicker International, Inc. Toy wind instrument having simulated valve controls forming switch buttons. 3,808,733, Cl. 46-44.000.
Pipes, George R., to Kenway Engineering, Incorporated. Handle engaging tote pan retractor. 3,809,259, Cl. 214-16.40a.
Pirochta, John F., Jr., to General Motors Corporation. Vehicle drive axle wheel assembly. 3,809,177, Cl. 180-88.000.
Pitner, Alfred, 1/2 to Nadella. Thrust rolling bearing. 3,809,446, Cl. 308-217.000.
Pitstick, Martin H., to General Electric Company. Rack level adjustment system in a dishwasher. 3,809,451, Cl. 312-351.000.
Pittman, Allen G., and Wasley, William L., to United States of America, Agriculture. Siloxane polymers for soil-repellent and soil-release textile finishes. 3,809,783, Cl. 260-46.50y.
Plasser, Franz; and Theurer, Josef. Mobile track gage surveying apparatus. 3,808,693, Cl. 33-144.000.
Plazier, Nico, to Hoogovens Ijmuiden B.V. Metal factory with at least one tiltable converter. 3,809,376, Cl. 266-16.000.
Plegat, Alain Edouard, to Societe Anonyme des Usines Chausson. Apparatus for continuously forming a tube and continuously cutting the tube into substantially uniform lengths. 3,808,861, Cl. 72-132.000.
Plegat, Alain Edouard, to Societe Anonyme des Usines Chausson. Apparatus for cutting continuously advancing tubes. 3,808,923, Cl. 83-196.000.
Plegat, Alain Edouard, to Societe Anonyme des Usines Chausson. Apparatus for cutting a continuously advancing tube into sections of equal length. 3,808,928, Cl. 83-289.000.
Plessey Handel und Investments A.G.: *See—*
Beddoe, Stanley, 3,809,839.
Davies, Anthony Roger, 3,808,950.
Henning, Michael Laurence, 3,809,912.
Plummer, Walter A.: *See—*
Bannies, Hans E., 3,808,665.
Plummer, William T., to Polaroid Corporation. Viewfinder for a reflex camera. 3,810,221, Cl. 354-219.000.
Plunkett, George B.; Plunkett, Patricia M.; Kroh, Loren H.; and Kroh, Elizabeth H. Rim lock conversion set. 3,808,855, Cl. 70-440.000.
Plunkett, Patricia M.: *See—*
Plunkett, George B.; Plunkett, Patricia M.; Kroh, Loren H.; and Kroh, Elizabeth H., 3,808,855.
Polaroid Corporation: *See—*
Bennett, Stewart, 3,809,464.
Biber, Conrad H., 3,810,212.
Brandt, Edison R., 3,809,878.
Downey, Rogers B., 3,809,104.
Feingold, Michael H., 3,809,704.
Gross, T. A. O., and Wilson, Stewart W., 3,810,188.
Land, Edwin H.; and Douglas, Lawrence M., 3,810,201.
Mason, Paul B., 3,809,465.
Osman, Martin S., 3,809,327.
Paglia, Richard, 3,810,220.
Plummer, William T., 3,810,221.
Wareham, Richard R.; and Paglia, Richard, 3,810,211.
Polevy, John Henry; and Randall, John Justin, to Synthron Chemicals, Inc. Methoxymetylation of 3-(dialkylphosphono) propionamides. 3,809,730, Cl. 260-968.000.
Poley, Neil Myron, to International Business Machines Corporation. Multiple function vidicon tube including a transmission grid. 3,809,946, Cl. 315-11.000.
Polistina, Rocco Albert: *See—*
Schmitt, Edward Emil, Polistina, Rocco Albert, and Forgione, Peter Salvatore, 3,809,605.
Schmitt, Edward Emil; and Polistina, Rocco Albert, 3,809,683.
Polymer Corporation Limited: *See—*
Chick, Orest Nicholas; and Means, Graham Neville, 3,809,666.
Poncy, George William, to Johnson & Johnson. Sheath-package and method. 3,809,230, Cl. 206-306.000.
Ponder & Best, Inc.: *See—*
Vital, Zoltan, and Orban, Jean, 3,809,951.
Pool, Sam Lee: *See—*
Karsten, Fred W.; Evans, James D.; and Pool, Sam Lee, 3,810,148.
Poole, William F.: *See—*
Bottjer, Richard E.; Johnson, Delp W.; Poole, William F.; and Storm, James P., 3,808,754.
Pope, James C.: *See—*
Faurschou, Donald K.; Misener, Donald C.; Pope, James C.; and Hadden, Richard, 3,809,639.
Popplewell, James M.: *See—*
Anthony, William H.; and Popplewell, James M., 3,809,155.
Porret, Daniel: *See—*
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, 3,809,660.

Porret, Daniel; and Fatzer, Willy, to Ciba-Geigy AG. Diglycidyl compounds containing two N-heterocyclic rings. 3,809,696, Cl. 260-256.40c.
Porsche, Dr.-Ing. H.c.F., KG: *See—*
Bemsel, Walter; and Schreiner, Hermann, 3,810,086.
Porsche, Dr.-Ing. H.c.F., K.G., Firma: *See—*
Stehle, Heinz, 3,809,192.
Porter, Frederic E.; and Kaerwer, Howard E., Jr., to Northrup, King & Co. Coated seeds and methods. 3,808,740, Cl. 47-58.000.
Porter, H. K., Company, Inc.: *See—*
Fantini, Ralph S.; and Davison, Robert W., 3,809,590.
Porter, Wilson B.; and Klein, Harold T., said Porter assor. to Robbins, James S., and Assoicates, Inc. and said Klein assor. to Robbins Company, The. Earth drilling machine. 3,808,916, Cl. 81-57.190.
Portoulas, Peter G., to Ecos Corporation. Device for determining improper reversal and/or short of ground and neutral lines and amount of impedance in ground line of a three-wire A.C. outlet. 3,810,003, Cl. 324-51.000.
Possati, Mario, to Finke Italiana Marposs Soc., In Accomandita Semplice de Mario Possati & Co., mesne. Measuring apparatus including position correcting means. 3,808,696, Cl. 33-178.00e.
Post, Donald S.; and Reehil, Edward G., to Xerox Corporation. Copier fuser protector. 3,809,475, Cl. 355-14.000.
Potter Instrument Company, Inc.: *See—*
Kilroy, Henry P.; and Murphy, Harold J., 3,810,195.
Potter, Newton L.: *See—*
Barrett, William T.; and Potter, Newton L., 3,809,239.
Poujois, Robert, to Commissariat a l'Energie Atomique. Integrated amplifying device having low drift and method of compensating for the drift of an amplifying device. 3,810,031, Cl. 330-9.000.
Poulten, John H., to Poulten, John, Limited. Piston and cylinder device. 3,809,297, Cl. 222-309.000.
Poulten, John, Limited: *See—*
Poulten, John H., 3,809,297.
Povlacs, Lawrence J.; and Crawley, William B., to Akwell Industries, Incorporated. Rubber article. 3,809,090, Cl. 128-294.000.
Power Conversion, Inc.: *See—*
Jagid, Bruce E., 3,809,580.
Pozzetti, Mario; and Mordini, Claudio, to Finike Italiana Marposs Soc. In Accomandita Semplice de Mario Possati & C. Device for calculating the mean value of a succession of data. 3,809,874, Cl. 235-183.000.
Prasse, Herbert F.; and McCormick, Harold E., to Ramsey Corporation. Method of making a hard alloy matrix containing a tungsten-boron phase. 3,809,546, Cl. 75-.5bc.
Pratt, Harry M., Magol, Byram J., and Money, Dudley P., to Foster Wheeler Corporation. Vapor generator mixing section support. 3,809,018, Cl. 122-510.000.
Precision Mecanique Labinal: *See—*
Bessiere, Pierre Etienne, 3,809,199.
Precision Sampling Corporation: *See—*
Harris, Rano J., Sr., and Harris, Rano J., Jr., 3,809,298.
Prellwitz, Samuel B., to United States Steel Corporation. Detector for particulate matter in flowing gas streams. 3,809,913, Cl. 250-575.000.
Prenzel, Karl: *See—*
Siebers, Gunter, Prenzel, Karl; and Barthel, Hans, 3,808,738.
Presky, Dennis Robert: *See—*
Crowley, Lee Francis; Presky, Dennis Robert; and Missenda, Andrew Michael, 3,810,023.
Pressman, Gerald L., and Kittredge, Thomas D., to Electroprint, Inc., mesne. Method of aperture controlled electrostatic image reproduction or constitution. 3,809,556, Cl. 96-1.00r.
Pressman, Gerald L.; and Kittredge, Thomas D., to Electroprint, Inc., mesne. Method for aperture controlled electrostatic image color reproduction or constitution. 3,809,557, Cl. 96-1.200.
Preston, Frederick A.; Tarbox, Philip B., and Anderson, Gordon C., to Saco-Lowell Corporation. Spindle brake with articulated and detachable brake shoes. 3,808,790, Cl. 57-88.000.
Preussag Aktiengesellschaft: *See—*
Kuhlmann-Schafer, Wilhelm, 3,809,145.
Pribyl, Edward J.: *See—*
Fried, Josef; Pribyl, Edward J.; and Krapcho, John, 3,809,720.
Price, George McNair. *See—*
Moore, Lewis Frank; and Price, George McNair, 3,809,062.
Pro-Lect, Inc.: *See—*
Krause, Stephen R.; and Hendler, Nelson, 3,809,985.
Procter & Gamble Company, The: *See—*
Anderson, John Alfred, 3,809,098.
Liepa, Alexander L., 3,808,962.
Spence, Thomas William Matches, 3,809,646.
Ulrich, Donald Aloysious, Jr., 3,809,088.
Yetter, Jerry Joseph, 3,809,711.
Yetter, Jerry Joseph, 3,809,712.
Produits Findus S.A.: *See—*
Akesson, Yngve Reinhold, 3,809,209.
Prohofsky, Leroy A., to Sperry Rand Corporation. Volatile memory protection. 3,810,116, Cl. 340-172.500.
Proni, Antonio: *See—*
Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, 3,809,684.
Prutton Corporation: *See—*
Matej, Ronald J., 3,808,623.
Pryce, William; and Foster, Eric, to Northern Electric Company, Limited. Slitting of an electrically charged tape. 3,808,919, Cl. 83-7.000.
Pryde, Carolie Anne: *See—*
Chandross, Edwin Arthur; Pryde, Carolie Anne; Tomlinson, Walter John, III; and Weber, Heinz Paul, 3,809,732.
Ptacek, Matha C. Wiglet holder. 3,809,383, Cl. 269-91.000.
Puccini, Sergio E.: *See—*
Eddy, John W.; and Puccini, Sergio E., 3,809,822.
Pucher, Walter, to Allmanna Svenska Elektriska Aktiebolaget. Circuit interrupting means for high-voltage direct current. 3,809,959, Cl. 317-11.00e.
Puckette, Charles McD.: *See—*
Butler, Walter J.; and Puckette, Charles McD., 3,810,126.
Pulsifer, Verne, to Copper Range Company. Continuous casting die with compatible lining and jacket. 3,809,148, Cl. 164-283.00m.
Purdy, Chester A. Liquid proportioning system. 3,809,291, Cl. 222-145.000.
Purex Corporation, Ltd.: *See—*
Brett, James E., 3,809,247.
Purr, Gerhard: *See—*
Engelke, Wilhelm; and Purr, Gerhard, 3,808,819.
Putman, Richard E., to Westinghouse Electric Corporation. Computer control system for refining and hydrogenation of unsaturated hydrocarbons. 3,809,621, Cl. 202-205.000.
Pye Limited: *See—*
Rhodes, John George Laycock, 3,809,826.
Pyne, William R.: *See—*
Gross, Edward L., Jr.; Pyne, William R.; and Yauger, Donald L., 3,809,338.
Pyrz, Edmund J.: *See—*
Bush, John W.; and Pyrz, Edmund J., 3,809,756.
Quigley, Peter J. C. Board for a board game. 3,809,407, Cl. 273-134.00g.
Quillet, Gerard: *See—*
Bruhlet, Paul; and Quillet, Gerard, 3,809,524.
Raber, John Wayne. Incinerator. 3,808,985, Cl. 110-3.000.
Rabow, Jack Jacob: *See—*
Avon, Eric Joseph; and Rabow, Jack Jacob, 3,808,827.
Raczhabov, Nadir Asker Ogly. Flat direct-flow gate valve. 3,809,360, Cl. 251-196.000.
Raffinerie tirlemontoise: *See—*
Duchateau, Georges F., 3,809,538.
Ragard, Phillip A., to Universal Instruments Corporation. Automatic component process system. 3,808,662, Cl. 29-203.00b.
Rahn, Oskar: *See—*
Koch, Friedrich-Karl; and Rahn, Oskar, 3,809,255.
Rainer, Norman B. Stable vinyl chloride polymer structures and method of producing them. 3,809,669, Cl. 260-2.50r.
Raitt, Edward D. Loading process for ice cream carrier strip. 3,809,774, Cl. 426-393.000.
Rakaska, Bertha R., 20% to Lee, Raymond, Organizations, Inc., The. Tissue paper roll container and dispenser. 3,809,448, Cl. 312-39.000.
Ramsey Corporation: *See—*
Prasse, Herbert F.; and McCormick, Harold E., 3,809,546.
Rana, Victoriano F., to Harris-Intertype Corporation. Method and apparatus for off-line make-ready. 3,809,385, Cl. 270-54.000.
Randall, Alan C., to Sea Harvest, Inc. Sea harvesting apparatus and method. 3,808,779, Cl. 56-9.000.
Randall, John Justin: *See—*
Polevy, John Henry; and Randall, John Justin, 3,809,730.
Randolph, Richard L.: *See—*
Schaad, Howard A.; and Randolph, Richard L., 3,809,825.
Raper, Hubert L.: *See—*
White, Stanley A.; and Raper, Hubert L., 3,810,182.
Rapport, Henry, to University of California, The Regents of the. Certain 5,6-dioxopyrrole [2,1-b] thiazoles. 3,809,700, Cl. 260-306.700.
Ratcliff Industries, Inc.: *See—*
Ratcliff, Rudy J., 3,809,426.
Ratcliff, Rudy J., to Ratcliff Industries, Inc. Mechanism for raising and lowering telescopic travel trailer. 3,809,426, Cl. 296-27.000.
Ratcliffe, Robert E. G.: *See—*
Kilgore, Lee A.; Ratcliffe, Robert E. G.; Smith, Henry L.; and Strait, Bernard S., Jr., 3,809,914.
Ratte, Wilfred L., Jr., to Water Gremlin Company. Attachments for fishing lines. 3,808,728, Cl. 43-44.910.
Rauland-Borg Corporation: *See—*
Dahlquist, James E.; and Medal, Richard J., 3,809,824.
Rautiola, Norman A.: *See—*
Miller, Gerald K.; and Rautiola, Norman A., 3,809,833.
Miller, Gerlad K.; and Rautiola, Norman A., 3,810,149.
Rawson, Donald E.; Greene, Norman D.; and Hoylman, H. Wayne. Heat flow transducer for thermal surveys. 3,808,889, Cl. 73-341.000.
Raymond, Edwin Stanley. Flanging device. 3,808,869, Cl. 72-409.000.
Raymond, Jan Wayne; and Whetstone, Clay N. Method for making products suitable for use in forming composite superconductors. 3,809,147, Cl. 164-122.000.
Raytheon Company: *See—*
Hertz, Daniel, 3,809,925.
RCA Corporation: *See—*
Crowley, Lee Francis; Presky, Dennis Robert; and Missenda, Andrew Michael, 3,810,023.

Duffy, Michael Thomas; and Carnes, James Edward, 3,809,574.
Gange, Robert Allen; and Steinmetz, Carl Charles, 3,809,974.
Gardiner, Arthur Noel; and Stern, Herman Abraham, 3,808,769.
Heuner, Robert Charles; and Niemiec, Stanley Joseph, 3,809,458.
Young, Alexander Wilson, 3,809,926.

Reber, Raudi: *See—*
Scholz, Joachim; and Reber, Raudi, 3,810,066.

Redemann, James W. Cassette-slide synchronizer. 3,809,364, Cl. 353-15.000.

Redman, Robert Frederick, to Rolls-Royce (1971) Limited. Vane or blade for a gas turbine engine. 3,809,494, Cl. 416-97.000.

Redmore, Derek, to Petrolite Corporation. Dihydrophenanthridine phosphonates. 3,809,694, Cl. 260-286.00a.

Reed, Joseph; and De Lorenzo, Joseph F., to Litton Systems, Inc. Communication system utilizing frequency division multiplexing to link a plurality of stations each containing a switchable synthesizer. 3,809,815, Cl. 179-15.0fd.

Reed, Joseph; Shapiro, Jonas M.; Iliakidis, Athanassious; and Apostolakis, Anthony, to Litton Systems, Inc. Communication system utilizing frequency division multiplexing and a frequency plan therefor. 3,809,816, Cl. 179-15.0fd.

Reehil, Edward G.: *See—*
Post, Donald S.; and Reehil, Edward G., 3,809,475.

Reeves, Robert Sims. Cup-mouthpiece with divisible shank. 3,808,935, Cl. 84-399.000.

Rehman, Warren C.: *See—*
Rivkowich, Harold; Rehman, Warren C.; Knapp, William, and Borders, Bert, 3,809,769.

Reid, Laurie M., to Master Packaging Equipment, Inc. Method of and apparatus for shrink packaging. 3,808,767, Cl. 53-30.000.

Reid, Robert E.: *See—*
Crawford, Wheeler C.; Godfrey, Arthur W.; and Reid, Robert E., 3,809,651.

Reid, Walter L., Jr.: *See—*
Tirrell, C. Barry; and Reid, Walter L., Jr., 3,809,966.

Reinertsen, Tormod K.: *See—*
Leicht, Charles; and Reinertsen, Tormod K., 3,809,396.

Reinhard, Donald L., to General Electric Company. Flame retardant thermoplastic compositions. 3,809,729, Cl. 260-874.000.

Reinhard, Florence. Toe protecting bed clothing rail. 3,808,614, Cl. 5-319.000.

Reisman, Jack L. Lens processing apparatus'. 3,809,238, Cl. 209-83.000.

Reissinger, Gottfried; and Reissinger, Harro, said Harro assor. to said Gottfried. Double bladed snowplow with overload release. 3,808,714, Cl. 37-42.0vl.

Reissinger, Harro: *See—*
Reissinger, Gottfried; and Reissinger, Harro, 3,808,714.

Reist, Walter, to Fehr & Reist AG. Turning conveyor for flat structures, especially printed products. 3,809,214, Cl. 198-33.00ab.

Reiswig, Robert D.: *See—*
Wewerka, Eugene M.; Impresela, Richard J.; and Reiswig, Robert D., 3,809,565.

Reliance Time Controls, Inc.: *See—*
Flegel, David D., 3,810,064.

Relyea, Vincent L., Jr.: *See—*
Lafrate, Pasco F.; and Relyea, Vincent L., Jr., 3,808,680.

Reminton Arms Company, Inc.: *See—*
Linde, John P., 3,808,724.

Remy, E. P., et Cie: *See—*
Berry, Jean-Luc, 3,809,768.

Renner, Hermann; and Sacco, Bruno, to Daimler-Benz Aktiengesellschaft. Vehicle door, especially for passenger motor vehicles. 3,808,743, Cl. 49-502.000.

Renzo, Peter C., to Creative Logic Corporation. Optical seanner 3,809,894, Cl. 250-236.000.

Research Corporation: *See—*
Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Venkatasubramanian, Kalyanasundram, 3,809,613.

Reserach Laboratories of Australia Pty. Limited. *See—*
Marley, Brian George, 3,809,555.

Retzer, Kenneth W.: *See—*
Meyer, Charles F.; and Retzer, Kenneth W., 3,809,958.

Revord, Orville J. Gypsum-based building product and method of producing same. 3,809,566, Cl. 106-110.000.

Rexroth, G. L., GmbH: *See—*
Knaak, Hans, 3,808,952.

Reyhing, Jorg; and Rohde, Wilhelm, to Linde Aktiengesellschaft. Process and apparatus for the adsorptive purification of gases. 3,808,773, Cl. 55-31.000.

Reynolds, Keith R.: *See—*
Edson, Gwynne I.; and Reynolds, Keith R., 3,809,628.

Rheinische Werkzeug- und Maschinenfabrik GmbH. *See—*
Zarth, Karl-Heinz, 3,809,979.

Rheinstahl Aktiengesellschaft, Firma: *See—*
Von Braunschweig, Georg, 3,809,176.

Rheinstahl Eggers-Kehrhahn GmbH: *See—*
Bredehorn, Friedrich; and Doge, Heinz, 3,809,206.

Rheintechnik Weiland & Kaspar OHG: *See—*
Wiek, Claus, 3,809,015.

Rhodes, John George Laycock, to Pye Limited. Punched card reading telephone instrument. 3,809,826, Cl. 179-90.0cs.

Rhodes, Robert L., to Mueller Co. Gate valve stem thrust collar lubrication. 3,809,363, Cl. 251-355.000.

Rhone-Poulenc S.A.: *See—*
Niogret, Gilbert, 3,809,246.

Rhone-Progil: *See—*
Allemand, Pierre; and Hovasse, Christian, 3,809,665.

Ricci, David W., to Hewlett-Packard Company. Data transfer control apparatus. 3,810,103, Cl. 340-172.500.

Rice, Verner K.: *See—*
Chang, Gregory I.; Buhrke, Rolfe E.; Rice, Verner K.; and Mele, John J., 3,810,121.

Rich, Barry S.: *See—*
Morris, Floyd D.; and Rich, Barry S., 3,810,109.

Richards, Willie J.: *See—*
Howland, Robert F.; Mansky, Michael H.; and Richards, Willie J., 3,809,781.

Richardson-Merrell Inc.: *See—*
Mac Kenzie, Robert Douglas; and Tilford, Charles Hormon, 3,809,753.

Richmond, Henry, to American Cyanamid Company. Bis(alkylsulfonyl)vinylbenzenes as UV-absorbers in polymers. 3,809,674, Cl. 260-45.90r.

Richmond, William J.: *See—*
Krock, Richard H.; and Richmond, William J., 3,808,671.

Richner, Hans, to Hatebur, F. B., AG. Device for the lateral adjustment and adjustment in height of the ram bearer on presses for noncutting metal shaping. 3,808,871, Cl. 72-447.000.

Rico, Luis Edgar. Button for electrical switch or the like. 3,809,841, Cl. 200-329.000.

Riegel Textile Corporation: *See—*
Estes, Phillip Waite, 3,809,604.

Rigney, Jack C.; Hollis, Samuel H.; and Doonan, Nathaniel J., to Thursday Company, The. Disposable insert for litter box. 3,809,013, Cl. 119-1.000.

Ring, Charles E.: *See—*
Bond, Herbert M.; and Ring, Charles E., 3,809,642.

Rininger, Paul R., to Global Marine Inc. Submerged chain angle measurement. 3,810,081, Cl. 340-3.00r

Risman, Per Olov G.; and Rosengren, Lars O., to Husqvarna Vapenfabriks Aktiebolag. Microwave heating apparatus. 3,810,248, Cl. 219-10.550.

Rivkowich, Harold; Rehman, Warren C., Knapp, William; and Borders, Bert, to Tetley Inc. Method of extracting tea. 3,809,769, Cl. 426-312.000.

Robbins Company, The: *See—*
Porter, Wilson B.; and Klein, Harold T. (said Klein assor. to), 3,808,916.

Robbins, James S., and Associates, Inc.: *See—*
Porter, Wilson B., and Klein, Harold T. (said Porter assor. to), 3,808,916.

Robertshaw Controls Company: *See—*
Branson, Charles D., 3,809,313
Hipple, George M., 3,809,834
Lucas, William P., 3,808,816.
Nelson, Rodney W., 3,810,054.

Robin International, Inc.: *See—*
Fader, Seymour, 3,809,476.

Robinson, Fran: *See—*
Betts, Max William; and Robinson, Fran, 3,808,841.

Robinson, Keith, to Dowty Fuel Systems Limited. Fuel systems for aircraft gas turbine engines. 3,808,797, Cl. 60-39.28r.

Robinson, William m.: *See—*
Leister, Edwin S.; Kovach, George F.; and Robinson, William m., 3,810,252.

Rocher, George, to Metallurgical Exoproducts Corporation. Hot top maintaining system for an ingot mold. 3,809,355, Cl. 249-106.000.

Rocher, George; and Vayda, Pierre Andre, to Metallurgical Exoproducts Corporation. Apparatus for ladle additions. 3,809,380, Cl. 266-34.00t.

Rockwell International Corporation. *See—*
Bonds, James Vaull; and McCaskill, John Walton, 3,809,158.

Rodler, Waldo E., Jr. Propulsion system. 3,809,005, Cl. 115-12.00r.

Roeder, George; and Schmidt, Claus, to Messer Griesheim GmbH. Machine for maintaining constant the distance of a cutting or welding torch from the work piece. 3,809,308, Cl. 228-9.000.

Roeder, Neil M., to Zenith Radio Corporation. Shadow mask for color cathode ray tube and method of manufacture thereof. 3,809,945, Cl. 313-85.00s.

Roehrig, John A. Screw head. 3,808,937, Cl. 85-45.000.

Rogers, Frank J.; and Mac Close, Joe, to Rogers Sales & Service, Inc. Process for manufacture of a plastic conduit connector component. 3,809,737, Cl. 264-154.000.

Rogers, Philip A., to AMF Incorporated. Ultrasonic wall thickness measurement. 3,808,879, Cl. 73-67.900.

Rogers Sales & Service, Inc.: *See—*
Rogers, Frank J.; and Mac Close, Joe, 3,809,737.

Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, to Snam Progetti, S.p.A. Process for the production of homopolymers and copolymers of episulphides and product thereof. 3,809,684, Cl. 260-79.000.

Rogov, Iosif Alexandrovich: *See—*
Levin, Igor Anatolievich; Levin, Anatoly Yakovlevich; Fedorov, Nikolai Evstigneevich; Rogov, Iosif Alexandrovich; Afanasov, Erik Eduardovich; and Turyansky, Eduard Grigorievich, 3,809,341.

Rohan, George Alexander, to Kappa Holding A.G. Polychloroprene rubbers. 3,809,567, Cl. 106-306.000.

Rohde, Wilhelm: *See—*

Reyhing, Jorg; and Rohde, Wilhelm, 3,808,773.

Rohe, A.: *See—*
Peters, Armin, 3,808,698.

Rolland, Albert, S.A.: *See—*
Thuillier, Yvonne; and Giono-Berber, Paulette, born Crouy-Sur-Ourcq, Michel, 3,809,750.

Rolls-Royce (1971), Limited: *See—*
Gilbert, Ronald Albert; Petrie, James Alexander; and Bracey, Kenneth Edward George, 3,808,913.
Redman, Robert Frederick, 3,809,494.
Scott-Scott, John Lanfear, 3,808,804.

Rosberg, Frantisek; Linda, Josef; Buzga, Ondrej; Dusek, Miloslav; and Cvetler, Jiri, to Tos Hostivar, narodni podnik. Safety guards for grinding wheels. 3,808,749, Cl. 51-269.000.

Rose, Daniel G. Helmet with quick release means for storing goggles thereon. 3,808,604, Cl. 2-10.000.

Rose, Frederick A.: *See—*
Carpentier, John H.; and Rose, Frederick A., 3,808,613.

Rose, William Henry: *See—*
Lockard, Joseph Larue; and Rose, William Henry, 3,809,830.

Rosemount Engineering Company Limited. *See—*
Harris, Edward Paul, 3,810,012.
Johnston, James Stewart; and Fellow, David Frank, 3,810,151.

Rosen, Harold A.: *See—*
Andrews, George J.; and Rosen, Harold A., 3,809,337.

Rosenbaum, Della S. Apparatus for making fringe. 3,808,990, Cl. 112-9.000.

Rosengren, Lars O.: *See—*
Risman, Per Olov G.; and Rosengren, Lars O., 3,810,248.

Rosenthal, Jerome A., to Xerox Corporation. Electronic display device. 3,810,165, Cl. 340-324.00a.

Ross, Andrew. Combination vanity case. 3,809,102, Cl. 132-82.00r.

Roth, Stephen A., to Tektronix, Inc. Duty factor correction circuit. 3,810,026, Cl. 328-127.000.

Rothfuss, Robert G.; and Park, Lester D., to Senco Products, Inc. Remote valve for pneumatic tool. 3,808,620, Cl. 91-308.000.

Roto-Finish Company: *See—*
Balz, Gunther W.; and Leipold, Forrest P., 3,808,744.

Rouge, Serge; and Lebra, Jacques. Mechanical moving structure for an X-ray apparatus. 3,808,898, Cl. 74-86.000.

Routson, Willis G., to Dow Chemical Company, The. Method for selectively controlling flow of aqueous fluids in subterranean formations. 3,809,160, Cl. 166-294.000.

Royalty S.A.: *See—*
See, Jacques Leon Alexandre, 3,809,391.

Ruell, Hartwig; and Storck, Eckhard, to Siemens Aktiengesellschaft. Reduced positional sensitivity for holograms of electrical signals. 3,809,453, Cl. 350-3.500.

Rumble, Carl V.: *See—*
United States of America, Nationa Aeronautics and Space Administration, 3,809,800.

Rundberg, Sten L., to Lee, Raymond, Organization, Inc., The. Flashlight unit. 3,809,321, Cl. 240-10.630.

Russell, Ben C., to Stanley Fixture Manufacturing Company, Incorporated. Saw guard. 3,808,932, Cl. 83-478.000.

Russell, James T., to United States of America, Interior. Measuring apparatus for spatially modulated reflected beams. 3,809,477, Cl. 356-5.000.

Russell, Theodore B. Closure device for dispensing tubes. 3,809,300, Cl. 222-545.000.

Ruti Machinery Works Ltd.: *See—*
Strauss, Edgar; and Karcher, Charles, 3,809,130.

Ruti Machinery Works Ltd.; formerly Casper Honegger Ruti: *See—*
Müller, Walter, 3,809,129.

Ruttan, Thomas G., to Varian Associates. Push-pull transferred-electron device circuit. 3,810,045, Cl. 331-96.000.

Ryffin-Hughes, John Malcolm; Harding, Brian; and Lake, Graham Albert John. Heating apparatus. 3,809,052, Cl. 126-116.00r.

S&M Enterprises Inc.: *See—*
McWilliams, Larry L., 3,808,782.

Saab-Scania Aktiebolag: *See—*
Aslund, Nils Robert Dahr; Pettersson, Sven-Olof; and Angelstrand, Sten Borje, 3,809,482.

Sabatine, Donald J.: *See—*
Cianciolo, Alfred D.; Sabatine, Donald J.; and Trotz, Samuel L., 3,809,587.

Sabo, Alex T.: *See—*
Smith, Roy B.; Sabo, Alex T., and Kavick, Edward M., 3,809,184.

Sacco, Bruno: *See—*
Renner, Hermann; and Sacco, Bruno, 3,808,743.

Saco-Lowell Corporation: *See—*
Preston, Frederick A.; Tarbox, Philip B.; and Anderson, Gordon C., 3,808,790.

Saenger, John F., Jr., to Union Carbide Corporation. Plasma arc power system for welding. 3,809,850, Cl. 219-121.00p.

Sahara, Masayoshi: *See—*
Nanba, Yasuhiro; and Sahara, Masayoshi, 3,810,208.

Sahasrabudhe, Arun P., to Westinghouse Electric Corporation. Apparatus for receiving a frequency and phase coded vehicle control signal. 3,810,161, Cl. 340-170.000.

Sainsbury-Carter, John B.: *See—*
United States of America, National Aeronautics and Space Administration, 3,809,601.

Saint-Gobain Carnaud Interplastic: *See—*
Lafosse, Claude, 3,809,521.

Saint-Gobain Industries: *See—*
Kunert, Heinz; Moebs, Heinz; and Sauer, Gerd, 3,810,180.

Sair, Louis; and Melcer, Irving, to Griffith Laboratories, Inc., The. Methods of making vegetable protein concentrates. 3,809,767, Cl. 426-364.000.

Saito, Kaneo, to Konishiroku Photo Industry Co., Ltd. Camera finder. 3,809,890, Cl. 250-214.00p.

Sakaguchi, Keiichi; and Hirata, Noritsugu, to Cannon Kabushiki Kaisha. Plotographic camera having an automatic exposure element setting. 3,810,200, Cl. 354-21.000.

Sakaguchi, Keiichi; Someya, Atsushi; and Hirata, Noritsugu, to Canon Kabushiki Kaisha. Exposure control device. 3,810,206, Cl. 354-41.000.

Sakamoto, Iwao: *See—*
Shibata, Katsuhiko; Seika, Yajuro; Sakamoto, Iwao; Yamada, Kango; and Kondo, Setsuo, 3,808,631.

Sakura Seiki Kabushiki Kaisha: *See—*
Takahashi, Kikuo, 3,809,008.

Salerni, Paul L. Cargo loading and carrying device. 3,809,266, Cl. 214-450.000.

Salet, Simone; and De Montgolfier, Arnaud, to G.I.T.A.C. System for the automatic reading of curves. 3,809,909, Cl. 250-556.000.

Salvi, Enrico, to United States of America, Navy. Anticarbon device for the scroll fuel carburetor. 3,808,803, Cl. 60-39.74r.

Salzer, Erwin, to Chase-Shawmut Company, The. High-voltage fuse. 3,810,061, Cl. 337-159.000.

Salzer, Erwin, to Chase-Shawmut Company, The. Fuse holders. 3,810,077, Cl. 339-219.00f.

Sampey, Harry R., to Pentron Industries, Inc. Distance event marker. 3,809,864, Cl. 235-93.0dn.

Sampson, Robert W.: *See—*
Hausler, Rudolf H.; and Sampson, Robert W., 3,810,009.

Sand, Norma; and Sand, Per. Captive dispenser cap. 3,809,299, Cl. 222-521.000.

Sand, Per: *See—*
Sand, Norma; and Sand, Per, 3,809,299.

Sanders, James F., to Minnesota Mining and Manufacturing Company. Electrically conductive fuser blanket. 3,809,854, Cl. 219-216.000.

Sandiford, Denis James Henry; and Smith, Alan George, to Imperial Chemical Industries Limited. Production of double layer laminates. 3,809,733, Cl. 264-45.000.

Sandvik Aktiebolag: *See—*
Linkskog, Bo Gosta, 3,808,656.

Sankyo Kogaku Kogyo Kabushiki Kaisha: *See—*
Nozawa, Yoshikuni, 3,810,237.
Nozawa, Yoshikuni, 3,810,240.

Sanner, George E., to Santron Corporation. Fluid flow control systems. 3,809,116, Cl. 137-391.000.

Sansing, James Earl; and Novotny, Joseph, to Allied Chemical Corporation. Inhibition of corrosive action of fire retardants containing aqueous ammoniated superphosphoric acid on aluminum. 3,809,653, Cl. 252-148.000.

Santhony, Edward J. Siding, joint and end hand break. 3,808,873, Cl. 72-479.000.

Santilli, Ruggero. Sprocket driven annular saw. 3,808,685, Cl. 30-389.000.

Santron Corporation: *See—*
Sanner, George E., 3,809,116.

Sarkes Tarzian Inc.: *See—*
Godwin, George A.; and Wagle, William E., 3,809,831.

S.A.R.L., Etud: *See—*
Marrie, Paul, 3,809,325.

Sarns, Inc.: *See—*
Teders, Philip J., 3,809,243.

Sarukhanian, Georg: *See—*
Grunow, Peter; and Sarukhanian, Georg, 3,809,924.

Sarvis Oy: *See—*
Arjas, Olavi, 3,809,279.

Sasakura Engineering Co., Ltd.: *See—*
Sasakura, Tetsugoro; and Kurosaka, Takashi, 3,809,623.

Sasakura, Tetsugoro; and Kurosaka, Takashi, to Sasakura Engineering Co., Ltd. Evaporating method and evaporating apparatus. 3,809,623, Cl. 203-11.000.

Sasse, Klaus; and Frohberger, Paul-Ernst, to Bayer Aktiengesellschaft. Certain aryl-dioxazoles used as fungicides. 3,809,763, Cl. 424-272.000.

Sata, Toshio. Method and means for detecting the clogging of a grinding wheel or the like. 3,810,002, Cl. 324-34.00r.

Sato, Hideo; and Sugaya, Yoshiharu, to Asahi Kasei Kogyo Kabushiki Kaisha. Crosslinked acrylonitrile polymer fibers. 3,809,685, Cl. 260-80.710.

Sato, Naotake: *See—*
Araki, Yoshihiko; Sato, Naotake; and Takahashi, Mikio, 3,809,662.

Sato, Shui: *See—*
Matsuo, Shunji; Sato, Shui; Endo, Takaya; Kasai, Keiji; and Inoue, Izuburo, 3,808,945.

Satomoto, Atsushi: *See—*
Takaeda, Hisanobu; and Satomoto, Atsushi, 3,809,492.

Saucier, Len, 20% to Lee, Raymond, Organization, Inc. Speedometer locking device. 3,808,894, Cl. 73-491.000.

Sauer, Gerd: *See—*
Kunert, Heinz; Moebs, Heinz; and Sauer, Gerd, 3,810,180.

Sauer, Joseph, to Bosch, Robert, G.m.b.H. Gear shifting assembly for change speed transmissions. 3,808,903, Cl. 74-335.000.

Sauerbier, Reiner: *See—*
Eckhardt, Hellmuth; and Sauerbier, Reiner, 3,809,444.

Savall, Vincent, to Degrement, Societe Generale d'Epuration & d'Assainissement. Method of injecting fluids into a flotation tank. 3,809,240, Cl. 210-44.000.

Savio, Luciano, to Officine Savio S.p.A. Device for withdrawing and positioning cops and bobbins in bulk. 3,809,213, Cl. 198-33.0aa.

Sayles, Francis S., to Mobil Oil Corporation. High dropping point complex grease. 3,809,650, Cl. 252-42.000.

Scandia Packaging Machinery Company: *See—*
Anderson, Andrew W., 3,809,210.

Schaad, Howard A.; and Randolph, Richard L., 33 1/3% to Foley, William J. Receiver for inductive communication system. 3,809,825, Cl. 179-82.000.

Schachet, Eli; and Deuschle, Fritz, to Sherwood Medical Industries Inc. Wound drainage device. 3,809,086, Cl. 128-278.000.

Schadlich, Gunther: *See—*
Moraw, Roland; and Schadlich, Gunther, 3,809,473.

Schaefer, Hans F., Jr., to USM Corporation. Apparatus for forming normal stitches. 3,808,991, Cl. 112-121.120.

Schantz, Ronald K., to Westinghouse Air Brake Company. Fluid control system for floor and ejector gates of each bowel scrapers. 3,808,717, Cl. 37-124.000.

Schechter, Harold: *See—*
Jolly, Michael D.; Jasovsky, George A.; Ceglie, Gaetano J.; Nacci, Anthony T.; and Schechter, Harold, 3,809,770.

Scheidel, Wolfgang; and Steinmann, Helmut, to Bosch, Robert, G.m.b.H. Air heating and cooling system for a vehicle passenger compartment. 3,809,151, Cl. 165-42.000.

Schelle, Axel, to Know-Bremse KG. Spring element particularly adapted for automatic center head couples of railroad vehicles. 3,809,252, Cl. 213-24.000.

Scherer, Craig J.: *See—*
Muir, Gregory A.; and Scherer, Craig J., 3,810,097.

Scherzer, Walter Oscar: *See—*
Thomas, Edward W.; Scherzer, Walter Oscar; and Sicard, Fernand, 3,809,897.

Schescke, William O.: *See—*
Johnston, Billy Ray; and Schescke, William O., 3,808,824.

Scheyhing, Hans: *See—*
Burkel, Rainer; and Scheyhing, Hans, 3,809,956.

Schibilla, Eduard: *See—*
Von Semel, Georg; and Schibilla, Eduard, 3,809,744.

Schillreff, George H., Grayson, Lawrence E.; and Carter, William M., to General Dynamics Corporation. Portable decoy launcher system and rounds therefor. 3,808,940, Cl. 89-1.00r.

Schimmerling, Michel Gerard. Device for the selection of documents such as, for instance, index cards. 3,809,237, Cl. 209-80.500.

Schindler, Hans: *See—*
Coburg, Claus Christian; and Schindler, Hans, 3,808,741.

Schindler, Rudolf A., to United States of America, National Aeronautics and Space Administration. Single reflector interference spectrometer and drive system therefor. 3,809,481, Cl. 356-106.00s.

Schlicker, Volker; and Wrobel, Gunter, to Papst-Motoren KG, Ltd., Co. Fan construction. 3,809,503, Cl. 417-352.000.

Schlofhorst, W., & Co.: *See—*
Gebald, Gregor, 3,809,869.

Schlough, Thomas L., to Gran-A-Stone Co., The, Park Tool Company division. Apparatus for turning heavy loads such as stone. 3,809,422, Cl. 294-74.000.

Schmid, August; and Goens, Georges, to Serania AG Patentverwertungs- und Finanzierungsgesellschaft. Method and apparatus for automatic bowling pin setting. 3,809,398, Cl. 273-43.00a.

Schmid, August, and Goens, Georges, to Patentverwertungs- und Finanzierungsgesellschaft Serania AG. Bowling pin sweeping and clearing mechanism. 3,809,400, Cl. 273-54.00a.

Schmidt, Claus: *See—*
Roeder, George; and Schmidt, Claus, 3,809,308.

Schmit, Justin M., to Arctic Pac, Inc. Liquid containing and dispensing device. 3,809,290, Cl. 222-88.000.

Schmitt, Edward Emil; Polistina, Rocco Albert, and Forgione, Peter Salvatore, to American Cyanamid Company. Fibrous mats and sheets containing immobilized enzymes entrapped in their interstices. 3,809,605, Cl. 162-158.000.

Schmitt, Edward Emil; and Capozza, Richard Carl, to American Cyanamid Company. Detecting anti-cholinesterase materials. 3,809,616, Cl. 195-103.50r.

Schmitt, Edward Emil, to American Cyanamid Company. Device for detecting anticholinesterase materials. 3,809,617, Cl. 195-127.000.

Schmitt, Edward Emil; and Polistina, Rocco Albert, to American Cyanamid Company. Preparation of polymers. 3,809,683, Cl. 260-78.40n.

Schmoeger, Otto J., Jr.: *See—*
Boicey, James H.; Mattimoe, Paul T.; and Schmoeger, Otto J., Jr., 3,810,184.

Schmoyer, Arthur Robert. Instructional apparatus for displaying a changeable still sequence and incrementally advancing a pattern thereon. 3,808,705, Cl. 35-6.000.

Schneider, Gottfried; and Hauner, Friedrich, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Can changing devices. 3,808,641, Cl. 19-159.00a.

Schneider, Helmut: *See—*
Simoleit, Hartmut; and Schneider, Helmut, 3,809,742.

Schneider, Herbert Anton, to Bell Telephone Laboratories, Incorporated. One-port complementary memory cell. 3,810,130, Cl. 340-173.00r.

Schneider, Robert F., to Synthetic Electronic Technology Co., Inc. Blow injection apparatus. 3,809,517, Cl. 425-242.00b.

Schnell, Hermann: *See—*
Lenz, Gunther; Krimm, Heinrich; and Schnell, Hermann, 3,809,679.

Schnoeller, Manfred: *See—*
Baumgartner, Werner; Keller, Wolfgang; and Schnoeller, Manfred, 3,809,846.

Schober, Helmut, to Sick, Erwin, Optik-Elektronik. Arrangement for hue evaluation. 3,809,892, Cl. 250-226.000.

Schoch, Robert, to Weinmann Aktiengesellschaft. Closure device for shoes, particularly for ski shoes. 3,808,644, Cl. 24-68.0sk.

Schockman, Robert L.: *See—*
Voorhees, John E.; and Schockman, Robert L., 3,808,912.

Scholz, Joachim; and Reber, Raudi, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Precision resistance for measuring purposes. 3,810,066, Cl. 338-25.000.

Schoppe, Wayne F.: *See—*
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., 3,809,471.

Schoreder, Rondon L.: *See—*
Wiseman, Minor R.; and Schoreder, Rondon L., 3,810,007.

Schossow, George W. Vaporizer-humidifier. 3,809,374, Cl. 261-130.000.

Schott, Robert E.; and Longshore, Donald W., to Allis-Chalmers Corporation. Hydraulic modulating valve. 3,808,810, Cl. 60-416.000.

Schreiner, Hermann: *See—*
Bemsel, Walter; and Schreiner, Hermann, 3,810,086.

Schrock, Martin Omer; and Burkholder, Robert Flohr, to Black and Decker Manufacturing Company, The. Process of manufacturing an armature-piston sub-assembly. 3,808,676, Cl. 29-596.000.

Schubert & Salzer Maschinenfabrik Aktiengesellschaft: *See—*
Schneider, Gottfried; and Hauner, Friedrich, 3,808,641.

Schubert, Howard C., to Aerolite Electronics Corporation. Combination burglar alarm and fire alarm system. 3,810,171, Cl. 340-420.000.

Schuller, Reinhard, and Kopsch, Heinz, to Krauss-Maffer AG. Calender roll apparatus with device for controlling the thickness of the bank of material in front of the rolling gap. 3,809,907, Cl. 250-548.000.

Schultz, Everett M., and Cragoe, Edward J., Jr., to Merck & Co., Inc. Substituted 2-aminomethyl-1-4,6-disubstituted phenols. 3,809,721, Cl. 260-570.900.

Schulz, Horst; Schwerdhofer, Hans-Joachim; and Look, Gunter, to Fichtel & Sachs AG. Multiple speed hub with coaster brake. 3,809,195, Cl. 192-6.00a.

Schurr, C. Allan, to Square D Company. Mounting bracket and locking means for electrical terminal block devices. 3,809,840, Cl. 200-321.000.

Schuy, Klaus Dieter; and Franzen, Jochen, to Varian Mat GmbH. Method for the mass spectrometric analysis of solids. 3,809,896, Cl. 250-286.000.

Schwartz, Reinhard: *See—*
Knapp, Heinrich; and Schwartz, Reinhard, 3,809,036.

Schweier, Guenther. *See—*
Mueller-Tamm, Heinz, Urban, Friedrich; Frielingsdorf, Hans; Nickl, Johann; Schweier, Guenther; and Kohnle, Josef, 3,809,657.

Schweppe, Joseph L., McMorris, Arthur H., and Ahlgren, Erick L., to Houston Engineering Research Corporation. Random sequenced pneumatic multiplexing valve apparatus. 3,809,120, Cl. 137-607.000.

Schwerdhofer, Hans-Joachim: *See—*
Schulz, Horst; Schwerdhofer, Hans-Joachim; and Look, Gunter, 3,809,195.

Scott, Allan W., to Varian Associates. Apparatus for increasing RF conversion efficiency of a traveling wave tube. 3,809,949, Cl. 315-3.500.

Scott, William, Jr.: *See—*
Drella, Charles L.; Fineo, Carlo, Jenssen, Lloyd W.; and Scott, William, Jr., 3,808,771.
Wahlers, James Ludwig; Terry, Rupert Douglas; Scott, William, Jr.; and Simmers, Charles Donald, 3,808,765.

Scott-Scott, John Lanfear, to Rolls-Royce (1971) Limited. Marine propulsion. 3,808,804, Cl. 60-221.000.

Scoville, John Tregay, to Gilbert & Barker Manufacturing Company. Computing system. 3,809,866, Cl. 235-151.340.

Scuderi, Vincent, to Van Blarcom Closures, Inc. Child proof closure for containers. 3,809,274, Cl. 215-9.000.

Sea Harvest, Inc.: *See—*
Randall, Alan C., 3,808,779.

See, Jacques Leon Alexandre, to Royalty S.A. Flexible structure for ski tracks and the like. 3,809,391, Cl. 272-56.5ss.

Seetoo, Winston R.; Weide, Roman K.; and Charland, Telesphore L., to Isotopes, Inc. Exothermic bonding of thermoelectric couples. 3,808,670, Cl. 29-473.100.

Seguela, Claude Jean-Marie: *See—*
Duthion, Louis; Coyotte, Claude Charles; Seguela, Claude Jean-Marie; Barthelemy, Gabriel; Cinquanta, Alain; and Drapeau, Yves, 3,809,372.

Seika, Yajuro: *See—*

Shibata, Katsuhiko; Seika, Yajuro; Sakamoto, Iwao; Yamada, Kango; and Kondo, Setsuo, 3,808,631.

Seiko Koki Kabushiki Kaisha: *See—*
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,223.
Nakamura, Yukio, 3,810,225.

Sekella, Youston M., to Westinghouse Electric Corporation. Radiation detector of elongated length with electrode support assembly therefor. 3,809,940, Cl. 313-61.00r.

Seki, Tunekatu: *See—*
Arimoto, Heiji; Goto, Tokujo; Amemiya, Kunio; and Seki, Tunekatu, 3,808,618.

Selectro-Micro Company Limited: *See—*
Malyon, Brian R., 3,809,302.

Sellers, Frederick; Thorsteinson, Marvin; and Martens, Ernst, to Spiroll Corporation, Ltd. Machine for manufacturing hollow core structures of concrete and the like. 3,809,513, Cl. 425-84.000.

Semiconductor Research Foundation: *See—*
Nishizawa, Jun-Ichi, 3,809,953.

Senco Products, Inc.: *See—*
Rothfuss, Robert G.; and Park, Lester D., 3,808,620.

Serania AG Patentverwertungs- und Finanzierungsgesellschaft. *See—*
Schmid, August; and Goens, Georges, 3,809,398.

Severinsson, Lars Mattis: *See—*
Persson, Gert Artur; and Severinsson, Lars Mattis, 3,808,954.

Severinsson, Lars Mattis, to Svenska Aktiebolaget Bromsregulator. Device for passing compressed air at pressures varying in dependence upon forces transmitted through the device. 3,809,110, Cl. 137-116.500.

Seybold, Rolf: *See—*
Evertz, Egon; and Seybold, Rolf, 3,808,667.

Shapero, Wallace H.; and Cane, Albert, to Mattel, Inc. Molding compositions and method of molding. 3,809,661, Cl. 260-5.000.

Shapiro, Jonas M.: *See—*
Reed, Joseph; Shapiro, Jonas M.; Ilhakidis, Athanassious; and Apostolakis, Anthony, 3,809,816.

Shapiro, Leonard U.: *See—*
Sumida, Kunio A., 3,808,682.

Shapland, James T.: *See—*
Andrezejak, Sigmund L., Orehoski, Michael A.; Shapland, James T., and Szumilas, Raymond S., 3,809,146.

Sharp, Donald J., and Sutch, Richard D., to Western Electric Company, Incorporated. Anodized cermet film components and their manufacture. 3,809,627, Cl. 204-37.00r.

Shaw, Russell E., to Interlake, Inc. Disposable inflatable dunnage. 3,808,981, Cl. 105-369.0ba

Sheffield, James R.: *See—*
Ilfrey, William T.; and Sheffield, James R., 3,809,170.

Shelepchikov, Viktor Vasilievich: *See—*
Dolgy, Andrei Emelyanovich; Balandin, Jury Mikhailovich; Shelepchikov, Viktor Vasilievich; and Shutov, Vladimir Ivanovich, 3,809,340.

Shepard, Francis H., Jr., to Vogue Instrument Corporation. Magnetic keyboard encoding device. 3,810,167, Cl. 340-365.000.

Shepherd, William B., to Hayes-Albion Corporation. Rack for shipping and storing textile beams. 3,809,258, Cl. 214-10.50r.

Sherwood Medical Industries Inc.: *See—*
Schachet, Eli; and Deuschle, Fritz, 3,809,086.

Sheward, William H., to Foster, Frank H., mesne. Board game apparatus. 3,809,408, Cl. 273-134.00b.

Shibata, Katsuhiko; Seika, Yajuro, Sakamoto, Iwao, Yamada, Kango; and Kondo, Setsuo, to Mitsubishi Jukogyo Kabushiki Kaisha. Device for removing a sludge from a surface. 3,808,631, Cl. 15-321.000.

Shields, Walter A. Apparatus for advancing articles relative to filling and sealing devices. 3,809,208, Cl. 198-85.000.

Shimazaki, Yasumi: *See—*
Tanaka, Yasuhiko; Shimazaki, Yasumi; and Hagiwara, Kenji, 3,808,862.

Shimizu, Takaetsu. Nail file. 3,809,101, Cl. 132-76.400.

Shimoda, Keitaro; Kobayashi, Yutaka,; and Sumi, Takehiko, to Japan Exlan Company, Limited. Production of acrylic composite fibers. 3,809,738, Cl. 264-168.000.

Shinozaki, Koji: *See—*
Ogawa, Shimeo; Shinozaki, Koji, and Chida, Shinpei, 3,809,203.

Shirley, Howard E.; and Jensen, Jackie L., to Turbo Cycle Company, Inc. Mobile burning apparatus for agricultural use. 3,809,060, Cl. 126-271.20c.

Shoffner, Bruce M.: *See—*
Szalanczy, Andras; Shrader, Erwin F.; Shoffner, Bruce M.; and Chamberlain, James D., 3,809,901.

Shore, David N.: *See—*
Davis, Paul; and Shore, David N., 3,809,236.

Shrader, David L. Method and apparatus for improving musical ability. 3,808,936, Cl. 84-471.000.

Shrader, Erwin F.: *See—*
Szalanczy, Andras; Shrader, Erwin F.; Shoffner, Bruce M.; and Chamberlain, James D., 3,809,901.

Shute, Andrew Alfred Thomas. Device for freeing a fouled anchor. 3,809,001, Cl. 114-206.00r.

Shute, Wallace B. Surgical instrument. 3,809,091, Cl. 128-303.000.

Shutov, Vladimir Ivanovich: *See—*
Dolgy, Andrei Emelyanovich; Balandin, Jury Mikhailovich; Shelepchikov, Viktor Vasilievich; and Shutov, Vladimir Ivanovich, 3,809,340.

Sicard, Fernand: *See—*
Thomas, Edward W.; Scherzer, Walter Oscar; and Sicard, Fernand, 3,809,897.

Sick, Erwin: *See—*
Erdman, Jurgen; and Knappe, Hartmut, 3,809,891.

Sick, Erwin, Optik-Elektronik: *See—*
Schober, Helmut, 3,809,892.

Sieben, Karl Heinrich; and Pieper, Wilhelm, to Gebr. Hilgeland. Shearing device in bolt, ball or roller presses for shearing off wire sections. 3,808,930, Cl. 83-379.000.

Siebers, Gunter; Prenzel, Karl; and Barthel, Hans. Means for performing gear changes in multi-ratio change-speed gear boxes. 3,808,738, Cl. 74-339.000.

Sieko Koki Kabushiki Kaisha: *See—*
Kitai, Kiyoshi; Onda, Eiichi; Koyama, Mitsuo; Nagaoka, Shinji; and Nakagawa, Tadashi, 3,810,224.
Nakagawa, Tadashi, 3,810,222.

Sieling, Walter R.; and Ziesse, Norman G. projectile with sting for reducing drag. 3,809,339, Cl. 244-3.300.

Siemens Aktiengesellschaft: *See—*
Baumgartner, Werner; Keller, Wolfgang; and Schnoeller, Manfred, 3,809,846.
Brunsch, Gunter, 3,810,034.
Krause, Gerhard, 3,810,049.
Kristen, Reiner; and Liska, Manfred, 3,809,935.
Muller, Willi, 3,810,013.
Pekau, Dietlind; and Kiemle, Horst, 3,809,455.
Ruell, Hartwig; and Storck, Eckhard, 3,809,453.
Stein, Karl-Ulrich, 3,810,125.
Vogelsberg, Dieter, 3,808,787.

Siemens Aktiengesellschaft: *See—*
Olsen, Willi; and Lorenz, Dieter, 3,809,795.

Siemens Electrogerate GmbH: *See—*
Grunow, Peter; and Sarukhanian, Georg, 3,809,924.

Sievenpiper, Frederic L., to Allied Chemical Corporation. Ethoxyethanol, glycol, water dye solution. 3,809,533, Cl. 8-93.000.

Sievenpiper, Frederick L.; and Bement, Elmore L., to Allied Chemical Corporation. Recirculation back to a solvent dye bath of an aqueously separated halohydrocarbon-alkylene glycol ether mixture with further halohydrocarbon removing water from the ether. 3809,536, Cl. 8-173.000.

Silbereisen, Dieter: *See—*
Heist, Hans; and Silbereisen, Dieter, 3,809,387.

Silverstein, Steven L.: *See—*
Thompson, Francis T.; Silverstein, Steven L.; and Sun, Shan C., 3,810,138.

Simkins, Derek: *See—*
Bowen, Edward Valentine; and Simkins, Derek, 3,808,838.

Simmers, Charles Donald: *See—*
Wahlers, James Ludwig; Terry, Rupert Douglas; Scott, William, Jr.; and Simmers, Charles Donald, 3,808,765.

Simmons, John Richard; and Westbury, Roy, to Lucas Aerospace Limited. Electro-hydraulic actuator arrangement. 3,808,947, Cl. 91-363.00a.

Simmons, Russell T., to General Electric Company. Oven temperature control. 3,809,862, Cl. 219-512.000.

Simoleit, Hartmut; and Schneider, Helmut, to Kali-Chemie Aktiengesellschaft. Process for recovering barium from barium sulfide leashing residures. 3,809,742, Cl. 423-155.000.

Simon, Hans. Angle type feedthrough cable clamp. 3,809,798, Cl. 174-59.000.

Sims, De Witt: *See—*
Krenke, Norman O.; and Sims, De Witt, 3,809,265.

Singer Company, The: *See—*
Aghazadeh, Shirzad, 3,810,232.
Gray, John, 3,810,176.
Lang, Charles W.; and O'Hara, Peter J., 3,810,136.
Membrino, Robert J.; and Magee, Edward F., 3,808,711.
Piecone, John G., 3,810,197.
Tierney, Peter R.; Lohman, Arthur F.; and Andrus, Donald M., 3,810,181.

Sinton, Ernest Kennedy: *See—*
Chubb, John Norman; and Sinton, Ernest Kennedy, 3,809,948.

Sjoberg, Sven; Fagerstad, Herlov; and Weng, August, to Allmanna Svenska Elektriska Aktiebolaget. Stator for a direct current machine. 3,809,938, Cl. 310-254.000.

SKF Industrial Trading & Development Company B.V.: *See—*
Ingemar, Fernlund; and Stig, Hallerback, 3,809,447.

SKF Industrial Trading and Development Company B.V.: *See—*
Hallerback, Stig Lennart, 3,809,445.

Skil Corporation: *See—*
Fromm, Walter James, 3,809,168.

Skinner, David L., to Beloit Corporation. Hopper with variable level hopper feed tube. 3,809,133, Cl. 141-198.000.

Sklover, Isadore T.: *See—*
Tauman, Harvey; Sklover, Isadore T.; Tauman, Irving; and Kliment, Charles K., 3,808,686.

Slama, Karel: *See—*
Jarolim, Vaclav; Slama, Karel; and Sorm, Frantisek, 3,809,710.

Slusher, Emmet G. Level sensitive switch. 3,809,842, Cl. 200-221.000.

Slusher, Meredith W.: *See—*
Foster, Robert L., 3,808,655.

Smales, Herbert, to BBA Group Limited. Clutch disc with removable friction pads. 3,809,200, Cl. 192-107.00c.

Smedley, William H.: *See—*

Gay, Derek J.; Smedley, William H.; Cohen, Aaron G.; Dworkin, Darryl R.; Nuttall, Michael W.; and Wilson, Nicol S., 3,808,732.

Smith, Alan George: *See*—
Sandiford, Denis James Henry; and Smith, Alan George, 3,809,733.

Smith, Bart A.; Lass, James L.; and Venier, Dominic A., to General Electric Company. Nuclear fuel assembly with bypass coolant control. 3,809,610, Cl. 176-78.000.

Smith, Cantrell, to General Electric Company. Direct current voltage regulator. 3,809,999, Cl. 323-17.000.

Smith, Henry L.: *See*—
Kilgore, Lee A.; Ratcliffe, Robert E. G.; Smith, Henry L.; and Strait, Bernard S., Jr., 3,809,914.

Smith, Ian E.: *See*—
Metcalfe, Kenneth A.; and Smith, Ian E., 3,810,193.

Smith, John Allen. Audio-visual display apparatus. 3,808,720, Cl. 40-28.300.

Smith, Pryer C., Sr. Programming system. 3,809,812, Cl. 179-1.00b.

Smith, Roy B.; Sabo, Alex T.; and Kavick, Edward M., to Moore, Samuel, & Company. Metering valve and lubricating system provided therewith. 3,809,184, Cl. 184-7.00d.

Smith, Samuel W.: *See*—
Doering, Charles W.; and Smith, Samuel W., 3,808,627.

Smithfield Fibers, Inc.: *See*—
Blezard, Robert C.; and Millard, William E., 3,808,840.

Smoot, Charles H.; Kleven, Lowell A.; and Wirth, Gary J., to Uniflo Systems Company. Switch for vehicle guideway. 3,808,977, Cl. 104-130.000.

Snam Progetti, S.p.A.: *See*—
Clementi, Anacleto; and Battini, Roberto, 3,809,688.
Costa, Giacomo; and Mestroni, Giovanni, 3,809,632.
Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, 3,809,684.

Snelling, Aubrey Francis. Smoke producers. 3,809,056, Cl. 126-59.500.

Snyder, Duane P. Rotary vane internal combustion engine. 3,809,026, Cl. 123-8.470.

Societe Alsacienne de Constructions Mecaniques de Mulhouse. *See*—
Gerard, Stierlein, 3,809,009.

Societe Anonyme des Usines Chausson: *See*—
Plegat, Alain Edouard, 3,808,861.
Plegat, Alain Edouard, 3,808,923.
Plegat, Alain Edouard, 3,808,928.

Societe Anonyme Francaise du Ferodo: *See*—
Lepelletier, Pierre Andre Georges, 3,808,811.

Societe Anonyme Heurtey: *See*—
Wang, Robert; and Pariel, Jean-Marie, 3,809,525.

Societe Anonyme Poclain: *See*—
Martin, Louis E., 3,808,951.

Societe d'Applications Generales d'Electricite et de Mecanique SAGEM: *See*—
Jamet, Edmond, and Jaquard, Paul, 3,810,098.

Societe d'Assistance Technique pour Produits Nestle S.A.: *See*—
Kiley, Joyce M.; and Keley, Roger T., 3,809,757.

Societe Honeywell Bull: *See*—
Jossic, Alain Francois, 3,809,960.

Societe Rhone-Progil: *See*—
Neel, Jean; and Papillon, Bernard, 3,809,535.

Someno, Kenji: *See*—
Matsumoto, Akio; and Someno, Kenji, 3,808,725.

Somerville, Alvis J., and Yager, Edwin K., to General Dynamics Corporation. Method and apparatus for surveying the velocities of a flow field. 3,809,480, Cl. 356-103.000.

Someya, Atsushi: *See*—
Sakaguchi, Keiichi; Someya, Atsushi; and Hirata, Noritsugu, 3,810,206.

Sommer, Dieter: *See*—
Baer, Jurgen; Sommer, Dieter; and Toplak, Ernst, 3,809,934.

Sonderegger, Hans C., to Kistler Instrumente AG. Supervisory equipment for machine tools. 3,809,488, Cl. 408-6.000.

Sonotone Corporation, mesne: *See*—
Vignini, Walter R.; and Molloy, Martin, 3,809,829.

Sony Corporation: *See*—
Esashi, Hanjiro, 3,809,219.
Hara, Hideo, 3,808,791.
Ozawa, Kazunori; and Takahashi, Katsumasa, 3,810,245.
Usui, Setsuo, 3,808,751.

Sooner Products Company, mesne: *See*—
Taylor, Edwin K.; and Boyd, James V., 3,809,320.

Sorm, Frantisek: *See*—
Jarolim, Vaclav; Slama, Karel; and Sorm, Frantisek, 3,809,710.

Southwire Company: *See*—
Cofer, Daniel B.; and Betterton, Bruce E., 3,809,902.

Spears, Esten W., Jr., to General Motors Corporation. Fuel drain system. 3,808,796, Cl. 60-39.09f.

Spector, Sidney, to Hoffmann-La Roche, Inc. Tubocurarine antigens and antibodies specific therefor. 3,809,782, Cl. 260-121.000.

Spence, Thomas William Matches, to Procter & Gamble Company, The. Novel ammoniophenolate compounds. 3,809,646, Cl. 252-8.800.

Sperry Rand Corporation: *See*—
Grace, Martin L., 3,810,033.
Kallio, Frank H., 3,810,157.
Miller, Chauncey S., 3,810,019.
Prohofsky, Leroy A., 3,810,116.

Sperry Rand Corporation, mesne: *See*—
Horowitz, Noah; Stupeck, Donald; and Novak, Lubomir, 3,810,236.

Spierer, Edward D.: *See*—
Suhr, Peter J.; Spierer, Edward D.; and Mhatre, Girish P., 3,809,987.

Spigerverk, Christiana: *See*—
Aas, Helge Hakonsonn; and Kolflaath, Jorgen August, 3,809,548.

Spinella, S. Charles. Dental articulator trays. 3,808,689, Cl. 32-32.000.

Spinks, Chester I. Hydraulic drive apparatus. 3,808,813, Cl. 60-486.000.

Spiroll Corporation, Ltd.: *See*—
Sellers, Frederick; Thorsteinson, Marvin, and Martens, Ernst, 3,809,513.

Spisak, Steve, to TRW Inc. Welding tool. 3,809,849, Cl. 219-98.000.

Sprague Electric Company: *See*—
Hurley, Thomas P., 3,809,973.

Springthorpe, Anthony John, to Bell Canada-Northern Electric Research Limited. Apparatus for growing of epitaxial layers. 3,809,010, Cl. 118-429.000.

Sprinkle, Leland W., to United States of America, Interior. Audio-visual presentation system. 3,809,467, Cl. 353-15.000.

Sprinter Pack AB. *See*—
Persson, Karl Rune, 3,809,305.

Sprowl, James A. Fast responding alternating current voltmeter having an output that is linear in decibels. 3,809,875, Cl. 235-197.000.

Spruce, David Gordon: *See*—
Aspinall, Arnold; Spruce, David Gordon, and Lynam, John Thomas, 3,810,000.

Square-D Company: *See*—
Brown, William Keith; and Stanback, Harris L., 3,809,962.
Cook, Robert G., 3,809,970.
Groth, Clarence N.; Hempel, James N.; Wieczorek, Robert A.; Meyer, Charles F.; and Cook, Robert G., 3,809,965.
Meyer, Charles F., and Retzer, Kenneth W., 3,809,958.
Schurr, C. Allan, 3,809,840.

Squassoni, Gino F.: *See*—
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., 3,809,471.

Squibb, E. R., & Sons, Inc.: *See*—
Fried, Josef; Pribyl, Edward J.; and Krapcho, John, 3,809,720.
Haugwitz, Rudiger D.; and Narayanan, Venkatachala L., 3,809,692.
Yale, Harry L.; and Petigara, Ramesh B., 3,809,698.

St. John, John H.: *See*—
Hughes, James R.; and St. John, John H., 3,808,883.

Staamann, Otto, to Automatic Druckmaschinenfabrik. Web registration in an intermittantly fed rotary printing press. 3,808,971, Cl. 101-181.000.

Staar, Marcel Jules Helen. Dictating machine using a multi-track magnetic strip and having a phasing control means. 3,810,238, Cl. 360-88.000.

Stafford, John P., to Honeywell Information Systems, Inc. Position scaler (shifter) for computer arithmetic unit. 3,810,115, Cl. 340-172.500.

Stage, Leo J.: *See*—
Kooi, Edward; Odynski, George, and Stage, Leo J., 3,809,603.

Stahl, William F., to Westinghouse Electric Corporation. Turbine rotor having cushioned support surfaces for ceramic blades mounted thereon. 3,809,495, Cl. 416-135.000.

Stanback, Harris L.: *See*—
Brown, William Keith; and Stanback, Harris L., 3,809,962.

Standard Motor Products, Inc.: *See*—
Welsh, James W., 3,810,065.

Standard Oil Company: *See*—
Chao, Kwei C., 3,809,776.

Standard Oil Company (Indiana). *See*—
Neil, Peter C., 3,808,927.

Stanley Fixture Manufacturing Company, Incorporated. *See*—
Russell, Ben C., 3,808,932.

Stanley, Robert Kenneth. Textile treatment method. 3,808,654, Cl. 28-72.140.

Stansbrey, John J., to National Cash Register Company, The. Method and apparatus for repairing a diagonal break in a paper web. 3,809,606, Cl. 162-194.000.

Staples Developments Limited: *See*—
Wheeler, Frederick Charles, 3,809,993.

Staranick, Steve; and Garrison, Jerome R. Retractable ladders. 3,809,181, Cl. 182-70.000.

Staudenrausch, Georg, to Handtmann, Albert, Metallgusswerk, Armaturen- und Fleischereimaschinenfabrik. Method and apparatus for regulating pumps. 3,809,500, Cl. 417-222.000.

Stauffer, Norman L., to Honeywell Inc. Multi-stylus through field recording head. 3,810,191, Cl. 346-74.0mc.

Stead, Jerry A.: *See*—
Chappelle, Warner A.; and Stead, Jerry A., 3,809,194.

Steam Engine Systems Corporation: *See*—
Gerstmann, Joseph, 3,809,061.

Steffel, Horst, to Collmann GmbH & Co. Spezialmaschinenbau KG. Apparatus for the continuous, overall X-ray examination of a motor vehicle tire. 3,809,900, Cl. 250-321.000.

Stehle, Heinz, to Porsche, Dr.-Ing. H.c.F., K.G., Firma. Brake disk for disk brakes. 3,809,192, Cl. 188-218.0xl.

Stein, Karl-Ulrich, to Siemens Aktiengesellschaft. Intergrated circuit electrical capacitor, particularly as a storage element for semiconductor memories. 3,810,125, Cl. 340-173.0ca.

Steinmann, Helmut: *See*—
Scheidel, Wolfgang; and Steinmann, Helmut, 3,809,151.

Steinmetz, Carl Charles: *See*—
Gange, Robert Allen; and Steinmetz, Carl Charles, 3,809,974.

Steinmetz, Gunter; and Thiele, Kurt, to Deutsche Gold-und Silber-Scheideanstalt vormels Roessler. 2,6-Dichloro-3-nitro-pyridine. 3,809,695, Cl. 260-290.0hl.

Stene, Ronald M., to Buckbee-Mears Company. Electroplating on a truncated ball suitable for use in a typewriter. 3,809,626, Cl. 204-20.000.

Stenstrom, Lennart Arvid, to Alfa-Laval AB. Method and apparatus for treating heat-sensitive products. 3,809,844, Cl. 219-10.550.

Stenstrom, Lennart Arvid, to Alfa-Laval AB. Heating of products in electro-magnetic field. 3,809,845, Cl. 219-10.550.

Stephan, Raymond C., to United States Steel Corporation. Lime oxygen-natural gas distribution system. 3,809,381, Cl. 266-35.000.

Stephens, Raymond A., to Collins Radio Company. TDM switching apparatus. 3,809,819, Cl. 179-15.0aq.

Sterling Drug Inc.: *See*—
Maki, Eino J., 3,809,272.

Stern, Herman Abraham: *See*—
Gardiner, Arthur Noel; and Stern, Herman Abraham, 3,808,769.

Stettler, Wayne J.: *See*—
Calabrese, Anthony J.; Stettler, Wayne J.; and Zwiren, Jan Marie, 3,809,785.

Steven, Gary. Vanadium-containing tool steel, article. 3,809,541, Cl. 29-192.000.

Stevens, Eric H.: *See*—
Haines, Robert C.; Barrett, John E.; and Stevens, Eric H., 3,809,402.

Stewart, John Kenneth, to Canron, Inc. Multi-headed tamper staggered operation. 3,808,976, Cl. 104-12.000.

Stieler, Konrad: *See*—
Muncke, Ludwig; Buchmuller, Josef; and Stieler, Konrad, 3,808,949.

Stig, Hallerback: *See*—
Ingemar, Fernlund, and Stig, Hallerback, 3,809,447.

Still, Carl, Firma: *See*—
Knappstein, Johannes; and Voges, Jan, 3,809,622.

Stivers, David A., to Minnesota Mining and Manufacturing Company. Hydrates as curing aids. 3,809,672, Cl. 260-42.270.

Stock, W. Riley; Balsiger, Melvin M.; and Beran, William G., to Tektronix, Inc. Photographic apparatus. 3,809,888, Cl. 250-213.00r.

Stoltman, Donald D., to General Motors Corporation. Rotary engine with low emission manifolding. 3,809,019, Cl. 123-8.010.

Stolz, Robert P., to General Foods Corporation. Method for producing an enhanced freeze dried coffee. 3,809,766, Cl. 426-362.000.

Stone, Wayne B., Jr.; and Beaumont, Alan, to Indexette Tapes, Inc. Reelable magnetic tape having edge marked cue indicia for direct viewing in the reeled condition. 3,810,246, Cl. 360-134.000.

Storck, Eckhard: *See*—
Ruell, Hartwig; and Storck, Eckhard, 3,809,453.

Storm, James P.: *See*—
Boltjer, Richard E.; Johnson, Delp W.; Poole, William F.; and Storm, James P., 3,808,754.

Stormont, James D.: *See*—
Balluff, Robert N.; and Stormont, James D., 3,809,539.

Stover, Harris A., to Collins Radio Company. Distortion compensator for phase modulation systems. 3,810,018, Cl. 325-30.000.

Strain, William E., to Kean Manufacturing Corporation. Clinch-slide nut, panel assembly and method of forming same. 3,809,139, Cl. 151-41.720.

Strait, Bernard S., Jr.: *See*—
Kilgore, Lee A.; Ratcliffe, Robert E. G.; Smith, Henry L.; and Strait, Bernard S., Jr., 3,809,914.

Strauss, Edgar; and Karcher, Charles, to Ruti Machinery Works Ltd. Arrangement for driving weft insertion means. 3,809,130, Cl. 139-12.000.

Strazza, Richard W.: *See*—
Mohrhauser, John P.; and Strazza, Richard W., 3,808,852.

Strebel, Elwood L., to Vari-Light Corporation. Eutectic mixture of para-alkoxybenzylidene para-N-alkyl anilines. 3,809,656, Cl. 252-408.000.

Street, I. C.: *See*—
Bravo, Ricardo; and Street, I. C., 3,809,351.

Stricker, Alfred A.: *See*—
Law, John M.; Stricker, Alfred A.; and Von Kaenel, Walter, 3,808,681.

Stroud, Ray D. Safety closure for containers. 3,809,271, Cl. 215-9.000.

Stroup, Norman G.: *See*—
Gardner, Frank H.; Stroup, Norman G.; and Krukow, Eugene J., 3,808,784.

Structural Fibers, Inc.: *See*—
Wiltshire, Arthur J., 3,809,741.

Stubbmann, Albert, to Kohner Bros. Inc. Escapement mechanism. 3,808,719, Cl. 40-28.00r.

Studinka, Josef; and Gabler, Rudolf, to Inventa AG fur Forschung und Patentverwertung. Polyether and polythoecther formation in lactam solvents. 3,809,682, Cl. 260-61.000.

Stupeck, Donald: *See*—
Horowitz, Noah; Stupeck, Donald; and Novak, Lubomir, 3,810,236.

Sturkol, Elmer W.: *See*—
Cho, Boong Y.; Sturkol, Elmer W.; and Wier, Keith E., 3,809,903.

Sturthers Scientific and International Corporation: *See*—
Ganiaris, Neiphytos, 3,809,775.

Stutzle, Dietmar; and Weidner, Peter F., to Diehl. Ignition circuit for projectile fuses. 3,808,975, Cl. 102-70.2ga.

Suchy, Walter: *See*—
Feier, Gunter; Koch, Hansjorg; and Suchy, Walter, 3,809,301.

Suga, Shigeru. Temperature compensating ultraviolet ray detector. 3,809,905, Cl. 250-370.000.

Sugano, Kumakichi; and Sugano, Masanao. Apparatus for supplying air into combustion chamber of rotary kiln incinerator. 3,808,988, Cl. 110-10.000.

Sugano, Masanao: *See*—
Sugano, Kumakichi; and Sugano, Masanao, 3,808,988.

Sugasaga, Jesus Diaz. Bottle cap seal. 3,809,370, Cl. 256-42.000.

Sugawara, Hiroyuki; and Kuwabara, Kooji, to Hitachi, Ltd. Supercooled rotor coil type electric machine. 3,809,933, Cl. 310-52.000.

Sugaya, Yoshiharu: *See*—
Sato, Hideo; and Sugaya, Yoshiharu, 3,809,685.

Suhr, Peter J.; Spierer, Edward D.; and Mhatre, Girish P., to Magnetic Analysis Corporation. Automatic centering of objects in non-destructive test apparatus. 3,809,987, Cl. 318-640.000.

Sullivan, Dean R., to United States of America, Navy. Multi-channel asynchronous to synchronous converter. 3,809,820, Cl. 179-15.0ba.

Sumi, Takehiko: *See*—
Shimoda, Keitaro; Kobayashi, Yutaka.; and Sumi, Takehiko, 3,809,738.

Sumida, Kunio A., to Shapiro, Leonard U. Pneumatically driven shear. 3,808,682, Cl. 30-228.000.

Sumitomo Electric Industries, Ltd.: *See*—
Akai, Shin-Ichi; Mori, Hideki; Takahashi, Nobuo; and Iguchi, Shin-Ichi, 3,809,584.
Nakahara, Tsuneo; Kurauchi, Noritaka; and Nagao, Tachiro, 3,810,186.
Yoshida, Kenichi; and Kuroda, Masataka, 3,809,796.

Sumrell, Gene: *See*—
Magne, Frank C.; Mod, Robert R.; Sumrell, Gene; and Parker, Winfred E., 3,809,706.

Sun, Shan C.: *See*—
Thompson, Francis T.; Silverstein, Steven L.; and Sun, Shan C., 3,810,138.

Sunbeam Corporation: *See*—
Unger, John J.; Augustine, Robert J.; and Khaja, Farees U., 3,809,285.

Suozzo, Leonard S. Mechanical shock and sway arrestor. 3,809,186, Cl. 188-1.00b.

Superior Electric Company, The: *See*—
Loyzim, Robert James, 3,809,991.

Suteh, Richard D.: *See*—
Sharp, Donald J.; and Suteh, Richard D., 3,809,627.

Sutherland, Gail Russell; Leonard, Ronald Keith; and Hoeksema, Joe Henry, to Deere & Company. Soybean harvesting header. 3,808,783, Cl. 56-106.000.

Suzuki, Akio: *See*—
Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, 3,809,641.

Suzuki, Haruo, to Toytown Corporation. Toy dolphin. 3,808,734, Cl. 46-91.000.

Suzuki, Masaru, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Failure warning apparatus for oil pressure brake. 3,810,087, Cl. 340-52.00b.

Suzuki, Masaru, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Failure warning apparatus for oil pressure brake. 3,810,088, Cl. 340-52.00c.

Svenska Aktiebolaget Bromsregulator: *See*—
Persson, Gert Artur; and Severinsson, Lars Mattis, 3,808,954.
Severinsson, Lars Mattis, 3,809,110.

Svenska Dataregister AB: *See*—
Oberg, Anders B., 3,809,863.

Swaters, Pieter Dirk: *See*—
Havinga, Reginoldus; and Swaters, Pieter Dirk, 3,809,707.

Sweetheart Plastics, Inc.: *See*—
Davis, Paul; and Shore, David N., 3,809,236.

Swiss Aluminium Ltd.: *See*—
Jacob, Gernot, 3,809,640.

Swiss Aluminum Ltd.: *See*—
Wagner, Alfred; and Hesse, Juergen, 3,808,865.

Sydor, Matthew, to United States Steel Corporation. Oversize subsurface tubing pump installation and method of retrieving the pump. 3,809,162, Cl. 166-315.000.

Symons, Philip C., to Occidental Energy Development Company, mesne. Process for forming and storing halogen hydrate in a battery. 3,809,578, Cl. 136-6.00e.

Syntex (U.S.A.) Inc.: *See*—
Damodaran, Nandyelath; Moffatt, John; Jones, Gordon; and Howarth, George, 3,809,689.

Synthetic Electronic Technology Co., Inc.: *See*—
Schneider, Robert F., 3,809,517.

Synthron Chemicals, Inc.: *See*—
Polevy, John Henry; and Randall, John Justin, 3,809,730.

Syracuse University Research Corporation: *See*—

Kirkpatrick, George M., 3,810,173.

Szabo, Marton J., to Philadelphia Handle Company, Inc. Collapsible self-returning handle with hideaway linkage. 3,808,634, Cl. 16-115.000.

Szabo, Zoltan: *See—*
Heller, Laszlo; Szucs, Laszlo; and Szabo, Zoltan, 3,808,775.
Heller, Laszlo; Szucs, Laszlo; and Szabo, Zoltan, 3,809,154.

Szalanczy, Andras; Shrader, Erwin F.; Shoffner, Bruce M.; and Chamberlain, James D., to Kewanee Oil Company. Automatic thermoluminescence dosimetric system with coded card. 3,809,901, Cl. 250-337.000.

Sziklavari, Janos: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.

Szucs, Laszlo: *See—*
Heller, Laszlo; Szucs, Laszlo; and Szabo, Zoltan, 3,808,775.
Heller, Laszlo; Szucs, Laszlo; and Szabo, Zoltan, 3,809,154.

Szumilas, Raymond S.: *See—*
Andrezejak, Sigmund L.; Orehoski, Michael A.; Shapland, James T.; and Szumilas, Raymond S., 3,809,146.

Tabourier, Remy, to Thomson-CSF. Monopulse radar receiver. 3,810,177, Cl. 343-16.00m.

Tagawa, James M.: *See—*
Kollar, Ernest P.; Levine, Joel M.; Tagawa, James M.; and Tiao, Hui-Li, 3,809,336.

Taguchi, Tatsuya, to Canon Kabushiki Kaisha. Winding lever device in a camera. 3,809,330, Cl. 242-71.300.

Taguchi, Tatsuya; and Yazaki, Mutsunobu, to Canon Kabushiki Kaisha. Photographic electonic shutter with power switch control device. 3,810,228, Cl. 354-258.000.

Taiheiyo Coal Mining Co., Ltd.: *See—*
Nakajima, Shigeo, 3,809,431.

Taisne, Jean. Systems for measuring displacements. 3,809,895, Cl. 250-237.00g.

Tait, John B.: *See—*
Krewson, Neil N.; Tait, John B.; and Updike, Bruce M., 3,810,108.

Takaeda, Hisanobu; and Satomoto, Atsushi, to Aisin Seiki Kabushiki Kaisha. Reaction jet housing for marine propulsion system. 3,809,492, Cl. 415-121.00g.

Takagi, Katsuyuki; and Miwa, Haruo, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Delay timing circuit. 3,809,927, Cl. 307-293.000.

Takahashi, Katsumasa: *See—*
Ozawa, Kazunori; and Takahashi, Katsumasa, 3,810,245.

Takahashi, Kikuo, to Sakura Seiki Kabushiki Kaisha. Apparatus for processing tissue for electron microscope examination. 3,809,008, Cl. 118-6.000.

Takahashi, Masahiro: *See—*
Miyanishi, Noritake; Kubota, Shigeru; Baba, Hirotoshi; and Takahashi, Masahiro, 3,809,201.

Takahashi, Mikio: *See—*
Araki, Yoshihiko; Sato, Naotake; and Takahashi, Mikio, 3,809,662.

Takahashi, Nobuo: *See—*
Akai, Shin-Ichi; Mori, Hideki; Takahashi, Nobuo; and Iguchi, Shin-Ichi, 3,809,584.

Takahashi, Satoshi, to Fire Research Institute, Fire Defence Agency, Ministry of Home Affair. Process for producing potassium superoxide. 3,809,746, Cl. 423-581.000.

Takahashi, Tetsuo: *See—*
Tokunaga, Kazuyoshi, Yamada, Takahiro; Doi, Tetuo; and Takahashi, Tetsuo, 3,810,194.

Takayama, Kenichiro; and Tomiyama, Tomoko, to Kyowa Hakko Kogyo Co., Ltd. Process for producing citric acid. 3,809,611, Cl. 195-30.000.

Takayama, Takeshi, to General Corporation, The. Microwave heating apparatus. 3,809,843, Cl. 219-10.550.

Takebe, Hisao: *See—*
Mori, Kenichi; and Takebe, Hisao, 3,810,094.

Takei, William J.: *See—*
Francombe, Maurice H.; Wu, Shu Y., and Takei, William J., 3,808,674.

Takeuchi, Keiji: *See—*
Murakami, Junzo; Asakawa, Shigeo; and Takeuchi, Keiji, 3,810,158.

Taki, Hiroyuki: *See—*
Kawamura, Eiji; and Taki, Hiroyuki, 3,808,812.

Takitani, Hideo. Sliding vane rotary engines and process for obtaining high torque power. 3,809,020, Cl. 123-8.070.

Talbot, Edmund H.: *See—*
Green Peter L.; Lenfesty, Gordon A.; Talbot, Edmund H.; Joslin, Allen; and Kovacevic, Vukasin, 3,808,761.

Talbot, John Henry. Analysis and representation of the size, shape and orientation characteristics of the components of a system. 3,809,478, Cl. 356-71.000.

Tamate, Teruzo: *See—*
Ogasaware, Shoji; and Tamate, Teruzo, 3,808,896.

Tamura Electric Works, Ltd.: *See—*
Nishino, Rintaro, 3,810,168.

Tanaka, Harumi, to Minolta Camera Kabushiki Kaisha. Shutter release locking device for camera. 3,810,227, Cl. 354-253.000.

Tanaka, Yasuhiko; Shimazaki, Yasumi; and Hagiwara, Kenji, to Nippon Steel Corporation. Apparatus for forming spiral steel pipe. 3,808,862, Cl. 72-135.000.

Tanasawa, Yasusi, to Kabushiki Kaisha Toyota Cjuo Kenkyusho. Vortex combustor. 3,808,802, Cl. 60-39.065.

Tarbox, Philip B.: *See—*
Preston, Frederick A.; Tarbox, Philip B.; and Anderson, Gordon C., 3,808,790.

Tarkan, Stuart E.: *See—*
Mal, M. Kumar; and Tarkan, Stuart E., 3,809,540.

Tarneja, Krishan S.; and Marcinko, Frank V., to Westinghouse Electric Corporation. Irradiation for fast recovery of high power junction diodes. 3,809,582, Cl. 148-1.500.

Tateisi, Tamotu, Ueda, Shigeo; and Kuwabara, Masayoshi, to Bridgestone Tire Company Limited. Floating and submerging controllable hose. 3,809,128, Cl. 138-114.000.

Taugner, Jack W.: *See—*
Jacobs, Melvin A.; and Taugner, Jack W., 3,809,823.

Tauman, Harvey; Sklover, Isadore T.; Tauman, Irving; and Kliment, Charles K., to Hydro-Dent Corporation. Hydrophilic coating for dental prostheses. 3,808,686, Cl. 32-2.000.

Tauman, Irving: *See—*
Tauman, Harvey; Sklover, Isadore T.; Tauman, Irving; and Kliment, Charles K., 3,808,686.

Tautvaisas, Bonaventura, to Kendall Company, The. Apparatus for altering the width, weight and thickness of fabric webs. 3,808,639, Cl. 19-161.00r.

Tayag, Miguelita G.: *See—*
Goldmacher, Joel E.; and Tayag, Miguelita G., 3,809,456.

Taylor, Edwin K.; and Boyd, James V., to Sooner Products Company, mesne. Cutting torch. 3,809,320, Cl. 239-416.400.

Taylor Industries, Inc.: *See—*
Taylor, Philip W., 3,809,799

Taylor, John Sassons. Fuel control system for gas turbine engine. 3,808,798, Cl. 60-39.28r.

Taylor, John Sassons. Fuel metering valve. 3,808,799, Cl. 60-39.28r.

Taylor, John Sassons, to Lucas, Joseph, (Industries) Limited. Fuel control system for gas turbine engine. 3,808,800, Cl. 60-39.28r.

Taylor, John Sassons. Fuel control system for gas turbine engine. 3,808,801, Cl. 60-39.28r.

Taylor, Philip W., to Taylor Industries, Inc. Electrical wiring duct with mounting clip. 3,809,799, Cl. 174-68.00c.

Taylor-Brown, Terence John; and Jack, James, to Bakelite Xylonite Limited. Manufacture of composite plastics structures. 3,809,594, Cl. 156-244.000.

Tebbe, Rolf; and Huiden, Barend. Stand for decorating a grave with floral arrangements. 3,809,345, Cl. 248-27.800.

Teemed A.G.: *See—*
Knecht; Fritz, 3,808,746.

Teders, Philip J., to Sarns, Inc. Turbidity monitor for dialysis machines. 3,809,243, Cl. 210-96.000.

Tektronix, Inc.: *See—*
Baker, Thompson A.; Balsiger, Melvin M., Considine, Kevin T., and Litsjo, Herbert E., 3,809,899
Roth, Stephen A., 3,810,026.
Stock, W. Riley; Balsiger, Melvin M., and Beran, William G., 3,809,888.

Tel-E-Lect, Inc.: *See—*
Wilson, Wendell E., 3,809,182.

Teledyne, Inc.: *See—*
Lefever, Richard M., 3,809,333.
Wiesler, Mordechai; and Macintyre, John S., 3,810,017.

Telefonaktiebolaget L M Ericsson: *See—*
Widl, Walter Herbert Erwin, and Karlsson, Stig Erik, 3,810,155.

Telefunken Patentverwertungsgesellschaft m.b.H.: *See—*
Thom, Reinhard, 3,810,010.

Teleky, Walter. Security device. 3,808,984, Cl. 109-59.000.

Teller, Aaron J., to Teller Environmental Systems, Inc. Abatement of acid gas emissions. 3,808,774, Cl. 55-68.000.

Teller Environmental Systems, Inc.: *See—*
Teller, Aaron J., 3,808,774.

Telserve Inc.: *See—*
Parks, William Louis; Grenoble, William Luster, Jr.; Harjes, Henry Herman, Jr., and McCarthy, Lawernce James, 3,810,102.

Tenneco Inc.: *See—*
Balluff, Robert N.; and Stormont, James D., 3,809,539.

Teramachi, Hiroshi. Endless sliding ball spline shaft bearing. 3,808,839, Cl. 64-23.700.

Terry, Rupert Douglas: *See—*
Wahlers, James Ludwig; Terry, Rupert Douglas; Scott, William, Jr.; and Simmers, Charles Donald, 3,808,765.

Terui, Hideaki: *See—*
Utsumi, Yoshiharu; and Terui, Hideaki, 3,810,254.

Terzian, Rouben T.; Glass, Marvin I.; and McKay, Robert S., to Glass, Marvin, & Associates. Hair styling figure and accessories. 3,808,736, Cl. 46-135.000.

Tetley Inc.: *See—*
Rivkowich, Harold; Rehman, Warren C., Knapp, William; and Borders, Bert, 3,809,769.

Tetley Inc., mesne: *See—*
Dobry, Reuven, 3,809,215.

Texaco Inc.: *See—*
Crawford, Wheeler C.; Godfrey, Arthur W.; and Reid, Robert E., 3,809,651.
Miller, Gordon H., 3,809,693.

Texas Instruments, Incorporated: *See—*
Ehni, George J., III, 3,809,994.

Evans, Lee L., 3,809,928.
Ewing, William Steele, Jr.; Ellis, Thomas Walter; and Choate, William Clay, 3,810,162.
Jones, William Stanley; and Hartmann, Clinton Sylvester, 3,810,257.
Jost, Ernest M., 3,810,059.

Textron, Inc.: *See—*
Hughes, Georges C., 3,809,108.

Thely, Maurice H., to Choay S.A. Calcium salt of N-acetyl-6-aminohexanoic acid and medicaments containing this salt. 3,809,760, Cl. 424-319.000.

Theurer, Josef: *See—*
Plasser, Franz; and Theurer, Josef, 3,808,693.

Thiele, Kurt: *See—*
Steinmetz, Gunter; and Thiele, Kurt, 3,809,695.

Thiriot, Alain Roger: *See—*
Chatanier, Michel Jean; Leynaert, Jacky Robert; and Thiriot, Alain Roger, 3,808,888.

Thom, Reinhard, to Telefunken Patentverwertungsgesellschaft m.b.H. Particle analysis method and apparatus wherein liquid containing particles is sucked into a constructed flow path. 3,810,010, Cl. 324-71.0cp.

Thomas, Edward W.; Scherzer, Walter Oscar; and Sicard, Fernand, to Intertechnique S.A. Sample changing and light sealing device for liquid scintillation spectrometer. 3,809,897, Cl. 250-288.000.

Thomas—CSF: *See—*
Torguet, Roger J., 3,810,199.

Thompson, David F.: *See—*
Lawson, James O.; and Thompson, David F., 3,810,143.

Thompson, Emily Herman: *See—*
Herman, Joseph L., 3,809,570.

Thompson, Francis T.; Silverstein, Steven L.; and Sun, Shan C., to Westinghouse Electric Corporation. Interpolative sensor output visual map display system. 3,810,138, Cl. 340-225.000.

Thompson, Neal W. Method for cooking foodstuffs. 3,809,777, Cl. 426-438.000.

Thomson-CSF: *See—*
Baril, Michel; and Legendre, Jacques, 3,810,048.
Hai, Nhu Bui, 3,810,187.
Tabourier, Remy, 3,810,177.

Thorsson, Lars-Ake Olof, and Jarvenson, Erik Borje, to AB Motala Verkstad and Landstingens Inkopscentral. Method of emptying drainage bags and apparatus for carrying out the method. 3,809,577, Cl. 134-42.000.

Thorsteinson, Marvin: *See—*
Sellers, Frederick; Thorsteinson, Marvin; and Martens, Ernst, 3,809,513.

Thuillier, Yvonne; and Giono-Berber, Paulette, born Crouy-Sur-Ourcq, Michel, to Rolland, Albert, S.A. Method of treating hypertension in animals with an extract of barks of anacardiacaea. 3,809,750, Cl. 424-195.000.

Thurman, Benjamin H.: *See—*
Clayton, Benjamin, and Thurman, Benjamin H., 3,809,097.

Thursday Company, The. *See—*
Rigney, Jack C., Hollis, Samuel H., and Doonan, Nathaniel J., 3,809,013.

Tiao, Hui-Li: *See—*
Kollar, Ernest P.; Levine, Joel M.; Tagawa, James M.; and Tiao, Hui-Li, 3,809,336.

Tideland Signal Corporation: *See—*
Jacobs, Thomas A., 3,810,150.

Tierney, Peter R.; Lohman, Arthur F.; and Andrus, Donald M., to Singer Company, The. Low cost guidance receiver. 3,810,181, Cl. 343-108.00r.

Tilford, Charles Hormon: *See—*
Mac Kenzie, Robert Douglas; and Tilford, Charles Hormon, 3,809,753.

Tirrell, C. Barry; and Reid, Walter I., Jr., to Dale Electro-Systems, Incorporated. Sectional laminated structural system for area distribution of electrical power and signal energy. 3,809,966, Cl. 317-117.000.

Tirrell, C. Barry; and Williams, George B., to Dole Electro-Systems, Incorporated. Interconnection assembly for panel sections of area type electrical distribution system. 3,809,967, Cl. 317-117.000.

Togawa, Hideaki: *See—*
Mori, Chiharu; Ota, Katsumi; and Togawa, Hideaki, 3,810,203.

Togneri, Mauro Guiseppe: *See—*
Ostfeld, David Martin; and Togneri, Mauro Guiseppe, 3,810,153.

Tokunaga, Kazuyoshi; Yamada, Takahiro; Doi, Tetuo; and Takahashi, Tetsuo, to Hitachi, Ltd. Liquid jet printer having a droplet detecting device. 3,810,194, Cl. 346-75.000.

Tokutomi, Yoshihiro: *See—*
Matsuzawa, Hideo; and Tokutomi, Takashi, 3,809,645.

Tokyo Gas Company Limited. *See—*
Iida, Hirofumi, 3,809,378.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Koinuma, Tokuju, 3,809,950.
Mori, Kenichi; and Takebe, Hisao, 3,810,094.
Yamada, Hirohide; and Nakayama, Yoshiaki, 3,810,114.

Tokyo Shibauro Electric Co., Ltd.: *See—*
Murakami, Junzo; Asakawa, Shigeo; and Takeuchi, Keiji, 3,810,158.

Tomita, Chikayoshi: *See—*
Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, 3,809,641.

Tomiyama, Tomoko: *See—*
Takayama, Kenichiro; and Tomiyama, Tomoko, 3,809,611.

Tomlinson, Walter John, III: *See—*
Chandross, Edwin Arthur; Fork, Richard Lynn; Kaminow, Ivan Paul; and Tomlinson, Walter John, III, 3,809,686.
Chandross, Edwin Arthur; Pryde, Carolie Anne; Tomlinson, Walter John, III; and Weber, Heinz Paul, 3,809,732.

Toplak, Ernst: *See—*
Baer, Jurgen; Sommer, Dieter; and Toplak, Ernst, 3,809,934.

Toray Industries, Inc.: *See—*
Jinno, Sigeru; and Uchida, Mitsuo, 3,808,893.

Torgeson, William Lee, to American Cyanamid Company, mesne. Dispensing lung contacting powdered medicants. 3,809,294, Cl. 222-182.000.

Torguet, Roger J., to Thomas—CSF. High speed optical printer. 3,810,199, Cl. 354-12.000.

Tos Hostivar, Narodni podnik: *See—*
Belohoubek, Bohuslav; and Linda, Josef, 3,808,745.
Rosberg, Frantisek; Linda, Josef; Buzga, Ondrej; Dusek, Miloslav; and Cvetler, Jiri, 3,808,749.

Toscano, Catherine M. Solution for treatment of hair and scalp. 3,809,747, Cl. 424-70.000.

Toscano, Esteban J.: *See—*
Castro, Rodolfo; and Toscano, Esteban J., 3,808,672.

Townley, Ray Clifford: *See—*
Hopkins, John Warren; Townley, Ray Clifford; and Zimmerman, Leonard, 3,810,235.

Toyo Enterprises Kabushiki Kaisha: *See—*
Kamiya, Nobuyoshi, 3,808,703.

Toyota Jidosha Kogyo Kabushiki Kaisha Toyota-shi, Nippondenso Co., Ltd.: *See—*
Wakamatsu, Hisato; and Endo, Kunio, 3,809,029.

Toytown Corporation: *See—*
Suzuki, Haruo, 3,808,734.

Tozzi, Vincenzo. Child teaching board game. 3,808,709, Cl. 35-35.00h.

Treder, John D.: *See—*
Dodd, Paul D.; Lynott, John J.; and Treder, John D., 3,809,263.

Tremblay, Alain: *See—*
Vadeboncoeur, Leo; and Tremblay, Alain, 3,808,900.

Trevithick, Tony, to Woodhead, Daniel, Inc. Contact tester. 3,808,874, Cl. 73-9.000.

Trola-Kunststoffer-Zeugnisse GmbH & Co.: *See—*
Lauterbach, Heinrich, 3,808,633.

Tronzo, Raymond G. Bone implant with porous exterior surface. 3,808,606, Cl. 3-1.000.

Trotz, Samuel L.: *See—*
Cianciolo, Alfred D.; Sabatine, Donald J.; and Trotz, Samuel L., 3,809,587.

Truelove, Edward L., Sr. Bleeding tool for hydraulic brake cylinder. 3,809,359, Cl. 251-148.000.

Truelove, James E.: *See—*
Hussain, Anwar; and Truelove, James E., 3,809,714.

Trutzschler & Co., Firma. *See—*
Trutzschler, Hermann, 3,809,440.

Trutzschler, Hermann, to Trutzschler & Co., Firma. Shaft for depositing fibre flock. 3,809,440, Cl. 302-59.000.

TRW Inc.: *See—*
Batista, Roy L., 3,809,309.
Spisak, Steve, 3,809,849.

Tschuggnal, Alfred F.: *See—*
Kaltenhauser, Ludwig A.; and Tschuggnal, Alfred F., 3,809,277.

Tsilibes, George N.: *See—*
Casperson, John H.; and Tsilibes, George N., 3,810,189.

Tucker, Charles M. Warning and distress signal device for a disabled vehicle. 3,810,092, Cl. 340-107.000.

Tuflok, Inc.: *See—*
Canfield, Russell, 3,809,418.

Tull, Herbert G., III: *See—*
Edwards, John W.; and Tull, Herbert G., III, 3,809,235.

Tull, Herbert G., III, to Hoerner Waldorf Corporation. Stripping apparatus. 3,808,965, Cl. 100-7.000.

Tunzini Ameliorair, Thermique, Aeraulique,: *See—*
Fahre, Pierre; Giroud-Garampon, Robert; Gondrand, Michel; and Grenoble, Fernand Raymond, 3,809,011.

Tuohey, Paul F.: *See—*
Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., 3,809,562.

Turbo Cycle Company, Inc.: *See—*
Shirley, Howard E.; and Jensen, Jackie L., 3,809,060.

Turner, Prescott K., to General Electric Company. Electric connector. 3,810,075, Cl. 339-105.000.

Turtschan, Alfons, to Ganzhorn U. Stirn Kommanditgesellschaft. Apparatus for forming and filling containers. 3,808,772, Cl. 53-141.000.

Turyansky, Eduard Grigorievich: *See—*
Levin, Igor Anatolievich; Levin, Anatoly Yakovlevich; Fedorov, Nikolai Evstigneevich; Rogov, Iosif Alexandrovich; Afanasov, Erik Eduardovich; and Turyansky, Eduard Grigorievich, 3,809,341.

Tyler, William E., III: *See—*
Horowitz, Hugh H.; and Tyler, William E., III, 3,809,726.

Tymann, Edward B.: *See—*
Huettner, Robert E.; and Tymann, Edward B., 3,810,120.

Tyszkiewicz, Stefan Eugene. Luggage trolleys. 3,809,202, Cl. 194-1.00r.

Uchida, Mitsuo: *See—*
Jinno, Sigeru; and Uchida, Mitsuo, 3,808,893.

Uchiyama, Ryoji, to Maruyama Mfg. Co., Ltd. Pump. 3,809,508, Cl. 417-511.000.

Uchiyama, Yasuji, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument. 3,809,791, Cl. 84-1.240.

Ucote Corporation, mesne: *See—*
Connett, Hugh H., 3,809,597.

Udluft, Klaus; Weigert, Wolfgang; Offermanns, Heribert; and Wagner, Hans, to Deutsche Golf-und Silbert-Scheideanstalt vormals Roessler. Process for the production of 1,1,2-triacetoxyethane. 3,809,716, Cl. 260-491.000.

Ueda, Hiroshi, to Minolta Camera Kabushiki Kaisha. Driving mechanism for the movable reflector in a single lens reflex camera. 3,810,216, Cl. 354-156.000.

Ueda, Shigeo: *See—*
Tateisi, Tamotu; Ueda, Shigeo; and Kuwabara, Masayoshi, 3,809,128.

Ueda, Toshio: *See—*
Yamazaki, Eiichi; Maruyama, Koichi; Ueda, Toshio; and Nakamura, Tomizo, 3,809,558.

Uke, Alan K.: *See—*
Good, Richard R.; and Uke, Alan K., 3,809,353.

Ulbing, Cynthia G.; and Corretore, Daniel A., Jr., to Eastman Kodak Company. Negative unfogged silver halide emulsion containing a sensitizing combination of a cyanine desensitizing dye and a supersensitizing compound. 3,809,561, Cl. 96-84.000.

Ullman, Jeffery David: *See—*
Aho, Alfred Vaino; and Ullman, Jeffery David, 3,810,112.

Ullrich, Martin: *See—*
Erdmenger, Rudolf; Ullrich, Martin; and Hederich, Manfred, 3,809,140.

Ulrich, Donald Aloysious, Jr., to Procter & Gamble Company, The. Hydrolytically unstable polyurethane catamenial devices. 3,809,088, Cl. 128-285.000.

Ultrasonic Systems, Inc.: *See—*
Balamuth, Lewis; Kuris, Arthur; and Karatjas, Manual, 3,809,977.

Ultronic Systems Corporation: *See—*
Morris, Floyd D.; and Rich, Barry S., 3,810,109.

Unarco Industries, Inc.: *See—*
Bertram, Leroy W.; Loomis, Russell M.; and Gaikowski, Michael D., 3,808,982.

Unger, John J.; Augustine, Robert J.; and Khaja, Fareed U., to Sunbeam Corporation. Electric coffee percolator. 3,809,285, Cl. 220-94.00r.

Uniflo Systems Company: *See—*
Smoot, Charles H.; Kleven, Lowell A.; and Wirth, Gary J., 3,808,977.

Unifoam A.G.: *See—*
Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis, 3,809,512.

Union Camp Corporation: *See—*
Abrams, Andrew M., 3,808,737.
Burke, William R.; McCall, Frank S.; Clark, Kenneth G.; De Pass, Ernest T.; and Friend, William H., 3,809,593.

Union Carbide Corporation: *See—*
Berlat, Norman R., 3,809,571.
Boersma, Robert Paul; Mendicino, Frank Dominic; and Ometanski, George Michael, 3,809,713.
Bonnet, Frederick W., 3,809,375.
Kupcikevicius, Vytautas; and Myles, Michael Joseph, 3,808,638.
Manz, August Frederick, 3,809,853.
Marbach, Walter V.; Acton, Frank J.; Eichin, Harry P., and Winokur, Louis L., 3,809,576.
Saenger, John F., Jr., 3,809,850.

Union Industrielle Blanzy-Ouest: *See—*
Montacie, Marcel, 3,809,432.

Unique Devices Engineering & Consulting Corporation: *See—*
Wetmore, Harold B., 3,809,882.

Uniroyal, Inc.: *See—*
Davenport, Richard Waldron, 3,809,725.

Unitaka Ltd.: *See—*
Kimura, Hiroshiro; Arimoto, Heiji; Nara, Hirohisa; Miyamatsu, Tsugio; and Kitajima, Mitsuo, 3,809,131

United Aircraft Corporation: *See—*
Beurer, Robert John; and Jeffery, Philip Auriol Edgar, 3,809,334.
Harner, Kermit L., 3,809,490.

United Can Company: *See—*
Wolfe, Wayne F., 3,808,868.

United GAs Industries Limited: *See—*
McGowan, Eric, 3,810,249.

United Kingdom Atomic Energy Authority: *See—*
Chubb, John Norman; and Sinton, Ernest Kennedy, 3,809,948.

United Kingdom of Great Britain and Northern Ireland, Secretary of State for Trade and Industry in Her Britannic Majesty's Government of the: *See—*
Horsford, Anne; Lewison, George Richard Grant; and Paffett, James Arthur Haines, 3,809,000.

United States of America
Agriculture: *See—*
Barnes, Phillip C., Jr.; and Holaday, Charles E., 3,808,964.
Bookwalter, George N., 3,809,773.
Fanta, George F.; and Burr, Robert C., 3,809,664.
Magne, Frank C.; Mod, Robert R.; Sumrell, Gene; and Parker, Winfred E., 3,809,706.
Mustakas, Gus C., 3,809,771.
Pittman, Allen G.; and Wasley, William L., 3,809,783.

Atomic Energy Commission: *See—*
Gilpatrick, Louis O., 3,809,762.
Wewerka, Eugene M.; Imprescia, Richard J.; and Reiswig, Robert D., 3,809,565.
Woolsey, Charles C., Jr., 3,809,731.

Interior: *See—*
Russell, James T., 3,809,477.
Sprinkle, Leland W., 3,809,467.

National Aeronautics and Space Administration; Administrator; with respect to an invention of:
Rumble, Carl V.; and Driscoll, Kendall L. Means for accommodating large overstrain in lead wires. 3,809,800, Cl. 174-70.00r.

National Aeronautics and Space Administration: *See—*
Howard, Wayne H., Young, Donald R.; and Adachi, Richard R., 3,809,871.
Schindler, Rudolf A., 3,809,481.

National Aeronautics and Space Administration; Administrator; with respect to an invention of:
Sainsbury-Carter, John B. Bonded joint and method. 3,809,601, Cl. 161-116.000.

Navy: *See—*
Allen, Redfield W.; and Weckesser, Louis B., 3,808,833.
Briant, Bob B., 3,810,154.
Byram, George W., 3,809,876.
Cammack, Thomas A., Donahue, William J.; and Gratton, Peter D., 3,808,972.
Cohen, Julius; Edelman, Seymour; and Vezzetti, Carol F., 3,809,920.
Gilbert, Lee N., 3,809,127.
Hunter, Earl K., 3,810,080.
Salvi, Enrico, 3,808,803.
Sullivan, Dean R., 3,809,820.
White, Richard M.; and Goyal, Ramesh Chandra, 3,809,931
Zieve, Robert M., Maginnis, Christopher L., and Kleidermacher, Moishe, 3,810,119.

Navy, mesne: *See—*
Greenberg, Harold L., 3,809,585.

United States Steel Corporation: *See—*
Andrezejak, Sigmund L.; Orehoski, Michael A.; Shapland, James T.; and Szumilas, Raymond S., 3,809,146
Prellwitz, Samuel B., 3,809,913.
Stephan, Raymond C., 3,809,381.
Sydor, Matthew, 3,809,162.

Unitika Ltd.: *See—*
Arimoto, Heiji; Goto, Tokujo; Amemiya, Kunio; and Seki, Tunekatu, 3,808,618.

Universal Feeders, Inc.: *See—*
Miksitz, Frank J., 3,809,286.

Universal Instruments Corporation. *See—*
Ragard, Phillip A., 3,808,662.

Universal Oil Products Company: *See—*
Hausler, Rudolf H.; and Sampson, Robert W., 3,810,009.

Universite de Sherbrooke: *See—*
Delisle, Jules; and Baillargeon, Victor, 3,809,811.

University of California, The Regents of the: *See—*
Rapport, Henry, 3,809,700.

Unland, Mark L.; and Barker, George E., to Monsanto Company. Process for treating automative exhaust. 3,809,743, Cl. 423-213.500.

Uno, Naoyuki, to Asahi Kogaku Kogyo Kabushiki Kaisha. Light-measuring method and structure for cameras. 3,810,202, Cl. 354-23.000.

Updike, Bruce M.: *See—*
Krewson, Neil N.; Tait, John B.; and Updike, Bruce M., 3,810,108.

Upjohn Company, The: *See—*
Kaugars, Girts, 3,809,703.

Upton, Ernest W., to General Motors Corporation. Fluid unit with auxiliary rotor. 3,808,809, Cl. 60-347.000.

Urban, Friedrich: *See—*
Mueller-Tamm, Heinz; Urban, Friedrich; Frielingsdorf, Hans; Nickl, Johann; Schweier, Guenther; and Kohnle, Josef, 3,809,657.

U.S. Industries, Inc.: *See—*
Van Huis, Robert L., 3,808,960.

U.S. Philips Corporation: *See—*
Barten, Piet Gerard Joseph, 3,810,196.
Boekkooi, Anton; and Westerveld, Willem, 3,809,942.
Esser, Leonard Jan Maria, 3,809,923.
Jongerius, Hermanus Maria; and Van der Wolk, Rein Willemse, 3,809,944.
Van Der Plaats, Petrie Johan, 3,810,032.
Van Doorn, Willem, 3,810,256.
Visser, Wim, 3,809,986.

USM Corporation: *See—*
Muhlbach, Anton; and Lauckhardt, Gerhard, 3,809,306.
Schaefer, Hans F., Jr., 3,808,991.

Usui, Setsuo, to Sony Corporation. Method of making a sandblast mask. 3,808,751, Cl. 51-312.000.

Utsumi, Yoshiharu; and Terui, Hideaki, to Hitachi, Ltd. Thermostatic system for nuclear gyromagnetic resonance spectroscopic permanent magnet apparatus. 3,810,254, Cl. 324-.50r.

Vadeboncoeur, Leo; and Tremblay, Alain, to Jarry Precision Limited. Drive sheave. 3,808,900, Cl. 74-230.17e.

Valmet Oy: *See—*
Peltonen, Lahja Arvid, 3,809,270.

Vamosi, Jozsef: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.

Van Blarcom Closures, Inc.: *See—*
Scuderi, Vincent, 3,809,274.

Van der Lely, Ary: *See—*
Van der Lely, Cornelis; and Van der Lely, Ary, 3,809,166.

Van der Lely, Cornelis; and Van der Lely, Ary. Tine mountings. 3,809,166, Cl. 172-763.000.

Van Der Plaats, Petrie Johan, to U.S. Philips Corporation. Amplifier device with remote power supply. 3,810,032, Cl. 330-29.000.

Van der Wolk, Rein Willemse: *See—*
Jongerius, Hermanus Maria; and Van der Wolk, Rein Willemse, 3,809,944.

Van Doorn, Willem, to U.S. Philips Corporation. Transistor amplifier for broad-band information signals. 3,810,256, Cl. 330-28.000.

Van Doorne, Guy Camille, to Labofina S.A. Lubricating grease. 3,809,649, Cl. 252-33.200.

Van Doorselaer, Marcel Karel, to Agfa-Gevaert N.V. Radiographic colour material. 3,809,906, Cl. 250-472.000.

Van Dyk, Gerk Gerry: *See—*
Clarke, Robert L.; and Van Dyk, Gerk Gerry, 3,809,904.

Van Hattum en Blakevoort B.V.: *See—*
Verbeek, Adalbertus Raphael Maria, 3,808,716.

Van Huis, Robert L., to U.S. Industries, Inc. Adjustable air inlet. 3,808,960, Cl. 98-41.00r.

Vanderlugt, Thomas, Jr., to Brown Company. Hexagonal container for food products or the like. 3,809,310, Cl. 229-26.000.

Vanderveer, Donald A. Pollution-free incineration system. 3,808,619, Cl. 110-8.00c.

Varekamp, Willem, to Ingenieursbureau Rodehuis & Verloop N.V. Method and apparatus for cooling the flame of an industrial gas burner. 3,809,523, Cl. 431-4.000.

Vari-Light Corporation: *See—*
Strebel, Elwood L., 3,809,656.

Varian Associates: *See—*
Eallonardo, Charles M., 3,808,677.
Ernst, Richard Robert, 3,810,001.
Miram, George V.; and Mizuhara, Yosuke M., 3,809,939.
Miram, George V.; and Woolsey, Samuel W., 3,809,957.
Ruttan, Thomas G., 3,810,045.
Scott, Allan W., 3,809,949.
Ward, Curtis E., 3,810,028.

Varian Mat GmbH: *See—*
Schuy, Klaus Dieter; and Franzen, Jochen, 3,809,896.

Vayda, Pierre Andre: *See—*
Rocher, George; and Vayda, Pierre Andre, 3,809,380.

Velcro France: *See—*
Billarant, Patrick; Goubeau, Robert; and Langlois, Jacques, 3,808,648.

Velo-Bind, Inc.: *See—*
Buan, Danilo P., 3,808,933.

Velten & Pulver, Inc.: *See—*
Euverard, Maynard R., 3,809,207.

Venier, Dominic A.: *See—*
Smith, Bart A.; Lass, James L.; and Venier, Dominic A., 3,809,610.

Venkatasubramanian, Kalyanasundram: *See—*
Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Venkatasubramanian, Kalyanasundram, 3,809,613.

Venuto, C. Joseph, to ESB Incorporated. Method for producing lead oxide containing antimony, lead oxide made by the method, and a storage battery electrode using the oxide. 3,809,579, Cl. 136-26.000.

Vepa AG: *See—*
Fleissner, Heinz, 3,808,846.

Verbeek, Adalbertus Raphael Maria, to Van Hattum en Blakevoort B.V. Dredge cutter head. 3,808,716, Cl. 37-67.000.

Vergara, Jose D.; Galvan, Ramon; and Leal, Fausto. Motor speed control. 3,810,253, Cl. 318-237.000.

Vesely, Dwayne G. Bicycle lock. 3,808,847, Cl. 70-18.000.

Vestra-Union, S.A.: *See—*
Heiler, Wolfgang; Muller, Rudolf; and Becker, Jean-Jacques, 3,808,993.

Vezzetti, Carol F.: *See—*
Cohen, Julius; Edelman, Seymour; and Vezzetti, Carol F., 3,809,920.

Vidovic, Nikola, to International Video Corporation. Technique for detecting long duration pulses from a train of short duration pulses. 3,809,809, Cl. 178-69.5tv.

Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Venkatasubramanian, Kalyanasundram, to Research Corporation. Biocatalytic module. 3,809,613, Cl. 195-63.000.

Viglione, Giovanni, to Nuova San Giorgio S.p.A. Grasping device for doffing full bobbins and reloading empty tubes in a spinning frame. 3,808,788, Cl. 57-52.000.

Vignini, Walter R.; and Molloy, Martin, to Sonotone Corporation, mesne. Acoustic CROS hearing aid. 3,809,829, Cl. 179-107.00s.

Villalobos, Luis F.; Harano, Allen A.; and Breinlinger, Richard H., to Hughes Aircraft Company, mesne. System for generating orthogonal control signals to produce curvilinear motion. 3,809,868, Cl. 235-151.000.

Villani, Gerard J.: *See—*
Hluchan, Stephen E.; and Villani, Gerard J., 3,809,971.

Visser, Wim, to U.S. Philips Corporation. Positioning device. 3,809,986, Cl. 318-561.000.

Vital, Zoltan; and Orban, Jean, to Ponder & Best, Inc. Electronic photoflash. 3,809,951, Cl. 315-149.000.

Vitencz, Michael. Ice cube dispensing machine. 3,809,295, Cl. 222-183.000.

Vittoz, Eric Andre, to Centre Electronique Horloger, S.A. Temperature sensing device. 3,809,929, Cl. 307-310.000.

Vittoz, Eric Andre, to Centre Electronique Horloger S.A. Current comparing device. 3,810,006, Cl. 324-62.000.

Vogelfanger, Elliot A.; and Nathanson, Bennett, to Celanese Corporation. Polyamide-metal structure. 3,809,591, Cl. 156-151.000.

Vogelsberg, Dieter, to Siemens Aktiengesellschaft. Rotating intermediate storer for the twisting of strand elements for electrical cables. 3,808,787, Cl. 57-34.0at.

Voges, Jan: *See—*
Knappstein, Johannes; and Voges, Jan, 3,809,622.

Vogue Instrument Corporation: *See—*
Shepard, Francis H., Jr., 3,810,167.

Von Braunschweig, Georg, to Rheinstahl Aktiengesellschaft, Firma. Tractor-shovel with pivotal steering means. 3,809,176, Cl. 180-79.20b.

Von Kaenel, Walter: *See—*
Law, John M.; Stricker, Alfred A.; and Von Kaenel, Walter, 3,808,681.

Von Semel, Georg; and Schibilla, Eduard, to Friedrich Uhde GmbH. Process for the removal of nitric oxides from exhaust gases. 3,809,744, Cl. 423-235.000.

Voorhees, John E.; and Schockman, Robert L., to Minster Machine Company, The. Arrangement for dynamic balancing of a mechanical press, especially a high speed mechanical press. 3,808,912, Cl. 74-604.000.

Vore, Richard E. Emergency auxiliary circuit switch and lighting system. 3,809,917, Cl. 307-39.000.

Vulcan Plastics, Inc.: *See—*
Churan, Roy G., 3,809,284.

Vulcano, Vincent N., to Compu-Sort Systems, Inc. Apparatus for stripping covers from paperback books and the like. 3,808,931, Cl. 83-409.000.

Wachs, Marvin Richard; Berman, Arnold L.; and Mahle, Christoph E., to Communications Satellite Corporation. Frequency translation routing communications transponder. 3,810,255, Cl. 325.003.000.

Wackerbarth, Folkard; and Beck, Kurt-Gunther, to Otto, C., Dr., & Comp. G.m.b.H. Horizontal coke oven. 3,809,620, Cl. 202-139.000.

Wagle, William E.: *See—*
Godwin, George A.; and Wagle, William E., 3,809,831.

Wagner, Alfred; and Hesse, Juergen, to Swiss Aluminum Ltd. Method and apparatus for extrusion of workpieces. 3,808,865, Cl. 72-269.000.

Wagner Electric Corporation: *See—*
Machek, John A., 3,809,125.

Wagner, Hans: *See—*
Udluft, Klaus; Weigert, Wolfgang; Offermanns, Heribert; and Wagner, Hans, 3,809,716.

Wahlers, James Ludwig; Terry, Rupert Douglas; Scott, William, Jr.; and Simmers, Charles Donald, to Johns-Manville Corporation. Investing and reversing conveyor. 3,808,765, Cl. 53-21.0fw.

Wahlig, James William. Prophylactic enclosure for clinical thermometers during use. 3,809,229, Cl. 206-306.000.

Waite, Hal R. Incendiary composition including zinc-mischmetal alloy. 3,809,586, Cl. 149-19.910.

Wakamatsu, Hisato; and Endo, Kunio, to Toyota Jidosha Kogyo Kabushiki Kaisha Toyota-shi, Nippondenso Co., Ltd. Electric control apparatus for internal combustion engines. 3,809,029, Cl. 123-32.0ea.

Wakamiya, Shunichiro; and Itoh, Kiyoshi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Antireflection coating for an inner surface of cemented lenses. 3,809,459, Cl. 350-164.000.

Wakefield, Lynn B., to Firestone Tire & Rubber Company, The. Resinous formaldehyde reaction product of vulcanized-scrap-rubber pyrolysis oil and its production. 3,809,680, Cl. 260-51.00r.

Walch, Leo M., Jr.: *See—*
Warrick, Edward C.; Walch, Leo M., Jr.; and Hammerle, Dennis R., 3,809,312.

Walker, Eugene J.; and Maier, Alfred E., to Westinghouse Electric Corporation. Circuit breaker trip and latch mechanism. 3,810,051, Cl. 335-167.000.

Walker, Peter, Jr., to Electro-Craft Corporation. Variable speed motor. 3,809,983, Cl. 318-340.000.

Walker, Robert; and Harris, William, to Columbia Broadcasting System Inc. Banding correction system for film recording apparatus. 3,809,806, Cl. 178-7.600.

Walker, Walter P.; Cobb, Douglas R.; and Cofer, Frank H., Jr., to Audichron Company, The. Multichannel access switching system. 3,809,810, Cl. 179-1.00b.

Wall, Donald E.: *See—*

Ersek, Robert A.; Wall, Donald E.; and Garity, Michael C., 3,809,072.
Walters, Russell W., to BMR Security Products Corporation. Locking handle assembly. 3,808,850, Cl. 70-215.000.
Wandel, Oscar A.; and Mullaney, Frank, to Eastener Corporation. Safety assembly for fastener driving tool. 3,809,307, Cl. 227-8.000.
Wang, Robert; and Pariel, Jean-Marie, to Societe Anonyme Heurtey. Flat-flame burner utilizing heavy liquid fuels. 3,809,525, Cl. 431-353.000.
Wang, Shaw S.: *See—*
Vieth, Wolf R.; Wang, Shaw S.; Gilbert, Seymour G.; and Venkatasubramanian, Kalyanasundram, 3,809,613.
Ward, Curtis E., to Varian Associates. Waveshaping circuit and devices using same. 3,810,028, Cl. 328-142.000.
Ward, Frederick A., to Wean United, Inc. Coil car track system. 3,808,978, Cl. 104-130.000.
Ward, Robert C., to Commercial Affiliates, Inc. Surface covering installation with means to reach covered access systems. 3,808,760, Cl. 52-221.000.
Ware Machine Works, Inc.: *See—*
Pilch, John S., 3,809,250.
Wareham, Richard R.; and Paglia, Richard, to Polaroid Corporation. Self-developing camera system. 3,810,211, Cl. 354-86.000.
Warner Electric Brake and Clutch Company: *See—*
Kuo, Benjamin C.; and Kordik, Kenneth S., 3,809,990.
Warnow, Detlef: *See—*
Breiling, Hans Georg; and Warnow, Detlef, 3,809,109.
Warrick, Edward C.; Walch, Leo M., Jr.; and Hammerle, Dennis R. Rockwell International Corporation Pushbutton tamper proof taximeter. 3,809,312, Cl. 235-30.00r.
Warter, Peter J.: *See—*
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., 3,809,471.
Wasley, William L.: *See—*
Pittman, Allen G.; and Wasley, William L., 3,809,783.
Wasson, Kenneth L.: *See—*
Ollinger, James C.; and Wasson, Kenneth L., 3,808,763.
Watanabe, Tatsuo. Foam plastic sheet forming process and foam plastic sheet with hair-like piles. 3,809,734, Cl. 264-51.000.
Water Gremlin Company: *See—*
Ratte, Wilfred L., Jr., 3,808,728.
Watt, Roy E., to General Motors Corporation. Compressor superheat switch with bellows mounting ring. 3,809,835, Cl. 200-83.00n.
Wean United, Inc.: *See—*
Ward, Frederick A., 3,808,978.
Weatherston, Roger C., to Calspan Corporation. Refrigerant handling apparatus employing roots type compressor. 3,808,835, Cl. 72-510.000.
Weber, Heinz Paul: *See—*
Chandross, Edwin Arthur; Pryde, Carolie Anne; Tomlinson, Walter John, III; and Weber, Heinz Paul, 3,809,732.
Weber, John M. Electric discharge machine with mechanism for orbiting the electrode on a polygonal path. 3,809,852, Cl. 219-69.00v.
Webster, Neal R. Shoes for walking on water. 3,808,622, Cl. 9-310.00d.
Weckesser, Louis B.: *See—*
Allen, Redfield W.; and Weckesser, Louis B., 3,808,833.
Wehr Corporation: *See—*
Barrett, William T.; and Potter, Newton I., 3,809,239.
Weide, Roman K.: *See—*
Seetoo, Winston R., Weide, Roman K.; and Charland, Telesphore L., 3,808,670.
Weidner, Peter F.: *See—*
Stutzle, Dietmar; and Weidner, Peter F., 3,808,975.
Weigert, Wolfgang: *See—*
Udluft, Klaus; Weigert, Wolfgang; Offermanns, Heribert; and Wagner, Hans, 3,809,716.
Weinmann Aktiengesellschaft: *See—*
Schoch, Robert, 3,808,644.
Weinstein, Stephen Brant: *See—*
Kalet, Irving; and Weinstein, Stephen Brant, 3,810,021.
Weipert, Eugene A.: *See—*
Niu, Hsien Ying; and Weipert, Eugene A., 3,809,723.
Weise, George. Multiple valve distributor head. 3,809,163, Cl. 169-9.000.
Weisenbach, Charles O., to General Signal Corporation. Hydraulic load sensitive system. 3,809,501, Cl. 417-222.000.
Weller, Peter A., to McCord Corporation. Energy absorbing bumper assembly. 3,809,420, Cl. 293-70.000.
Wells, Harold D., to Black Body Corporation. Infrared emitter. 3,809,859, Cl. 219-345.000.
Wells, William T. Rotary internal combustion engine. 3,809,023, Cl. 123-8.270.
Welsh, James W., to Standard Motor Products, Inc. Method and apparatus for heat detection and control. 3,810,065, Cl. 337-320.000.
Welty, Dale E., to Holophane Company, Inc. Prismatic reflectors. 3,809,881, Cl. 240-106.00r.
Wendel-Sidelor: *See—*
Bruhlet, Paul; and Quillet, Gerard, 3,809,524.
Weng, August: *See—*
Sjoberg, Sven; Fagerstad, Herlov; and Weng, August, 3,809,938.
West Creek Co., Inc.: *See—*
Ehlichmann, Merlin W., 3,808,987.
West, Leonard R.: *See—*
Bennion, Don U.; and West, Leonard R., 3,810,005.
Westbury, Roy: *See—*
Simmons, John Richard; and Westbury, Roy, 3,808,947.
Westcott, Kenneth C. Lock bolt. 3,809,415, Cl. 292-33.000.
Westergaard, Melvin George. Tool for administering injections to livestock. 3,809,083, Cl. 128-218.00f.
Western Electric Company: *See—*
Gruszka, Raymond Frank, 3,809,233.
Western Electric Company, Incorporated: *See—*
Chayka, George A.; Persson, Eric J.; and Ziobro, Norbert M., 3,810,016.
Sharp, Donald J.; and Sutch, Richard D., 3,809,627.
Westerveld, Willem: *See—*
Boekkooi, Anton; and Westerveld, Willem, 3,809,942.
Westinghouse Air Brake Company: *See—*
Schantz, Ronald K., 3,808,717.
Westinghouse Brake and Signal Company, Limited: *See—*
Brown, Christopher Robert; George, Terence Malcolm; and Norton, David John, 3,809,930.
Westinghouse Electric Corporation: *See—*
Bleeker, Raymond A., 3,809,142.
Blewitt, Donald D., 3,810,063.
Bourg, Haden J., Jr.; and Nicholson, James F., 3,809,941.
Francombe, Maurice H.; Wu, Shu Y.; and Takei, William J., 3,808,674.
Katz, Leonard R.; Landerman, Edgar I.; and Desmarchais, Walter E., 3,809,608.
Kilgore, Lee A.; Ratcliffe, Robert E. G.; Smith, Henry L.; and Strait, Bernard S., Jr., 3,809,914.
Meacham, James H., 3,810,024.
Murray, Thomas R.; and Burns, David C., 3,809,607.
Niemoller, Arthur B.; and Ford, Fred H., 3,809,801.
Pütman, Richard E., 3,809,621.
Sahasrabudhe, Arun P., 3,810,161.
Sekella, Youston M., 3,809,940.
Stahl, William F., 3,809,495.
Tarneja, Krishan S.; and Marcinko, Frank V., 3,809,582.
Thompson, Francis T.; Silverstein, Steven L.; and Sun, Shan C., 3,810,138.
Walker, Eugene J.; and Maier, Alfred E., 3,810,051.
White, Dale; and Morris, Louis, Jr., 3,810,058.
Woods, David H., 3,810,099.
Yeo, Denis, 3,809,575.
Wetmore, Harold B., to Unique Devices Engineering & Consulting Corporation. Lighting device. 3,809,882, Cl. 240-10.6ch.
Wewerka, Eugene M.; Imprescia, Richard J.; and Reiswig, Robert D., to United States of America, Atomic Energy Commission. Method of forming micron-size, metal carbide particle dispersions in carbon. 3,809,565, Cl. 106-56.000.
Wheelabrator Corporation, The: *See—*
Kenagy, William L., 3,808,747.
Wheeler, Frederick Charles, to Staples Developments Limited. Electric battery charger. 3,809,993, Cl. 320-25.000.
Whelan, James M.; and Greene, Joseph E. Sputtering method and apparatus for quantitative and qualitative analysis of materials. 3,809,479, Cl. 356-85.000.
Whetstone, Clay N.: *See—*
Raymond, Jan Wayne; and Whetstone, Clay N., 3,809,147.
White, Charles M. Free form cushion assembly. 3,808,616, Cl. 5-344.00r.
White, Dale, and Morris, Louis, Jr., to Westinghouse Electric Corporation. Expandable coil bracing tubes for electrical inductive apparatus. 3,810,058, Cl. 336-196.000.
White, Donald R.: *See—*
Martin, William S.; and White, Donald R., 3,810,040.
White, Dwain M.; and Klopfer, Howard J., to General Electric Company. Composites and method for making. 3,809,673, Cl. 260-42.160.
White, James A., to Becton, Dickinson and Company, mesne. Method and apparatus for conversion of a variable resistance to a time modulated signal and for analogue restoration. 3,810,152, Cl. 340-347.0nt.
White, Richard M.; and Goyal, Ramesh Chandra, to United States of America, Navy. Temperature-stabilized transducer device. 3,809,931, Cl. 310-8.100.
White, Stanley A.; and Raper, Hubert L., to North American Rockwell Corporation. Adaptive electronic hybrid transformer. 3,810,182, Cl. 343-180.000.
Whitmore, Robert A.: *See—*
Jones, Howard W.; and Whitmore, Robert A., 3,809,772.
Wick, Arnold, to Ciba-Geigy AG. Process for the deacylation of aroylaminodianthrimides. 3,809,705, Cl. 260-376.000.
Wick, Henning, to Dau, Paul, & Co. Rotary plate capacitor with stator connections. 3,809,972, Cl. 317-253.000.
Widl, Walter Herbert Erwin; and Karlsson, Stig Erik, to Telefonaktiebolaget L M Ericsson. Method and apparatus for coding a data flow carrying binary information. 3,810,155, Cl. 340-347.0dd.
Wiechert, Rudolf: *See—*
Kerb, Ulrich; Wiechert, Rudolf; Eder, Ulrich; and Berndt, Hans-Detlef, 3,809,690.
Wieczorek, Robert A.: *See—*
Groth, Clarence N.; Hempel, James N.; Wieczorek, Robert A.; Meyer, Charles F.; and Cook, Robert G., 3,809,965.
Wiegand, Alexander, Armaturen- und Manometerfabrik: *See—*
Neugebauer, Gerhard, 3,808,890.

Wiek, Claus, to Rheintechnik Weiland & Kaspar OHG. Animal treating device. 3,809,015, Cl. 119-126.000.
Wieland-Werke AG: *See—*
Ohlhoff, Hans-Jurgen, 3,808,922.
Wier, Keith E.: *See—*
Cho, Boong Y.; Sturkol, Elmer W.; and Wier, Keith E., 3,809,903.
Wiesler, Mordechai; and Macintyre, John S., to Teledyne, Inc. Precision probe for testing micro-electronic units. 3,810,017, Cl. 324-158.00p.
Wik, Thomas R., to Goodrich, B. F., Company, The. Method for correcting rotational non-uniformity of a pneumatic tire and wheel assembly. 3,808,660, Cl. 29-159.00r.
Wilk, Richard B.; and Hill, Jack J. Fluid heated scoop. 3,809,520, Cl. 425-276.000.
Wilkinson, Ernest J., to Communications Satellite Corporation. Dual polarized cylindrical reflector antenna system. 3,810,185, Cl. 343-756.000.
Willenbacher, Erich: *See—*
Dobner, Reinhold; Willenbacher, Erich; and Baus, Wolfgang, 3,808,995.
Williams, George B.: *See—*
Tirrell, C. Barry; and Williams, George B., 3,809,967.
Williams, Lon A.; and Williams, George B., 3,809,969.
Williams, Lon A.; and Williams, George B., to Dole Electro-Systems, Incorporated. Probe connector receptacle device for area type electrical distribution system. 3,809,969, Cl. 317-120.000.
Williams, Ralph P., to Phillips Petroleum Company. Corrosion-inhibiting compositions containing dialkyl sulfides or sulfoxides. 3,809,655, Cl. 252-391.000.
Williamson, Harry W.: *See—*
Forss, Kaj G.; Gadd, George Otto; Lundell, Ralf O.; and Williamson, Harry W., 3,809,614.
Wills, Robert E., to Wynn, Richard R. Water heater. 3,809,856, Cl. 219-286.000.
Wilson, Harold W., to Golden Cycle Corporation. Process for the entrapment and recovery of SO_2 gas. 3,809,745, Cl. 423-244.000.
Wilson Industries, Inc.: *See—*
Carothers, William F., 3,809,161.
Wilson, Nicol S.: *See—*
Gay, Derek J.; Smedley, William H.; Cohen, Aaron G.; Dworkin, Darryl R.; Nuttall, Michael W.; and Wilson, Nicol S., 3,808,732.
Wilson, Stewart W.: *See—*
Gross, T. A. O.; and Wilson, Stewart W., 3,810,188.
Wilson, Wendell E., to Tel-E-Lect, Inc. Remote control circuits for hydraulic motors. 3,809,182, Cl. 182-148.000.
Wiltshire, Arthur J., to Structural Fibers, Inc. Method for injecting moldable material into a mold. 3,809,741, Cl. 264-328.000.
Winchell, Paul. Animation cells and technique. 3,809,463, Cl. 352-51.000.
Winders, Frank R., Jr.: *See—*
Florence, Dennis E.; Winders, Frank R., Jr.; and Wontrobski, Charles E., 3,810,089.
Windings, Inc.: *See—*
Newman, James W., 3,809,222.
Winiarski, Conrad M. Conveyor mechanism for wheeled vehicle. 3,808,980, Cl. 104-167.000.
Winokur, Louis L.: *See—*
Marbach, Walter V.; Acton, Frank J.; Eichin, Harry P.; and Winokur, Louis L., 3,809,576.
Winters, Frederick: *See—*
Chierici, Osvaldo F.; and Winters, Frederick, 3,809,251.
Winton, Herbert D., to Ballmatic Corporation. Air admission valve for internal combustion engines equipped with pollution control valve. 3,809,035, Cl. 123-119.00b.
Wirth, Gary J.: *See—*
Smoot, Charles H.; Kleven, Lowell A.; and Wirth, Gary J., 3,808,977.
Wirtz Manufacturing Company, Inc.: *See—*
McLane, Jack E., 3,808,663.
Wirz, Arno, to Heidelberger Druckmaschinen Aktiengesellschaft. Sheet feeding apparatus for printing presses. 3,809,389, Cl. 271-91.000.
Wiseman, Minor R.; and Schoreder, Rondon L., to Continental Oil Company. Holiday detector and coating resistivity checker. 3,810,007, Cl. 324-62.000.
Witt, Eugene Francis: *See—*
Pferd, William; and Witt, Eugene Francis, 3,810,141.
Wittemeier, Hans-Joachim: *See—*
Neumann, Gerhard Max; and Wittemeier, Hans-Joachim, 3,808,777.
Wolfe, Wayne F., to United Can Company. Pilot construction for necking die assembly. 3,808,868, Cl. 72-353.000.
Wolff, Robert H.: *See—*
Menges, Louis J.; and Wolff, Robert H., 3,808,657.
Wolk, Ronald H.: *See—*
Johnson, Axel R.; Wolk, Ronald H.; and Nonghri, Govanon, 3,809,644.
Woloski, Leonard E., to Lightolier Incorporated. Adjustable lighting fixture for hung ceiling installation. 3,810,085, Cl. 240-51.110.
Wontrobski, Charles E.: *See—*
Florence, Dennis E.; Winders, Frank R., Jr.; and Wontrobski, Charles E., 3,810,089.
Wood, Kenneth D. Separator means for combines. 3,808,780, Cl. 56-14.600.
Wood, Obert Reeves, II: *See—*
Chang, Tao-Yuan; and Wood, Obert Reeves, II, 3,810,042.
Wood, Wilburn W. Method and apparatus for harnessing pressure of oil and gaswells for generating electricity. 3,808,794, Cl. 60-721.000.
Woodbury, Eric J.; and Dewhirst, Donald R., to Hughes Aircraft Company. Methods for protecting laser optical elements from surface damage. 3,810,044, Cl. 331-94.50t.
Woodhead, Daniel, Inc.: *See—*
Trevithick, Tony, 3,808,874.
Woods, David H., to Westinghouse Electric Corporation. Means for providing a vehicle control signal containing direction and speed information. 3,810,099, Cl. 340-171.00r.
Woodward, Herber Jay, to Index Industries, Inc. Auxiliary braking system. 3,809,191, Cl. 188-106.00a.
Woolsey, Charles C., Jr., to United States of America, Atomic Energy Commission. Method of fabricating a nuclear reactor fuel element. 3,809,731, Cl. 204-154.200.
Woolsey, Samuel W.: *See—*
Miram, George V.; and Woolsey, Samuel W., 3,809,957.
Worcester Textile Company: *See—*
Oldfield, Howard P., 3,808,844.
Workman, Donald S. Phonograph tone arm jacket. 3,809,138, Cl. 150-52.00r.
Wright, Allen C., to Haws Drinking Fountain Company. Eyewash fountain and nozzle structure therefor. 3,809,315, Cl. 239-31.000.
Wright, Theodore D. Magnetic holding device. 3,810,055, Cl. 335-285.000.
Wrobel, Gunter: *See—*
Schlicker, Volker; and Wrobel, Gunter, 3,809,503.
Wu, Shu Y.: *See—*
Francombe, Maurice H.; Wu, Shu Y.; and Takei, William J., 3,808,674.
Wulvik, Erik A.: *See—*
Nordli, Bjarne; Oftedal, Tor Audun; and Wulvik, Erik A., 3,809,526.
Wust, Olivier, to Maschinenfabrik Rieter AG. Bobbin support chuck. 3,809,326, Cl. 242-19.000.
Wynn, Richard R.: *See—*
Wills, Robert E., 3,809,856.
Xerox Corporation: *See—*
Bruan, Oskar J., 3,809,861.
Casperson, John H.; and Tsilibes, George N., 3,810,189.
Crane, Arthur T., 3,809,916.
Delvecchio, George D., 3,809,012.
England, Alfred W., 3,810,105.
Liechty, Karl E., 3,809,472.
Looney, John H., 3,808,658.
Nesta, Charles; Jackson, Earl V.; Hoesly, David D.; Schoppe, Wayne F.; Squassoni, Gino F.; and Warter, Peter J., 3,809,471.
Post, Donald S.; and Rechil, Edward G., 3,809,475.
Rosenthal, Jerome A., 3,810,165.
Yager, Edwin K.: *See—*
Somerville, Alvis J.; and Yager, Edwin K., 3,809,480.
Yale, Harry L.; and Petigara, Ramesh B., to Squibb, E. R., & Sons, Inc. 3-(Aminoalkoxy)-2,3-dihydroquinobenzoxa (or thia)zepine derivatives. 3,809,698, Cl. 260-268.0pc.
Yamada, Hirohide; and Nakayama, Yoshiaki, to Tokyo Shibaura Electric Co., Ltd. Data processing system. 3,810,114, Cl. 340-172.500.
Yamada, Kango: *See—*
Shibata, Katsuhiko; Seika, Yajuro; Sakamoto, Iwao; Yamada, Kango; and Kondo, Setsuo, 3,808,631.
Yamada, Takahiro: *See—*
Tokunaga, Kazuyoshi; Yamada, Takahiro; Doi, Tetuo; and Takahashi, Tetsuo, 3,810,194.
Yamaguchi, Eikichi. Shift lever device for speed change gear transmission train of a bicycle. 3,808,907, Cl. 74-471.0xy.
Yamaguchi, Yoshihiro; Matsushita, Tomiharu; Noguchi, Masataka; Nakagawa, Junichi; and Hasegawa, Hakumi, to Kobe Steel Ltd. Method and apparatus for manufacturing tubes or tubular bodies with inner walls having cross sections of irregular shapes. 3,808,860, Cl. 72-60.000.
Yamamoto, Masami, to Mitsui Mining Company, Limited and Nihon Kikai Kogiyo Co., Ltd. Monitor for digging coal. 3,809,318, Cl. 239-237.000.
Yamamura, Katsumi; and Goto, Mitsuhiro, to Kabushiki Kaisha Suwa Seikosha. Time calculator with mixed radix serial adder/subtraction. 3,809,872, Cl. 235-170.000.
Yamazaki, Eiichi; Maruyama, Koichi; Ueda, Toshio; and Nakamura, Tomizo, to Hitachi, Ltd. Exposure devices utilized to manufacture color picture tubes. 3,809,558, Cl. 96-45.100.
Yamura Kabushiki Kaisha Shinkoseisakusho: *See—*
Ogawa, Shimeo; Shinozaki, Koji; and Chida, Shinpei, 3,809,203.
Ogawa, Shimeo, 3,809,204.
Yanaga, Makoto, to Alps Electric Co., Ltd. Push button switch. 3,810,052, Cl. 335-205.000.
Yanagawa, Yoshihiki: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; and Yanagawa, Yoshihiki, 3,808,792.
Yang, Yin-Lung. Safety lock. 3,808,848, Cl. 70-21.000.
Yanmar Diesel Engine Co., Ltd.: *See—*
Hamada, Yoshitugu; Nakamoto, Yasunori; and Jinno, Seizo, 3,808,955.

Yarian, Dean R., to Minnesota Mining and Manufacturing Company. Means for desensitizing carbonless papers. 3,809,668, Cl. 260-33.4ur.
Yasuda, Michio; Makihara, Hiroshi; and Kadota, Shozo, to Hitachi, Ltd. Character recognizing system. 3,810,093, Cl. 340-146.3ma.
Yauger, Donald L.: *See—*
Gross, Edward L., Jr.; Pyne, William R.; and Yauger, Donald L., 3,809,338.
Yazaki, Mutsunobu: *See—*
Taguchi, Tatsuya; and Yazaki, Mutsunobu, 3,810,228.
Yeo, Denis, to Westinghouse Electric Corporation. Method and apparatus for removal of surface moisture from pellets. 3,809,575, Cl. 134-21.000.
Yetter, Jerry Joseph, to Procter & Gamble Company, The. Process for synthesizing specific complete mixed polyol esters. 3,809,711, Cl. 260-410.700.
Yetter, Jerry Joseph, to Procter & Gamble Company, The. Process for synthesizing specific complete mixed polyol esters. 3,809,712, Cl. 260-410.700.
Yonezawa, Keitaro: *See—*
Oota, Shiro; and Yonezawa, Keitaro, 3,809,117.
York, Winnifred F. Perineal pad. 3,809,096, Cl. 128-403.000.
Yoshida, Kenichi; and Kuroda, Masataka, to Sumitomo Electric Industries, Ltd. Inductive radio transmission line. 3,809,796, Cl. 174-33.000.
Yoshioka, Hideoki, to Matsushita Electric Works, Ltd. Microswitch with readily removable leap spring actuating means. 3,809,837, Cl. 200-153.00t.
Young, Alexander Wilson, to RCA Corporation. Window detector circuit. 3,809,926, Cl. 307-235.00r.
Young, Donald R.: *See—*
Howard, Wayne H.; Young, Donald R.; and Adachi, Richard R., 3,809,871.
Young, Gary C.; and Ferrell, Howard H., to Continental Oil Company. Process for simultaneously increasing recovery and upgrading oil in a reservoir. 3,809,159, Cl. 166-258.000.
Young, Jesse R. Polishing kit. 3,809,483, Cl. 401-123.000.
Young, Richard N., to Dana Corporation. Exhaust pollution control apparatus. 3,809,038, Cl. 123-119.00a.
Zajac, Donald M.; and Kubota, James, to Omni Spectra, Inc. Connector locking mechanism. 3,810,073, Cl. 339-91.00r.
Zambo, Pal: *See—*
Giflo, Henrik; Enekes, Sandor; Zambo, Pal; Sziklavari, Janos; Farkas, Istvan; Ivan, Geza; Molnar, Jozsef; and Vamosi, Jozsef, 3,809,550.
Zarth, Karl-Heinz, "RHEWUM" Rheinische Werkzeug- und Maschinenfabrik GmbH. Motor brake circuit. 3,809,979, Cl. 318-212.000.
Zealot Corporation, The: *See—*
Gunnerson, Carl L., 3,808,748.
Zeblisky, Rudolph J. Peroxy containing compositions. 3,809,588, Cl. 156-18.000.
Zenith Radio Corporation: *See—*
Collins, Johnny, 3,810,022.
Roeder, Neil M., 3,809,945.
Ziegler, Charles O., 25% to Kanfer, Herman. Vessel cover. 3,809,064, Cl. 126-381.000.
Zielnicki, John J.: *See—*
Franz, Robert W.; and Zielnicki, John J., 3,810,057.
Ziesse, Norman G.: *See—*
Sieling, Walter R.; and Ziesse, Norman G., 3,809,339.
Zieve, Robert M.; Maginnis, Christopher L.; and Kleidermacher, Moishe, to United States of America, Navy. Processor synchronization scheme. 3,810,119, Cl. 340-172.500.
Zille, Marvin H.: *See—*
Engelke, Roger P.; and Zille, Marvin H., 3,809,314.
Zimmerman, Harold M. Bottom unloader apparatus for silos. 3,809,260, Cl. 214-17.00d.
Zimmerman, Leonard: *See—*
Hopkins, John Warren, Townley, Ray Clifford; and Zimmerman, Leonard, 3,810,235.
Zinsmeister, Roland F. Alarm system. 3,810,170, Cl. 340-420.000.
Ziobro, Norbert M.: *See—*
Chayka, George A.; Persson, Eric J.; and Ziobro, Norbert M., 3,810,016.
Zolkoske, Joseph F., Jr.: *See—*
Kargus, Eugene H.; and Zolkoske, Joseph F., Jr., 3,808,851.
Zubris, Joseph R. Circuit for electrically-operated vehicle. 3,809,978, Cl. 318-139.000.
Zugel, Victor A., to Harris-Intertype Corporation. Saddle gathering machine. 3,809,384, Cl. 270-54.000.
Zurn Industries, Inc.: *See—*
Anderson, Norman J.; Decker, John L.; and Manueso, Jon R., 3,808,837.
Zusmanovich, Lev Markovich. Air conditioning installation. 3,808,832, Cl. 62-309.000.
Zwiren, Jan Marie: *See—*
Calabrese, Anthony J.; Stettler, Wayne J., and Zwiren, Jan Marie, 3,809,785.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 7TH DAY OF MAY, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Alessi, Robert V. Shutter control circuit for a photographic camera. T922,009, 5–7–74, Cl. 354—31.
Alexander, Robert W., Jr., J. M. Bell, J. A. Chrustensen, R. W. Harvey, K. A. Hitchcock, R. W. Martin, and A. R. McMillen, to International Business Machines Corp. Library management system. T922,003, 5–7–74, Cl. 444—1.
Barton, Kenneth R.: *See—*
Schwier, John R., and Barton. T922,001.
Bell, John M.: *See—*
Alexander, Robert W., Jr., Bell, Chrustensen, Harvey, Hitchcock, Martin, and McMillen. T922,003.
Briggs, Paul C., Jr., to E. I. du Pont de Nemours and Co. Fluoride salts as dehydrochlorinating agents in the preparation of chloroprene or 2,3 - dichloro - 1,3 - butadiene. T922,005, 5–7–74, Cl. 260—655.
Caldwell, John R.: *See—*
Jackson, Winston J., Jr., and Caldwell. T922,006.
Du Pont de Nemours E. I. & Co.: *See—*
Briggs, Paul C., Jr. T922,005.
English, Jerome J., N. K. Harakas, and B. T. Junker, to Monsanto Co. Orifice structive in apparatus for extruding molten metals. T922,004, 5–7–74, Cl. 164—82.
Gause, Donald C., E. Kellerman, and G. L. Rouse, to International Business Machines Corp. Data processor program for determining character string similarity. T922,008, 5–7–74, Cl. 444—1.
Harakas, Nicholas K.: *See—*
English, Jerome J., Harakas, and Junker. T922,004.
Imperial Chemical Industries Ltd.: *See—*
Smith, Alan G. T922,007.
International Business Machines Corp.: *See—*
Alexander, Robert W., Jr., Bell, Chrustensen, Harvey, Hitchcock, Martin, and McMillen. T922,003.
Gause, Donald C., Kellerman, and Rouse. T922,008.
Jackson, Winston J., Jr., and J. R. Caldwell. Method for preparing fire retardant polyester fibers. T922,006, 5–7–74, Cl. 117—136.
Junker, Bernhard T.: *See—*
English, Jerome J., Harakas, and Junker. T922,004.
Kellerman, Eduardo: *See—*
Gause, Donald C., Kellerman, and Rouse. T922,008.
McCormick, Paul W. Bulk hauling freight car unloading apparatus and method of operation. T922,002, 5–7–74, Cl. 214—62.
McMillen, Alice R.: *See—*
Alexander, Robert W., Jr., Bell, Chrustensen, Harvey, Hitchcock, Martin, and McMillen. T922,003.
Monsanto Co.: *See—*
English, Jerome J., Harakas, and Junker. T922,004.
Rouse, Gerald L.: *See—*
Gause, Donald C., Kellerman, and Rouse. T922,008.
Schwier, John R., and K. R. Barton. Process for topically treating polyester fiber and fabrics with a durable flame retardant composition. T922,001, 5–7–74, Cl. 117—136.
Smith, Alan G., to Imperial Chemical Industries Ltd. Injection moulding. T922,007, 5–7–74, Cl. 264—55.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 7TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

De Bell, Lawrence R.: *See—*
Price, David D., Jr., and De Bell. Re. 28,006.
Eaton Yale & Towne Inc.: *See—*
Ottemann, William C. Re. 28,004.
Economy Co., The,: *See—*
Price, David D., Jr., and De Bell. Re. 28,006.
General Electric Co.: *See—*
Wilson, William P. Re. 28,005.
Gobell, David H., to Medronic, Inc. Electronic demand heart pacemaker with different pacing and standby rates. Re. 28,003, 5–7–74, Cl. 128—419.
Medronic, Inc.: *See—*
Gobell, David H. Re. 28,003.
Ottemann, William C., to Eaton Yale & Towne Inc. Centrifugal actuator for limited slip differential. Re. 28,004, 5–7–74, Cl. 74—711.
Price, David D., Jr., and L. R. De Bell, ½ each to The Economy Co., and Price, D. D., Jr., and F. C. Apparatus for variable speed playback of plural track records. Re. 28,006, 5–7–74, Cl. 179—100.2.
Wilson, William P., to General Electric Co. Numerical positioning control system. Re. 28,005, 5–7–74, Cl. 318—569.

LIST OF PLANT PATENTEES

Byrum, Roy L., to Joseph H. Hill, Co. Yellow rose plant. 3,544, 5–7–74, Cl. 15.
Conard-Pyle Co., The: *See—*
Meilland, Alain, 3,543.
Drake, Virgil J. Maple tree. 3,542, 5–7–74, Cl. 51.
Hill, Joseph H., Co.: *See—*
Byrum, Roy L. 3,544.
Hyde, Robert W.: *See—*
Leighty, Raiph G. 3,545.
Leighty, Ralph G., deceased, by R. M. A. Leighty, executrix, to Robert W. Hyde, d.b.a. Hyde's House of Roses. Rose plant. 3,545, 5–7–74, Cl. 23.
Leighty, Rosa M. A.: *See—*
Leighty, Ralph G., and R.M.A. 3,545.
Meilland, Alain, to The Conard-Pyle Co. Rose plant. 3,543, 5–7–74, Cl. 18.
Meilland, Marie-Louis, to C. H. Stuart, & Co. Rose plant. 3,546, 5–7–74, Cl. 28.
Paganelli, Frank, to Stark Bro's. Nurseries & Orchards Co. Apple tree. 3,541, 5–7–74, Cl. 35.
Stark Bro's. Nurseries & Orchards Co.: *See—*
Paganelli, Frank. 3,541.
Stuart, C. H., & Co.: *See—*
Meilland, Marie-Louis. 3,546.

LIST OF DESIGN PATENTEES

Aktiebolaget Svenska Flaktfabriken: *See—*
Nygard, Arne, and Svensson. 231,615.
American Air Filter Co., Inc.: *See—*
Woods, Walter E., and Hammann. 231,614.
Andco Inc.: *See—*
Stahlka, Clayton A. 231,634.
Artistic Woodwork Co. Ltd.: *See—*
Vihma, Johannes. 231,591.
Vihma, Johannes. 231,592.
Atlantic Richfield Co.: *See—*
Donmeyer, Delbert W. 231,610.
Bardeau, William M. Coffee urn. 231,646, 5–7–74. Cl. D94—3.
Barlow, Richard A. Mobile building structure. 231,608, 5–7–74, Cl. D12—103.
Bartels, Dennis M., to Mid-West Enterprises, Inc. Plant stake. 231,628, 5–7–74, Cl. D35—1.
Bata Shoe Co., Inc.: *See—*
Edmonds, Thomas A. 231,584.
Binzer, Thomas J.: *See—*
Young, Raymond W., and Binzer. 231,595.
Blattner, David G., R. H. Drinnon, S. P. Ruocco, to The Boeing Co. Airplane. 231,606, 5–7–74, Cl. D12—80.
Bloom, Milton W., to Donlee Mfg. Industries Ltd. Child safety seat. 231,589, 5–7–74, Cl. D6—9.

Boeing Co., The: *See*—
Frajola, Fred D., and Norton, 231,605.
Blattner, David G., Drinnon, and Ruocco, 231,606.
Braley, Mitchel R. Bridle bit. 231,621, 5–7–74, Cl. D30—21.
Burns, Richard H., to The Hobart Mfg. Co. Ticket dispenser. 231,631, 5–7–74, Cl. D52—2.
Cagan, Bernard J., to Plano Products Co. Board for a combined dart and pinball game. 231,627, 5–7–74, Cl. D34—5.
Carter, Proctor N. Fish holder. 231,611, 5–7–74, Cl. D22—30.
Christiansen, Niels K. J. Shipping container for microscopic slides or the like. 231,641, 5–7–74, Cl. D87—1.
Christiansen, Niels K. J. Shipping container for microscopic slides or the like. 231,642, 5–7–74, Cl. D87—1.
Columbus Dental Mfg. Co., The: *See*—
Hiltebrant, Stephen L., and Petruschke, R. Wilhelm and R. William. 231,616.
Consolidated Standard Conveyor Systems Pty. Ltd.: *See*—
Minns, James P. 231,632.
Cvacho, Daniel S., to Reynolds Metals Co. Container for liquids or the like. 231,601, 5–7–74, Cl. D9—216.
Demers, Leo H. Beverage serving tray. 231,594, 5–7–74, Cl. D7—71.
Dinse, Wilhelm. Welding gun for shielded arc welding. 231,597, 5–7–74, Cl. D8—30.
Doman, Donald W., to Kohler Co. Faucet spray-aerator. 231,612, 5–7–74, Cl. D23—35.
Donlee Mfg. Industries Ltd.: *See*—
Bloom, Milton W. 231,589.
Donmeyer, Delbert W., to Atlantic Richfield Co. Seismic gas exploders. 231,610, 5–7–74, Cl. D22—10.
Drinnon, Robert H.: *See*—
Blattner, David G., Drinnon, and Ruocco. 231,606.
Dunn, Kathy A.: *See*—
Glass, Marvin I., and Dunn. 231,623.
Edmonds, Thomas A., to Bata Shoe Co., Inc. Shoe soles. 231,584, 5–7–74, Cl. D2—320.
Fibus, Murray M., to Steel City Corp. Mailbox. 231,636, 5–7–74, Cl. D74—9.
Flanigan, Charles D., to Overly Mfg. Co. Therapeutic exerciser. 231,626, 5–7–74, Cl. D34—5.
Formica Corp.: *See*—
Willard, Jack A. 231,643.
Frajola, Fred D., and R. P. Norton, to The Boeing Co. Airplane. 231,605, 5–7–74, Cl. D12—80.
Gambello, Vincent J., to Pulsatron Corp. Portable douche apparatus. 231,639, 5–7–74, Cl. D83—1.
General Electric Co.: *See*—
Young, Raymond W., and Binzer. 231,595.
Glass, Marvin & Associates: *See*—
Terzian, Rouben T., and Glass. 231,622.
Glass, Marvin I., and Dunn. 231,623.
Glass, Marvin I.: *See*—
Terzian, Rouben T., and Glass. 231,622.
Glass, Marvin I., and K. A. Dunn, to Marvin Glass & Associates. Doll. 231,623, 5–7–74, Cl. D34—4.
Hallmark Cards, Inc.: *See*—
Schultz, Richard A. 231,629.
Hammann, Paul E.: *See*—
Woods, Walter F., and Hammann. 231,614.
Hanley, Lawrence A. Table attachable seat for a child. 231,588, 5–7–74, Cl. D6—9.
Herrera, Emmett R. Combined bench, and multiple planter unit. 231,587, 5–7–74, Cl. D6—4.
Hiltebrant, Stephen L., R. Wilhelm Petruschke, and R. William Petruschke, to The Columbus'Denta Mfg. Co. Capsule for dental materials or similar article. 231,616, 5–7–74, Cl. D24—1.
Hobart Mfg. Co., The: *See*—
Burns, Richard H. 231,631.
Holes-Weburg Co., The: *See*—
Stahel, Alvin J., II. 231,637.
Jolley, Paul E., to The Singer Co. Clip and hook design for cut-loop. 231,645, 5–7–74, Cl. D92—15.
Kahler, Richard W., to Surf and Psych, Inc. Smoking device. 231,640, 5–7–74, Cl. D85—8.
Kohler Co.: *See*—
Doman, Donald W. 231,612.
Krivka, Alexander. Rotary wing aircraft or the like. 231,603, 5–7–74, Cl. D12—73.
Krivka, Alexander. Rotary wing aircraft or the like. 231,604, 5–7–74, Cl. D12—73.
Kwiatkowski, Harry S., Jr. Transcribing unit for a dictation system. 231,619, 5–7–74, Cl. D26—14.
Lange Co., The: *See*—
Wilmoth, H. Douglas. 231,624.
Lazo de la Vega, Cecilio I. Handbag or the like. 231,586, 5–7–74, Cl. D3—87.
Leedy, Robert M. Combined clip dispenser and pencil holder. 231,638, 5–7–74, Cl. D74—5.
Lind, Robert L.: *See*—
Lindsay, James, Jr., Lind, and Scott. 231,618.
Lindsay, James, Jr., R. L. Lind, and D. E. Scott, to Square D. Co. Portable transmitter for remote control of electrically operated equipment. 231,618, 5–7–74, Cl. D26—13.
Lucas, Jack R. Combination dental floss holder and mirror. 231,617, 5–7–74, Cl. D24—1.
Lynor Engineering, Inc.: *See*—
Northrup, Lyle M. 231,598.
Mailbox, Inc., The: *See*—
Yoshimura, Masao. 231,585.
Manderfield, Ellen B., to Oneida Ltd. Spoon or similar article. 231,596, 5–7–74, Cl. D7—150.
McKinney, Opal I. Combined tote bag and stadium seat cushion or similar article. 231,590, 5–7–74, Cl. D6—202.
Michigan Hanger Co., Inc.: *See*—
Rumble, Raymond M. 231,599.
Mid-West Enterprises, Inc.: *See*—
Bartels, Dennis M. 231,628.
Minns, James P., to Consolidated Standard Conveyor Systems Pty. Ltd. Conveyor support channel. 231,632, 5–7–74, Cl. D55—1.
Mullis, Ray E., to Pine State Tool and Machine Co., Inc. Awning guard roller assembly for recreational vehicle doors or the like. 231,600, 5–7–74, Cl. D8—238.
Multitech International Corp.: *See*—
Sarber, Richard H. 231,613.
Northrup, Lyle M., to Lynor Engineering, Inc. Door rotor lock assembly or similar article. 231,598, 5–7–74, Cl. D8—109.
Norton, Robert P.: *See*—
Frajola, Fred D., and Norton. 231,605.
Nygard, Arne, and S. Svensson, to Aktiebolaget Svenska Flaktfabriken. Kitchen hood. 231,615, 5–7–74, Cl. D23—151.
Ockerman, Philip D. Toothbrush kit. 231,593, 5–7–74, Cl. D6—94.
Oneida Ltd.: *See*—
Manderfield, Ellen B. 231,596.
Overly Mfg. Co.: *See*—
Flanigan, Charles D. 231,626.
Penney, Richard H., to Sperry Rand Corp. Typewriter. 231,635, 5–7–74, Cl. D64—11.
Petruschke, R. Wilhelm: *See*—
Hiltebrant, Stephen L., and Petruschke, R. Wilhelm and R. William. 231,616.
Petruschke, R. William: *See*—
Hiltebrant, Stephen L., and Petruschke, R. Wilhelm and R. William. 231,616.
Plano Products Co.: *See*—
Cagan, Bernard J. 231,627.
Pine State Tool and Machine Co., Inc.: *See*—
Mullis, Ray E. 231,600.
Pulsatron Corp.: *See*—
Gambello, Vincent J. 231,639.
Pulton Chaine Co., Ltd.: *See*—
Totani, Hisao. 231,633.
Rellis, Lawrence B. Aircraft. 231,607, 5–7–74, Cl. D12—80.
Reynolds Metals Co.: *See*—
Cvacho, Daniel S. 231,601.
Rumble, Raymond M., to Michigan Hanger Co., Inc. Beam clamp body. 231,599, 5–7–74, Cl. D8—235.
Ruocco, Stefano P.: *See*—
Blattner, David G., Drinnon, and Ruocco. 231,606.
Sarber, Richard H., to Multitech International Corp. Pilot's headset having receiver and transmitter. 231,613, 5–7–74, Cl. D26—14.
Schultz, Richard A., to Hallmark Cards, Inc. Candle holder. 231,629, 5–7–74, Cl. D48—2.
Scott, David E.: *See*—
Lindsay, James Jr., Lind, and Scott. 231,618.
Sherry, George. Wall lamp. 231,630, 5–7–74, Cl. D48—4.
Singer Co., The: *See*—
Smith, Randel. 231,644.
Jolley, Paul E. 231,645.
Smith, Randel, to The Singer Co. Tufting machine clip. 231,644, 5–7–74, Cl. D92—15.
Sperry Rand Corp.: *See*—
Penney, Richard H. 231,635.
Square D Co.: *See*—
Lindsay, James, Jr., Lind, and Scott. 231,618.
Stahel, Alvin J., II, to The Holes-Weburg Co. Paper and pencil holder. 231,637, 5–7–74, Cl. D74—5.
Stahlka, Clayton A., to Andco Inc. Font of type. 231,634, 5–7–74, Cl. D64—12.
Steel City Corp.: *See*—
Fibus, Murray M. 231,636.
Surf and Psych, Inc.: *See*—
Kahler, Richard W. 231,640.
Svensson, Stig: *See*—
Nygard, Arne, and Svensson. 231,615.
Terzian, Rouben T., and M. I. Glass, to Marvin Glass & Associates. Doll. 231,622, 5–7–74, Cl. D34—4.
Toma, George W.: *See*—
Vanden Broek, Jan A., and Toma. 231,609.
Totani, Hisao, to Pulton Chaine Co., Ltd. Link for conveyor. 231,633, 5–7–74, Cl. D55—1.
Transdyne General Corp.: *See*—
Vanden Broek, Jan A. and Toma. 231,609.
Van Dyke, Lyle H. Telephone hand-set support. 231,620, 5–7–74, Cl. D26—14.
Vanden Broek, Jan A, and G. W. Toma, to Transdyne General Corp. Optical electrophoresis scanner. 231,609, 5–7–74, Cl. D16—2.
Vihma, Johannes, to Artistic Woodwork Co., Ltd. Picture frame moulding. 231,591, 5–7–74, Cl. D6—246.
Vihma, Johannes, to Artistic Woodwork Co., Ltd. Picture frame moulding. 231,592, 5–7–74, Cl. D6—246.
Werner, Frank D. Golf putter. 231,625, 5–7–74, Cl. D34—5.
Willard, Jack A., to Formica Corp. Resinous deep textured decorative laminate sheet. 231,643, 5–7–74, Cl. D87—3.
Wilmoth, H. Douglas, to The Lange Co. Putter. 231,624, 5–7–74, Cl. D34—5.
Woods, Walter E., and P. E. Hammann, to American Air Filter Co., Inc. Roof-mounted air conditioning unit. 231,614, 5–7–74, Cl. D23—139.
Yoshimura, Masao, to The Mailbox, Inc. Signalized belt. 231,585, 5–7–74, Cl. D2—380.
Young, Raymond W., and T. J. Binzer, to General Electric Co. Portable microwave oven or similar article. 231,595, 5–7–74, Cl. D7—128.
Zetterberg, Niklas F. Boat planing fin. 231,602, 5–7–74, Cl. D12—70.

CLASSIFICATION OF PATENTS

ISSUED MAY 7, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2
10 3,808,604
123 3,808,605

CLASS 3
1 3,808,606

CLASS 4
2 3,808,607
7 3,808,608
133 3,808,609
149 3,808,610
239 3,808,611
255 3,808,612

CLASS 5
63 3,808,613
319 3,808,614
338 3,808,615
344R 3,808,616

CLASS 7
6.2 3,808,617

CLASS 8
21C 3,809,532
93 3,809,533
115.6 3,809,534
142 3,809,535
149 3,808,618
173 3,809,536

CLASS 9
310D 3,808,622
310H 3,808,621

CLASS 10
21 3,808,623

CLASS 14
1 3,808,624
71 3,808,625
3,808,626

CLASS 15
83 3,808,627
215 3,808,628
250.17 3,808,629
250.42 3,808,630
321 3,808,631
340 3,808,632

CLASS 16
87R 3,808,633
115 3,808,634
121 3,808,635

CLASS 17
1D 3,808,637
1I 3,808,636
3,808,638

CLASS 19
113 3,808,640
159A 3,808,641
161R 3,808,639

CLASS 23
230R 3,809,537
269 3,809,538
288F 3,809,539

CLASS 24
3F 3,808,642
19 3,808,643
68SK 3,808,644
71SK 3,808,645
87R 3,808,646
108 3,808,647
201C 3,808,649
204 3,808,648
230.5 3,808,650
260 3,808,651

CLASS 28
1.4 3,808,652
72.14 3,808,654

CLASS 29
96 3,808,655
106 3,808,656
110 3,808,658
120 3,808,657
156.4W1 3,808,659
159R 3,808,660
182.8 3,809,540
192 3,809,541
200P 3,808,661
203B 3,808,662
204 3,808,663
235 3,808,664
243.5 3,808,665
252 3,808,666
402 3,808,667
423 3,808,668
466 3,808,669
473.1 3,808,670
526.5 3,808,671
559 3,808,672
577 3,808,673
590 3,808,674
592 3,808,675
596 3,808,676
600 3,808,677
610 3,808,678
625 3,808,679
3,808,680
628 3,808,681

CLASS 30
228 3,808,682
3,808,683
382 3,808,684
389 3,808,685

CLASS 32
2 3,808,686
3,808,687
32 3,808,688
3,808,689

CLASS 33
1CC 3,808,690
30G 3,808,691
138 3,808,692
144 3,808,693
169R 3,808,694
3,808,695
178L 3,808,696
312 3,808,697

CLASS 34
33 3,808,698
92 3,808,699
124 3,808,700
179 3,808,701
218 3,808,702
229 3,808,703

CLASS 35
1 3,808,704
6 3,808,705
9B 3,809,784
10.4 3,808,711
17 3,808,706
28.3 3,809,785
29A 3,808,707
31D 3,808,708
35H 3,808,709
55 3,808,710

CLASS 36
7.1 3,808,712
32R 3,808,713

CLASS 37
42V1 3,808,714
43R 3,808,715
67 3,808,716
124 3,808,717

CLASS 40
2R 3,808,718
28R 3,808,719
28.3 3,808,720
106.52 3,808,721
152 3,808,722

CLASS 42
6 3,808,723
42R 3,808,724

CLASS 43
4 3,808,731
7 3,808,725
42.13 3,808,726
43.13 3,808,727
44.91 3,808,728
88 3,808,729

CLASS 46
1R 3,808,730
12 3,808,732
44 3,808,733
91 3,808,734
135R 3,808,735
135 3,808,736
221 3,808,737

CLASS 47
1.5 3,808,739
58 3,808,740

CLASS 49
413 3,808,742
502 3,808,743

CLASS 51
3 3,808,744
3,808,745
128 3,808,746
164.5 3,808,747
219R 3,808,748
269 3,808,749
273 3,808,750
312 3,808,751
319 3,808,752
358 3,808,753

CLASS 52
70 3,808,754
92 3,808,755
156 3,808,756
184 3,808,757
212 3,808,758
3,808,759
221 3,808,760
300 3,808,761
403 3,808,762
481 3,808,763
575 3,808,764

CLASS 53
21FW 3,808,765
24 3,808,766
30 3,808,767
31 3,808,768
43 3,808,769
47 3,808,770
118 3,808,771
141 3,808,772

CLASS 55
31 3,808,773
68 3,808,774
269 3,808,775
300 3,808,776
473 3,808,777

CLASS 56
7 3,808,778
9 3,808,779
14.6 3,808,780
15.9 3,808,781
16.9 3,808,782
106 3,808,783
208 3,808,784
328 3,808,785
329 3,808,786

CLASS 57
34A1 3,808,787
52 3,808,788
58.7 3,808,789
88 3,808,790

CLASS 58
23A 3,808,791
28A 3,808,792
130R 3,808,793

CLASS 60
39.09F 3,808,796
39.28R 3,808,797
3,808,798
3,808,799
3,808,800
3,808,801
39.5 3,808,795
39.65 3,808,802
39.74R 3,808,803
221 3,808,804
274 3,808,805
288 3,808,806
313 3,808,807
327 3,808,808
347 3,808,809
416 3,808,810
444 3,808,811
484 3,808,812
486 3,808,813
487 3,808,814
517 3,808,815
530 3,808,816
548 3,808,817
620 3,808,818
690 3,808,819
721 3,808,794

CLASS 61
53.5 3,808,820
53.64 3,808,821
63 3,808,822
3,808,823
70 3,808,824

CLASS 62
3 3,808,825
9 3,808,826
59 3,808,827
116 3,808,828
217 3,808,829
3,808,830
235 3,808,831
309 3,808,832
467 3,808,833
490 3,808,834
510 3,808,835

CLASS 63
32 3,808,836

CLASS 64
13 3,808,837
23.7 3,808,839
27NM 3,808,838

CLASS 65
33 3,809,542
3,809,543
119 3,809,544

CLASS 66
87 3,808,840
172R 3,808,841
177 3,808,842
196 3,808,843

CLASS 68
5D 3,808,844
5E 3,808,845
19.1 3,808,846

CLASS 70
18 3,808,847
21 3,808,848
149 3,808,849
215 3,808,850
232 3,808,851
285 3,808,852
411 3,808,853
419 3,808,854
448 3,808,855

CLASS 72
7 3,808,856
8 3,808,857
3,808,858
31 3,808,859
60 3,808,860
132 3,808,861
135 3,808,862
199 3,808,863
235 3,808,864
269 3,808,865
309 3,808,866
321 3,808,867
353 3,808,868
409 3,808,869
413 3,808,870
447 3,808,871
453 3,808,872
479 3,808,873

CLASS 73
9 3,808,874
32 3,808,875
38 3,808,876
55 3,808,877
67.8S 3,808,878
67.9 3,808,879
90 3,808,880
93 3,808,881
117.3 3,808,882
118 3,808,883
144 3,808,884
154 3,808,889
161 3,808,885
264 3,808,886
293 3,808,887
336.5 3,808,888
406 3,808,890
407R 3,808,891
427 3,808,892
452 3,808,893
491 3,808,894

CLASS 74
2 3,808,895
10.6 3,808,896
44 3,808,897
86 3,808,898
203 3,808,899
227 3,808,902
230.17E 3,808,900
231C 3,808,901
335 3,808,903
339 3,808,738
343 3,808,904
425 3,808,905
443 3,808,906
471XY 3,808,907
489 3,808,908
585 3,808,909
594.6 3,808,910
597 3,808,911
604 3,808,912
711 Re.28,004
801 3,808,913
850 3,808,914

CLASS 75
.5BC 3,809,546
.5R 3,809,545
11 3,809,547
101R 3,809,548
3,809,549
124 3,809,550
140 3,809,551
208R 3,809,552
213 3,809,553

CLASS 81
5.1R 3,808,915
57.19 3,808,916
125 3,808,918

CLASS 82
9 3,808,653
47 3,808,917

CLASS 83
7 3,808,919
22 3,808,920
155 3,808,921
168 3,808,922
196 3,808,923
199 3,808,924
228 3,808,927
289 3,808,928
346 3,808,925
356.1 3,808,926
356.3 3,808,929
379 3,808,930
409 3,808,931
478 3,808,932
588 3,808,933
747 3,808,934

CLASS 84
1.01 3,809,786
3,809,787
3,809,788
3,809,789
3,809,790
1.24 3,809,791
3,809,792
399 3,808,935
404 3,809,793
471 3,808,936

CLASS 85
45 3,808,937
83 3,808,938

CLASS 86
28 3,808,939

CLASS 89
1R 3,808,940
1.5R 3,808,941
1.8 3,808,942
14C 3,808,943

CLASS 90
15A 3,808,944

CLASS 91
168 3,808,946
308 3,808,620
363A 3,808,947
3,808,948
473 3,808,949
487 3,808,950
492 3,808,951
505 3,808,952

CLASS 92
2 3,808,953
65 3,808,954
169 3,808,955
172 3,808,956

CLASS 93
36.7 3,808,957
49R 3,808,958
53AC 3,808,959
84 3,809,199

CLASS 96
1SD 3,809,554
1R 3,809,555
3,809,556
1.2 3,809,557
22 3,809,563
33 3,809,562
45.1 3,809,558
49 3,809,559
3,809,560
84 3,809,561
100 3,808,945

CLASS 98
41R 3,808,960

CLASS 99
281 3,808,961
323.4 3,808,962
417 3,808,963
518 3,808,964

CLASS 100
7 3,808,965
106 3,808,966
221 3,808,967
264 3,808,968

CLASS 101
35 3,808,970
72 3,808,969
181 3,808,971

CLASS 102
7.2 3,808,972
28R 3,809,964
38 3,808,973
43P 3,808,974
70.2GA 3,808,975

CLASS 104
12 3,808,976
130 3,808,977
3,808,978
3,808,979
167 3,808,980

CLASS 105
369BA 3,808,981
376 3,808,982

CLASS 106
38.9 3,809,564
56 3,809,565
110 3,809,566
306 3,809,567

CLASS 108
136 3,808,983

CLASS 109
59 3,808,984

CLASS 110
3 3,808,985
8A 3,808,987
8C 3,808,619
8R 3,808,986
10 3,808,988
14 3,808,989

CLASS 112
9 3,808,990
121.12 3,808,991

121.15 3,808,992
155 3,808,993
199 3,808,994
209 3,808,995

CLASS 114

.5R 3,808,996
40 3,808,997
66.5R 3,808,998
66.5S 3,808,999
124 3,809,000
206R 3,809,001
235B 3,809,002

CLASS 115

1R 3,809,003
3,809,004
12R 3,809,005
24 3,809,006

CLASS 116

63P 3,809,007

CLASS 117

38 3,809,568
93.31 3,809,569
102M 3,809,570
106A 3,809,571
127 3,809,572
138.8F 3,809,573
201 3,809,574

CLASS 118

6 3,809,008
44 3,809,009
429 3,809,010
635 3,809,011
637 3,809,012

CLASS 119

1 3,809,013
28 3,809,014
126 3,809,015

CLASS 122

6A 3,809,016
11 3,809,017
510 3,809,018

CLASS 123

8.01 3,809,019
8.07 3,809,020
8.09 3,809,021
8.19 3,809,022
8.27 3,809,023
8.45 3,809,024
8.47 3,809,025
3,809,026
30R 3,809,027
32EA 3,809,028
3,809,029
32K 3,809,030
32R 3,809,031
52M 3,809,032
90.46 3,809,033
102 3,809,034
119DB 3,809,037
119A 3,809,038
3,809,039
119B 3,809,035
119R 3,809,036
148C 3,809,042
148L 3,809,040
3,809,041
3,809,043
3,809,044
179 3,809,045
188GC 3,809,046

CLASS 124

1 3,809,047
25 3,809,048

CLASS 125

23C 3,809,049
35 3,809,050

CLASS 126

9R 3,809,051
19.5 3,809,059
25R 3,809,053
38 3,809,054
39H 3,809,055
59.5 3,809,056
3,809,057
116R 3,809,052
120 3,809,058
271.2C 3,809,060
350R 3,809,061
369 3,809,062
373 3,809,063
381 3,809,064

CLASS 128

1R 3,809,065
2C 3,809,067
2E 3,809,068
2R 3,809,066
2.05F 3,809,070
2.06B 3,809,071
2.1B 3,809,069
23 3,809,072
66 3,809,073
84R 3,809,074
92A 3,809,075
130 3,809,076
132D 3,809,077
138A 3,809,078
145.7 3,809,079
194 3,809,080
214.4 3,809,081
218F 3,809,083
218P 3,809,082
266 3,809,084
275 3,809,085
278 3,809,086
3,809,087
285 3,809,088
287 3,809,089
294 3,809,090
303 3,809,091
305 3,809,092
3,809,093
321 3,809,094
347 3,809,095
403 3,809,096
419P Re.28,003

CLASS 131

10.7 3,809,097

CLASS 132

7 3,809,098
53 3,809,099
3,809,100
76.4 3,809,101
82R 3,809,102
93 3,809,103

CLASS 134

21 3,809,575
42 3,809,576
3,809,577
122 3,809,104
3,809,105
176 3,809,106

CLASS 135

48 3,809,107

CLASS 136

6E 3,809,578
26 3,809,579
133 3,809,580
161 3,809,581

CLASS 137

73 3,809,108
88 3,809,109
116.5 3,809,110
236 3,809,112
268 3,809,113
315 3,809,114
344 3,809,115
391 3,809,116
493.6 3,809,117
503 3,809,111
525 3,809,118
527.8 3,809,119
607 3,809,120
613 3,809,121
614.06 3,809,122
625.41 3,809,124
625.5 3,809,123
625.65 3,809,125
630.14 3,809,126

CLASS 138

44 3,809,127
114 3,809,128

CLASS 139

12 3,809,129
3,809,130
125 3,809,131

CLASS 141

122 3,809,132
198 3,809,133

CLASS 144

2Z 3,809,134
34F 3,809,135

CLASS 145

3.61 3,809,137
50R 3,809,136

CLASS 148

1.5 3,809,582
6.35 3,809,583
172 3,809,584

CLASS 149

19.4 3,809,585
19.91 3,809,586
109 3,809,587

CLASS 150

52R 3,809,138

CLASS 151

41.72 3,809,139

CLASS 156

18 3,809,588
68 3,809,589
149 3,809,590
151 3,809,591
244 3,809,594
257 3,809,593
267 3,809,595
380 3,809,596
394 3,809,592

CLASS 159

2E 3,809,140

CLASS 160

3,809,141
3,809,142
3,809,143
3,809,144

CLASS 161

1 3,809,599
3,809,597
3,809,598
3,809,600
3,809,601
3,809,602
3,809,603

CLASS 162

100 3,809,604
158 3,809,605
194 3,809,606

CLASS 164

49 3,809,145
66 3,809,146
122 3,809,147
283M 3,809,148

CLASS 165

1 3,809,149
3,809,150
3,809,151
3,809,152
62 3,809,153
105 3,809,154
133 3,809,155
167 3,809,156

CLASS 166

185 3,809,157
250 3,809,158
258 3,809,159
294 3,809,160
301 3,809,161
315 3,809,162

CLASS 169

3,809,163

CLASS 171

58 3,809,164

CLASS 172

3,809,165
328 3,809,166
763 3,809,167
808

CLASS 173

13 3,809,168
28 3,809,169

CLASS 174

11BH 3,809,794
28 3,809,795
33 3,809,796
52S 3,809,797
59 3,809,798
68C 3,809,799
70R 3,809,800
99B 3,809,801
103 3,809,802
114R 3,809,803

CLASS 175

7 3,809,170

CLASS 176

19R 3,809,607
78 3,809,609
3,809,610
87 3,809,608

CLASS 177

165 3,809,171

CLASS 178

5.2D 3,809,804
6.6A 3,809,805
7.2 3,809,807
7.3S 3,809,808
7.6 3,809,806
69.51A 3,809,809

CLASS 179

1B 3,809,810
3,809,812
1N 3,809,811
5R 3,809,813
8A 3,809,814
15AQ 3,809,819
15BA 3,809,820
15BS 3,809,817
15BY 3,809,818
15ED 3,809,815
3,809,816
15R 3,809,821
18E 3,809,822
27D 3,809,823
37 3,809,824
81R 3,810,247
82 3,809,825
90CS 3,809,826
100.2S Re.28,006
100.41B 3,809,828
107S 3,809,829

CLASS 180

5R 3,809,172
3,809,173
64A 3,809,174
69.1 3,809,175
79.2B 3,809,176
88 3,809,177

CLASS 181

33HC 3,809,178
36A 3,809,179

CLASS 182

2 3,809,180
70 3,809,181
148 3,809,182
186 3,809,183

CLASS 184

7D 3,809,184
15R 3,809,185

CLASS 188

1B 3,809,186
24 3,809,187
62 3,809,188
71.9 3,809,189
72.2 3,809,190
106A 3,809,191
196BA 3,809,193
218XL 3,809,192

CLASS 190

41B 3,809,194

CLASS 192

6A 3,809,195
12B 3,809,196
58B 3,809,197
106.2 3,809,198
107C 3,809,200
109F 3,809,201

CLASS 194

1R 3,809,202

CLASS 195

30 3,809,611
36R 3,809,612
63 3,809,613
81 3,809,614
103.5R 3,809,615
3,809,616
127 3,809,617
140 3,809,618

CLASS 197

1A 3,809,203
3,809,204
16 3,809,205

CLASS 198

16R 3,809,206
34 3,809,207
85 3,809,208
167 3,809,209
179 3,809,210
192R 3,809,211
232 3,809,212
235 3,809,214
249 3,809,213

CLASS 200

11TW 3,809,830
38C 3,809,831
61.18 3,809,832
61.27 3,809,833
67D 3,809,834
83N 3,809,835
144B 3,809,836
153T 3,809,837
159R 3,809,838
160 3,809,839
221 3,809,842
321 3,809,840
329 3,809,841

CLASS 201

39 3,809,619

CLASS 202

139 3,809,620
205 3,809,621
263 3,809,622

CLASS 203

11 3,809,623

CLASS 204

15 3,809,625
20 3,809,626
37R 3,809,627
43G 3,809,628
95 3,809,629
98 3,809,630
105M 3,809,624
149 3,809,631
158R 3,809,632
159.14 3,809,633
181 3,809,634
192 3,809,635
195M 3,809,636
3,809,637
3,809,638
195S 3,809,639
197 3,809,640
213 3,809,641
275 3,809,642

CLASS 206

.5 3,809,215
.84 3,809,217
45.34 3,809,216
53 3,809,218
55R 3,809,219
204 3,809,223
219 3,809,224
220 3,809,225
229 3,809,226
264 3,809,227
306 3,809,228
3,809,229
3,809,230
314 3,809,231
320 3,809,232
328 3,809,233
398 3,809,222
448 3,809,234
461 3,809,221
484 3,809,220
499 3,809,235
519 3,809,236

CLASS 208

191 3,809,643
210 3,809,644

CLASS 209

80.5 3,809,237
83 3,809,238
111.8 3,809,239

CLASS 210

21 3,809,645
44 3,809,240
87 3,809,241
96 3,809,243
136 3,809,244
195 3,809,242
207 3,809,245
232 3,809,246
278 3,809,247

CLASS 212

55 3,809,248
3,809,249
3,809,250

CLASS 213

15 3,809,251
24 3,809,252

CLASS 214

1BD 3,809,255
1.5 3,809,253
6B 3,809,256
6P 3,809,254
8.5C 3,809,257
10.5R 3,809,258
16.4A 3,809,259
16.4R 3,809,263
17D 3,809,260
38CC 3,809,261
152 3,809,262
302 3,809,264
309 3,809,265
450 3,809,266
508 3,809,267
512 3,809,268
519 3,809,269
621 3,809,270

CLASS 215

9 3,809,271
3,809,272
3,809,273
3,809,274
13R 3,809,275
253 3,809,365
256 3,809,370
320 3,809,277
332 3,809,276

CLASS 219

10.55 3,809,843
3,809,844
3,809,845
3,810,248
10.79 3,809,846
69C 3,809,848
69P 3,809,847
69V 3,809,852
98 3,809,849
121P 3,809,850
137 3,809,853
216 3,809,854
3,809,855
243 3,809,851
279 3,810,249
286 3,809,856
3,809,857
331 3,809,858
345 3,809,859
385 3,809,860
469 3,809,861
512 3,809,862

CLASS 220

4F 3,809,278
21 3,809,279
42C 3,809,280
44R 3,809,281
3,809,282
54 3,809,283
60R 3,809,284
94R 3,809,285

CLASS 221

66 3,809,287

CLASS 222

1 3,809,286
5 3,809,288
83 3,809,289
88 3,809,290
145 3,809,291
146C 3,809,292
148 3,809,293
182 3,809,294
183 3,809,295
309 3,809,296
3,809,297
386 3,809,298
521 3,809,299
545 3,809,300

CLASS 226

25 3,809,301
33 3,809,302
197 3,809,303

CLASS 227

8 3,809,307

CLASS 228

5 3,809,306
9 3,809,308
44 3,809,309

CLASS 229

5.7 3,809,304
26 3,809,310
45 3,809,305
87R 3,809,311

CLASS 235

30R 3,809,312
61.11E 3,809,863
92DN 3,809,864
150.2 3,809,867
151 3,809,865
3,809,868
151.3 3,809,869
3,809,870
3,809,871
151.34 3,809,866
170 3,809,872
181 3,809,873
183 3,809,874
197 3,809,875
3,809,876

CLASS 236

15A 3,809,313
49 3,809,314

CLASS 239

31 3,809,315
167 3,809,316
251 3,809,317
273 3,809,318
274 3,809,319
416.4 3,809,320

CLASS 240

1LP 3,809,877
1.3 3,809,878
3.1 3,809,879
6.4R 3,810,250
8.2 3,809,880
10.6CH 3,809,882
10.63 3,809,321
51.11 3,810,085
54A 3,809,883
106R 3,809,881

CLASS 241

46.17 3,809,322
101.7 3,809,323
210 3,809,324
278R 3,809,325

CLASS 242

19 3,809,326
71 3,809,327
71.3 3,809,330
100.1 3,809,331
107.4 3,809,332
129 3,809,333
158.3 3,809,334
184 3,809,328
186 3,809,335
202 3,809,336
204 3,809,329

CLASS 244

1SS 3,809,337
1R 3,809,338
3.3 3,809,339
54 3,809,340
134R 3,809,341
145 3,809,342

CLASS 248

4 3,809,343
16 3,809,344
27.8 3,809,345
44 3,809,346
48.1 3,809,347
49 3,809,348
51 3,809,349
57 3,809,350
210 3,809,351
317 3,809,358
346.1 3,809,353
449 3,809,354
451 3,809,352

CLASS 249

106 3,809,355
155 3,809,356
161 3,809,357

CLASS 250

199 3,809,887
213VT 3,809,889
213R 3,809,888
214P 3,809,890
222R 3,809,891
226 3,809,892
227 3,809,893
236 3,809,894
237G 3,809,895
286 3,809,896
288 3,809,897
303 3,809,898
311 3,809,899
321 3,809,900
323 3,809,886
337 3,809,901
338 3,809,902
357 3,809,885
358 3,809,903
3,809,904
370 3,809,905
472 3,809,906
548 3,809,907
551 3,809,908
556 3,809,909
561 3,809,910
571 3,809,911
574 3,809,912
575 3,809,913

CLASS 251

148 3,809,359
196 3,809,360
305 3,809,361
332 3,809,362
355 3,809,363

CLASS 252

8.8 3,809,646
28 3,809,647
32.7E 3,809,648
33.2 3,809,649
42 3,809,650
47.5 3,809,651
56R 3,809,652
148 3,809,653
180 3,809,654
391 3,809,655
408 3,809,656
429C 3,809,657
472 3,809,658
542 3,809,659

CLASS 254

134.3FT 3,809,366
144 3,809,367
150R 3,809,368
173R 3,809,369

CLASS 256

47 3,809,371

CLASS 259

4 3,809,372
154 3,809,373

CLASS 260

2EP 3,809,660
2.5 3,809,669
5 3,809,661
17.4BB 3,809,662
17.4GC 3,809,664
17.4ST 3,809,663
29.6S 3,809,665
29.7D 3,809,666
31.8R 3,809,667
33.4UA 3,809,668
37N 3,809,670
42.16 3,809,673
42.27 3,809,672
42.46 3,809,671
45.75K 3,809,677
45.75R 3,809,676
45.85R 3,809,678
45.9R 3,809,674
3,809,675
46.5Y 3,809,783
47CZ 3,809,679
51R 3,809,680
52 3,809,681
61 3,809,682
78.4N 3,809,683
79 3,809,684
80.71 3,809,685
89.5A 3,809,686
93.5A 3,809,687
94.9R 3,809,688
121 3,809,782
211.5R 3,809,689
239.5 3,809,690
240E 3,809,691
243R 3,809,692
248CS 3,809,693
256.4C 3,809,696
268PC 3,809,698
268C 3,809,697
286A 3,809,694
290HL 3,809,695
306.7 3,809,699
3,809,700
308R 3,809,701
326.4 3,809,702
332.5 3,809,703
343.2R 3,809,704
367 3,809,705
403 3,809,706
404 3,809,707
409 3,809,708
410.7 3,809,709
3,809,711
3,809,712
410.9R 3,809,710
448.2E 3,809,713
479R 3,809,714
3,809,715
491 3,809,716
512R 3,809,717
562S 3,809,718
564F 3,809,719
570R 3,809,720
570.9 3,809,721
602 3,809,722
611.5 3,809,723
635R 3,809,724
648C 3,809,725
677A 3,809,726
681 3,809,727
683.68 3,809,728
874 3,809,729
968 3,809,730

CLASS 261

87 3,809,375
130 3,809,374

CLASS 264

5 3,809,731
22 3,809,732
45 3,809,733
51 3,809,734
3,809,735
120 3,809,736
154 3,809,737
168 3,809,738
297 3,809,739
306 3,809,740
328 3,809,741

CLASS 266

16 3,809,376
18 3,809,377
33R 3,809,378
34I 3,809,380
34V 3,809,379
35 3,809,381

CLASS 267

65A 3,809,382

CLASS 269

91 3,809,383

CLASS 270

54 3,809,384
3,809,385
58 3,809,386
79 3,809,387

CLASS 271

20 3,809,388
91 3,809,389
204 3,809,390

CLASS 272

56.5SS 3,809,391
57J 3,809,393
57R 3,809,392
80 3,809,394

CLASS 273

1E 3,809,395
1R 3,809,396
26B 3,809,397
43A 3,809,398
54A 3,809,400
55R 3,809,399
67A 3,809,401
73C 3,809,402
80B 3,809,403
87.4 3,809,404
88 3,809,405
95A 3,809,406
134B 3,809,408
134G 3,809,407
139 3,809,409

CLASS 281

5 3,809,410

CLASS 285

42 3,809,411
110 3,809,412
348 3,809,413

CLASS 290

38 3,809,914
40 3,810,251

CLASS 292

4 3,809,414
33 3,809,415
216 3,809,416
259 3,809,417
264 3,809,418
338 3,809,419

CLASS 293

70 3,809,420

CLASS 294

50.8 3,809,421
74 3,809,422
88 3,809,423
113 3,809,424

CLASS 296

22 3,809,425
27 3,809,426
35R 3,809,427
97C 3,809,428

CLASS 298

17S 3,809,429

CLASS 299

5 3,809,430
34 3,809,431
85 3,809,432

CLASS 301

1 3,809,433
37R 3,809,434
112 3,809,435

CLASS 302

20 3,809,436
22 3,809,438
53 3,809,439
59 3,809,440

CLASS 303

21E 3,809,437
52 3,809,441

CLASS 305

14 3,809,442

CLASS 307

10AT 3,809,915
18 3,809,916
39 3,809,917
41 3,809,918
3,809,919
88ET 3,809,920
116 3,809,921
118 3,809,922
125 3,809,924
221D 3,809,923
235R 3,809,926
235 3,809,925
293 3,809,927
303 3,809,928
310 3,809,929
311 3,809,930

CLASS 308

9 3,809,443
174 3,809,444
184 3,809,445
217 3,809,446
236 3,809,447

CLASS 310

8.1 3,809,931
41 3,809,932
52 3,809,933
53 3,809,934
68 3,809,935
171 3,809,936
184 3,809,937
254 3,809,938

CLASS 312

39 3,809,448
194 3,809,449
351 3,809,450
3,809,451

CLASS 313

7 3,809,957
39 3,809,939
61R 3,809,940
85S 3,809,945
94 3,809,941
113 3,809,942
217 3,809,943
227 3,809,944

CLASS 315

3.5 3,809,949
11 3,809,946
27GD 3,809,947
3,809,948
39.71 3,809,950
149 3,809,951
169TV 3,809,952
241P 3,809,954

CLASS 317

3 3,809,955
6 3,809,956
11E 3,809,958
3,809,959
12R 3,810,252
13B 3,809,960
18B 3,809,961
18D 3,809,962
22 3,809,963
113 3,809,965
117 3,809,966
3,809,967
120 3,809,968
3,809,969
141S 3,809,970
230 3,809,971
235N 3,809,953
253 3,809,972
258 3,809,973
262A 3,809,974

CLASS 318

39 3,809,975
78 3,809,976
116 3,809,977
139 3,809,978
212 3,809,979
220R 3,809,980
237 3,810,253
244 3,809,984
271 3,809,452
294 3,809,981
313 3,809,982
340 3,809,983
490 3,809,985
561 3,809,986
569 Re.28,005
640 3,809,987
646 3,809,988
696 3,809,989
3,809,990
3,809,991

CLASS 320

1 3,809,992
25 3,809,993

CLASS 321

2 3,809,994
5 3,809,995
28 3,809,996
79 3,809,997

CLASS 323

4 3,809,998
17 3,809,999

CLASS 324

.5R 3,810,001
3,810,254
1 3,810,000
34R 3,810,002
51 3,810,003
58.5A 3,810,005
58.5R 3,810,004
62 3,810,006
3,810,007
3,810,008
65R 3,810,009
71CP 3,810,010
3,810,011
73R 3,810,012
96 3,810,013
120 3,810,015
130 3,810,014
158P 3,810,016
3,810,017

CLASS 325

3 3,810,255
30 3,810,018
40 3,810,019
141 3,810,020
3,810,021
459 3,810,022
478 3,810,023

CLASS 328

8 3,810,024
10 3,810,025
127 3,810,026
129 3,810,027
142 3,810,028
164 3,810,067
167 3,810,029
228 3,810,030

CLASS 330

6 3,810,031
28 3,810,256
29 3,810,032
53 3,810,033
59 3,810,034
86 3,810,035

CLASS 331

15 3,810,036
55 3,810,037
60 3,810,038
78 3,810,039
94.5T 3,810,044
94.5 3,810,040
3,810,041
3,810,042
3,810,043
96 3,810,045

CLASS 332

19 3,810,046
31R 3,810,047

CLASS 333

22R 3,810,048
30R 3,810,257
81R 3,810,049

CLASS 335

75 3,810,050
167 3,810,051
205 3,810,052
212 3,810,053
220 3,810,054
285 3,810,055
302 3,810,056

CLASS 336

98 3,810,057
196 3,810,058

CLASS 337

25 3,810,059
155 3,810,060
159 3,810,061
161 3,810,062
166 3,810,063
304 3,810,064
320 3,810,065

CLASS 338

25 3,810,066
274 3,810,068

CLASS 339

12R 3,810,258
14R 3,810,069
36 3,810,070
59M 3,810,071
88R 3,810,072
91R 3,810,073
100 3,810,074
105 3,810,075
177R 3,810,076
219F 3,810,077
268R 3,810,078

CLASS 340

3R 3,810,080
3,810,081
6R 3,810,082
8LF 3,810,083
9.009 3,810,079
41R 3,810,084
52B 3,810,087
52C 3,810,088
52D 3,810,089
52F 3,810,086
58 3,810,090
84 3,810,091
107 3,810,092
146.3MA 3,810,093
146.3A 3,810,095
146.3D 3,810,094
146.3R 3,810,159
147R 3,810,096
164R 3,810,097
166R 3,810,160
170 3,810,098
3,810,161
171R 3,810,099
172.5 3,809,884
3,810,100
3,810,101
3,810,102
3,810,103
3,810,104
3,810,105
3,810,106
3,810,107
3,810,108
3,810,109
3,810,110
3,810,111
3,810,112
3,810,113
3,810,114
3,810,115
3,810,116
3,810,117
3,810,118
3,810,119
3,810,120
3,810,121
3,810,162
173CA 3,810,125
173DR 3,810,129
173FF 3,810,123
173LM 3,810,122
173RC 3,810,126
173SP 3,810,127
173R 3,810,124
3,810,128
3,810,130
174EB 3,810,132
174PW 3,810,134
174TF 3,810,133
174YC 3,810,131
199 3,810,136
224 3,810,137
225 3,810,138
229 3,810,139
235 3,810,140
240 3,810,141
242 3,810,142
244R 3,810,143
248C 3,810,144
274 3,810,145
279 3,810,146
280 3,810,147
310R 3,810,163
323 3,810,148
324AD 3,810,166
324A 3,810,165
326 3,810,149
332 3,810,164
340 3,810,150
347AD 3,810,151
3,810,153
3,810,156
347DA 3,810,157
3,810,158
347DD 3,810,154
3,810,155
347NT 3,810,152
365 3,810,167
383 3,810,168
384E 3,810,169
420 3,810,170
3,810,171

CLASS 343

5DP 3,810,174
5PD 3,810,172
5R 3,810,173
6.5LC 3,810,179
7TA 3,810,175
8 3,810,176
16M 3,810,177
3,810,178
3,810,180
708 3,810,183
713 3,810,180
3,810,184
756 3,810,185
771 3,810,186
781 3,810,187

CLASS 346

33MC 3,810,188
74ES 3,810,189
3,810,193
74MC 3,810,191
74MP 3,810,190
75 3,810,194
79 3,810,192
101 3,810,195

CLASS 350

3.5 3,809,453
84 3,809,454
96WG 3,809,455
128 3,809,457
160LC 3,809,456
3,809,458
164 3,809,459
254 3,809,460
302 3,809,461
3,809,462

CLASS 352

51 3,809,463
74 3,809,464
78R 3,809,465
169 3,809,466

CLASS 353

15 3,809,364
3,809,467
26 3,809,468
106 3,809,469
113 3,809,470

CLASS 354

1 3,810,196
9 3,810,197
12 3,810,198
3,810,199
21 3,810,200
23 3,810,201
3,810,202
24 3,810,203
29 3,810,204
33 3,810,205
41 3,810,206
42 3,810,207
51 3,810,226
60 3,810,208

80	3,810,209		CLASS 356		CLASS 401		3,809,501	250	3,809,753	335	3,809,779
86	3,810,210	5	3,809,477	123	3,809,483	225	3,809,502	270	3,809,754	358	3,809,765
	3,810,211	71	3,809,478	185	3,809,484	352	3,809,503	272	3,809,755	362	3,809,766
115	3,810,213	85	3,809,479		CLASS 402	411	3,809,504		3,809,763		3,809,770
128	3,810,212	103	3,809,480	31	3,809,485	424	3,809,505	317	3,809,759	364	3,809,767
148	3,810,214	106S	3,809,481		CLASS 403	439	3,809,506	319	3,809,760		3,809,771
	3,810,215	205	3,809,482	374	3,809,486	488	3,809,507	330	3,809,761		3,809,772
156	3,810,216		CLASS 360		CLASS 404	511	3,809,508		CLASS 425	380	3,809,773
204	3,810,217			15	3,809,487		CLASS 418	4C	3,809,512	384	3,809,781
	3,810,218	40	3,810,231		CLASS 408	60	3,809,509	84	3,809,513	393	3,809,774
206	3,810,219	42	3,810,232	6	3,809,488	201	3,809,510	112	3,809,514	427	3,809,775
212	3,810,220		3,810,233	110	3,809,489	259	3,809,511	133	3,809,515	431	3,809,776
219	3,810,221	51	3,810,234		CLASS 415		CLASS 423	150	3,809,516	438	3,809,777
226	3,810,222		3,810,235	28	3,809,490	155	3,809,742	242B	3,809,517	481	3,809,778
250	3,810,223	53	3,810,236	88	3,809,491	213.5	3,809,743	244	3,809,518		CLASS 431
	3,810,224	62	3,810,135	121G	3,809,492	239	3,809,744	245	3,809,519	4	3,809,523
252	3,810,225	88	3,810,238	199A	3,809,493	244	3,809,745	276.3	3,809,520	181	3,809,524
253	3,810,227	92	3,810,239		CLASS 416	277	3,809,762	326B	3,809,521	256	3,808,741
258	3,810,228	96	3,810,237	97	3,809,494	581	3,809,746	387	3,809,522	353	3,809,525
281	3,810,229		3,810,240	135	3,809,495		CLASS 424		CLASS 426		CLASS 432
	CLASS 355		3,810,241		CLASS 417	70	3,809,747	60	3,809,780	36	3,809,526
3P	3,809,471	98	3,810,242	40	3,809,496	110	3,809,748	163	3,809,764	62	3,809,527
3R	3,809,472	106	3,810,243	50	3,809,497	195	3,809,749	201	3,809,756	80	3,809,528
	3,809,475	118	3,809,827	63	3,809,498		3,809,750	223	3,809,757	138	3,809,529
9	3,809,473	127	3,810,244	78	3,809,499	224	3,809,752	285	3,809,758	152	3,809,530
11	3,809,474	128	3,810,245	222	3,809,500	247	3,809,751	309	3,809,768	225	3,809,531
113	3,809,476	134	3,810,246					312	3,809,769		

CLASSIFICATION OF DESIGNS

D2—	320	231,584		150	231,596		231,607		14A	231,620	D35—	1	231,628		9R	231,636
	380	231,585	D8—	30	231,597		103	231,608		B	231,619	D48—	2	231,629	D83—	1P	231,639
D6—	4	231,587		109	231,598	D16—	2C	231,609		H	231,613		4B	231,630	D85—	8A	231,640
	9	231,588		235	231,599	D22—	10	231,610	D30—	21	231,621	D52—	2R	231,631	D87—	1D	231,641
		231,589		238	231,600		30	231,611	D34—	4R	231,622	D55—	1C	231,632			231,642
	94	231,593	D9—	216	231,601	D23—	35	231,612			231,623			231,633		3E	231,586
	202	231,590	D12—	70	231,602		139	231,614		5CB	231,624	D64—	11A	231,635		G	231,643
	246	231,591		73	231,603		151	231,615			231,625		12B	231,634	D92—	15	231,644
		231,592			231,604	D24—	1A	231,616		LL	231,627	D74—	5A	231,637			231,645
D7—	71	231,594		80	231,605		D	231,617		K	231,626			231,638	D94—	3B	231,646
	128	231,595			231,606	D26—	13R	231,618									

CLASSIFICATION OF PLANTS

P. —	15	3,544	P. —	18	3,543	P —	23	3,545	P —	28	3,546	P. —	35	3,541	P —	51	3,542

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1	3,808,650	3,809,007	3,809,585	3,810,139	3,809,617	15	3,808,627
	3,808,767	3,809,013	3,809,598	3,810,154	3,809,683		3,809,020
	3,809,022	3,809,032	3,809,602	3,810,156	3,809,806	16	3,809,256
	3,809,090	3,809,035	3,809,610	3,810,172	3,809,815		3,809,269
2	3,809,173	3,809,057	3,809,648	3,810,174	3,809,816		3,809,758
	3,810,157	3,809,058	3,809,661	3,810,175	3,809,838		3,810,258
4	3,808,756	3,809,059	3,809,689	3,810,182	3,809,991	17	3,808,607
	3,809,023	3,809,092	3,809,700	3,810,197	3,810,039		3,808,615
	3,810,233	3,809,093	3,809,728	3,810,209	3,810,052		3,808,638
6	3,808,604	3,809,094	3,809,731	3,810,218	3,810,069		3,808,657
	3,808,612	3,809,100	3,809,740	3,810,232	3,810,075		3,808,694
	3,808,626	3,809,114	3,809,747	3,810,234	3,810,076		3,808,717
	3,808,651	3,809,115	3,809,783	3,810,236	3,810,078		3,808,735
	3,808,665	3,809,121	3,809,784	3,810,251	3,810,119		3,808,736
	3,808,666	3,809,127	3,809,786	3,808,632	3,810,152		3,808,874
	3,808,668	3,809,143	3,809,788	3,808,765	3,810,176		3,808,969
	3,808,672	3,809,149	3,809,789	3,808,771	3,808,877		3,808,981
	3,808,673	3,809,160	3,809,790	3,808,875	3,809,600		3,808,982
	3,808,677	3,809,181	3,809,805	3,808,891	3,808,642		3,809,014
	3,808,682	3,809,218	3,809,809	3,809,065	3,808,681		3,809,044
	3,808,687	3,809,223	3,809,817	3,809,147	3,808,695		3,809,048
	3,808,688	3,809,228	3,809,820	3,809,263	3,808,739		3,809,054
	3,808,697	3,809,241	3,809,821	3,809,321	3,808,866		3,809,067
	3,808,712	3,809,247	3,809,860	3,809,328	3,809,138		3,809,106
	3,808,729	3,809,309	3,809,867	3,809,335	3,809,183		3,809,141
	3,808,732	3,809,315	3,809,871	3,809,336	3,809,227		3,809,146
	3,808,748	3,809,337	3,809,876	3,809,429	3,809,290		3,809,168
	3,808,752	3,809,353	3,809,879	3,809,547	3,809,300		3,809,171
	3,808,754	3,809,357	3,809,898	3,810,097	3,809,331		3,809,207
	3,808,759	3,809,359	3,809,928	3,810,130	3,809,351		3,809,221
	3,808,770	3,809,371	3,809,931	3,810,183	3,809,366		3,809,224
	3,808,820	3,809,397	3,809,936	3,810,191	3,809,388		3,809,231
	3,808,821	3,809,399	3,809,939	3,808,616	3,809,393		3,809,232
	3,808,847	3,809,403	3,809,949	3,808,816	3,809,419		3,809,251
	3,808,856	3,809,404	3,809,957	3,808,822	3,809,570		3,809,257
	3,808,868	3,809,463	3,809,997	3,808,823	3,809,586		3,809,283
	3,808,884	3,809,468	3,810,019	3,808,849	3,809,708		3,809,284
	3,808,889	3,809,479	3,810,020	3,808,876	3,809,858		3,809,285
	3,808,902	3,809,480	3,810,028	3,808,996	3,809,878		3,809,289
	3,808,908	3,809,481	3,810,036	3,809,033	3,809,915		3,809,293
	3,808,918	3,809,483	3,810,044	3,809,155	3,809,922		3,809,307
	3,808,927	3,809,502	3,810,045	3,809,205	3,810,011		3,809,311
	3,808,933	3,809,504	3,810,046	3,809,215	3,808,964		3,809,314
	3,808,935	3,809,517	3,810,054	3,809,276	3,809,006		3,809,329
	3,808,940	3,809,520	3,810,081	3,809,332	3,809,373		3,809,364
	3,808,942	3,809,530	3,810,092	3,809,334	3,809,383		3,809,392
	3,808,959	3,809,537	3,810,103	3,809,587	3,809,592		3,809,415
	3,808,980	3,809,556	3,810,105	3,809,601	3,809,593		3,809,426
	3,809,002	3,809,557	3,810,107	3,809,605	3,809,810		3,809,433
	3,809,004	3,809,568	3,810,127	3,809,609	3,809,902		3,809,434
	3,809,005	3,809,581	3,810,129	3,809,616	3,809,980		3,809,438

3,809,441
3,809,449
3,809,496
3,809,559
3,809,560
3,809,572
3,809,576
3,809,615
3,809,664
3,809,720
3,809,756
3,809,767
3,809,771
3,809,773
3,809,776
3,809,814
3,809,822
3,809,823
3,809,824
3,809,825
3,809,862
3,809,875
3,809,945
3,809,963
3,809,975
3,809,990
3,810,003
3,810,009
3,810,022
3,810,050
3,810,056
3,810,057
3,810,091
3,810,121
3,810,164
3,810,207
3,810,230
18 3,808,655
3,808,690
3,808,742
3,808,796
3,808,906
3,808,985
3,808,990
3,809,038
3,809,108
3,809,381
3,809,395
3,809,510
3,809,625
3,809,676
3,809,697
3,809,764
3,809,831
3,809,917
3,809,932
3,810,090
19 3,808,781
3,808,783
3,808,784
3,808,909
3,809,164
3,809,167
3,809,244
3,809,267
3,809,349
3,809,486
3,809,819
3,810,018
3,810,100
20 3,808,780
3,809,144
3,809,505
3,809,714
3,809,812
21 3,808,620
3,809,132
3,809,450
3,809,451
3,809,855
3,809,962
22 3,809,062
3,809,157
3,809,261
3,809,298
3,809,394
3,809,706
23 3,809,096
24 3,808,670
3,808,676
3,808,705
3,808,711
3,808,764
3,808,833
3,808,972
3,809,116
3,809,266
3,809,348
3,809,633
3,809,749
3,809,920
3,809,941
3,809,974
3,809,984
3,809,985
3,810,024

3,810,079
3,810,102
3,810,246
25 3,810,255
3,808,639
3,808,671
3,808,685
3,808,803
3,808,956
3,808,991
3,809,040
3,809,049
3,809,061
3,809,068
3,809,104
3,809,124
3,809,236
3,809,250
3,809,327
3,809,362
3,809,414
3,809,436
3,809,464
3,809,465
3,809,552
3,809,562
3,809,569
3,809,589
29 3,809,704
3,809,752
3,809,868
3,809,882
3,809,884
3,809,887
3,809,925
3,809,966
3,809,967
3,809,969
3,809,971
3,809,978
3,810,017
3,810,033
3,810,043
3,810,059
3,810,061
3,810,077
31 3,810,095
3,810,110
3,810,120
32 3,810,185
3,810,188
33 3,810,201
3,810,211
3,810,212
3,810,220
3,810,221
34 3,810,231
26 Re 28,004
3,808,611
3,808,617
3,808,653
3,808,663
3,808,664
3,808,706
3,808,744
3,808,776
3,808,809
3,808,818
3,808,830
3,808,831
3,808,873
3,808,943
3,808,960
3,808,967
3,809,026
3,809,046
3,809,139
3,809,142
3,809,152
3,809,177
3,809,190
3,809,197
3,809,243
3,809,265
3,809,310
3,809,427
3,809,443
3,809,461
3,809,462
3,809,489
3,809,491
3,809,539
3,809,553
3,809,566
3,809,578
3,809,634
3,809,703
3,809,723
3,809,799
3,809,833
3,809,886
3,809,982
3,809,995
3,810,071
3,810,072
3,810,073

3,810,089
3,810,099
3,810,149
27 Re 28,003
3,808,728
3,808,740
3,808,974
3,808,977
3,808,987
3,809,072
3,809,077
3,809,134
3,809,172
3,809,182
3,809,238
3,809,294
3,809,369
3,809,374
3,809,422
3,809,442
3,809,642
3,809,668
3,809,672
3,809,762
3,809,955
3,809,983
3,810,055
3,810,116
29 3,808,824
3,809,086
3,809,112
3,809,125
3,809,135
3,809,245
3,809,425
3,809,546
3,809,654
3,809,667
3,809,694
35 3,809,702
3,809,743
3,809,842
3,809,859
3,809,919
3,810,060
3,810,084
31 3,809,165
3,809,527
3,809,779
32 3,808,915
3,810,096
33 3,808,808
3,809,137
3,809,420
3,809,596
34 3,810,062
3,808,634
3,808,637
3,808,645
3,808,646
3,808,710
3,808,719
3,808,721
3,808,768
3,808,769
3,808,836
3,808,852
3,808,867
3,808,880
3,808,885
3,808,926
3,808,984
3,808,986
3,808,997
3,809,018
3,809,024
3,809,163
3,809,186
3,809,188
3,809,210
3,809,220
3,809,230
3,809,272
3,809,273
3,809,286
3,809,288
3,809,295
3,809,339
3,809,401
3,809,410
3,809,428
3,809,456
3,809,458
3,809,476
3,809,487
3,809,515
3,809,534
3,809,573
3,809,574
3,809,591
3,809,603
3,809,613
3,809,627
3,809,652
3,809,659
3,809,663

3,809,674
3,809,675
3,809,686
3,809,692
3,809,698
3,809,719
3,809,724
3,809,725
3,809,726
3,809,732
3,809,757
3,809,766
3,809,769
3,809,770
3,809,782
3,809,802
3,809,808
3,809,853
3,809,894
3,809,897
3,809,926
3,809,952
3,809,996
3,810,038
3,810,042
3,810,065
3,810,067
3,810,085
3,810,109
3,810,112
3,810,131
3,810,132
3,810,133
3,810,136
3,810,141
3,810,167
3,810,171
3,810,235
3,810,252
35 3,808,610
3,809,418
3,809,565
36 3,808,608
3,808,619
3,808,622
3,808,636
3,808,649
3,808,658
3,808,659
3,808,662
3,808,686
3,808,689
3,808,692
3,808,718
3,808,724
3,808,730
3,808,733
3,808,737
3,808,750
3,808,760
3,808,774
3,808,786
3,808,825
3,808,828
3,808,835
3,808,854
3,808,857
3,808,858
3,808,892
3,808,901
3,808,911
3,808,920
3,808,931
3,808,970
3,808,979
3,809,012
3,809,019
3,809,028
3,809,047
3,809,050
3,809,063
3,809,064
3,809,066
3,809,070
3,809,075
3,809,076
3,809,084
3,809,085
3,809,095
3,809,099
3,809,103
3,809,105
3,809,175
3,809,208
3,809,216
3,809,222
3,809,226
3,809,229
3,809,254
3,809,274
3,809,296
3,809,356
3,809,375
3,809,396
3,809,405
3,809,448

3,809,457
3,809,460
3,809,471
3,809,472
3,809,475
3,809,493
3,809,501
3,809,529
3,809,533
3,809,536
3,809,540
3,809,545
3,809,554
3,809,561
3,809,580
3,809,588
3,809,644
3,809,650
3,809,651
3,809,673
3,809,681
3,809,691
3,809,729
3,809,751
3,809,775
3,809,778
3,809,781
3,809,793
3,809,807
3,809,813
3,809,828
3,809,829
3,809,841
3,809,850
3,809,861
3,809,870
3,809,873
3,809,910
3,809,916
3,809,940
3,809,946
3,809,947
3,809,961
3,809,977
3,809,987
3,810,015
3,810,040
3,810,041
3,810,068
3,810,070
3,810,106
3,810,108
3,810,111
3,810,117
3,810,126
3,810,134
3,810,147
3,810,163
3,810,165
3,810,169
3,810,170
3,810,173
3,810,181
3,810,189
3,810,195
3,810,210
3,810,214
3,810,229
3,810,243
37 3,808,605
3,808,932
3,809,258
3,809,847
3,809,848
3,809,866
3,810,101
38 3,809,350
3,810,144
39 Re 28,005
3,808,614
3,808,621
3,808,623
3,808,624
3,808,629
3,808,635
3,808,660
3,808,669
3,808,684
3,808,789
3,808,813
3,808,817
3,808,887
3,808,912
3,808,914
3,808,962
3,808,978
3,809,055
3,809,071
3,809,079
3,809,082
3,809,088
3,809,098
3,809,136
3,809,184
3,809,211
3,809,234

3,809,338
3,809,367
3,809,382
3,809,384
3,809,408
3,809,439
3,809,485
3,809,506
3,809,522
3,809,531
3,809,599
3,809,606
3,809,656
3,809,680
3,809,711
3,809,712
3,809,713
3,809,739
3,809,741
3,809,753
3,809,761
3,809,801
3,809,834
3,809,835
3,809,840
3,809,849
3,809,881
3,809,883
3,809,893
3,809,901
3,809,903
3,809,943
3,809,989
3,810,074
3,810,104
3,810,122
3,810,159
3,810,184
3,810,190
3,810,198
40 Re 28,006
3,808,731
3,808,782
3,808,826
3,808,870
3,809,039
3,809,159
3,809,271
3,809,280
3,809,320
3,809,655
3,809,727
3,810,007
3,810,115
3,810,137
3,810,140
41 3,808,722
3,808,727
3,808,757
3,809,060
3,809,074
3,809,264
3,809,304
3,809,346
3,809,435
3,809,484
3,809,888
3,809,899
3,810,026
42 3,808,606
3,808,654
3,808,674
3,808,702
3,808,708
3,808,720
3,808,747
3,808,763
3,808,837
3,808,842
3,808,850
3,808,855
3,808,937
3,808,998
3,809,148
3,809,180
3,809,212
3,809,217
3,809,233
3,809,249
3,809,260
3,809,262
3,809,268
3,809,312
3,809,313
3,809,323
3,809,333
3,809,347
3,809,352
3,809,354
3,809,355
3,809,358
3,809,380
3,809,385
3,809,406
3,809,421
3,809,424

3,809,495
3,809,528
3,809,541
3,809,544
3,809,579
3,809,582
3,809,590
3,809,597
3,809,607
3,809,608
3,809,621
3,809,628
3,809,643
3,809,721
3,809,772
3,809,777
3,809,785
3,809,794
3,809,830
3,809,836
3,809,864
3,809,865
3,809,913
3,809,914
3,810,016

3,810,023
3,810,051
3,810,058
3,810,063
3,810,138
3,810,143
3,810,161
3,810,215
44 3,808,779
3,808,840
3,808,844
3,808,895
3,808,917
3,809,730
45 3,808,691
3,808,790
3,808,843
3,808,976
3,809,575
3,809,595
3,809,604
47 3,808,924
3,808,999
3,809,187
3,809,343

3,809,363
3,809,792
48 3,808,707
3,808,726
3,808,795
3,808,869
3,808,879
3,808,881
3,808,882
3,808,886
3,808,939
3,808,958
3,809,017
3,809,080
3,809,087
3,809,097
3,809,113
3,809,120
3,809,150
3,809,158
3,809,161
3,809,170
3,809,179
3,809,292
3,809,417

3,809,498
3,809,687
3,809,737
3,809,745
3,809,856
3,809,857
3,809,994
3,810,053
3,810,083
3,810,148
3,810,150
3,810,153
3,810,162
3,810,179
49 3,808,941
3,809,081
3,809,191
3,809,259
3,809,430
3,810,005
50 3,808,680
3,809,973
3,810,124
51 3,808,625
3,808,785

3,808,944
3,808,965
3,809,235
3,809,467
3,809,624
3,809,653
3,809,669
3,809,693
3,809,800
3,809,908
3,809,999
3,810,047
53 3,808,794
3,808,916
3,808,936
3,809,178
3,809,299
3,809,477
3,810,080
54 3,809,025
3,809,571
55 3,808,613
3,808,643
3,808,700
3,808,715

3,808,778
3,808,807
3,808,810
3,808,851
3,808,905
3,809,027
3,809,118
3,809,122
3,809,133
3,809,239
3,809,291
3,809,317
3,809,324
3,809,626
3,809,852
3,809,854
3,809,889
3,809,958
3,809,965
3,809,970
3,810,064
3,810,118
3,810,145
56 3,808,814

Design Patents

6 231,585
231,587
231,602
231,603
231,604
231,613
231,617
231,626
231,627

8 231,630
12 231,624
231,607
231,619
13 231,586
16 231,588
17 231,622
231,623
19 231,598

20 231,614
231,628
21 231,590
231,595
24 231,584
231,640
26 231,593
231,594
231,609

27 231,618
231,637
29 231,611
231,629
34 231,638
36 231,596
231,634
231,635
231,639

37 231,600
39 231,599
231,616
231,631
231,636
231,643
40 231,621
41 231,620
47 231,644

48 231,645
231,610
51 231,601
231,608
53 231,605
231,606
55 231,612
56 231,625

Plant Patents

12 3,545
18 3,544
26 3,542
53 3,541

U. S. GOVERNMENT PRINTING OFFICE : O - 1974

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*

A UNITED STATES DEPARTMENT OF **COMMERCE** PUBLICATION

U. S. DEPARTMENT OF COMMERCE
Patent Office

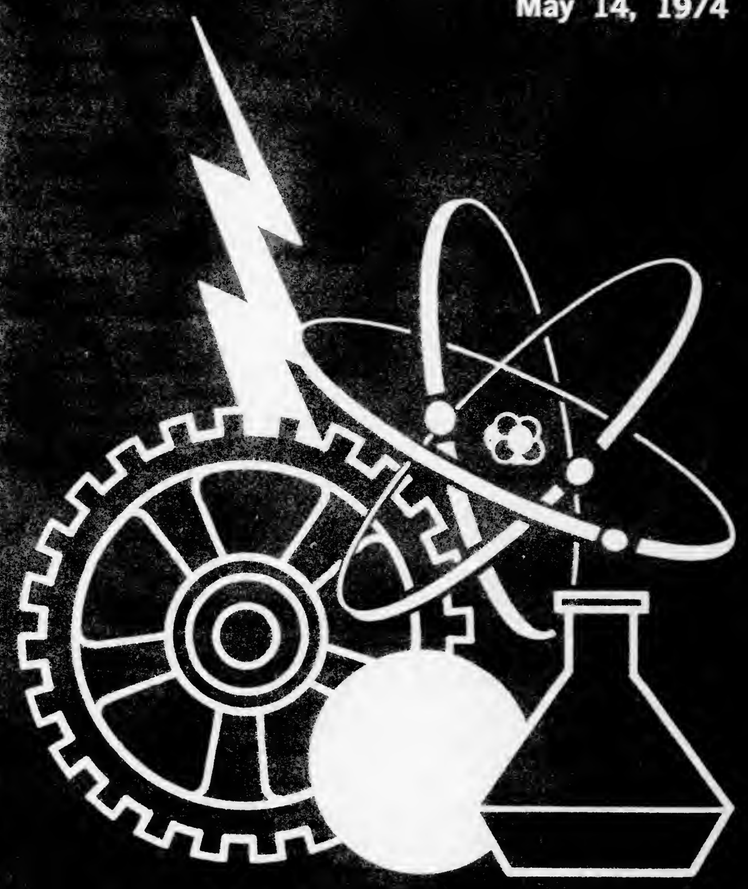
Vol. 922 Number 2

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

PATENTS

May 14, 1974



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
May 14, 1974 Volume 922 Number 2

CONTENTS

	Page
Patents and Trademark Notices	
Claims Copied from Patents	442
Registration to Practice	442
Patent Suits	442
Patent Notices	
Certificates of Correction for the Week of May 14, 1974	444
National Technical Information Service	444
Disclaimer	445
Condition of Patent Applications	446
Reissue Patents Granted (28,007)	447
Plant Patents Granted (3,547)	449
Patents Granted	
General and Mechanical (3,810,259)	450
Chemical (3,810,737)	573
Electrical (3,811,001)	621
Design Patents Granted (231,647)	656
Index of Patentees	PI 1
Indices of Applicants of Reissues, Plants and Designs	PI 28
Classification of	
Patents (including Reissues)	PI 29
Designs and Plants	PI 31
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 32
Designs and Plants	PI 33
Rules of Practice	PI 35

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $211.00 per annum, foreign mailing $52.75 additional; single copies $4.10 each.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly, subscription $60.25 per annum, foreign mailing $15.10 additional; single copies $1.25 each.

CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

PATENT OFFICE NOTICES

Claims Copied from Patents

Applicants and their attorneys or agents are reminded of the requirement of Rule 205(b) (37 CFR 1.205(b)) of the Rules of Practice that "Where an applicant presents a claim copied or substantially copied from a patent, he must, at the time he presents the claim, identify the patent, give the number of the patented claim, and specifically apply the terms of the copied claim to his own disclosure, unless the claim is copied in response to a suggestion by the Office."

The requirement of Rule 205(b) (37 CFR 1.205(b)) applies to claims copied in an application at the time of filing as well as to claims copied in an amendment to a pending application. If an applicant, attorney, or agent presents a claim copied or substantially copied from a patent without complying wtih Rule 205(b) (37 CFR 1.205(b)) the examiner may be led into making an action different from what he would have made had he been in possession of all the facts. Therefore, failure to comply with Rule 205(b) (37 CFR 1.205(b)), when submitting a claim copied from a patent, may result in the issuance of an Order To Show Cause why the application should not be stricken from the files of the Patent Office. If a satisfactory answer is not filed within the period set in the Order it may be necessary to strike the application under Rule 56 (37 CFR 1.56).

This reminder is being published to emphasize to applicants and their attorneys or agents the importance of complying with the requirement of Rule 205(b) (37 CFR 1.205(b)) at the time the claim is copied.

WILLIAM FELDMAN,

Apr. 10, 1974. *Acting Assistant Commissioner for Patents.*

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent Office. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds, should be furnished the Commissioner of Patents on or before June 14, 1974.

Frei, Frederick S., 180 Wallace Road, G-6, Nashville, Tenn. 37211

Korkosz, Arthur E., 10023 Campus Way S., Upper Marlboro, Md. 20870

Leaheey, Joh B., 1505 E. Central Road, Arlington Heights, Ill. 60080

Mentlik, William L., 2000 S. Eads St., #411, Arlington, Va. 22202

Ribando, Brian L., 94 Elinor Ave., Mill Valley, Calif. 94941

Rosenbaum, Charles F., 319 Broadleaf Drive, Vienna, Va. 22180

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,441,758, M. A. Garbell, FLUID-FOIL LIFTING SURFACE, **filed** June 6, 1963, D.C., S.D. Calif. (Los Angeles), Doc. 63-658-PH, *Maurice A. Garbell et al.* v. *The Boeing Co.* Order, plaintiffs owner of patent, Claims, 1, 2, 3 and 7 are invalid, pursuant to Rule 54(b) of FRCP, Oct. 1, 1973. **Same, filed** June 6, 1963, D.C., S.D. Calif. (Los Angeles), Doc. 63-659-PH, *Maurice A. Garbell et al.* v. *Douglas Aircraft Co.* Judgment, pursuant to Rule 54(b) of FRCP, plaintiffs owners of patent, Claims 1, 2, 3 and 7 are invalid, Oct. 1, 1973.

2,636,994, J. Neufeld, SPECTROMETER, **filed** Oct. 12, 1973, Ct. of Claims (District of Columbia), Doc. 126-70, *Serge A. Scherbatskoy* v. *The United States and Nuclear-Chicago Corporation.* Order, judgment entered for plaintiff and against defendant, Oct. 19, 1973.

2,742,378, T. A. TeGrotenhuis, FILLERS HAVING VINYL SILOXANE GROUPS BONDED TO THE SURFACE THEREOF AND COPOLYMERS THEREOF WITH ETHYLENICALLY UNSATURATED POLYMERIZABLE MONOMERS, **filed** Mar. 27, 1963, D.C., N.D. Ohio (Cleveland, Doc. C63-208, *Westwood Chemical, Inc.* v. *Molded Fiber Glass Body Company.* Order granting summary judgment in favor of defendant, Oct. 25, 1973.

2,781,005, Taylor, MacFarlane and Stephenson, METHOD OF REDUCING VANADIUM CORROSION IN GAS TURBINES, **filed** Dec. 21, 1973, D.C. Conn. (New Haven), Doc. 12316, *Chessco Industries, Inc.* v. *Basic, Incorporated.* Judgment entered on defendant's counterclaim that patent is invalid and void, final decree entered, Sept. 7, 1973.

2,838,877, K. C. Working, SOIL CONDITIONING, **filed** Apr. 19, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-937-RJK, *Sapphire Process Corporation* v. *Johnson Sawdust, Inc.* Filed judgment and order, patent is invalid, defendant has not infringed said patent and complaint is dismissed with prejudice, Oct. 18, 1973.

2,877,501, R. Bradt, GLASS-REINFORCED THERMOPLASTIC INJECTION MOLDING COMPOUND AND INJECTION-MOLDING PROCESS EMPLOYING IT, **filed** Mar. 28, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c676, *Rexall Drug and Chemical Company* v. *E. I. du Pont de Nemours and Company.* Judgment in favor of plaintiff Oct. 4, 1972, notice of appeal by defendant Oct. 12, 1972, transmitted record to U.S.C.A. Nov. 21, 1972.

2,920,977, B. F. Adams, CELLULAR SURFACE COVERING HAVING AN EMBOSSED APPEARANCE. **filed** Oct. 12, 1973, D.C.N.J. (Camden), Doc. 1469-73, *Armstrong Cork Company* v. *Congoleum Industries, Inc.*

2,967,997, R. D. McCoy, METHOD AND APPARATUS FOR CHECKING ELECTRONIC ANALOG COMPUTERS, **filed** Jan. 30, 1964, D.C., S.D. Calif. (Los Angeles), Doc. 64-135-JWC, *Reeves Instrument Corp. and Dynamics Corp.* v. *Beckman Instrument Inc.* Final judgment, ordered, plaintiffs own all right, title and interest in patent, with all rights of infringement, Claims 7, 8, 13 of patent are valid, and have been infringed by defendant, defendant hereby enjoined from Claims 7, 8 and 13 of patent for the remainder of the term of patent, Oct. 1, 1973.

2,969,838, A. E. Wilde, COMBINATION SHEARING AND SHUT-OFF RAM, **filed** Oct. 25, 1973, D.C., S.D. Tex. (Houston), Doc. 73-H-1472, *Cameron Iron Works, Inc.* v. *The Rucker Company.*

3,031,042, J. W. R. Drackett, CEILING CONSTRUCTION, **filed** Oct. 23, 1973, D.C., S.D. Fla. (Miami), Doc. 73-1658-C-NCR, *Earl Benjamin* v. *Gladwin Plastics of Miami, Inc.*

3,048,498, Juvinall and Marsh, ELECTROSTATIC SPRAY COATING SYSTEM; **3,169,882,** Juvinall, Kock, and Marsh, ELECTROSTATIC COATING METHODS AND APPARATUS, **filed** May 26, 1970, D.C.N.J. (Newark), Doc. C-671-70, *Electrogasdynamics, Inc.* v. *Ransburg Electro-Coating Corp. and Eclipse Equipment Co.* Stipulation and order of dismissal without costs, Aug. 29, 1973.

3,169,882. (See 3,048,498.)

3,182,164, R. Ironfield, ELECTROMAGNETIC ENERGY SEAL, **filed** Oct. 12, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2631, *Matsushita Electric Industrial Co., Ltd. and Matsushita Electric Corporation of America* v. *Raytheon Company.*

3,185,207, D. R. Humble, DECORATION STRUCTURE, **filed** Aug. 16, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-1901-AAH, *Soundfold, Inc.* v. *Eastern Carpet Co., Inc., Phillip Sperling et al.* Consent judgment, Soundfold owner of patent and patent is valid, defendants have infringed Claim 1 of patent. All action, including all counterclaims dismissed with prejudice, except to a charge of infringement, Sept. 28, 1973.

3,346,052, Moore and Davidson, FOLDING BOOM AERIAL WATER DELIVERY APPARATUS FOR MOBILE FIRE FIGHTING EQUIPMENT; **3,675,721,** Davidson and Morris, FIRE FIGHTING APPARATUS WITH TELESCOPING BOOM, **filed** Oct. 19, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-2375, *Reading Techmatic Corporation* v. *A-T-O, Inc.*

3,351,073, R. G. Gregg, COIFFURE PROTECTORS; **3,561,011,** same, HEAD PROTECTOR, **filed** Aug. 15, 1973, D.C. Fla. (Miami), Doc. 73-1356-C-CF, *Richard Gregg Manufacturing Company, Inc.* v. *Betty Dain Creations, Inc.*

3,351,148, S. M. Solomon, SELF-OPERABLE DETACHABLE POWER UNIT ATTACHMENT FOR WHEEL CHAIRS AND POWER CONTROL UNIT THEREFOR, **filed** Sept. 10, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-2135-MML, *Shawn M. Solomon and Motorette Corp.* v. *Everest & Jennings, International.*

3,381,207, E. E. Guthrie, COMPACT FREQUENCY MULTIPLIER, **filed** Oct. 1, 1973, D.C., N.D. Calif. (San Francisco), Doc. C-73-1751 WTS, *Frequency-West, Inc.* v. *California Microwave Inc.*

3,438,520, M. A. Williams, SLUG FILLING OF BINS, **filed** May 21, 1973, D.C., W.D. Okla. (Oklahoma City), Doc. 73-353-C, *CMI Corporation* v. *Metropolitan Enterprises, Inc. and Metropolitan Paving Company.* Defendants' motion for summary judgment to dismiss cause under Rule 56 sustained, Sept. 27, 1973.

3,481,228, Dickmann, Flick and Palmer, POWER TONG ASSEMBLY AND CONTROL MEANS THEREFOR; **3,481,229,** Dickmann and Palmer, POWER TONG ASSEMBLY AND TRANSMISSION MEANS THEREFOR, **filed** June 20, 1972, D.C., S.D. Tex. (Houston), Doc. 72-H-811, *Byron Jackson, Inc.* v. *Peck Sales & Service, Inc.* Stipulated, in accordance with Rule 41(a)(1)(ii) of FRCP, complaint and counterclaim dismissed without prejudice, Oct. 17, 1973.

3,481,229. (See 3,481,228.)

3,523,607, Gillemot and Thompson, SERVICE WIRE ENCAPSULATING KIT, **filed** Apr. 13, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-885-DWW, *Communications Technology Corp., George W. Gillemot, and John T. Thompson* v. *The Dexter Corp.* Filed order dismissing plaintiffs' claim entered Sept. 26, 1973.

3,557,774, E. Kreis, HEAT STORAGE DISH, **filed** Oct. 15, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2637, *Kreis Ag.* v. *American Hospital Supply Corporation et al.*

3,561,011. (See 3,351,073.)

3,614,325, Galian and Kuryla, TELEPHONE AND SIGNALING SYSTEM, **filed** Oct. 18, 1973, D.C., M.D. Fla. (Tampa), Doc. 73-528-C T.K., *Letot, Inc.* v. *Communication Equipment & Contractor Co., Inc. and Hawaiian Village Ltd. et al.*

3,620,454, Broderick, Wishnie, and Keys, FLAME SPRAY TORCH, **filed** Sept. 26, 1973, D.C. W.D. Pa. (Pittsburgh), Doc. 73-0827, *Eutectic Corporation Inc.* v. *Co-Ordinated Industries, Inc. and Richard O. Drossman.*

3,653,474, B. D. Sadow, ROLLING LUGGAGE, **filed** Oct. 17, 1973, D.C. Fla. (Miami), Doc. 73-1639-C-NCR, *United States Luggage Corp.* v. *Federated Department Stores, Inc.*

3,675,721. (See 3,346,052.)

3,704,352, J. G. Fontaine, COMPOSITE SEAT AND SWITCH, **filed** Oct. 26, 1973, D.C., W.D. Wash. (Seattle), Doc. 644-73C2, *Safe Stop Brake Corporation* v. *General Motors Corporation.*

3,730,182, M. P. Boghosian, METHOD OF DELIVERY OF SOLUTION TO SKIN HAVING SUBSTANTIAL AMOUNTS OF HAIR THEREON, **filed** July 24, 1973, D.C., N.D. Calif. (San Francisco), Doc. C-73-1897-CBR, *Allergan Pharmaceuticals* v. *Barnes-Hind Pharmaceuticals, Inc.*

3,748,688, I. L. Berkowitz, SELF-CLOSING DOOR HINGES, **filed** Oct. 23, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73C1577, *Kason Hardware Corporation* v. *Buildex Incorporated.*

D. 223,046, J. Nance, DESK; **D. 223,616,** D. Woods, FILE RACK, **filed** Mar. 26, 1973, D.C., E.D. Pa. (Philadelphia), Doc. 73-695, *J. G. Furniture Company, Inc.* v. *Furnwood Corporation, Albert Straff and Straff Associates.* Consent decree, defandans are hereby enjoined from making, using or selling any desk or file rack which falls within the claim of either patent, Oct. 11, 1973.

D. 223,616. (See D. 223,046.)

Certificates of Correction for the Week of May 14, 1974

Re. 27,878	3,759,783	3,773,489	3,782,800
3,568,710	3,761,490	3,773,623	3,782,915
3,617,750	3,761,666	3,773,628	3,782,948
3,628,092	3,761,845	3,733,631	3,783,307
3,644,591	3,762,234	3,773,751	3,783,447
3,672,526	3,763,074	3,773,866	3,783,487
3,681,348	3,764,549	3,733,954	3,783,650
3,685,416	3,764,587	3,774,169	3,783,700
3,693,588	3,764,693	3,774,175	3,783,983
3,696,093	3,764,705	3,774,205	3,784,350
3,699,583	3,765,589	3,774,211	3,784,754
3,719,683	3,765,779	3,774,545	3,785,194
3,721,723	3,766,117	3,774,561	3,785,839
3,723,418	3,766,143	3,775,171	3,786,022
3,725,211	3,766,243	3,775,760	3,786,200
3,727,371	3,766,441	3,775,859	3,786,309
3,729,091	3,766,563	3,775,889	3,786,436
3,729,474	3,766,728	3,776,089	3,786,522
3,736,327	3,767,001	3,776,213	3,786,619
3,738,497	3,767,235	3,776,637	3,786,664
3,738,757	3,768,628	3,776,669	3,786,853
3,739,086	3,768,855	3,777,256	3,787,190
3,739,296	3,769,011	3,777,622	3,787,264
3,741,871	3,769,249	3,778,134	3,787,394
3,743,099	3,769,317	3,778,325	3,787,569
3,743,379	3,769,779	3,778,385	3,787,637
3,746,585	3,769,858	3,778,841	3,787,798
3,746,927	3,770,010	3,778,918	3,787,816
3,747,872	3,770,034	3,779,042	3,787,942
3,749,381	3,770,172	3,779,103	3,788,100
3,749,630	3,770,519	3,779,137	3,788,412
3,749,958	3,770,643	3,779,191	3,788,464
3,752,045	3,770,796	3,779,523	3,789,082
3,752,803	3,770,939	3,779,953	3,789,562
3,753,277	3,771,127	3,780,252	3,789,662
3,753,971	3,771,228	3,781,091	3,789,811
3,755,162	3,771,649	3,781,138	3,789,832
3,756,052	3,771,869	3,781,178	3,789,963
3,756,880	3,772,065	3,781,213	3,790,421
3,757,154	3,772,242	3,781,226	3,790,533
3,757,374	3,772,407	3,781,929	3,790,938
3,757,646	3,772,420	3,782,087	3,791,805
3,758,104	3,772,533	3,782,102	3,791,839
3,758,592	3,772,836	3,782,196	3,792,081
3,759,461	3,773,141	3,782,771	
3,759,745	3,773,248	3,782,774	

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

DEPARTMENT OF THE AIR FORCE

AF/JACP, Washington, D.C. 20314

Patent application 338,728. Improved Air Generating Mechanism for an Aircraft Air Cushion Takeoff and Landing System. Filed Mar. 7, 1973. PC $5/MF $1.45.

Patent 3,747,558. Cross-Mounted Mask Changer With Thickness Monitoring. Filed Nov. 3, 1972. Patented July 24, 1973. Not available NTIS.

Patent 3,747,875. V/Stol Aircraft-by-Pass Engine Having a Double, Thrust Diverter Valve Assembly. Filed Nov. 4, 1971. Patented July 24, 1973. Not available NTIS.

Patent 3,748,892. High Precision Dilatometer. Filed Apr. 18, 1972. Patented July 31, 1973. Not available NTIS.

Patent 3,749,022. Two-Stage Arming Mechanisms. Filed Oct. 14, 1971. Patented July 31, 1973. Not available NTIS.

Patent 3,749,914. Vehicle Attitude Sensor. Filed Dec. 21, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,749,963. Device To Aid in Centering of High Energy Electric Particle Beams in an Evacuated Drift Tube. Filed May 19, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,750,013. Microstrip Plasma Probe. Filed Oct. 21, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,750,048. Window for High Power Gaseous Lasers. Filed May 17, 1972. Patented July 31, 1973. Not available NTIS.

Patent 3,750,182. Suppressed Sidelobe Equal Beamwidth Millimeter Horn Antenna. Filed Aug. 8, 1972. Patented July 31, 1973. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE

Chief, Research Agreements and Patent Mgmt. Branch,
Federal Building, General Services Division,
Agricultural Research Service,
Hyattsville, Md. 20782

Patent application 272,812. Novel Process for the Preparation of Tris (Hydroxymethyl) Phosphine and Tris (Hydroxymethyl) Phosphine Oxide. Filed July 18, 1972. PC $4/MF $1.45.

Patent application 288,813. N,N-Bis(2-(3-Carboalkoxypropionyloxy)Ethyl)-Oleamides. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 293,748. Electrostatic Yarn Bulking. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 295,778. Process for Improving Abrasion Resistance of Resilient Fabrics. Filed Oct. 6, 1972. PC $4/MF $1.45.

Patent application 311,611. Dry-Structured Foams From Animal Hide Glues. Filed Dec. 4, 1972. PC $4/MF $1.45.

Patent application 348,801. N-Substituted Fatty Acid Amide Lubricants. Filed Apr. 6, 1973. PC $4.25/ MF $1.45.

Patent application 376,973. Chicken Coop Unstacking Machine. Filed July 6, 1973. PC $4/MF $1.45.

Patent application 382,793. Pyrolyzed Tall Oil Products as Synthetic Rubber Tackifiers. Filed July 26, 1973. PC $4/MF $1.45.

Patent 3,676,207. Permanent Sizing of Yarns and Fibers With Durable Polymers and Copolymers for the Production of Fabrics With Improved Properties for Particular End Uses. Filed July 15, 1970. Patented July 11, 1972. Not available NTIS.

Patent 3,707,024. Method for Electrostatically Bulking and Impregnating Staple Yarns. Filed Mar. 31, 1971. Patented Dec. 26, 1972. Not available NTIS.

Patent 3,725,001. Phosphinidynetrimethanol Triacetate and Its Application to Cellulosic Materials. Filed Aug. 21, 1970. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,733,257. Radiation Initiated Process for the Graft Copolymerization of Binary Monomer Mixtures and Cellulose. Filed Nov. 19, 1971. Patented May 15, 1973. Not available NTIS.

Patent 3,746,644. N-Substituted Fatty Acid Amide Lubricants. Filed Aug. 31, 1971. Patented July 17, 1973. Not available NTIS.

Patent application 288,840. N-Benzyl-N-2-Acetoxyethyl-Oleamide. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 292,730. Electrostatic Yarn Bulking. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 306,771. Process for Reacting Sultones With Cellulosic Materials to Produce Cellulosic Materials Having Both Basic and Acidic Groups. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 306,772. Production of Phosphorus and Nitrogen Containing Compounds and Polymers and Flameproofing Organic Textiles. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 315,731. Process for Increasing Receptivity to Fluorescent Whitening Agents in Resin-Treated Cellulosic Textiles. Filed Dec. 15, 1972. PC $4/MF $1.45.

Patent applicant 315,753. Flame-Resistant Organic Textiles Through Treatment With Halogen Containing Soluble Methylol Phosphine Adducts. Filed Dec. 15, 1972. PC $4/MF $1.45.

Patent application 321,417. Removal of Free Formaldehyde From Solutions of Methylolated Carbamate Finishing Agents and Textiles Treated Therewith. Filed Jan. 5, 1973. PC $4/MF $1.45.

Patent application 328,205. Flame Retardant Polymers Made From Hydroxymethylphosphorus Compounds and Guanazoles and Process for Treating Organic Textiles. Filed Jan. 31, 1973. PC $4.50/MF $1.45.

Patent application 335,861. Preparation of Cellulose N,N-Dimethylformimidate Chloride in Textile Form, and Conversion to Halogenodeoxycelluloses and Cellulose Formate, Filed Feb. 26, 1973. PC $4.25/MF $1.45.

Patent application 376,971. Quaternary Arylaminoalkyl Phosphonium Salts and Process for the Preparation Thereof. Filed July 6, 1973. PC $4/MF $1.45.

Patent 3,732,256. Reduced Maleopimaric Acid and Process for its Preparation. Filed Mar. 26, 1971. Patented May 8, 1973. No available NTIS.

Patent 3,745,835. Air Static Pressure and Temperature Measuring Device for Remote Locations in Stored Porous Material. Filed Nov. 1, 1971. Patented July 17, 1973. Not available NTIS.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

National Institutes of Health, Chief, Patent Branch,
Westwood Building, Bethesda, Md. 20014

Patent 3,784,467. Droplet Countercurrent Chromatography. Filed May 26, 1971. Patented Jan. 8, 1974. Not available NTIS.

U.S. DEPARTMENT OF THE INTERIOR

Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent 2,799,574. Electric Smelting Process for Manganese Ores. Filed Feb. 10, 1953. Patented July 16, 1957. Not available NTIS.

Patent 2,808,886. Selective Plugging of Gas-Injection Oil Wells in Oil Field Gas-Drive Projects. Filed July 8, 1953. Patented Oct. 8, 1957. Not available NTIS.

Patent 2,812,288. Destructive Distillation of Hydrocarbonaceous Materials. Filed Oct. 11, 1950. Patented Nov. 5, 1957. Not available NTIS.

Patent 2,817,885. Means for Orienting Diamonds in Hard Vector Directions in Diamond Bits and Tools. Filed Nov. 10, 1953. Patented Dec. 31, 1957. Not available NTIS.

Patent 2,867,478. Pulsating Counter-Flow Feeder. Filed June 9, 1958. Patented Jan. 6, 1959. Not available NTIS.

Patent 2,882,328. Controller for Regulating the Resistance of a Melt. Filed Nov. 12, 1957. Patented Apr. 14, 1959. Not available NTIS.

Patent 2,907,204. Improved Vane-Type Soil Testing Apparatus. Filed July 23, 1956. Patented Oct. 6, 1959. Not available NTIS.

Patent 2,960,771. Exaggeration Profile Plotter. Filed Apr. 14, 1958. Patented Nov. 22, 1960. Not available NTIS.

Patent 3,008,802. Recrystallizing a Reconstituted Fluorine-Mica Sheet. Filed Mar. 18, 1957. Patented Nov. 14, 1961. Not available NTIS.

Patent 3,022,842. Automatic Batch Weighing Device for Filling or Unloading. Filed Dec. 19, 1958. Patented Feb. 27, 1962. Not available NTIS.

Patent 3,027,750. Apparatus for Studying Phase Relationships of Gases and Gas Mixtures. Filed Feb. 24, 1959. Patented Apr. 3, 1962. Not available NTIS.

Patent 3,073,387. Method for Removal of Liquid and Solid Materials From Gas-Well Bores. Filed Oct. 22, 1959. Patented Jan. 15, 1963. Not available NTIS.

Patent 3,109,872. Cooler and Humidifier for Subsoil Centrifuge. Filed Aug. 29, 1961. Patented Nov. 5, 1963. Not available NTIS.

Patent 3,117,000. Activation of Inert or Passive Metals. Filed Mar. 15, 1962. Patented Jan. 7, 1964. Not available NTIS.

Patent 3,126,327. Electrolytic Method for Extracting the Chromium Values From Chromium Oxide Bearing Ores. Filed Dec. 4, 1962. Patented Mar. 24, 1964. Not available NTIS.

Patent 3,136,060. Device Isopachometer. Filed Mar. 6, 1961. Patented June 9, 1964. Not available NTIS.

Patent 3,136,627. Process and Apparatus for Selective Condensation of Metals. Filed June 11, 1959. Patented June 9, 1964. Not available NTIS.

Patent 3,137,080. Vitavue Relief Model Technique. Filed Mar. 16, 1962. Patented June 16, 1964. Not available NTIS.

Patent 3,140,170. Magnesium Reduction of Titanium Oxides in a Hydrogen Atmosphere. Filed Nov. 23, 1962. Patented July 7, 1964. Not available NTIS.

Patent 3,149,006. Prevention of Embrittlement of Metals. Filed Jan. 31, 1963. Patented Sept. 15, 1964. Not available NTIS.

Patent 3,174,857. Edge Isolation of Photographic Imagery. Filed June 25, 1962. Patented Mar. 23, 1965. Not available NTIS.

Patent 3,185,564. Method of Agglomerating Iron Ore Fines. Filed Apr. 24, 1964. Patented May 25, 1965. Not available NTIS.

Patent 3,192,912. Process for Separating the Rare Earth Elements by Means of Solvent Extraction. Filed Aug. 9, 1962. Patented June 29, 1965. Not available NTIS.

Patent 3,204,605. Live Fish Grading Apparatus. Filed July 29, 1964. Patented Sept. 7, 1965. Not available NTIS.

Patent 3,219,521. Method for Controlling Petromyzon Marinus. Filed Apr. 11, 1957. Patented Nov. 23, 1965. Not available NTIS.

Patent 3,221,906. Sealing System for Blast Furnace Bells for High Pressure Top Operation. Filed Feb. 11, 1964. Patented Dec. 7, 1965. Not available NTIS.

Patent 3,277,615. Air-Inflated Building Structure. Filed Apr. 14, 1964. Patented Oct. 11, 1966. Not available NTIS.

Patent 3,287,920. Device for Securing a Plug in an Infusion Hole. Filed Dec. 20, 1961. Patented Nov. 29, 1966. Not available NTIS.

Patent 3,302,701. Turbulence Promoter for Increased Heat and Mass Transfer. Filed Oct. 19, 1965. Patented Feb. 7, 1967. Not available NTIS.

Patent 3,463,922. Mineral Ore Exploration Apparatus Utilizing Neutron Activation. Filed July 29, 1966. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,482,637. Process and Method for Quenching Incipient Gas-Air Explosions. Filed Oct. 20, 1967. Patented Dec. 9, 1969. Not available NTIS.

Patent 3,791,934. Helical Multistage Flash Distillation Unit. Filed Aug. 9, 1971. Patented Feb. 12, 1974. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters, NASA—
Code GP-2, Washington, D.C. 20546

Patent application 419,748. Strain Arrestor Plate. Filed Nov. 28, 1973. PC $3/MF $1.45.

Patent application 428,992. Particulate and Solar Radiation Stable Coating for Spacecraft. Filed Dec. 27, 1973. PC $3/MF $1.45.

Patent application 437,556. Transparent Fire Resistant Polymeric Structures. Filed Jan. 29, 1974. PC $3.50/MF $1.45.

Patent 3,732,397. Inherent Redundancy Electric Heater. Patented May 8, 1973. Not available NTIS.

Patent 3,780,563. In Situ Transfer Standard for Ultrahigh Vacuum Gage Calibration. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,933. Modification of One Man Life Raft. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,205. Temperature Compensated Digital Inertial Sensor. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,698. Heater-Mixer for Stored Fluids. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,699. Bimetallic Fluid Displacement Apparatus. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,835. Optical Instruments. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,783,250. Adaptive Voting Computer System. Patented Jan. 1, 1974. Not available NTIS.

Disclaimer

3,605,109.—*Tommy N. Tyler,* Englewood, and *Peter R. Lowe,* Denver, Colo. METHOD AND APPARATUS FOR PRODUCING CONTINUOUS GRAPHIC DISPLAYS FROM INTERMITTENTLY SAMPLED DATA. Patent dated Sept. 14, 1971. Disclaimer filed Mar. 6, 1974, by the assignee, *Honeywell Inc.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17 and 20 of said patent.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 13, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-07-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-23-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	4-24-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	5-04-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-05-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	9-05-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	11-06-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	2-23-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	1-04-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-27-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director. Industrial Arts; Household, Personal and Fine Arts.	4-27-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-17-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	5-02-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—Director (Vacant). Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	5-07-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	7-11-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—Director (Vacant). Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	1-22-73

Expiration of patents: The patents within the range of numbers indicated below expire during April 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,787,000 to 2,790,970, inclusive
Plant Patents..... Numbers 1,586 to 1,597, inclusive

REISSUES

MAY 14, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

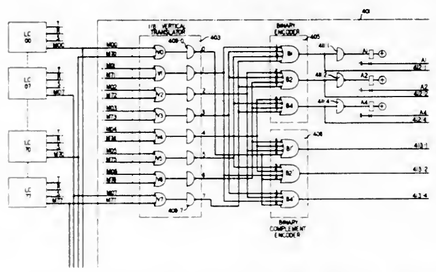
28,007
MULTIPLE MARK DETECTORS FOR END MARKED SWITCHING NETWORKS

Louis Emanuel Thelemaque, Longmont, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Original No. 3,692,943, dated Sept. 19, 1972, Ser. No. 145,734, May 21, 1971. Application for reissue Aug. 6, 1973, Ser. No. 385,899

Int. Cl. H04q *3/42*

U.S. Cl. 179—18 GF **18 Claims**



A switching system utilizing an end marked network has circuitry for detecting the presence of double marks on either side of the network. The network functions in the conventional manner to complete a connection between a line side and a trunk side circuit in response to the application of a single mark on each side. In response to the simultaneous application of two or more marks to either side, the detection circuitry recognizes this as a trouble condition, generates an alarm signal, and prevents the network from attempting to respond to the simultaneously applied marks.

28,008
VALVE STRUCTURE FOR CONTROLLING DISCHARGE OF WASTE LIQUID INTO PNEUMATIC SEWAGE DISPOSAL SYSTEM

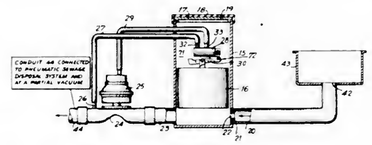
Sven Algot Joel Liljendahl, Kallhall, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Original No. 3,628,194, dated Dec. 21, 1971, Ser. No. 54,927, July 15, 1970. Application for reissue Apr. 9, 1973, Ser. No. 349,428

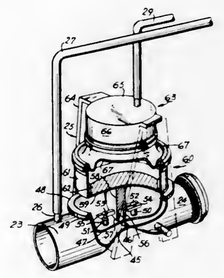
Claims priority, application Sweden, Sept. 8, 1969, 12,366/69

Int. Cl. E03d *1/00, 5/00, 3/00*

U.S. Cl. 4—10 **21 Claims**



Waste liquid is discharged into a pneumatic sewage disposal system through a discharge conduit from the outlet of a place in a kitchen or laundry or a fixture in a bathroom like a bathtub or washbasin, for example. Flow control structure is operatively associated with the



discharge conduit which opens when liquid starts to flow from the outlet and closes when the flow of liquid stops.

28,009
METHOD FOR MEASURING THE COAGULATION TIME OF ORGANIC SUBSTANCES (AND ALBUMINOID LIQUIDS), SUCH AS BLOOD, AND APPARATUS FOR CARRYING OUT SUCH A METHOD

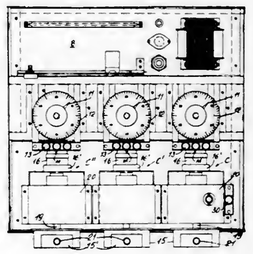
Guido Vicario, Piazza Giulio Cesare 14, Milan, Italy

Original No. 3,511,084, dated May 12, 1970, Ser. No. 669,804, Sept. 22, 1967. Application for reissue Jan. 27, 1971, Ser. No. 110,439

Claims priority, application Italy, Oct. 3, 1966, 28,427/66

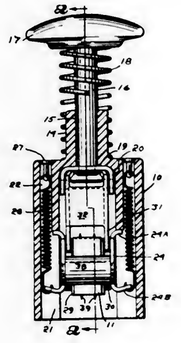
Int. Cl. G01n *33/16*

U.S. Cl. 73—64.1 **12 Claims**



A method for measuring the coagulation time of albuminoid substances and liquids, such as blood, characterized by utilizing the intercepting property of a light beam on a photoelectric cell from liquid state blood (with respect to a light beam which is to periodically pass through it); the test-tube being at a horizontal position during the firing of said beam, and at a vertical position for the remaining cycle period, which will continue until, on clot being achieved, the blood remains on the bottom of the test-tube and the light beam by passing therethrough will cause the apparatus to be stopped and provide a signal for the exact time taken for coagulation.

28,010
DEVICE FOR DISPENSING AND APPLYING PRESSURE SENSITIVE TAPE
David G. Way, Littlefield Road, Boxborough, Mass. 01720
Original No. 3,455,769, dated July 15, 1969, Ser. No. 552,662, Apr. 25, 1966, which is a continuation-in-part of application Ser. No. 500,746, Oct. 22, 1965. Application for reissue July 14, 1971, Ser. No. 162,613
Int. Cl. B65c *1/02*
U.S. Cl. 156—530 **33 Claims**



Dispensers are disclosed for applying sections of pressure sensitive adhesive tapes to a surface. Each dispenser has a feed block about which the tape from a rotatably supported roll is trained and which has a plurality of angularly disposed faces with the corners providing transverse cutting edges. Each block is rotatably supported by a frame reciprocable between an operative position and a surface engaging position and, as an incident of the movement of the frame into the latter position, the block is turned to place a trailing face in a position for engagement with the surface. The frame also has an anvil disposed to coact with the trailing corner of a face to sever the tape on a leading face to provide a tape section. The feed block has means operable to detachably anchor the tape to each face on engagement of the tape therewith and movable into an inoperative position on engagement with the surface. The dispenser also includes means operable as a drag on the roll.

28,011
PHARMACEUTICAL PREPARATION
Matthew C. Urbin, 4524 La Barca Drive, Tarzana, Calif. 91356
No Drawing. Original No. 3,639,579, dated Feb. 1, 1972, Ser. No. 96,998, Dec. 10, 1970, which is a continuation of abandoned application Ser. No. 864,526, Oct. 7, 1969. Application for reissue Nov. 20, 1972, Ser. No. 308,000
Int. Cl. A61k *19/00*
U.S. Cl. 424—94 **6 Claims**

A pharmaceutical preparation is provided for the treatment of hemorrhoids, and which contains oxidase enzymes, such as monoamine oxidase, or diamine oxidase, or both. The object of the invention is to destroy the amines formed in the colon by bacteria. The amines are destroyed by the oxidizing action of the oxidases on the tissue and by the production of oxygen. The oxygen is produced, in some instances, by the action of the tissue itself, or a catalase enzyme may be added to the preparation which will decompose the hydrogen peroxide which is present into water and oxygen.

PLANT PATENTS

GRANTED MAY 14, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,547
BALD CYPRESS TREE
Earl Cully, R.R. 5, Jacksonville, Ill. 62650
Filed Dec. 27, 1971, Ser. No. 212,827
Int. Cl. A01h *7/00*
U.S. Cl. Plt.—50 **1 Claim**

This disclosure concerns a new and distinct variety of *Taxodium distichum* (L.) (commonly known as bald cypress) characterized by its rapid growth, abundant forking of stem from near to the ground and strong growth of lateral branches resulting in a multibranched large tree with a crown diameter approaching 80% of its height.

3,548
POND CYPRESS TREE
Earl Cully, R.R. 5, Jacksonville, Ill. 62650
Filed Dec. 27, 1971, Ser. No. 212,826
Int. Cl. A01h *7/00*
U.S. Cl. Plt.—50 **1 Claim**

This disclosure concerns a new and distinct variety of Gymnospermae, Pinacea (Taxodiacea), commonly known as a pond cypress, characterized by its rapid growth, its distinctive growth of the numerous primary branches which leave the main stem at an angle of 65 to 70 degrees below vertical, its uniform short branch length, with the length of its longer branches not exceeding about one-twelfth of the tree height.

3,549
CHRYSANTHEMUM PLANT
Edmund R. Niklas, 12059 SE. Valley View Terrace, Clackamas, Oreg. 97015, and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio; said Jessel and said Duffett assignors to said Niklas
Filed Jan. 2, 1973, Ser. No. 320,112
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—76 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Illini Trophy by its more intense deep lavender color; flowers approximately ¼″ smaller in diameter; darker green foliage which is smaller in length and width; approximately 2″ to 3″ shorter growth habit, approximately 2 to 5 days earlier response which is also more uniform from plant to plant, and by its flatter decorative flower form which has less tendency than Illini Trophy to develop reflexing of the petals and a higher crowned flower.

3,550
APPLE TREE
Otto J. Klaas, Batchtown, Ill., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.
Filed Jan. 8, 1973, Ser. No. 321,915
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a late blooming and fruit-ripening habit comparable to "Rome Beauty" (unpatented), a fruit and cavity shape comparable to that of "Rome Beauty," with a burrowed basin resembling that of the fruit of "Starking Delicious," thick and waxy fruit skin having a deep red color resembling the fruit skin of "Starking Delicious," with the texture of the fruit being firmer and the fruit flavor being more acid than the fruit of "Starking Delicious" and more pleasing than the fruit flavor of "Rome Beauty," and an ability of the fruit to hang on the tree until fully colored and ripe without premature dropping.

PATENTS

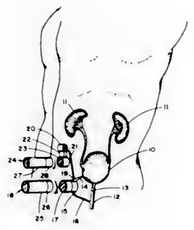
GRANTED MAY 14, 1974

GENERAL AND MECHANICAL

3,810,259
IMPLANTABLE URINARY CONTROL APPARATUS

George D. Summers, Bethesda, Md., assignor to Fairchild Industries, Inc., Germantown, Md.

Continuation of Ser. No. 109,308, Jan. 25, 1971, abandoned, which is a division of Ser. No. 842,921, July 18, 1969, Pat. No. 3,575,158. This application Apr. 6, 1973, Ser. No. 348,644
Int. Cl. A61f 1/24
U.S. Cl. 3—1 7 Claims

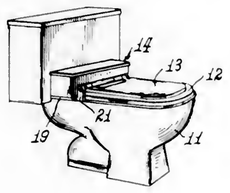


An implantable urinary control apparatus for controlling the flow of urine from the bladder including a pump adapted to be connected to the bladder for pumping urine out of the bladder and into a natural or artificial channel so that it can be from the fromthe body. The apparatus also includes a sensor adapted to be connected to the natural or to an artificial urinary bladder for detecting the pressure in the bladder as it fills with urine, and an alarm unit connected to the sensor for giving warning that the bladder is filling with urine when the sensor detects the pressure caused by urine in the bladder.

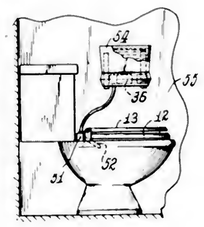
3,810,260
HYGIENIC APPARATUS

Frank Lodi, Chicago, Ill., assignor to Sani-Seat, Inc., Chicago, Ill.

Filed July 10, 1972, Ser. No. 270,297
Int. Cl. A47k 3/22, 11/08
U.S. Cl. 4—7 11 Claims



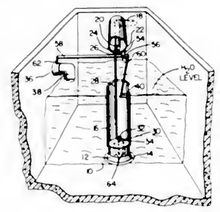
A hygienic apparatus comprised of a housing that is fixedly associated with a toilet having a seat, which housing contains a water container and an impeller assembly operable for directing a jet stream of water from the container through a nozzle located in the area of the toilet bowl beneath the seat and outwardly toward the opening in the seat. The water container includes a normally closed valve component that is opened when associated with the impeller assembly, and the apparatus has motor and pump means and self-contained energy means for powering the motor and pump.



3,810,261
FLUSH VALVE ASSEMBLY FOR TANK

Kurt W. Hollander, Box 693, Annapolis, Md.

Filed Nov. 8, 1971, Ser. No. 196,696
Int. Cl. E03d 1/36; F16k 31/52
U.S. Cl. 4—41 7 Claims



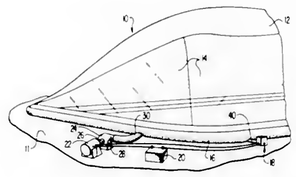
A tank has an outlet valve which is elevated above a valve seat by a flush mechanism, and an upwardly extending pipe attached to and movable with the outlet valve. After the tank is flushed, the tank is refilled via liquid entering through an inlet valve until the liquid level reaches a predetermined level and overflows into the pipe triggering a link which results in closing the inlet valve.

The invention has particular utility in conventional toilet water tanks but may also be used in other applications in which accumulation and discharge of a predetermined volume of liquid is desired.

3,810,262
AUTOMATIC PRESSURIZATION SYSTEM FOR INFLATED POOL ENCLOSURE

John B. Strand, P.O. Box 711, El Cerrito, Calif.

Filed Apr. 27, 1973, Ser. No. 354,974
Int. Cl. E04h 3/16, 3/18
U.S. Cl. 4—172.12 7 Claims

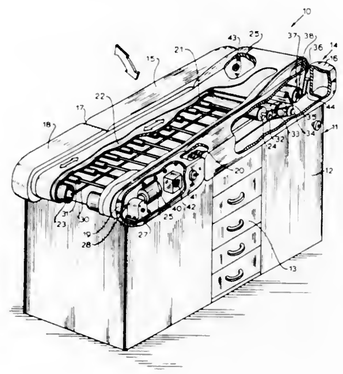


An air duct extends beneath the water tube of an air supported plastic film pool enclosure with its external end opening up into a box having a pivotable blade which normally overlies the end of the duct and which pivots away from the duct under applied air pressure. A switch senses blade inclination to control an air blower which, in turn, delivers air under pressure to the enclosure to maintain desired inflation pressure. A pivotable door on one side of the box opens the box interior to the atmosphere and modulates blade inclination under applied air pressure.

3,810,263
MEDICAL EXAMINING TABLE

Clifton I. Taylor, PO Drawer M, and Charles W. Hardwick, 600 W. 27th St., both of Sanford, Fla.

Filed Oct. 26, 1972, Ser. No. 300,911
Int. Cl. A61g 7/10, 1/02
U.S. Cl. 5—81 R 14 Claims

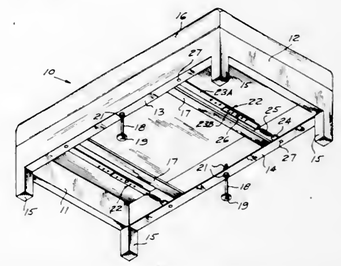


A medical examining table apparatus having a plurality of rollers connected to a framework with an endless belt riding on the rollers. The framework may be incorporated into a table or placed on top of an existing table with the endless belt being motor driven by the operator. Paper or other sheet material is fed over a portion of the belt between a feed roller and a takeup roller actuated by the movement of the belt through two pulleys and a belt drive and provides a protective sanitary cover for the belt.

3,810,264
BED DEVICE

Richard H. Mueller, 603 S. Water St., Sapulpa, Okla.

Filed May 26, 1972, Ser. No. 257,339
Int. Cl. A47c 19/22
U.S. Cl. 5—220 1 Claim

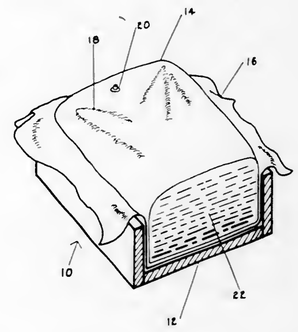


A combination of two devices applied to a bed frame prevents the spread and sag of the bed rails.

3,810,265
VISCOSITY CONTROL ADDITIVE FOR WATER BEDS AND OTHER AQUEOUS-FILLED FURNITURE

David P. McGrew, Denver, Colo., assignor to Curtis H. Castleman, Jr., Denver, Colo., a part interest

Filed Aug. 4, 1971, Ser. No. 169,064
Int. Cl. A47c 27/08
U.S. Cl. 5—348 WB 2 Claims



Unpleasant bouncing or other oscillations resulting from movements upon aqueous filled furniture or other apparatus, e.g., a water bed, is inhibited by filling the furniture with aqueous fluid and additionally a water soluble viscosity increasing agent. Other additives such as preservatives or algicides are preferably incorporated into the aqueous fluid. This increased viscosity imparts a dampening effect to water movement within the furniture for comfort of the user(s) and yet provides the uniform cushioned buoyancy attributable to conventional water filled furniture.

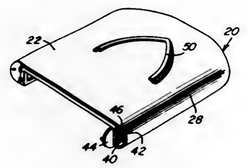
3,810,266
HARDTOP COVER FOR CONVERTIBLE RUNABOUT BOATS

John A. Iller, Seattle, Wash., assignor to Adabelle E. Iller, Seattle, Wash., a part interest

Filed Sept. 28, 1971, Ser. No. 184,530
Int. Cl. B63b 29/02
U.S. Cl. 9—1 R 6 Claims

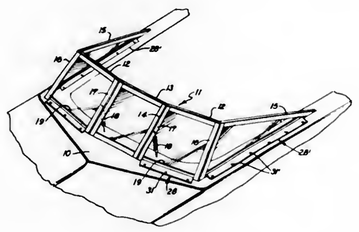
A cover structure including front, rear and opposite side marginal edge portions and for support in generally horizontal

elevated position above the cockpit of a boat with the front marginal edge portion of the cover assembly supported from and projecting forwardly of the upper marginal edge portion of the windshield of the associated boat and the side marginal edge portions of the cover assembly disposed above cor-



responding opposite sidewall portions of the boat. The front marginal edge portion defines a transversely extending front storage compartment opening rearwardly beneath the cover structure and the opposite side marginal edge portions of the cover structure define longitudinally extending opposite side storage compartments.

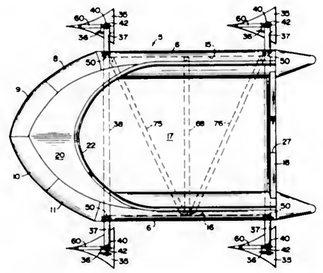
3,810,267
BOAT WINDSHIELD MOUNTING MEANS
Edward B. Fussell, Jr., Altamonte Springs, and F. Charles Maynard, Jr., Eustis, both of Fla., assignors to Walter Bonnet, Inc., Casselberry, Fla.
Filed Sept. 26, 1973, Ser. No. 400,976
Int. Cl. B63b *17/00*
U.S. Cl. 9—1 R **10 Claims**



A gasketed windshield holding frame rests on top of a boat deck or hood and is held down securely by an anchoring bracket or plate having a flange which interlocks with a groove formed in either the outer or inner side of the windshield frame near the bottom thereof. It is unnecessary to pierce through the boat deck and variations in windshield rake and boat deck contour can be accommodated.

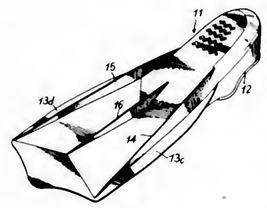
3,810,268
HYDROFOIL ATTACHMENT FOR BOATS
Don L. Welhe, Bath, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
Filed Oct. 21, 1970, Ser. No. 82,840
Int. Cl. B63b *7/00*
U.S. Cl. 9—2 R **1 Claim**

A hydrofoil attachment, preferably collapsible, is provided, for use with an inflatable boat. It comprises a frame, usually a four-sided frame, into which the boat fits, and preferably the boat on inflation fits tight into the frame so that the two are held together. Hydrofoils are attached to the frame at various



locations, but they are usually found at the corners of the frame.

3,810,269
SWIMMER'S FOOT FIN
Kazuo Tabata, 1-3-17 Higashi-Komagata, Sumido-ku, Tokyo, and Masanari Togasaka, 768 Kisone, Yashio-cho, Minami Saitama-gun, Saitama, Japan
Filed Sept. 14, 1972, Ser. No. 289,076
Int. Cl. A63b *31/10*
U.S. Cl. 9—309 **1 Claim**

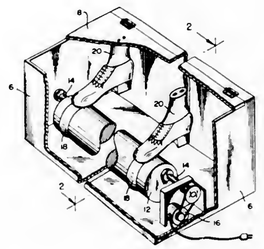


A swimmer's foot fin is provided with a blade which slopes at an angle downwardly from a foot receiving portion. This blade includes sloping areas which form an inverse V-section to decrease the profile drag of the blade. Additionally, the lateral edges of the blade have ribs projecting above and below the blade and supplementary propulsive areas that are angled upwardly to form additional flow channels to direct the water during the kicking movement of the swimmer's foot to control turbulent flow and aid the propulsive effect of the kick.

3,810,270
SHOE FLEXER
June S. Newman, 20 Park Ave., New York, N.Y.
Filed Mar. 29, 1973, Ser. No. 346,085
Int. Cl. A43d *1/14*
U.S. Cl. 12—41.1 **2 Claims**

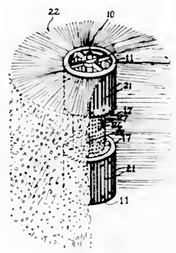
An electrically driven shoe stretcher adapted to break in and stretch a shoe in simulation of the flexure imparted to shoes in normal usage while on the human foot. The device comprises a housing and cover to which a resilient mold for in-

sertion in the shoe is attached. The mold is designed to flex in the manner of the foot in the act of walking. While the shoe



and mold are held in place by the closed cover, means are provided for breaking in the shoe and stretching it transversely.

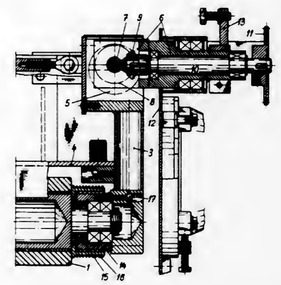
3,810,271
ROTATABLE WASHING BRUSH
Louis J. Mundo, 8550 S. Vincennes Ave., Chicago, Ill.
Filed Oct. 5, 1972, Ser. No. 295,256
Int. Cl. A46b *3/16*
U.S. Cl. 15—183 **4 Claims**



A rotatable washing brush having a plurality of brush units arranged in a longitudinal direction upon a rotatable shaft and having end sections in spaced relation with respect to each other to provide an intermediate reduced section between the ends of the shaft to accommodate protruding elements on the surface over which the brush rotates during operation.

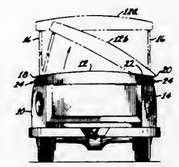
3,810,272
FLUID SPREADING AND WIPING DEVICE FOR ETCHING MACHINES FOR ROTOGRAVURE CYLINDERS
Kurt Baumgartner, Schwander, 3054 Schupfen, Switzerland
Filed Apr. 11, 1972, Ser. No. 243,367
Claims priority, application Switzerland, May 27, 1971, 7746/71
Int. Cl. B05c *1/06, 1/16*
U.S. Cl. 15—256.52 **4 Claims**

A fluid spreading and wiping device for etching machines for rotogravure cylinders including a wiping roller attached by



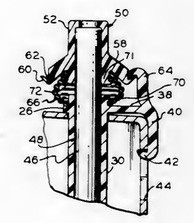
two arms to the etching trough and which arms are moved to impart a circular motion to said wiping roller.

3,810,273
LOCKING MECHANISM
Adrian L. Shute, 2541 E. Washington St., Phoenix, Ariz.
Filed May 30, 1972, Ser. No. 257,634
Int. Cl. E04d *15/50*
U.S. Cl. 16—147 **8 Claims**



A cover of the type mounted to a stationary structure in a manner so that it may be opened from either of two opposite sides is provided with a locking mechanism on each of its openable sides, the locking mechanisms are each provided with a pivot member so that by unlocking one of the sides the cover may be pivotably moved about the juncture formed between the locked side and the stationary structure.

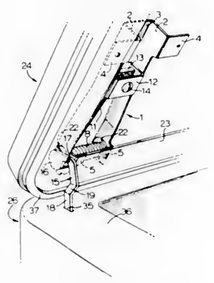
3,810,274
PIVOT AND GUIDE ROD ASSEMBLY FOR BI-FOLD DOOR
Ralph E. Ford, Harper Woods, and Kim W. Wright, Roseville, both of Mich., assignors to Evans Products Company, Portland, Oreg.
Filed July 25, 1973, Ser. No. 382,486
Int. Cl. E05d *5/12*
U.S. Cl. 16—169 **4 Claims**



Pivot and guide rod assembly for bi-fold door includes

plastic sleeve for mounting in door channel and supporting a pivot rod. A spring is arranged to urge pivot rod outwardly from sleeve, latch means being provided to retain pivot rod in retracted position during shipping and mounting of door.

3,810,275
HINGE STRUCTURE
William E. Smith, London, Ontario, Canada, assignor to GSW Appliances Limited, Weston, Ontario, Canada
Filed June 26, 1972, Ser. No. 266,368
Int. Cl. E05f 1/12
U.S. Cl. 16—189 **9 Claims**



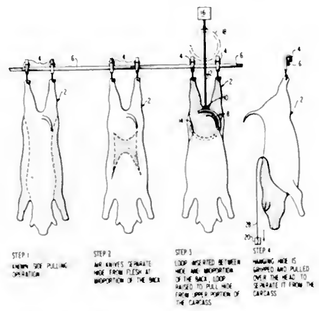
A counterbalancing hinge structure according to the invention comprises first and second hinge arms with a pintle connecting the arms for relative movement about the axis of the pintle. One of the arms is fixed to said pintle, and the other of the arms is swingable about the pintle axis, and a torsion spring is provided having a main coiled portion sleeved on the pintle with one end anchored against rotation about said pintle, and the other end extending generally radially of said pintle axis, and connected to the swingable arm.

3,810,276
METHOD OF PROTECTING SURFACES BY COATING WITH IMIDE-ESTER DERIVATIVES OF ETHENE-MALEIC ANHYDRIDE COPOLYMERS
Abraham Morduchowitz, Monsey, N.Y., assignor to Texaco Inc., New York, N.Y.
Filed Dec. 29, 1970, Ser. No. 102,539
Int. Cl. B44d 1/09
U.S. Cl. 117—132 B **5 Claims**

A method of protecting surfaces by coating the surfaces with imide-ester derivatives of ethene - maleic anhydride copolymers which are prepared in a two step reaction. These derivatives are useful as adhesives and protective coatings.

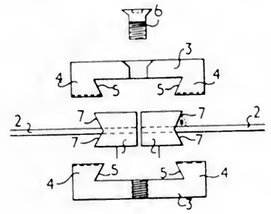
3,810,277
HIDE REMOVAL METHOD AND APPARATUS
Wilford O. Barbee, Charter Oak, Iowa, assignor to Iowa Beef Processors, Inc., Dakota City, Nebr.
Filed May 4, 1972, Ser. No. 250,209
Int. Cl. A22b 5/16
U.S. Cl. 17—21 **12 Claims**

Hides are removed from animal carcasses by forming a passage between the hide and a mid-portion of the carcass, passing an exposed end of a rigid hide stripping loop through the passage, pulling the loop longitudinally to separate one end portion of the hide from the carcass and then pulling the remainder of the hide in the opposite direction to remove it from the carcass. The latter pulling step is performed at



velocities which are inversely related to the tenacity of the various portions of the hide to the carcass.

3,810,278
CONVEYOR BELTS
Michael J. Kenney, Sutton Coldfield, England, assignor to Dunlop Limited, London, England
Filed Apr. 11, 1972, Ser. No. 242,967
Claims priority, application Great Britain, Apr. 16, 1971, 09676/71; Mar. 1, 1972, 09442/72
Int. Cl. F16g 3/08
U.S. Cl. 24—31 W **8 Claims**

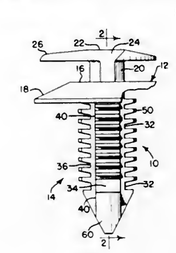


A belt coupling means comprising first abutment means secured or adapted to be secured to one end of the belt, second abutment means secured or adapted to be secured to the other end of the belt or an end of another belt, and a tie-bar which is engageable with the first and second abutment means, the abutting surfaces of the abutment means and the tie-bar having inter-locking configurations such that when the belt is in tension the coupling means is held together. This coupling means presents a quick and relatively inexpensive method by which belts, particularly wire reinforced belts, may be joined on site, with little effect on the overall strength of the belt, of which the following is a specification.

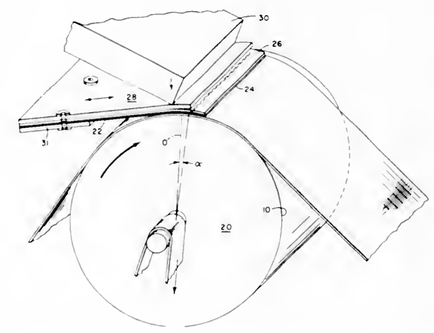
3,810,279
PLASTIC DRIVE FASTENER
Edwin Grant Swick, Des Plaines, and John Frederick Nelson, Bartlett, both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.
Filed Feb. 28, 1973, Ser. No. 336,852
Int. Cl. A44b 21/00
U.S. Cl. 24—73 P **8 Claims**

A one piece plastic drive fastener having a head and a shank, the shank including a generally cruciform cross section presenting a plurality of generally flat, axially extending surfaces and a plurality of angular axially extending recesses

between adjacent flat surfaces which are adapted to provide tool engaging means. Each of the flat surfaces on the stud carry a plurality of axially spaced flexible resilient wing elements with the wing elements on at least one surface being axially offset from the wing elements on the other surfaces to provide a variety of grip lengths; the wings being flexed along their straight line connection with the flat surfaces thereby permitting the manufacture of such a fastener in a simple mold design.

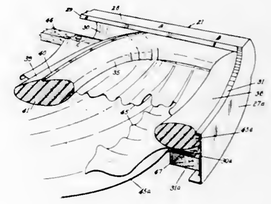


3,810,280
METHOD AND APPARATUS FOR LONGITUDINAL COMPRESSIVE TREATMENT OF FLEXIBLE MATERIAL
Richard R. Walton, 10 W. Hill Pl., Boston, Mass., and George E. Munchbach, Roslindale, Mass., assignors to said Walton, by said Munchbach
Filed Feb. 16, 1971, Ser. No. 115,606
Int. Cl. D06c 21/00
U.S. Cl. 26—18.6 **25 Claims**



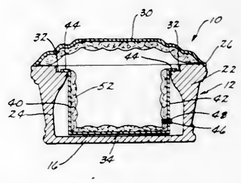
Longitudinal compressive treatments for producing a wide variety of effects in travelling lengths of sheet materials such as textile fabrics, yarns, paper, film, foil and other webs by confining the material against a drive surface by means of a confining surface and driving the material into engagement with a retarder located beyond the trailing edge of the confining surface and also in spaced relation to the drive surface. The retarding surface is provided by material which is essentially inextensible in the machine direction and is provided with a multiplicity of portions which grip and release the passing material. The confining surface is at least in part spaced closer to the drive surface than is the retarder. The forwardly driven material impinges against a column of already compressed material under the trailing portion of the confining surface and under the retarder. The drive surface propels the continuously formed column from beneath the surfaces.

3,810,281
CASKET LID INTERIOR TRIM INCLUDING MOLDED PADDING STRIPS
Arthur C. Ferber, Canal Winchester, Ohio, assignor to Belmont Casket Manufacturing Company, Columbus, Ohio
Filed July 17, 1972, Ser. No. 272,467
Int. Cl. A61g 17/04
U.S. Cl. 27—19 **5 Claims**



Upholstery for the interior of casket lids including preformed strips which are inserted beneath the lid flanges at the sides and ends thereof. These strips are molded as resilient strips or inserts preferably from suitable foam material, so that they can be stuffed into the spaces or pockets provided by the flanges along the sides and ends of a casket lid or half-lid. They are adapted to be covered by fabric or other flexible decorative material which can be pulled around the inserts and tucked between the resilient inserts and flanges to be gripped therebetween.

3,810,282
BURIAL DEVICE AND METHOD FOR USING SAME
Charles F. Doggett, Des Moines, Iowa, assignor to Hawkeye Machinery Corporation, Waukee, Iowa
Filed Apr. 17, 1972, Ser. No. 244,477
Int. Cl. A61g 17/00
U.S. Cl. 27—35 **3 Claims**

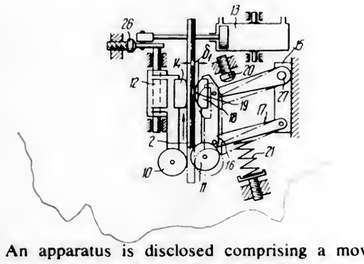


The present invention comprises a reusable casket having an open top, and a removable insert sized to slidably fit within the reusable casket and adapted to be slidably removed from the top of the reusable casket. The insert has a detached lid which is sized to fit in covering relationship over the top of the insert after the insert has been removed from the casket. The lid of the insert includes vent holes therein, at one end, and the insert includes an exhaust hole at the other end thereof for permitting ventilation of the insert when it is placed within a mausoleum crypt.

3,810,283
APPARATUS FOR BRAKING ROLLED BARS TO REST ON THE COOLING BED OF A BAR MILL

Evgeny Mikhailovich Vasiliev, 75 kv. 137 prospekt Vorontsova; Vladimir Sergeevich Egorov, prospekt Gagarina, 2 kv. 12; Jury Nikolaevich Kovalenko, ulitsa Dnepropetrovskaya, 10g, kv. 78, all of Dnepropetrovsk; Mikhail Ivanovich Kostjuchenko, ulitsa Tramvainaya, 11, kv. 20, Krivoi Rog; Anatoly Vasilievich Litvin; Grigory Gavrilovich Pobegailo, both of prospekt K. Marxa, 53a, kv. 5, Dnepropetrovsk; Vladimir Mikhailovich Churakov, ulitsa Revoljutsionnaya, 12, kv. 24, Krivoi Rog; Alexandr Nikolaevich Lensky, prospekt Gagarina, 98, kv. 10, Dnepropetrovsk; Viktor Vladimirovich Ostapenko, ulitsa, Lenina 35, kv. 26, Krivoi Rog; Anatoly Vladimirovich Prazdnikov, ulitsa Uritskogo, 11, kv. 22, Dnepropetrovsk; Ivan Sergeevich Sidorov, ulitsa Revoljutsionnaya, 8, kv. 24; Boris Vladimirovich Khovrin, ulitsa Revoljutsionnaya; 9, kv. 39, both of Krivoi Rog, and Ljudmila Petrovna Fabrika, prospekt Ilicha 17, kv. 16, Dnepropetrovsk, all of U.S.S.R.

Filed Nov. 15, 1972, Ser. No. 306,821
Int. Cl. B21b *39/20*
U.S. Cl. 72—250 **4 Claims**

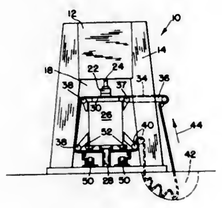


An apparatus is disclosed comprising a movable base mounted on a support and so arranged that its rear part, in the direction of the bar travel, carries a brake hold-down holding the bar against supporting means whereas on its front part is mounted arresting means clamping the bar between the supporting means and the movable base support, the arresting means being adapted to clamp the tail end of the bar when the latter while still in forward motion goes out of contact with a clamping member. The invention is aimed at reducing scrap metal losses in lining up the ends of rolled bars in "a batch" prior to their cutting to length.

3,810,284
NEEDLE PUNCHING MACHINE FOR ENDLESS WEBS

Raymond E. Brochetti, Westfield, Mass., assignor to James Hunter Machine Company, Inc., North Adams, Mass.

Filed Jan. 29, 1973, Ser. No. 327,524
Int. Cl. D04h *18/00*
U.S. Cl. 28—4 R **6 Claims**

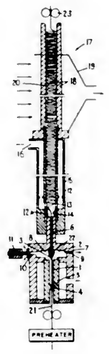


A needle punching machine for manufacturing endless webs comprising a needle beam, a bed beam for supporting the web and means for raising and lowering said bed beam within said frame, at least one end of the framework has an opening large enough for the beam to pass through, the improvement comprising first, second, third and fourth bearing means wherein the first and second bearing means are outside of the needling area and support the bed beam in a lowered position within the framework, the second and third support the bed beam in cantilever fashion when the beam is moved out of engagement with the first bearing means, and the fourth bearing means supports the bed beam when it is removed from the frame and clear of the web.

3,810,285
METHOD OF PRODUCING BULKED YARNS

Duncan Cameron Ferrier; Thomas Berry, both of Tiverton, England, and Karel Murenbeeld, Geneva, Switzerland, assignors to John Heathcoat & Company Limited, Tiverton, Devon, England

Filed Apr. 5, 1971, Ser. No. 130,899
Claims priority, application Great Britain, Apr. 6, 1970, 16192/70; June 29, 1970, 31381/70
Int. Cl. D02g *1/20*
U.S. Cl. 28—72.11 **11 Claims**



The method of producing bulked multifilament yarn consists in carrying forward yarn impregnated with a gaseous fluid and then suddenly expanding the fluid. The separated filaments of the yarn are then brought towards one another and again carried forward, the gaseous fluid acting as the carrier on both occasions.

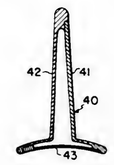
3,810,286
METHODS FOR MANUFACTURING HOLLOW MEMBERS

Ralph O. Kaufman, Sr., Titusville, Pa., assignor to Cyclops, Corporation, Universal-Cyclops Specialty Steel Division, Pittsburgh, Pa.

Division of Ser. No. 864,927, Sept. 10, 1969, Pat. No. 3,606,580, which is a continuation-in-part of Ser. No. 823,924, May 12, 1969. This application Apr. 26, 1971, Ser. No. 137,366
Int. Cl. B23p *15/02*
U.S. Cl. 29—156.8 H **7 Claims**

The method of constructing hollow members includes precision rolling wrought metal to form elongated shapes having a specially formed edge configuration and a plain formed remaining portion. The shapes are blanked into components before or after forming, where necessary, and the components

are positioned so that the plain formed remaining portion of one component cooperates with and is ultimately joined with



the specially formed edge configuration of another component.

3,810,287
COMPOSITE ROD OR WIRE

Michael J. Pryor, Woodbridge; Joseph Winter, New Haven, and Julius C. Fister, Jr., Hamden, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed June 9, 1972, Ser. No. 261,376
Int. Cl. B21c *37/00*
U.S. Cl. 29—191.6 **5 Claims**

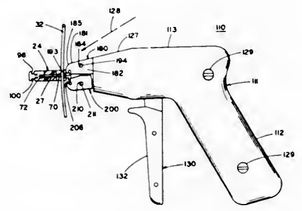


A composite, preferably rod or wire, having a first component core of aluminum or an aluminum alloy clad with a second component of copper or a copper alloy, wherein a third component diffusion barrier of nickel, cobalt or an alloy thereof is sandwiched between said first and said second component and bonded thereto.

3,810,288
WIRE INSERTION AND SPLICING SYSTEM INCLUDING REACTION TOOL

Jack Edward Caveney, Chicago, and Roy Alleyne Moody, Flossmoor, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Feb. 10, 1972, Ser. No. 225,267
Int. Cl. H05k *13/04*; **H01r** *43/00*
U.S. Cl. 29—203 P **10 Claims**

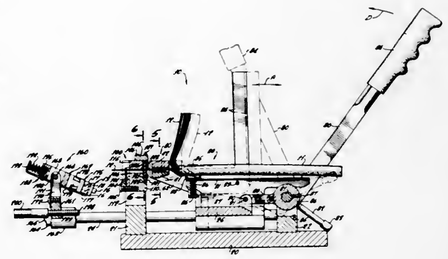


A wire termination and splicing system is disclosed and includes a slotted connector block having reaction surfaces for cooperating with a tool and a reaction type tool including an actuator, drive mechansim, a pair of electrically isolated wire insertion members, and a pair of connector gripping members, the actuator being connected to the drive mechanism which includes a full stroke device, the wire insertion members being connected to the drive mechanism and including cutting blades and camming surfaces for cooperating to close the connector gripping members onto the reaction surfaces of the connector, and the connector gripping surfaces including locating teeth to assure proper alignment of the tool on the connector prior to wire installation. An overload mechanism may be included in the drive mechanism to prevent damage to the connector block or the tool due to misuse.

3,810,289
CABLE TERMINATING MACHINE

Ad R. Hannabery, 560 Teakwood, La Habra, Calif.

Filed Apr. 16, 1973, Ser. No. 351,556
Int. Cl. H01r *43/00*; **H02g** *1/12*
U.S. Cl. 29—203 D **22 Claims**



A cable terminating machine for preparing a cable, of the type including a plurality of insulated strands of wire, for connection to a connector, of the type including a plurality of spaced, parallel contacts, and for supporting the strands and the connector during interconnection. The cable terminating machine includes apparatus for supporting the individual strands of wire in spaced apart, parallel relationship, at the ends thereof and at a point spaced from the ends thereof. Positioned between these two supporting points, the apparatus includes cutting means for cutting each of the strands along a common plane and for simultaneously removing a small amount of insulation from the end of each strand. Apparatus is also included for supporting the connector with the contacts thereof in position to receive the stripped ends of the strands so that all of such strands may be connected to the contacts simultaneously.

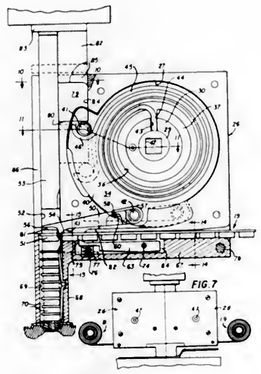
3,810,290
APPLICATION TOOL FOR PIERCE NUTS IN STRIP FORM

William L. Grube, Lake Bluff, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.

Filed Sept. 18, 1972, Ser. No. 290,240
Int. Cl. B23p *19/04*; **B23q** *7/10*
U.S. Cl. 29—208 D **11 Claims**

Disclosed is a tool for advancing pierce nuts to a position under a punch which is to attach the nuts to a sheet of metal. The tool is constructed in a manner to advance the nuts to such position upon the upward or return stroke of the punch rather than upon the power stroke thereof, the power for advancing the nuts being derived from a preloaded resilient member incorporated into the tool. A feature of the tool is the locating of the nut under the punch by indexing from the trailing edge of the nut rather than from the leading edge to avoid the inadvertent cutting of fractions of successive nuts should

the nuts be initially improperly positioned under the punch. Another feature is the narrowness of the tool housing which



permits the simultaneous application of two or more closely spaced nuts to a sheet of metal.

3,810,291

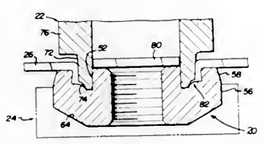
INSTALLATION DIE AND NUT AND METHOD OF INSTALLING A NUT IN A PANEL

Harold A. Ladouceur, Livonia, Mich., assignor to Multifastener Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 90,923, Nov. 11, 1970, Pat. No. 3,724,520, which is a continuation-in-part of Ser. No. 841,037, July 11, 1969, abandoned. This application Apr. 3, 1972, Ser. No. 240,704

Int. Cl. B23p *11/00*

U.S. Cl. 29—243.52 **10 Claims**



This disclosure relates to the combination of a die and nut for installing a nut in a panel and a method of installing a nut in a panel.

In the disclosed embodiment of the apparatus, the piercing end of the die member is circular or annular and fits snugly into the tool receiving recess of the nut groove. In the preferred embodiment, pressure relief is provided in the nut by making the outer wall defining the tool receiving recess, or junction between the bottom walls, hexagonal or polygonal, whereby entrapped metal is extruded into the corners. The outer wall of the groove and the outer wall of the flange portion are also preferably concentric polygons with parallel sides. The die member includes an enlarged hexagonal or polygonal portion which deforms the pierced edges of the panel against the polygonal outer inclined wall of the groove.

3,810,292

CLIPPING MACHINES

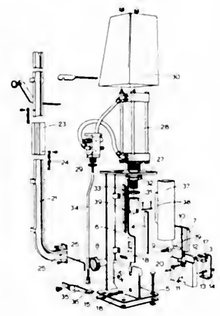
George Basil Whales, Powerscroft Rd. Cray Rd. Footscray, Sidcup, Kent, England

Filed Jan. 19, 1972, Ser. No. 219,006

Claims priority, application Great Britain, Jan. 20, 1971, 2768/71

Int. Cl. B23p *11/00*; **B65b** *51/04*

U.S. Cl. 29—243.57 **4 Claims**



A clipping machine for clipping bags containing meat or meat products, has a main frame in which an anvil is arranged. A magazine having a supply of wire clips is arranged to feed clips to the anvil. A plunger is movable to and from the anvil. When it moves to the anvil it deforms a wire clip round a portion of the bag on the anvil. An air motor is provided for moving the plunger or it can be moved by hand.

3,810,293

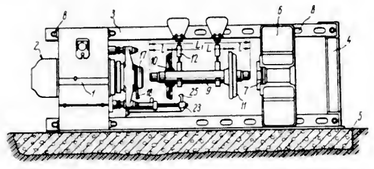
HORIZONTAL HYDRAULIC PRESS

Lev Zeilikovich Tobak, ul. Kirova, 21, kv. 7; Mikhail Galileevich Brandenburgsky, ul. Kirova, 29, kv. 14; Nikolai Iosifovich Lichman, ul. Kirova, 77, kv. 45, and Andrei Lukyanovich Lygovskoi, ul. Tenistaya, 3, kv. 37, all of Odessa, U.S.S.R.

Filed Sept. 8, 1972, Ser. No. 287,364

Int. Cl. B23p *19/02*

U.S. Cl. 29—251 **1 Claim**



A horizontal hydraulic press wherein a ram of a press hydraulic cylinder accommodates a spring-loaded stop which, during the working stroke of the ram, interacts with a lever of an adjusting device which sets the length of the ram stroke to suit the length of the wheel pair axle being assembled.

3,810,294

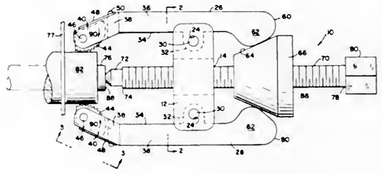
DEVICE FOR REMOVING ARTICLES FROM A SHAFT

Donald F. Link, 12203 Greenleaf Dr., S.E., Huntsville, Ala.

Filed July 17, 1972, Ser. No. 272,643

Int. Cl. B23p *19/04*

U.S. Cl. 29—261 **1 Claim**



A device for removing objects mounted on shafts in which the object is gripped on a circumferential surface by eccentrically arranged cams and a force adjustably applied axially to one end of the shaft.

3,810,295

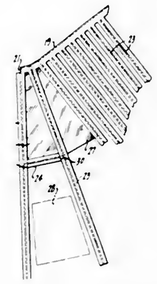
METHOD OF MAKING LAMPSHADE

Grainger Dan Kirth, 40896 Chiltern Dr., Fremont, Calif.

Filed Aug. 17, 1972, Ser. No. 281,537

Int. Cl. B23p *9/00*

U.S. Cl. 29—445 **5 Claims**



A decorative tiffany-style lampshade and method of fabricating the same. The lampshade includes a central mounting ring having a plurality of angularly spaced spokes extending outwardly and downwardly therefrom in generally radial directions. The spokes are bent at predetermined locations therealong so as to define a plurality of successive sections angularly oriented with respect to the plane of the mounting ring at progressively greater angles. The spokes are integral from end-to-end thereof, and the angularly disposed sections define tiers each of which includes a plurality of colored light-transmitting panels disposed between adjacent spokes and confined in place by tier braces disposed intermediate adjacent spokes along the outer edges of the panels. The mounting ring, spokes, and braces are all lead cames defining channels that seat the adjacent edge portions of the respectively associated panels therein.

The method of fabricating the lampshade involves the provision of linear or indirectional components including the mounting ring, spokes, and braces. The spokes are secured to the straight-line mounting ring at spaced apart locations therealong so as to extend outwardly therefrom in generally parallel relation. A group of wedge-shaped first-tier panels are inserted one-by-one between successively adjacent spoke cames to displace each adjacent pair thereof angularly with respect to each other, and, at the same time to shape or form the mounting ring into a generally annular configuration with the end portions thereof adjacent each other. Such end portions of the mounting ring are secured to each other and to the associated spoke came, and the groups of panels for the second and subsequent tiers together with the second and subsequent tier came braces are respectively positioned in functional associated with the spoke cames, and the braces are secured thereto. with the spoke canes, and the braces are secured thereto.

3,810,296

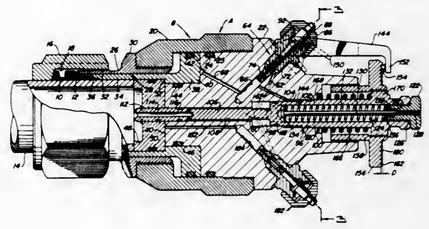
METHOD OF SWAGING AND TESTING FERRULES

Leonard P. Spontelli, Seven Hills, Ohio, assignor to Crawford Fitting Company, Solon, Ohio

Division of Ser. No. 134,229, April 15, 1971, Pat. No. 3,728,771. This application Nov. 20, 1972, Ser. No. 308,247

Int. Cl. B23q *17/00*

U.S. Cl. 29—407 **8 Claims**



Method and apparatus for swaging one or more ferrules on the periphery a cylindrical member such as a tube and for testing the integrity of the grip by the ferrules on the tube following a swaging operation. The apparatus shown in the drawings includes power actuated camming means for engaging the ferrules and forcing them radially inwardly into engagement with the tube while means cooperate therewith to prevent longitudinal movement of the ferrules. Additionally, testing means are provided for testing the integrity of the swaging operation including means for applying a predetermined longitudinally directed force against an end of the tube while the ferrules are held to determine whether or not the tube will move relative to the ferrules.

3,810,297

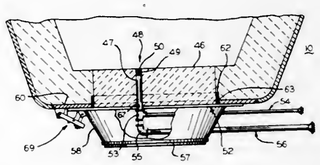
METHOD OF TRANSFORMING A TOP-BLOWN STEEL CONVERTER VESSEL TO A BOTTOM-BLOWN TYPE

Howard M. Fisher, New Castle, Pa., assignor to Pennsylvania Engineering Corporation, Pittsburgh, Pa.

Filed June 12, 1972, Ser. No. 261,823

Int. Cl. B23p *11/00*

U.S. Cl. 29—428 **19 Claims**



An existing basic oxygen type top-blown steel converter vessel is transformed into a bottom-blown type where gases and finely divided materials may be blown into the vessel through tuyeres in its side wall and in its bottom. The existing trunnion shafts on which the existing vessel is supported for tilting are bored at the installation site to provide a plurality of passageways for conducting finely divided materials, gases and

cooling water to the various tuyeres and to the trunnion ring which supports the vessel, respectively. Special multipurpose rotary joints are used to connect the tiltable vessel to sources of the gases and finely divided materials.

3,810,298

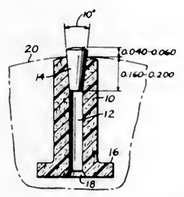
METHOD OF MANUFACTURING TIRE STUD

Rolf J. Cantz, Berlin, Germany, assignor to Kennametal Inc., Latrobe, Pa.

Division of Ser. No. 85,097, Oct. 29, 1970, Pat. No. 3,757,841. This application Nov. 21, 1972, Ser. No. 308,400

Int. Cl. B23p *19/02*

U.S. Cl. 29—525 **9 Claims**



A tire stud having a body with a hard wear resistant pin mounted an axial bore in the body thereof and protruding from one end of the body. The body has a head on the other end and is mounted in the tread of a tire head end foremost with the end of the stud from which the pin protrudes about at the level of the surface of the tire tread or projecting slightly therefrom. The stud according to the present invention is particularly characterized in that the pin moves axially into the stud body as the stud wears thereby controlling the amount of the pin of the stud which protrudes from the end of the stud body.

3,810,299

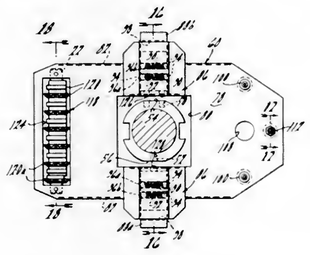
MACHINE TOOL WITH AUTOMATIC TOOL CHANGING MECHANISM

Richard A. Jerue, Birmingham, Mich., assignor to Devlieg Machine Company, Royal Oak, Mich.

Division of Ser. No. 30,630, April 22, 1970. This application Apr. 11, 1972, Ser. No. 242,957

Int. Cl. B23q *3/157*

U.S. Cl. 29—568 **8 Claims**



An automatic tool changing machine tool in which tools are selected from a tool storage device and transported to a position adjacent the drive spindle of the machine. From this position, a selected tool is inserted automatically in the drive spindle of the machine when it is ready to be used. The tools are coupled to pallets or carriers having handles which are engaged by various tool gripping elements in transporting the tool from the storage device to the spindle. The carriers also serve to mount coding for identifying the tool and conveying certain dimensional characteristics of the tool. Each carrier remains with its tool at all times and is only rotationally uncoupled from its tool after the tool has been inserted in the drive spindle.

3,810,300

ELECTRICAL CIRCUIT ASSEMBLIES

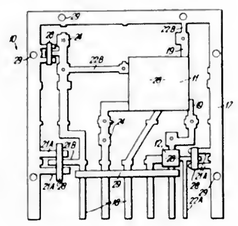
Harold Hulmes, Cheadle, and John Robert Pickin, Alderley Edge, both of England, assignors to Ferranti Limited, Lancashire, England

Continuation of Ser. No. 36,760, May 13, 1970, abandoned. This application July 21, 1972. Ser. No. 273,994

Claims priority, application Great Britain, May 20, 1969, 25693/69

Int. Cl. B01j *17/00*

U.S. Cl. 29—574 **18 Claims**



An electrical circuit assembly having a plurality of components and including at least one semiconductor device is formed, without employing a printed circuit board as is conventional with such arrangements, by mounting the semiconductor device on a lead frame, encapsulating the semiconductor device to form together with conductors associated with the semiconductor device a unitary construction, and providing a completed assembly of sufficient strength, after all the conductors of the lead frame have been rendered electrically discrete, by connecting the remainder of the assembly to the unitary construction and/or by encapsulating at least another part of the assembly; it being possible thereby also to test the different components either individually or in appropriate combinations during the manufacture of the assembly.

3,810,301

METHOD FOR MAKING AN INTEGRATED CIRCUIT APPARATUS

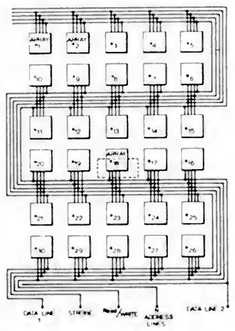
Robert C. Cook, Pierrefonds, Quebec, Canada, assignor to Centre de Recherche Industrielle du Quebue, Ste.-Foy, Quebec, Canada

Filed Aug. 31, 1972, Ser. No. 285,496

Claims priority, application Canada, July 28, 1972, 148232

Int. Cl. H01l *17/00*

U.S. Cl. 29—593 **7 Claims**



The method consists in subdividing an entire substrate into many independent and identical circuit arrays with each array containing an identical programmable section, in programming the first array to respond to a certain set of electrical impulses, in testing the array for electrical function: if the array is good, proceeding with the programming and testing of the programmable section of the second array using another set of electrical impulses; if the array is faulty, proceeding with the programming and testing of the programmable section of the second array with the same set of electrical impulses used for the previous faulty array; then, repeating the above programming and testing steps for the remaining circuit arrays of the substrate using different sets of electrical impulses; and then establishing connection between the system connect lines of each array.

3,810,302

METHOD OF MANUFACTURING A WAVE-GUIDE

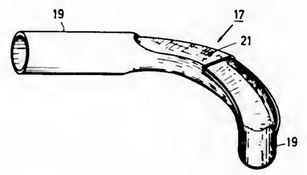
Godefridus Henricus Broers, and Johannes Van Esdonk, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 6, 1972, Ser. No. 312,688

Claims priority, application Netherlands, Dec. 9, 1971, 7116881

Int. Cl. H01p *1/00*

U.S. Cl. 29—600 **5 Claims**



A method of manufacturing a flat waveguide in which a hollow core of a soft metal is introduced into a steel tube, this assembly is then provided with two parallel flat faces by flattening the tube with the core on two sides, after which the core is removed by etching. By using a hollow core, elongation, contraction and tearing of the wall of the tube is prevented. The flat tube obtained by the method according to the invention has a smooth and regular inner surface and a uniform wall thickness.

3,810,303

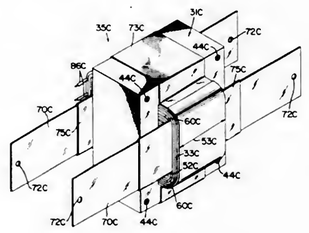
METHOD OF MAKING ELECTRICAL TRANSFORMER MEANS

John Hoell, 3959 Glencross, Cincinnati, Ohio

Division of Ser. No. 839,124, May 15, 1969, abandoned. This application July 23, 1971, Ser. No. 165,730

Int. Cl. H01f *7/06*

U.S. Cl. 29—605 **10 Claims**



This disclosure relates to improved electrical transformer means which has heat transfer surface means for transferring heat outwardly from within electrical coil means of such transformer means to thereby provide optimum electrical performance and to an improved method of making such transformer means and associated coil means.

3,810,304

METHOD OF PRODUCING THIN, FLEXIBLE HEATING ELEMENTS

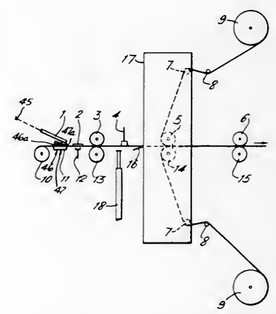
Paulus Heibye, and Rolf Heibye, both of Annerudjordet 4, 1370-Asker, Norway

Filed Oct. 3, 1969, Ser. No. 863,555

Claims priority, application Norway, Oct. 7, 1968, 3958/68

Int. Cl. H05b *3/00*

U.S. Cl. 29—611 **7 Claims**



A method for producing thin flexible heating elements comprising a resistance foil inserted between plastic sheets. A pair of plastic sheets are fed between a pair of welding rollers with a web of resistance foil fed therebetween. A heating chamber encloses the welding rollers and a portion of the plastic sheets upstream of the welding rollers and air is circulated through this chamber to pre-heat the plastic sheets to approximately welding temperature before the sheets reach the welding rollers.

3,810,305

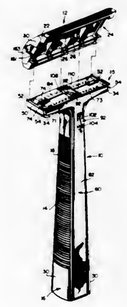
BLADE UNIT

Roger L. Perry, Lynnfield Center, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Apr. 27, 1972, Ser. No. 248,304

Int. Cl. B26b *21/54, 21/06*

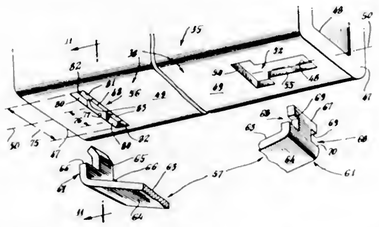
U.S. Cl. 30—32 **8 Claims**



A safety razor blade unit is constructed for use with a safety razor handle having a head portion which is of fixed size and shape and which includes movable latch means. The blade unit comprises a frame and blade means secured in the frame. The frame defines a recess of the above-mentioned fixed size

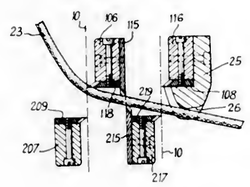
and shape for receiving the handle's head portion therein. The blade unit also comprises latch structure disposed to be engagable with the handle latch means when the handle head portion is so received in the blade unit recess.

3,810,306
SHAVER CUTTER HEAD
David R. Locke, Bridgeport, Conn., assignor to Sperry Rand Corporation, Bridgeport, Conn.
Filed Jan. 11, 1973, Ser. No. 322,760
Int. Cl. B26b *19/02, 19/04*
U.S. Cl. 30—43.92 **13 Claims**



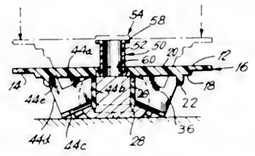
An improved inner cutter for a shaver of the type which includes a cutter head having an outer cutter, an inner cutter, and a spring having opposite end portions which are adapted to be detachably connected to the inner cutter for reciprocating the inner cutter within the outer cutter. The spring is adapted to be urged from a relaxed state to a compressed state. The inner and outer cutters each include a hair shearing edge, the hair shearing edge of the inner cutter being urged, by means of the compressed spring, to cooperate with the hair shearing edge of the outer cutter for shearing hair as the inner cutter is reciprocated within the outer cutter. To promote ease of assembly of the inner cutter and spring, a wall of the improved inner cutter is provided with spaced apertures, each of which is dimensioned to loosely receive therein one of the end portions of the spring. In addition, a surface of the inner cutter wall is provided with a recess having convergent walls. The recess is dimensioned to wedge one of the spring end portions within the recess when the spring is in its compressed state. The spring is thus firmly connected to the inner cutter when reciprocating the inner cutter within the outer cutter.

3,810,307
WIRE CUTTING AND STRIPPING PLIERS
Emile R. Mongredien, Epinay-sur-Seine, France, assignor to La Telemecanique Electrique, Hauts-de-Seine, France
Filed Jan. 19, 1973, Ser. No. 325,221
Claims priority, application France, Feb. 3, 1972, 72.03619
Int. Cl. H02g *1/12*
U.S. Cl. 30—90.1 **9 Claims**



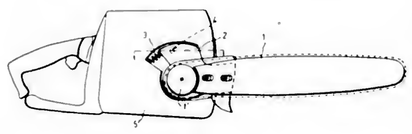
Pliers for cutting and stripping wire with an insulating sheath comprise two handles each of which extend beyond the pivot of the pliers as two separated extensions, one extension of each handle being disposed between the two extensions of the other handle. Opposed cutting blades are fitted to adjacent lateral faces of the two central extensions, which blades have matching indentations in which the whole sheathed wire fits. The frontal faces of the extensions parallel to the pivotal axis of the pliers carry opposed pairs of stripping blades whose cutting edges have indentations matching the dimensions of the wire core. As the pliers are closed a wire is first cut through by the cutting blades and then the insulation on each cut end is stripped by the stripping blades.

3,810,308
RADISH PRESS
Albert Stubbmann, 699 Front St., Franklin Lakes, N.J.
Filed Sept. 18, 1972, Ser. No. 289,667
Int. Cl. B26b *3/04*
U.S. Cl. 30—130 **3 Claims**



A radish press including a base having a first side with an opening extending through said base. Integral with said first side is a corer and means for forming petals on a radish. Means is provided which is movable in the base opening for ejecting a radish from the press after petals have been formed thereon.

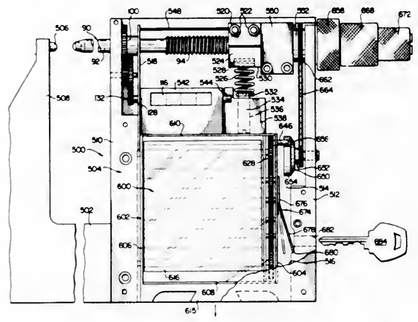
3,810,309
PROTECTION ARRANGEMENT AT CHAIN MOTOR SAWS
Per Martin Wiklund, Mosstorpsvager 40, Taby, and Erik Borje Bang, Myntvagen 8, Vaxjo, both of Sweden
Filed Aug. 16, 1972, Ser. No. 281,240
Int. Cl. B27g *19/00*
U.S. Cl. 30—382 **3 Claims**



A chain saw operated by an internal combustion engine in which the forces of a "kick-back" or throw resulting when the nose of the rotating chain engages a work piece, is minimized by means of a safety device which absorbs movement of the saw blade about the drive wheel axis and in which a spring-urged detent means acts normal to the plane of the blade to hold the blade in a normal, operative position; including means for shorting out the internal combustion engine by relative movement between a housing and saw blade support section; and including means for reorienting the saw blade to a normal work position after the "kick-back" force diminishes.

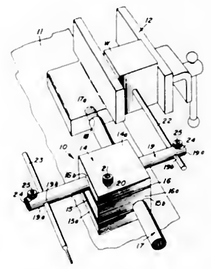
3,810,310
MICROMETER MEASURING DEVICES
Paul A. Morgan, Chicago, Ill., assignor to Century Wheels Inc., Lake Bluff, Ill.
Filed Mar. 27, 1972, Ser. No. 238,340
Int. Cl. G01b *3/18*
U.S. Cl. 33—166 **49 Claims**

A micrometer comprises a frame having a first reference means, a spindle mounted in the frame for axial movement and having a threaded section, a control nut extending partially around a longitudinal portion of the threaded section of the spindle and having threads mating with those of the spindle, and means for positioning the control nut at a set longitudinal distance from the first reference means. Resilient force applying means acts transverse to the axis of the spindle to



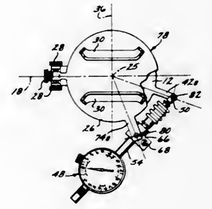
continuously urge the mating threads of the spindle and control nut into tight engagement with each other to maintain the roots and crests of the spindle in continuous alignment with the roots and crests of the control nut and provide for accurate readings of the micrometer.

3,810,311
LOCATING STOP FOR WOPK TO BE MACHINED OR THE LIKE
Hans A. Pingel, 307 Souix Trl. (Lake in the Hills), Algonquin, Ill.
Filed June 15, 1972, Ser. No. 263,327
Int. Cl. G01b *3/22*
U.S. Cl. 33—169 R **11 Claims**



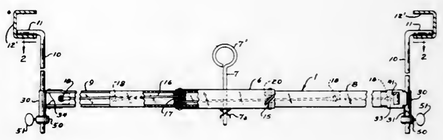
A work piece locating device particularly for vertical or horizontal milling machines. A clamping block slidably receives and clamps in adjusted position at right angles and offset from each other a mounting and a sliding rod. Slots are provided in the clamping block and one clamping screw secures both rods in the block. The second or sliding rod may protrude at each end from the block and is provided with a slot at each end to receive a locating or feeler rod or indicator gauge. A work piece is located in its desired position by being moved up to touch the end of the locating rod or to an indicator gauge adjusted position. There are cap screws at the ends of the sliding rod that clamp its slotted end portions up against the locating rods. The mounting rod is threaded at one end and may be threadedly received in a mounting hole. If mounting is in a T-slot of a machine work bed, than a T-nut and washer are employed to mount the rod on the work bed of a machine. The work piece locating device may have its mounting rod attached to a clamping vise mounted on a work bed. The jaws of the vise hold the work piece after it is positioned.

3,810,312
ALIGNMENT INSTRUMENT
William M. Carson, Santa Ana, Calif., assignor to Constructors Supply Company, Santa Fe Springs, Calif.
Filed Nov. 11, 1971, Ser. No. 197,879
Int. Cl. G01c *1/00*
U.S. Cl. 33—227 **5 Claims**



In an alignment instrument of the type in which a support or fixed instrument portion pivotally mounts a movable instrument portion, which may be a telescope, laser tube or the like, the movable portion is swingable through an arc from a reference axis to a second axis in alignment with a point of interest. A device capable of responding to the accompanying change in linear distance between the fixed and movable instrument portions is mounted to such portions and undergoes relative linear movement as the movable portion undergoes angular movement. According to this invention, the mountings at the ends of the device are pivotable and are located equidistant from the pivot axis of the movable portion. This arrangement minimizes the discrepancy inherent in measuring relative angular movement between the instrument portions by measuring the attendant change in linear distance between them.

3,810,313
VEHICLE FRAME GAUGE
John R. Hicks, Milwaukee, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.
Filed July 17, 1972, Ser. No. 272,351
Int. Cl. G01b *3/14*
U.S. Cl. 33—288 **6 Claims**

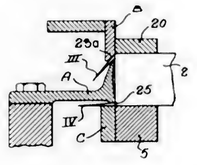


A vehicle frame gauge for indicating the degree of misalignment and distress of the alignment of a vehicle frame including a self-centering indicator which is mounted on a horizontal bar. The bar is hung beneath the vehicle frame by means of a pair of hanger rods which interengage with the frame at various selected locations thereof. The rods are coupled to the horizontal bar by an improved spring and collar mechanism which simplify the gauging procedure. In practice, a plurality of gauges are attached to the vehicle when checking alignment of a frame.

3,810,314
APPARATUS FOR TUCKING AND FOLDING

Andrew W. Anderson, West Caldwell, N.J., assignor to Scandia Packaging Machinery Company, North Arlington, N.J.

Continuation of Ser. No. 858,370, Sept. 16, 1969, abandoned. This application July 29, 1971, Ser. No. 167,510
Int. Cl. B65b 11/42, 49/04
U.S. Cl. 53—378 9 Claims

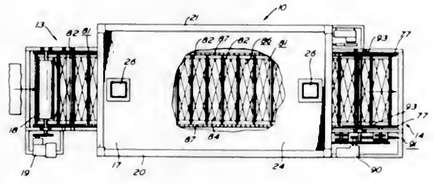


An assembly for tucking and folding a wrapper extension section which projects outwardly from the edge along at least two contiguous sides of an article. The assembly includes a tucker blade means located along a path of travel for the article to form a tuck portion in the extension section along at least a first edge of the article. A straight edge section disposed on the tucker blade member is used to hold the tuck portion against the side of the article as it moves along the path. A first folder member located along the path is used to crease an overfold portion of the extension section along a second edge the article and over the tuck portion. The straight edge section is effective to prevent the tuck portion from changing position beneath the overfold portion. A straight edge section is disposed at a height along the path to be contiguous to the second edge of the article along which the overfold portion is being bent. An inclined edge acts to crease the overfold portion along the second edge of the article while the straight edge section performs its function. The assembly may be used in combination with any packaging machine to effect the desired results.

3,810,315
APPARATUS FOR TREATING MATERIALS

Myron T. Fleming, Maple Glen, Pa., assignor to Thermal Exchange Systems, Inc., Morton, Pa.

Filed Apr. 19, 1972, Ser. No. 245,327
Int. Cl. F26b 13/00
U.S. Cl. 34—160 18 Claims

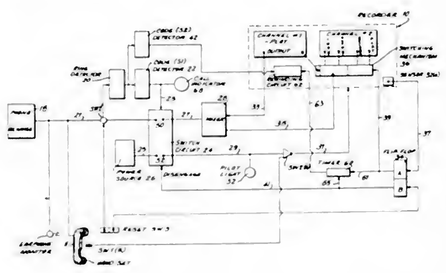


Material treating apparatus comprising a housing and means for conveying material through the housing in a substantially untensioned condition. Agitating and drying means are provided for moving the material rapidly between limiting barriers disposed on opposite sides of the material, the agitating and drying means comprising high velocity air jets directed through these barriers by means of nozzles located on opposite sides of the material. The air blasts from the nozzles, which may be mounted for oscillation, continuously thrust successive portions of the material into and out of abutment with the limiting barriers. The limiting barriers comprise foraminous aprons which are mounted for continuous movement by means of conventional roller chains. The aprons are substantially open and are made of interwoven strands of wire which allow the air jets to pass therethrough but which limit movement of the material. The aprons form a part of a transport means which includes two endless conveyors disposed one above the other. The treated material, during its movement through the dryer, is disposed between the top run of lower conveyor and the bottom run of the upper conveyor.

3,810,316
STUDENT TEACHING SYSTEM AND THE LIKE AND RELATED METHOD

Bachir Lahlou, 26 E. 91st St., Apt. 3D, New York, N.Y.

Filed July 3, 1972, Ser. No. 268,594
Int. Cl. G09b 7/00
U.S. Cl. 35—8 A 6 Claims



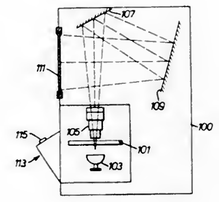
A student teaching system and related method are provided by means of which a student located at a remote station may initiate the transmission of a series of questions or the like to which he may reply. The student's replies are recorded at the location from which the questions are initially transmitted and provision is made for further recording corrections so that when a lesson is complete both the questions and corrections may be transmitted to the student. According to one embodiment of the invention, the student may be provided with a telephone having a special adapter which enables him to communicate through a telephone exchange with a central station having a tape recorder provided with a series of questions or other lesson objects requiring student responses and further provided with a recorder to record the student responses as well as the corrections. A signal device may be provided by means of which the student may signal for operator intercession or by means of which the student can reset the position of the series of lesson objects requiring student responses.

3,810,317
DISPLAY SYSTEMS

Harold Matthew Rosenbaum, Essex, and Francis Duerdin, Herts, both of England, assignors to The Marconi Company Limited, Chelmsford, Essex, England

Filed Sept. 5, 1972, Ser. No. 286,348
Claims priority, application Great Britain, Sept. 7, 1971, 41587/71
Int. Cl. G09b 7/00
U.S. Cl. 35—9 A 20 Claims

A display system for use as a teaching aid having support means for supporting a slide having an array of micro-images thereon, a display screen, means for projecting onto the display screen any one of the micro-images from the array and drive means for displacing the support means relative to the projector to enable selection of the micro-image to be displayed. Each micro-image further includes position information relating to the next micro-image to be displayed and this may be modified under control of an operator to produce the modified position information in accordance with which the next image is selected for display.



3,810,318
SHOE, ESPECIALLY FOR AIDING CHILDREN IN LEARNING TO WALK

Roland Epstein, Asperg, Germany, assignor to Salamander Aktiengesellschaft, Kornwestheim, Germany

Filed Aug. 3, 1972, Ser. No. 277,649
Claims priority, application Germany, Aug. 5, 1971, 2139151
Int. Cl. A43b 23/08
U.S. Cl. 36—2.5 F 38 Claims

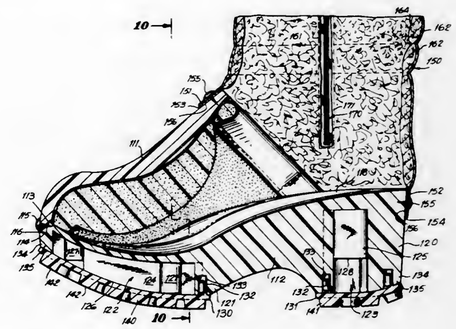
A shoe, especially for aiding children in learning to walk, which includes an inner sole having an extension extending upwardly and forming the heel section, which latter together with said inner sole forms a coherent, preferably single piece structural element.

3,810,319
CLOG CONSTRUCTION

Joseph P. Famolare, Jr., Florence, Italy, assignor to Famolare, Inc., New York, N.Y.

Continuation-in-part of Ser. Nos. 268,728, July 3, 1972, Pat. No. 3,742,625, and Ser. No. 231,505, March 3, 1972, Pat. No. 3,729,840. This application Apr. 30, 1973, Ser. No. 355,941
Int. Cl. A43b 3/12
U.S. Cl. 36—11.5 9 Claims

A comfortable, clog construction having a specially shaped rigid upper and a rigid lower connected together along a mating circumferential step is disclosed herein. The clog is held comfortably and snugly to the foot of the wearer by a unique arrangement including a foam lining which cooperates with the rigid upper and lower to define a "keyhole" opening into which the skewed foot of the user may be inserted and then rotated to lock the foot securely in the clog. The clog is of plastic and provides a new modular shoe construction having the appearance of so-called "Dutch" shoes into which may be added a legging to provide a new and improved boot construction.



3,810,320
SNOW SHOVEL

Howard G. Siebert, 3004 Fairmount Blvd., Cleveland Heights, Ohio

Filed Mar. 19, 1973, Ser. No. 342,758
Int. Cl. E01h 5/00
U.S. Cl. 37—46 5 Claims

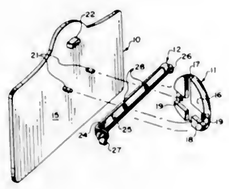
A snow shovel of the push or plow type having a U-shaped handle by which the V-shaped blade is pushed along a sidewalk or driveway to clear a path without lifting of the snow, said shovel being characterized in that the V-shaped blade comprises a pair of blade sections having their upwardly and rearwardly inclined leading ends detachably secured together, and a brace extending horizontally across the trailing ends of the blade sections and detachably secured thereto, and in that the U-shaped handle comprises upwardly and rearwardly inclined legs having their lower end portions detachably secured to the trailing ends of the blade sections and having their upper end portions detachably secured to the legs of a U-shaped handle member on the cross bar of which pushing force is applied to move the blade along the sidewalk or driveway which is to be cleared of snow. The snow shovel herein, by reason of the aforesaid detachable connections of the parts thereof, may be economically shipped in disassembled condition in a compact package.

The snow shovel herein is further characterized in that the extremities of the lower legs of the handle are bent to lie in the same horizontal plane as the bottom V-shaped edge of the blade thus to form skids to facilitate movement of the blade along the snow covered surface and additionally to form fulcrums for upward tilting of the blade when deep or heavy snow is encountered or when an irregularity is encountered in the sidewalk or driveway.

3,810,321
MOUNTING FOR IDENTIFICATION BADGE

Jack Y. Kiba, Chicago, Ill., assignor to Magenta Corporation, Chicago, Ill.

Filed Oct. 18, 1972, Ser. No. 298,574
Int. Cl. A44c 3/00
U.S. Cl. 40—1.5 5 Claims

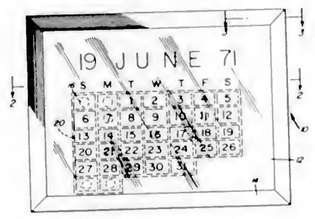


A backup plate is secured to the back of a badge body with cement. The backup plate has a horizontal and a vertical slot therein. Alternatively, the base of a pin type badge mounting is held in the horizontal slot or the base of an alligator clip mounting is held in the vertical slot.

3,810,322
CALENDAR DISPLAY DEVICE

Ellis Ray Ritchie, P.O. Box 706, Whittiers, Ark. 99502

Filed Oct. 13, 1972, Ser. No. 297,350
Int. Cl. G04b 19/24; G09d 3/12
U.S. Cl. 40—107 3 Claims



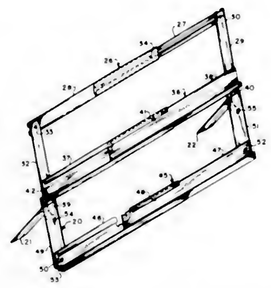
A calendar display device comprising a housing, a multi-month calendar formed of a sheet of light-transmitting material extending between dispensing and take-up spools to display the appropriate month through an opening in the housing, a plurality of lamps positioned behind the calendar sheet for selectively illuminating individual days of the month, circuit means for sequentially energizing the lamps in a pattern corresponding to the calendar days, control means including means for automatically advancing the calendar sheet at the end of each month to display the calendar of the subsequent month and means for conditioning the circuit means for sequential energization of the lamps in a pattern corresponding to the arrangement of days of the newly displayed monthly calendar.

3,810,323
CONVERTIBLE BINGO CARD HOLDER

Bernice E. Lowe, 2910 Gunsmoke, Lot 18, San Antonio, Tex.

Filed Mar. 21, 1973, Ser. No. 343,245
Int. Cl. G09f 1/10
U.S. Cl. 40—124 6 Claims

A collapsible folding rack for displaying a multiplicity of Bingo Cards. This card holder, in the folded configuration, fits into a carrying case which may be placed in a large lady's purse. In the extended, assembled configuration as many as

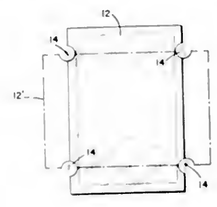


eight bingo cards may be displayed for viewing and playing the game.

3,810,324
MAT FOR MOUNTING PRINTS

Royal V. Hart, 5313 Riverdale Rd., Apt. 428, Riverdale, Md.

Filed Oct. 27, 1972, Ser. No. 301,297
Int. Cl. G09f 1/10
U.S. Cl. 40—158 R 5 Claims



A mat is provided having inwardly directed tab means on each of the four corners of a square, the sides of the square measuring substantially the same as the width or narrower dimension of an elongated rectangular print which it is desired to mount. With this arrangement the print can be mounted with its longer dimension disposed either vertically or horizontally, by engaging its side edges under either the confronting vertical edges or the confronting horizontal edges of the four tab means, respectively.

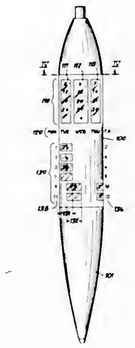
3,810,325
MULTIYEAR CALENDAR

Franz-Josef Koper, Kiefernstrasse 7a, 437 Marl, Germany

Filed Apr. 17, 1972, Ser. No. 244,403
Int. Cl. G09d 3/06
U.S. Cl. 40—335 2 Claims

A multiyear calendar has a barrel formed on a ballpoint pen or the like and provided with date indicia in the form of a calendar array numbered from 1–31 and extending around the cylindrical body of the barrel in seven columns. Axially offset from this array are six circumferential extending and axially spaced rows each subdivided also into seven equal spaces at least five of which are provided with year indicia. A sleeve rotatable on the barrel is provided with windows registrable with the columns of the date array, and day indicia under each window. Below the day indicia are formed 12 further year windows each associated with month indicia. These windows are arranged in six rows registrable with the year indicia with two windows per row and each row labeled for two consecutive months of the year. The month windows for the months of

January–August are spaced apart by a circumferential distance equal to three day columns, the month windows for

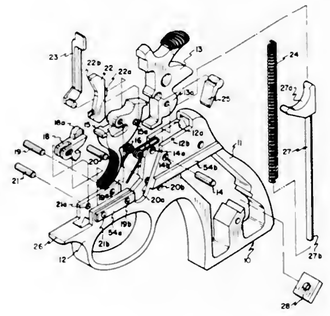


the months of September–December are spaced only two apart.

3,810,326
CONSTRUCTION FOR REVOLVERS

Robert L. Hillberg, Cheshire, Conn., and Thomas J. Hartog, Ogden, Utah, assignors to Browning Arms Company, Morgan, Utah

Filed Mar. 1, 1973, Ser. No. 337,004
Int. Cl. F41c 1/00
U.S. Cl. 42—59 7 Claims

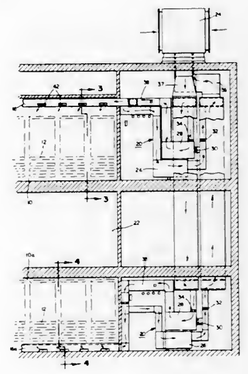


A revolver is constructed in two interlocking subassemblies, thereby avoiding the traditional side plate assembly techniques conventional in revolver construction. The first, or frame, subassembly is adapted to receive a cylinder and a crane so that the crane is checked by an internal (hidden) surface. The crane is secured by a pin inserted from inside, thereby avoiding dissimilar surface finishes at the front of the revolver. The second, or trigger guard, subassembly carries the entire firing and indexing mechanisms of the revolver in preassembled condition. The two subassemblies are joined and held in place by a single pin. Each subassembly carries structures which interlock when the revolver is assembled to prevent dry-firing when the cylinder is unlatched and to prevent opening of the cylinder when either the hammer is cocked or the trigger is pulled.

3,810,327
ATMOSPHERE CONTROL SYSTEM FOR GROWING MUSHROOMS AND THE LIKE

Joseph A. Giansante, 720 Willow St., Pottstown, Pa.

Filed Dec. 29, 1972, Ser. No. 319,229
Int. Cl. A01q 1/04
U.S. Cl. 47—1.1 22 Claims

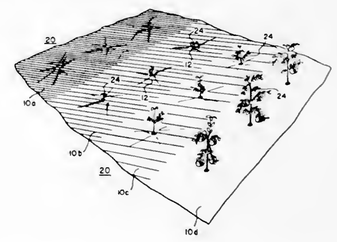


System for controlling the environment in a mushroom growing room including three novel and unique sub-systems, namely (1) a carbon dioxide concentration sensing device and control means responsive thereto for controlling the proportions of recirculated air and fresh air continuously introduced into the mushroom growing room so as to maintain the carbon dioxide level therein at 0.1 percent or less, and for doing so separately in a plurality of such rooms; (2) a proportionally controlled heat exchanger in which exhaust air from one or more mushroom growing rooms or chambers is heat exchanged with incoming fresh air for ventilation of such chambers using a heat transfer member, such as a large metal wheel with a relatively large amount of surface area, which is rotated at a speed proportional to the temperature difference between the fresh air after passing through the exchanger and a pre-selected desired temperature; and (3) a temperature-humidity control system which maintains optimum conditions in a growing room continuously with a high level of accuracy.

3,810,328
MULCH SHEET

Robert C. Bryan, Jr., Diamond Bar, Calif., and Joseph F. Price, Stone Mountain, Ga., assignors to Ludlow Corporation, Needham Heights, Mass.

Filed Jan. 11, 1973, Ser. No. 322,637
Int. Cl. A01g 7/00
U.S. Cl. 47—9 9 Claims



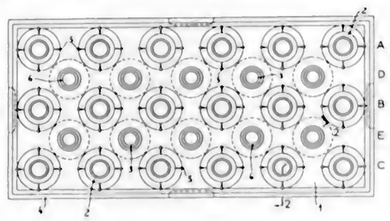
An improved mulch in sheet form which is adapted to hug the earth and consequently avoid interference with automated

agricultural apparatus. The mulch is formed with an extensible kraft paper facing. The paper is selected to fade and become more reflective of the sun's rays as the growing season progresses. The disclosed crepe-backed construction also contributes a multi-directional strength characteristic to the sheet and allows use of a relatively thin plast coating.

3,810,329
CELLULAR TRAYS FOR CULTIVATING AND DISPLAYING PLANTS

Jacques Lecuru, and Jean Cassa, both of 2 Gillocourt, Orrouy, Oise, France

Filed June 6, 1972, Ser. No. 260,256
Claims priority, application France, July 2, 1971, 71.24763
Int. Cl. A01g *9/02*
U.S. Cl. 47—34.13 **4 Claims**

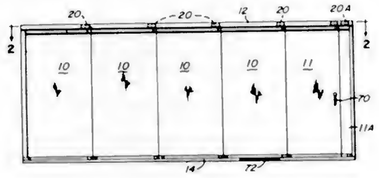


A cellular tray for receiving a plurality of rows of flower plants or the like for cultivating or displaying them comprises alternate frustoconical cavities for receiving said plants in pots or the like and frustoconical holes constituting respective ventilating shafts for aerating the undersides of the leaves of the plants received therein, each hole being disposed at the center of a circle, along which the axes of four pot-receiving cavities are disposed with a 90° spacing, each cavity having its minor base opening at the bottom face of the tray and its major base opening at the top face of the tray. The holes have opposite tapers and comprise at their upper end a collar projecting from the top face of the tray. This tray further comprises a projecting marginal portion. Grooves formed in the lateral walls of the cavities facilitate the draining of water through the cavities alone.

3,810,330
MOVABLE PANEL SYSTEM

Earl N. Daggy, Richmond, Ind., assignor to American Standard Inc., New York, N.Y.

Filed Sept. 5, 1972, Ser. No. 286,562
Int. Cl. E05d *15/58*
U.S. Cl. 49—127 **5 Claims**

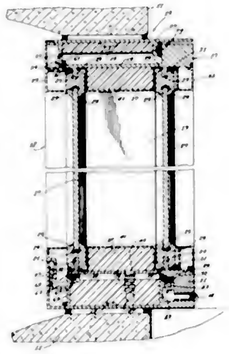


A system of floor supported panels or partitions includes a series of individual rigid panels which are supported from movement between ceiling and floor tracks, while the weights of the panels are supported on the floor tracks. A unique stacking system is provided which permits the panels to be stacked in parallel side-by-side relation without the use of special stacking tracks. A combined panel pivot and lock is provided by the upper trail shoe on each panel in the ceiling track, while the lower track shoe permits the panel to pivot on a vertical axis including the upper shoe while resisting longitudinal movement of the panel along the track. A lower leading shoe is especially adapted to leave the floor track when the panel is swung into its storage position essentially normal to the tracks. As each panel is pivoted, as described, its upper trail shoe locks with the corresponding shoe of the preceding panel. In the case of the first panel, its shoe locks with a fixed dummy shoe in the ceiling track. In this manner, the upper pivotal end of each panel is positively locked during the times that the panel is being moved into storage position, and while it is in storage.

3,810,331
PIVOTALLY MOUNTED HERMETICALLY SEALED WINDOW UNIT

Richard H. McCurdy, and Lawrence W. Connelly, both of Fairfax, Va., assignors to Siteleine, Inc., Fairfax, Va.

Continuation-in-part of Ser. No. 101,258, Dec. 24, 1970, abandoned. This application Nov. 30, 1971, Ser. No. 203,331
Int. Cl. E05d *7/00*
U.S. Cl. 49—401 **15 Claims**



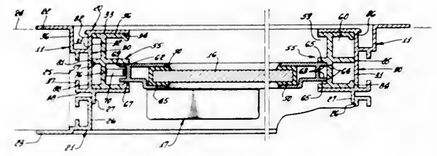
A hermetically sealed dual light window unit in which, if desired, the volume between the lights is allowed to breathe. Each window is provided with structure for allowing the window to be tilted into the building so that the outer light may be cleaned, desiccant can be replaced, etc. In an installation comprising a plurality of such window units, all are ducted to a common manifold. The manifold is ported to the atmosphere to vent air pressure built up within the system to the atmosphere, and accept filtered, dehumidified air from the atmosphere when ambient atmospheric air pressure exceeds the internal air pressure within the system.

3,810,332
MULTIPURPOSE WEATHERSTRIP CONSTRUCTION

Abraham Grossman, 9339 Rhea Ave., Northridge, Calif.

Filed Nov. 8, 1971, Ser. No. 196,432
Int. Cl. E05d *13/02, 13/06, 15/18*
U.S. Cl. 49—421 **1 Claim**

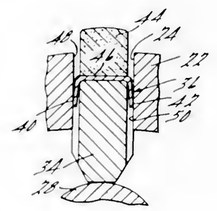
A multipurpose weatherstrip construction for a slidable panel or window sash comprising a rigid vinyl weather seal member of double H-section received within a recess in a frame member and providing channels for edges of a panel member and a spring means on one side of the panel member for laterally biasing the insert members on each side of the panel member and panel member into weather sealing engagement with each other and with the associated frame members. A weather sealing member of extruded rigid vinyl material and comprising outer and intermediate parallel spaced flanges of uniform width and a web means interconnecting said flanges, the outer flanges having inturned beads adapted to seal against a panel edge at one side thereof, said web means having a surface adapted to seal panel edges at the other side thereof, said plurality of flanges having sealing edge faces adapted to seal against said frame member, and said web means having spaced ports adapted to receive a latch bolt means to adjustably position the panel in the frame.



3,810,333
HONING TOOL

Robert H. Gillette, Pendelton, Ind., assignor to Micromatic Industries, Inc., Holland, Mich.

Filed Sept. 22, 1972, Ser. No. 291,279
Int. Cl. B24b *5/06*
U.S. Cl. 51—338 **20 Claims**



A honing tool incorporating improved means for mounting and retaining abrasive elements in the honing tool.

3,810,334
STEEL WOOL SWAB

Jonathan W. Povill, 1503 Bainum Dr., Topanga, Calif.

Filed Oct. 30, 1972, Ser. No. 302,077
Int. Cl. B24d *17/00*
U.S. Cl. 51—358 **1 Claim**

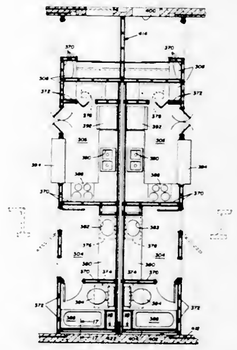


An abrading and polishing tool in the form of a swab with a wand having a head portion provided with barbs extending outwardly and rearwardly from the tip of the head with a wad of abrasive filamentous material such as steel wool, nylon or copper strands twisted or wound about the head portion and anchored thereto by the barbs, the handle portion being adapted for manual use or for insertion in a drill chuck.

3,810,335
FIRE BARRIER SYSTEM FOR MULTI-FAMILY DWELLINGS

Raymond L. McCrillis; Walter T. Fuller, both of Littleton; Richard H. Dixon, Lakewood, and John R. Oldani, Littleton, all of Colo., assignors to Marcor Housing Systems, Incorporated, Denver, Colo.

Division of Ser. No. 230,825, March 1, 1972, Pat. No. 3,757,477. This application May 3, 1973, Ser. No. 356,953
Int. Cl. E04b *2/74*
U.S. Cl. 52—79 **4 Claims**

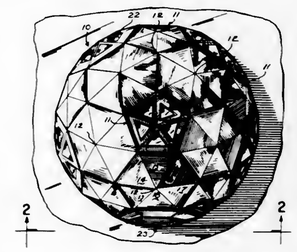


In a dwelling construction system, a multi-story, multi-family building comprises prestressed concrete pallets which are supported between load bearing walls to form the floors and the ceilings of individual dwellings. Each dwelling includes a service core comprising an enclosure formed on one of the pallets and complete mechanicals for the dwelling. The service cores are fabricated by mass production techniques and are subsequently transported to the building site for installation. In some instances the service core comprises a complete dwelling, in which case the enclosure of the service core may form the exterior walls and the roof of the dwelling.

3,810,336
GEODESIC PENTAGON AND HEXAGON STRUCTURE

Shoji Sadao, Boston, Mass., assignor to Fuller & Sadao, Incorporated, Cambridge, Mass.

Filed May 9, 1972, Ser. No. 251,803
Int. Cl. E04b *1/32*
U.S. Cl. 52—81 **5 Claims**



A geodesic-type dome structure having the structural elements connected in a pattern of great circle arcs and lesser cir-

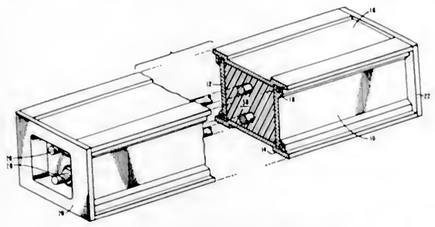
cle arcs in a three-way grid defining isosceles triangles and including hexagon and pentagon modules.

3,810,337

ELONGATED STRESSED STRUCTURAL MEMBER

Stephen LeRoy Pollard, 405 Holy Ave., Monrovia, Calif.

Filed Oct. 28, 1970, Ser. No. 84,801
Int. Cl. B32b *3/26*
U.S. Cl. 52—223 R **4 Claims**



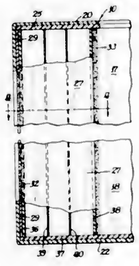
This patent describes a novel stressed structural member which comprises a composite of a lightweight void-containing core to which is bonded thin skin sheets on at least some of the lateral surfaces, said core having one or more reinforcing members embedded therein. This patent further describes a novel method of manufacturing a novel stressed structural member which comprises positioning thin skin sheets in a predetermined arrangement around one or more reinforcing members, forming a lightweight void-containing core around said reinforcing members which bonds to said members and said skin sheets, and applying stress to said composite. In a preferred embodiment of this invention, the novel stressed structural member comprises an elongated beam having four lateral sides and formed of a composite of a lightweight void-containing core to which is bonded on four sides thin skin sheets, said core having one or more reinforcing members embedded therein, and end cap members at each end of said beam.

3,810,338

METAL REINFORCED PLASTIC PANEL

Clarke K. Wolfert, Peoria, Ill., assignor to H C Products Co., Princeville, Ill.

Filed Aug. 3, 1972, Ser. No. 277,774
Int. Cl. E06b *7/08*
U.S. Cl. 52—475 **8 Claims**



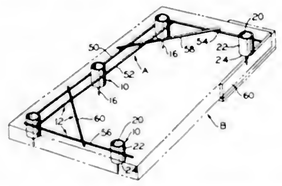
A metal reinforced plastic panel structure adapted to use in bifold doors and the like and wherein the metal reinforcement elements are selected and related to other structural parts of the panel to provide an increase of panel weight which is more advantageous than detrimental, and which materially increases the strength, durability and rigidity of the panel while also avoiding problems, such as warping or damage to panel parts, which could result from temperature changes encountered during shipment or use and the different temperature coefficients of expansion of the associated metal and plastic parts.

3,810,339

METHOD AND APPARATUS FOR FORMING CONSTRUCTION ELEMENT LOCATING AND MOUNTING VOIDS IN A POURED CONCRETE STRUCTURE

Dominic C. Russo, Warrensville Heights, Ohio, assignor to Russo Architectural Metals Incorporated, Bedford Heights, Ohio

Filed Sept. 5, 1972, Ser. No. 286,009
Int. Cl. E04f *13/04*
U.S. Cl. 52—700 **3 Claims**



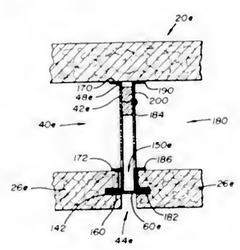
An assembly is provided which is comprised of a plurality of desirably spaced sleeves rigidly interconnected to a framework which may be oriented and suspended in a desired attitude within a concrete form by means of noncorrosive studs protruding from the base of each sleeve. When the concrete is then poured into the form, the framework and sleeves become an integral part thereof with the sleeves subsequently providing voids for mounting guardrails and the like.

3,810,340

INTEGRAL STUD AND BRACKET STANDARD

Nels Nelsson, Des Plaines, Ill., assignor to United States Gypsum Company, Chicago, Ill.

Division of Ser. No. 79,580, Oct. 9, 1970, Pat. No. 3,712,015.
This application Sept. 12, 1972, Ser. No. 288,449
Int. Cl. E04b *2/32*
U.S. Cl. 52—729 **3 Claims**



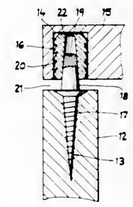
A stud and wall assembly constructed therewith for supporting shelf brackets and the like, the stud having as an integral part thereof, both a slotted flange for engaging shelf brackets, and as an extension of the flange, flat surfaces for engaging partition members which make up the wall. The slotted portion of the flange may be recessed within the stud or projected therefrom, so as to conceal or expose, respectively, the slotted portion. Additional bracket-supporting hooks can be extruded as part of the flange. The over-all cross-sectional configuration of most of the embodiments of the stud is an H-shaped configuration.

3,810,341

MULTIPART JOINING ELEMENT FOR BUTT AND CORNER JOINTS

Heinrich Holz, CH-8841 Egg/SZ, Switzerland

Filed June 10, 1971, Ser. No. 151,879
Claims priority, application Switzerland, June 12, 1970, 8760/70
Int. Cl. F16b *13/06, 2/00*
U.S. Cl. 52—753 E **13 Claims**



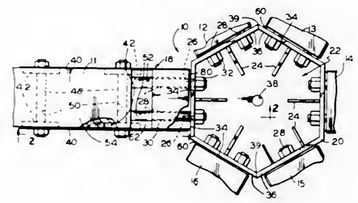
A joining or fastening element for use on butt and corner joints for furniture and cabinets of wood or like material, including a plug portion to be anchored in one of the members to be joined, and a sleeve to be anchored in the other member to be joined. One end of the plug portion terminates in a projecting conical configuration. The sleeve is flexible with respect to and serves as a seat for the projecting cone end of the plug portion.

3,810,342

DOME JOINT

Hollis C. Scott, Portland, Oreg., assignor to Western Wood Structures, Inc., Portland, Oreg.

Filed Dec. 26, 1972, Ser. No. 318,466
Int. Cl. E04b *1/32*
U.S. Cl. 52—758 R **15 Claims**



At both top and bottom of end portions of beams, welded steel plate connector assemblies having side straps are bolted to the beams, a bridge plate welded to the side straps and one or more threaded studs welded to the bridge plate and extending through and nuts tightened behind a facet plate of a separate polygonal hub assembly. The central hub assembly includes a polygonal tube and stiffening plates and gussets in the tube. A clearance between the connector assemblies and the central hub effects a joint where the beam remains in abutment with its facet of the hub for tension forces as well as compression forces. The beams have daps and/or kerfs, and also clearance grooves for the studs to permit the connectors to be slid from retracted positions to positions in which the studs extend through the bolt holes in the hub.

ERRATUM

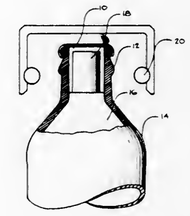
For Class 53—378 see:
Patent No. 3,810,314

3,810,343

METHOD OF RENDERING PRESSURIZED BOTTLE NON-EXPLOSIVE

Manuel W. Palomo, 2530 Thorn Lodge Dr., Mississauga, Ontario, Canada

Filed June 14, 1972, Ser. No. 262,692
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 53—37 **1 Claim**



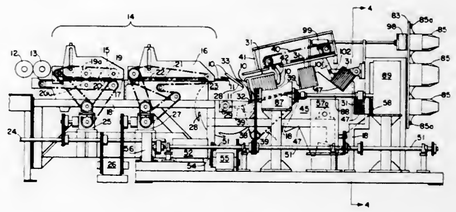
This invention relates to a method of bottling pressurized liquid whereby the explosive potential of the capped bottle is eliminated comprising the steps of first filling a bottle to its neck with liquid, then introducing an expandable material in the neck of the bottle to partially occupy the space within said neck, then capping the bottle and finally permitting the said material to expand to completely fill the air space within the neck of the bottle.

3,810,344

MACHINE FOR PACKAGING FLEXIBLE ARTICLES

Stephen F. Evans, St. Bernard, and Eugene R. Sorensen, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

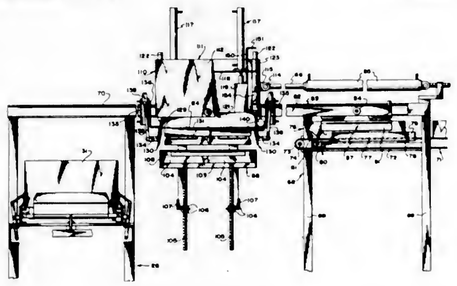
Filed Mar. 29, 1972, Ser. No. 239,172
Int. Cl. B65b *63/02*
U.S. Cl. 53—124 D **16 Claims**



A machine for packaging flexible articles, e.g. disposable diapers, which includes mechanism for forming a stack containing a predetermined number of articles including devices for moving the stack and pushing it into a suitable container. The machine includes an infeed conveyor section used to convey and compress the articles whereupon they are ultimately delivered into successive slots of a pad wheel. The articles are stripped from the slots and simultaneously formed into stacks containing a predetermined number of articles. A pusher element and a stack controller arm are provided to convey each stack into the pocket of an intermittently rotating stack wheel. The stack wheel moves successive stacks into alignment with a support plate whereupon a transfer pusher moves each successive stack fully onto the support plate. A tamper plate is provided to exert a small amount of compressive force on the stack prior to lateral movement of the stack between the support plate and a ceiling plate which is adjacent the tamper plate. A reciprocating side pusher is used to move the stack laterally into position for ultimate movement into a container. A container wheel is intermittently rotated alongside the sup-

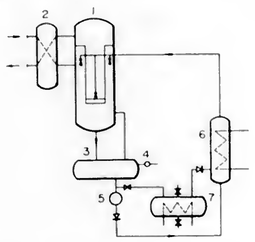
port plate. Container supporting nozzles project from one side of the container wheel, there being a container telescoped over each of the nozzles. When a nozzle containing an empty container is moved into contiguous relationship with the article stacks, a container load pusher is actuated to move the stacks into the container whereupon on further indexing of the container wheel, the filled container is removed by a full container pusher.

3,810,345
BOX CAPPING MACHINE
Everett C. Lemmond, Rt. 2, and James W. Edwards, 1316-15th Ave., S.E., both of Decatur, Ala.
Filed Nov. 13, 1972, Ser. No. 306,245
Int. Cl. B65b *7/28*
U.S. Cl. 53—306 **15 Claims**



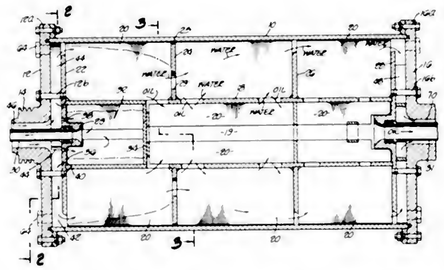
Apparatus for automatically removing box lids from a first conveyor and placing such lids on boxes carried by a second conveyor. The apparatus includes a carriage having first and second lid pickup devices in which the first lid pickup device removes a box lid from a lid holding station on the first conveyor and transfers the lid to a ready pickup station. Simultaneously the second pickup mechanism removes a box lid from the ready pickup station and places such lid on a box located at a box holding station on the second conveyor. The apparatus includes electrical and fluid systems arranged in a manner that the lids will be placed on the boxes or containers automatically without an operator being present after the apparatus has been started.

3,810,346
METHOD FOR REMOVAL OF OIL AND WATER FROM COMPRESSED AIR
Eiichi Uratani, Tokyo, Japan, assignor to Sumida Equipment Industries, Inc., Tokyo, Japan
Filed Sept. 1, 1972, Ser. No. 285,871
Claims priority, application Japan, Mar. 7, 1972, 47-22832
Int. Cl. B01d *53/02*; **F25b** *47/00*
U.S. Cl. 55—29 **5 Claims**



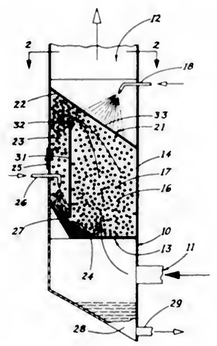
Compressed air contaminated with water vapor and a mist of oil droplets is purified by spraying into the air a cold, liquid refrigerant (CCl_3F, $CHCl_2F$, $C_2Cl_3F_3$, $C_2Cl_2F_4$) which cools the air below its dew point without itself evaporating and absorbs the oil. The precipitating mixture of oil-bearing solvent and water is permitted to settle. An upper aqueous layer of water is removed by overflow, and the lower layer of solvent containing oil is recycled until it contains too much oil, whereupon it is separated from the oil by distillation.

3,810,347
CENTRIFUGAL SEPARATOR FOR THREE PHASE MIXTURE
Ernest Orval Kartinen, Long Beach, Calif., assignor to Signal Oil and Gas Company, Long Beach, Calif.
Filed Jan. 16, 1973, Ser. No. 324,172
Int. Cl. B01d *19/00*
U.S. Cl. 55—45 **11 Claims**



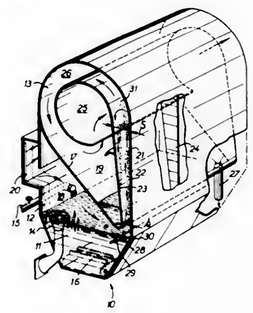
A centrifugal separator for separating a mixture of higher and lower density immiscible fluids with means for separating a third gaseous phase from said fluids is disclosed.

3,810,348
SCRUBBER ARRANGEMENT
Thomas W. Byers; Francis E. Dahlem; Roy D. Ireland, Jr., and Mohiuddin Pasha, all of Louisville, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky.
Filed Jan. 7, 1972, Ser. No. 216,169
Int. Cl. B01f *3/04*
U.S. Cl. 55—91 **24 Claims**



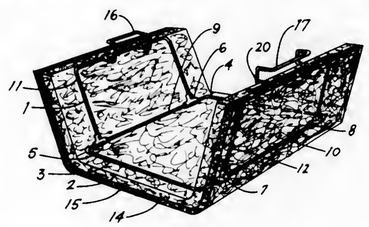
An arrangement for mutual contact of fluids wherein the fluids pass through a contact zone, and fluid contact elements are continuously cycled between the contact zone and an element treating zone where they are treated with a treating fluid and forced from the element treating zone back into the contact zone.

3,810,349
APPARATUS FOR PUTTING A GAS IN CONTACT WITH A LIQUID
Albert Rebours, Ghatou, France, assignor to Prat Daniel Poelman, Courbevoie, France
Filed Apr. 12, 1971, Ser. No. 133,097
Claims priority, application France, Apr. 24, 1970, 70.14993; Oct. 23, 1970, 70.38292
Int. Cl. B01d *47/02*
U.S. Cl. 55—248 **2 Claims**



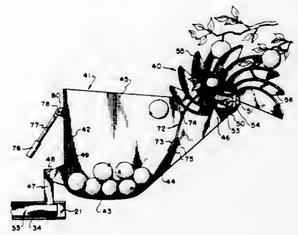
An apparatus for putting a gas into contact with a liquid, especially for separating solid or liquid particles in suspension in said gas or for eliminating certain gaseous constituents, said apparatus comprising a space in the form of a diffuser adapted to effect intimate mixing of the gas and liquid by means of the formation of a turbulent and dense suspension of drops forming a kind of semi-stationary fluidized bed. The gas and liquid pass together into the bottom of the diffuser which has the form of a divergent conduit in which is created a closed circulation of liquid effecting a continuous renewal of the bed, the impurities of the gas being treated during this circulation by physical collection with or without chemical reaction, followed by a centrifugal action which separates the gas from the drops of liquid, the liquid thus recovered being wholly or partly re-cycled.

3,810,350
U-SHAPED FLUID TREATING FILTER
Howard O. Scholl, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.
Filed Apr. 24, 1972, Ser. No. 246,780
Int. Cl. B01d *27/00*
U.S. Cl. 55—487 **8 Claims**



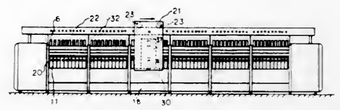
An improved air filter of U-shaped configuration including a wire frame of generally U-shaped configuration and a mat of flexible filter material substantially coextensive with the wire frame, the wire frame including pivot means at the juncture of the sides with the base of the U-shaped frame to allow collapsing of the filter to a flat package, the filter including hook means for removably mounting of the filter in an air processing unit.

3,810,351
MECHANICAL FRUIT PICKER
Elmer D. Austin, P.O. Box 48, Umatilla, Fla.
Filed Feb. 5, 1973, Ser. No. 329,515
Int. Cl. A01g *19/00*
U.S. Cl. 56—328 R **8 Claims**



An apparatus for mechanically removing fruit from trees and collecting the picked fruit in a container which can be tilted to discharge the fruit when the container is substantially filled. The apparatus includes a picker head having a rotating cylinder with a plurality of fingers or tines mounted thereon and each of such fingers is inversely curved relative to the direction of rotation of the cylinder.

3,810,352
AUTOMATIC YARN PIECING APPARATUS FOR A CONTINUOUS RINGLESS SPINNING MACHINE AND METHOD OF USING SAME
Tsutomu Miyazaki, and Suzuki Kariya, both of Yoshihisa, Nagoya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan
Filed Feb. 18, 1970, Ser. No. 12,308
Claims priority, application Japan, Feb. 25, 1969, 44-14405; Mar. 15, 1969, 44-19695
Int. Cl. D01h *15/00*
U.S. Cl. 57—34 R **26 Claims**

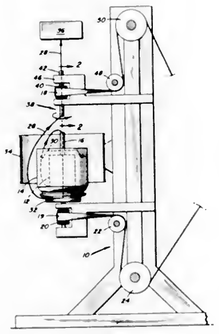


The present invention relates to the continuous ringless spinning machine for carrying out the piecing of supplied fiber and yarn end in a rotary spinning chamber, wherein a yarn piecing machine running along the spinning unit of the spinning machine stops in front of the detected spinning unit involved in yarn breakage. The yarn end of the package is caught and drawn by means of suction to guide the yarn end above the spinning unit involved in yarn breakage. At the same time the yarn is cut off leaving a predetermined length of said yarn, and the broken yarn end is introduced into the spinning unit involved in yarn breakage to have the same turned into the spinning chamber. Thereafter said yarn is continuously withdrawn from the spinning chamber to automatically carry out the piecing operation of the finished yarn.

3,810,353
TWO FOR ONE TWISTING DEVICE
Philip R. Petersen, 1427 Hartford Ave., Charlotte, N.C.
Filed June 21, 1971, Ser. No. 154,951
Int. Cl. D01h *1/10*
U.S. Cl. 57—58.83 **6 Claims**

An improved two for one yarn twisting machine having an obstruction-free tubular guide rotatable between the yarn

package and the take-up means. The tubular guide is rotated in the same direction and preferably at the same or greater



speed as the twister balloon to decrease friction in the yarn linear movement, consequently decreasing yarn tension and enabling the use of higher linear speeds.

3,810,354
QUICK CORRECTION MECHANISM FOR A SECONDS HAND OF A TIMEPIECE

Akira Naikaido, Tokyo; Mitsuo Onda; Takayasu Machida, both of Saitama; Fumio Nakajima, Tokyo; Takashi Toida, Tokyo, and Yoshihiko Yanagawa, Tokyo, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Filed Jan. 5, 1972, Ser. No. 215,515
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 D **10 Claims**



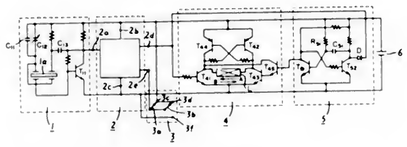
This invention relates to a quick correction mechanism for the seconds hand of an electronic timepiece.

The object is to provide a unique mechanism residing in such a point that by operating a manual control means, preferably shaped into a special stem other than the regular winding stem, to perform a number of reciprocations corresponding to the number of seconds to be corrected, a drive coil is energized to have a corresponding number of drive current pulses which are then utilized to rotate the rotor of a step motor by a corresponding angle. This rotational movement is transmitted through mechanical transmission means to the conventional seconds hand gear which thus corrects correspondingly the position of the seconds hand.

3,810,355
ELECTRONIC CIRCUIT FOR QUARTZ CRYSTAL WATCH

Kazuo Ito, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Mar. 17, 1972, Ser. No. 235,640
Claims priority, application Japan, Mar. 20, 1971, 46-15669
Int. Cl. G04c *3/00*; **G04b** *27/00*
U.S. Cl. 58—23 A **9 Claims**

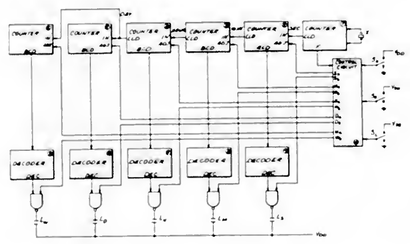


A watch movement constructed as an electronic circuit provided with an oscillating circuit having a quartz oscillator or resonator and a capacitor roughly adjusting the frequency of the oscillator with a variable capacitor for finally adjusting the frequency of a time base output thereof. The oscillating circuit is temperature compensated. The oscillator output is received by a fourteen-stage frequency-dividing circuit having complementary MOSFETS arranged as binary circuits with a wave-shaping circuit reducing the frequency of the oscillations to about one Hz. The frequency-divided signal is applied to driving circuitry that develops in conjunction with pulse-generating circuitry opposite-going pulses applied to a transducer that converts the pulses to rotary motion using a driving gear wheel of a second hand of a watch and of a gear train thereof.

3,810,356
TIME CORRECTING APPARATUS FOR AN ELECTRONIC TIMEPIECE

Kinji Fujita, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Apr. 17, 1973, Ser. No. 351,943
Claims priority, application Japan, Apr. 17, 1972, 47-38529
Int. Cl. G04b *27/00*
U.S. Cl. 58—23 R **12 Claims**

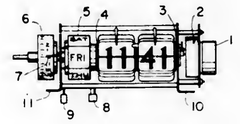


A time correcting apparatus for an electronic timepiece having a digital time display including a selecting switch for selecting the digit of the display to be corrected, which digit is visually identified, and a correcting switch for correcting that digit. Time correction is achieved by the combined operation of the two switches.

3,810,357
TIMER DEVICE

Kingo Murata, Shiki, Japan, assignor to Kabushiki Kaisha Koparu, Itabashi-Ku, Tokyo-To, Japan

Filed Mar. 16, 1973, Ser. No. 342,249
Claims priority, application Japan, Mar. 17, 1972, 47-31970
Int. Cl. G04b *23/08*
U.S. Cl. 58—33 **3 Claims**

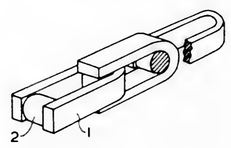


A timer device comprising seven settable operating members radially arranged being equally spaced on a calendar day indicating drum of a clock device and a switch device operable by said operating members only in the set position in order to actuate said switch at the pre-selected time on pre-selected days of a week.

3,810,358
CHAIN CABLE

Peter Bruce, 10 Torphchen Pl., Edinburgh, Eh3, Scotland

Filed Oct. 18, 1971, Ser. No. 190,192
Claims priority, application Great Britain, Oct. 20, 1970, 49665/70
Int. Cl. F16g *13/12*
U.S. Cl. 59—78 **5 Claims**



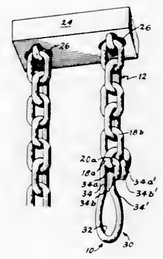
A chain cable in which each link is characterised by being formed from a bar bent into a U-shape bridged at the extremities by a cylindrical pin of length substantially equal to its diameter which mates under load with the U-shaped bar of a next adjacent link to give a substantial bearing area between links so that bearing failure may be eliminated as a first-occurring manner of failure of the chain cable when it is subjected to a tensile load.

3,810,359
LOAD CHAIN LOOSE END STOP

Kenneth D. Schreyer, Clarence, and Charles J. Manney, Kenmore, both of N.Y., assignors to Columbus McKinon Corporation, Tonawanda, N.Y.

Filed Jan. 15, 1973, Ser. No. 323,695
Int. Cl. F16g *17/00*
U.S. Cl. 59—93 **6 Claims**

An end stop is associated with an elongated link type load chain in order to prevent a loose end of the chain from running through a hoist. The end stop includes a standard chain end link held sidewise or horizontally within the next to the last or vertically disposed link of the load chain by legs of a pull link; the pull link serving to define a convenient finger

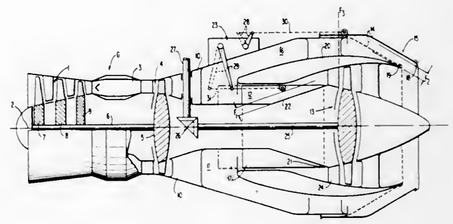


grip to facilitate manual pulling down on the loose end of the load chain.

3,810,360
GAS GENERATOR WITH SELECTIVELY CONNECTIBLE TURBINE SYSTEM

Heinrich Leibach, Grafrath-Wildenroth, Germany, assignor to Motoren-Und Turbinen-Union Munchen GmbH, Munchen, Germany

Filed Oct. 20, 1972, Ser. No. 299,279
Claims priority, application Germany, Oct. 20, 1971, 2152207
Int. Cl. F02c *7/02*
U.S. Cl. 60—229 **34 Claims**

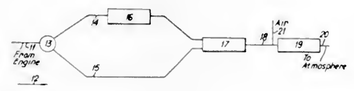


An engine arrangement for use with a vertical/short take-off and landing airplane having a gas generator supplying exhaust gases selectively to a turbine system and to a thrust nozzle. The turbine system is connectible to auxiliary lift devices, such as a lift rotor, for effecting vertical lift operations while the thrust nozzle is designed for normal cruising operations. The flow of exhaust gases to the turbine system and the thrust nozzle is controlled such that the total cross-sectional area, with respect to the exhaust gas flow, of both the turbine system and the thrust nozzle is maintained constant for all operations. Sliding members are arranged at the respective critical cross-sections in the inlets to the turbine system and thrust nozzle for blocking the exhaust gas flow. These sliding members are interconnected to one another such that opening of one causes a corresponding similar closing of the other.

3,810,361
EXHAUST SYSTEMS FOR INTERNAL COMBUSTION ENGINES

John Harold Weaving, Solihull, and Cecil David Haynes, Nuneaton, both of England, assignors to British Leyland Motor Corporation Limited, London, England

Filed Dec. 29, 1971, Ser. No. 213,680
Claims priority, application Great Britain, Jan. 19, 1971, 2460/71
Int. Cl. F01n *3/16*
U.S. Cl. 60—288 **2 Claims**

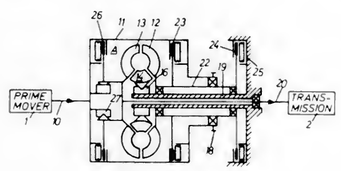


An exhaust system includes at least two paths in parallel for exhaust gases. Flow proportioning means govern the relative amounts of gas flowing along each path. A first catalytic reactor is disposed in one of the paths and a second reactor receives the output of the path having the first reactor and of at least one other path.

3,810,362
HYDRODYNAMIC TORQUE CONVERTER

Ernst-Guenter Finke, Steinheim-Kuepfendorf, Germany, assignor to Voith Getriebe KG, Heidenheim, Germany

Filed Apr. 25, 1973, Ser. No. 354,378
Claims priority, application Germany, May 6, 1972, 2222351
Int. Cl. F16d *33/00*; **F16h** *41/00*
U.S. Cl. 60—362 **19 Claims**

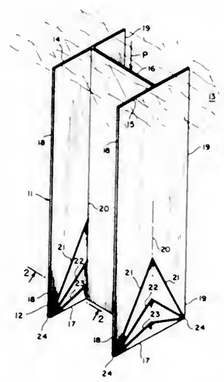


A hydrodynamic torque converter which is installed between the engine and the change-speed transmission of a heavy-duty vehicle and wherein the casing which defines a fluid enclosure is rotatable independently of the pump, turbine and one or more stators but can be coupled to the pump by a friction clutch for normal operation of the torque converter. The turbine is rigid with the output member, the casing is rigid with the input member, and the stator or stators are mounted on a hollow stationary shaft by means of one or more freewheels which confine the stator or stators to rotation in a single direction. If the torque converter is to act as a brake, the operator engages a friction brake which connects the pump to a stationary housing whereby the turbine acts as the rotor of a brake. A further clutch and/or a freewheel is provided between the input member and the output member to insure that the engine which rotates the input member can participate in the braking action. The freewheel can act as a brake during parking; it prevents the output member from rotating at a speed which exceeds the speed of the input member.

3,810,363
PILE WITH REINFORCED LEADING END

John M. Dar Conte, Brooklyn, N.Y., assignor to Manhattan College, Bronx, N.Y.

Filed Nov. 20, 1972, Ser. No. 307,996
Int. Cl. E02d *5/28*
U.S. Cl. 61—53 **6 Claims**

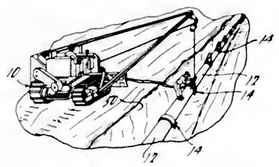


This disclosure teaches a pile preferably with an H-shaped cross section and having flanges at its leading end reinforced by at least one weld bead. Each of the flanges has a leading end margin and side margins perpendicular thereto so as to form corners. Each of the flanges also includes a median midway between the side margins. Preferably three beads are provided on each flange, each bead in the form of a chevron with an apex on the median and terminating at the corners. According to one preferred embodiment, one of the chevrons has an inclination of about 20°, one about 45° and one about 65°.

3,810,364
GROUND ANCHOR

Theodore B. Johnson, 540 Burrard St., Vancouver, British Columbia, Canada

Filed Dec. 30, 1971, Ser. No. 214,258
Int. Cl. F16l *1/00*
U.S. Cl. 61—72.1 **8 Claims**



A novel and improved ground anchor means and method of anchoring pipelines or the like therewith, for application in an environment where extremely hard ground conditions are encountered such as perma-frost, hard packed clay, ice and the like.

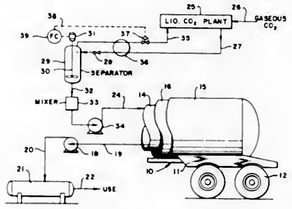
ERRATUM

For Class 62—137 see:
Patent No. 3,810,386

3,810,365
METHOD OF DISTRIBUTING CARBON DIOXIDE

Robert S. Hampton, Livermore, and Paul J. Eifel, Walnut Creek, both of Calif., assignors to Lox Equipment Company, Livermore, Calif.

Filed June 12, 1972, Ser. No. 261,601
Int. Cl. F17c *11/00*
U.S. Cl. 62—48 **29 Claims**

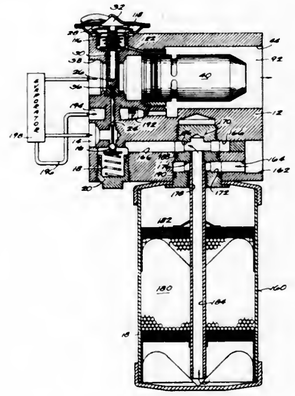


A system for producing, storing and distributing carbon dioxide as a multi-phasic product at triple-point temperature and pressure conditions. The system constitutes a method of storing and transporting carbon dioxide as a multi-phasic admixture of liquid and solid fractions in proportions enabling the carbon dioxide mass to be processed as a pumpable liquid or semiliquid; and steps of the method include providing the multi-phasic admixture, and confining the same within a container therefor after which the confined mass may be transported to a remote destination while being maintained in multi-phasic condition. In producing the admixture, liquid carbon dioxide is expanded toward the triple-point pressure while removing vapor to control the ratio of solids formation.

3,810,366
REFRIGERATION VALVE

Charles D. Orth, Cedarburg, Wis., assignor to Controls Company of America, Schiller Park, Ill.

Filed July 31, 1972, Ser. No. 276,676
Int. Cl. F25b *41/04*
U.S. Cl. 62—217 **7 Claims**

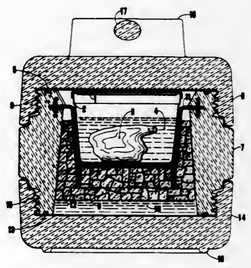


Each of the valves shown has parallel flow paths through the body with an expansion valve in the line leading to the evaporator thermostatically controlled by conditions in the return line. A second valve is positioned in the return line and controlled in response to a condition (temperature or pressure) which is indicative of conditions (temperature and pressure) in the evaporator. This arrangement prevents evaporator freezing. The valves are suited for flange fitting by reason of having all ports parallel enabling the valve to be secured to the evaporator (on one side) and to the compressor suction line and the condenser outlet on the other side. Since the thermostatic expansion valve can be "externally equalized" internally and all control functions are incorporated in the single body, the number of connections to be made by the system assembler are minimized. One version is provided with a receiver-drier which can be changed without disturbing other system connections.

3,810,367
CONTAINER FOR COOLING, STORAGE, AND SHIPPING OF HUMAN ORGAN FOR TRANSPLANT

William D. Peterson, 1996 E. 4675 South, Salt Lake City, Utah

Filed July 16, 1970, Ser. No. 55,512
Int. Cl. F25d *3/08*
U.S. Cl. 62—457 **7 Claims**

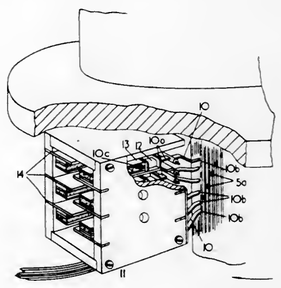


A system of containers having an organ holding container in a compartment, the compartment having its major interior walls being a heat transfer cup, the exterior of the heat transfer cup being another compartment for holding heat absorbing material (ice and water), the two compartments surrounded by a wall and lids of a heat insulating material.

3,810,368
PATTERNING MECHANISMS FOR KNITTING MACHINES

Thomas Cyril James Wade, Harcourt; Ian Matthewson, Fleckney, and Sidney Clifford Savage, Wigston Magna, all of England, assignors to Wildt Mellor Bromley Limited, Leicester, England

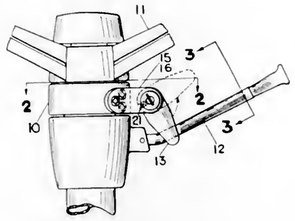
Filed May 21, 1971, Ser. No. 145,824
Claims priority, application Great Britain, May 22, 1970, 25043/70
Int. Cl. D04b *15/78*
U.S. Cl. 66—50 R **4 Claims**



A patterning mechanism for a knitting machine comprising a bank of selector elements each associated with individual

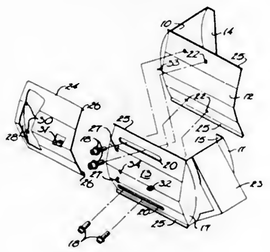
electro-magnetic means for movement between selection and non-selection positions, in which means is provided to constrain the magnetic flux produced by the electro-magnetic means to follow a predetermined magnetic path whereby the influence of any electro-magnetic means upon any selector other than the associated selector is reduced to negligible proportions.

3,810,369
LOCKING DEVICE FOR A VEHICLE TRANSMISSION SHIFT LEVER
Michael A. Giovanniello, 915 S. 49th St., Philadelphia, Pa.
Filed Apr. 16, 1973, Ser. No. 351,603
Int. Cl. B60r *25/06*
U.S. Cl. 70—202 **1 Claim**



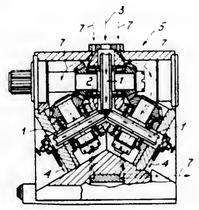
A locking device for blocking the moving of the transmission shift lever of a vehicle when it is in the "park"position. The shift lever is released by unlocking this device. In doing so, cited means rotates from a vertical to horizontal position, freeing the shift lever to move in any of the driving positions.

3,810,370
APPARATUS FOR IMMOBILIZING A VEHICLE
Jerry J. Jeppesen, 2223 S.W. 114th, Seattle, Wash.
Filed Oct. 24, 1972, Ser. No. 300,120
Int. Cl. B60r *25/00*; **B60t** *3/00*
U.S. Cl. 70—225 **7 Claims**



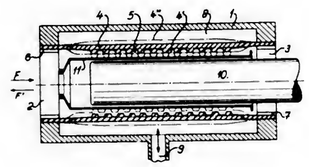
An apparatus for immobilizing a wheeled vehicle, such as an automobile or truck. Designed particularly for use in the on-site impounding of the vehicle, the device includes diametrically opposed arcuate plates which are clamped to the periphery of a tire and which mount a protruding abutment which makes it impossible to rotate the tire about the wheel axis. A protective shield or cover overlaps the operative portions of the apparatus and makes the structure inaccessible to all but its user.

3,810,371
HOT ROLLING METHOD FOR OBTAINING WIRE ROD
Ilario Properzi, Via Vittor Pisani 8, Milan, Italy
Filed Oct. 28, 1971, Ser. No. 193,435
Claims priority, application Italy, Feb. 20, 1971, 20812/71
Int. Cl. B21b *45/04*, *45/02*
U.S. Cl. 72—39 **1 Claim**



A hot rolling method for obtaining wire rod or the like of small cross section and with a high quality surface, particularly for copper wire rod, comprising the steps of rolling the initial product in a multi-stand rolling mill including assemblies each with a number of rolls, simultaneously pickling the product being rolled, and raising the specific pressures generated during the hot rolling to the very high values which derive from working on wire rods below 6 mm. diameter and down to 2 mm. diameter.

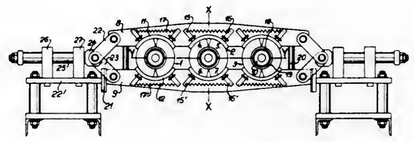
3,810,372
DIE
Christian A. Queyroix, Faramans, France, assignor to Aluminium Suisse S.A., Chippis, Switzerland
Filed Oct. 30, 1972, Ser. No. 301,737
Claims priority, application Switzerland, Nov. 5, 1971, 16110/71
Int. Cl. B21d *26/14*
U.S. Cl. 72—56 **9 Claims**



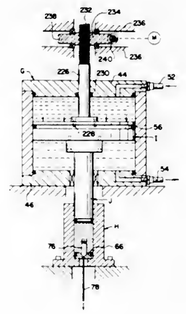
A die for magnetically forming impressions in a tubular metal workpiece. The die comprises a rigid hollow body having at least one aperture therein for introducing a workpiece and an induction coil and a tubular elastically deformable casing mounting at least one impression in intaglio or in relief. One end of the casing is fixed in said at least one aperture so as to define an annular, hermetically sealed chamber between itself and the inner wall of the hollow body. A conduit is provided for the introduction or removal of a fluid into or from said chamber to permit the forming and subsequent removal of a formed workpiece respectively.

3,810,373
MACHINE FOR THE MAGNETOMOTIVE FORMING OF METALLIC OBJECTS
Christian A. Queyroix, Faramans, France, assignor to Aluminium Suisse S.A., Chippis, Switzerland
Filed Dec. 6, 1972, Ser. No. 312,705
Claims priority, application France, Dec. 17, 1971, 71.018538
Int. Cl. B21d *26/14*
U.S. Cl. 72—56 **8 Claims**

A machine for the magnetomotive forming of metallic objects includes a die composed of a plurality of die sections, adjacent die sections being articulated together about a joining line on the inner surfaces thereof, said inner surfaces and joining line of each pair of articulated die sections being coated with a layer of flexible material, e.g. a rubber of 65° Shore hardness, which can carry or transmit an intaglio or cameo image. Means are provided for moving the die sections apart and together about a magnetomotive induction coil.



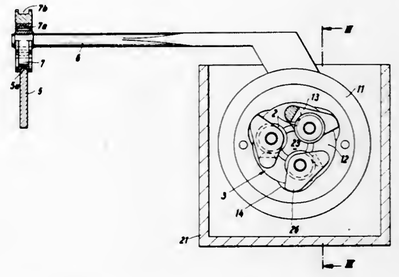
3,810,374
APPARATUS AND METHOD FOR HYDROSTATIC EXTRUSION
Alexander Zeitlin, 18 Macy Ave., White Plains, N.Y.
Filed Feb. 7, 1972, Ser. No. 224,210
Int. Cl. B21c *31/00*
U.S. Cl. 72—60 **6 Claims**



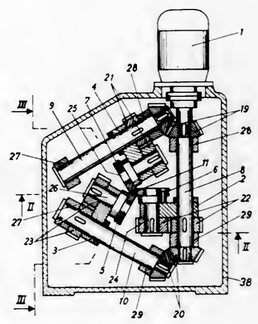
Metal is placed under high hydrostatic pressure to increase its ductility and force it through an opening in a die. Control means is provided for controlling the extrusion rate.

3,810,375
APPARATUS FOR THE PRODUCTION OF ELONGATED CONICAL METALLIC ARTICLES
Otto Oehm, Werdohl, Germany, assignor to Stahlwerke Bruninghaus Gesellschaft mit Beschrankter Haftung, Westhofen/Westfalen, Germany
Division of Ser. No. 826,943, May 22, 1969, Pat. No. 3,693,390. This application Sept. 21, 1972, Ser. No. 290,886
Claims priority, application Germany, Nov. 4, 1967, 27537
Int. Cl. B21b *31/22*
U.S. Cl. 72—81 **14 Claims**

Conical metallic blanks for the production of progressive helical springs are produced by rotating an elongated metallic rod about its axis, by simultaneously moving a die said die having three equidistant idler rolls each with an axis arranged askew relative to said die axis and by moving the rolls toward the axis of the workpiece in accordance with a predetermined pattern so that the rolls convert the workpiece into a blank which tapers from one end toward the other end, either gradually or stepwise. The means for moving the rolls toward the axis of the workpiece comprises a fixed template and a scanning arm whose follower tracks the template and which transmits motion to the rolls by way of a turnable ring and pivotable one-armed levers.



3,810,376
ROLL STAND FOR COLD WORKING OF ROLLED STEEL IN ROD OR WIRE FORM
Erich Elle, Glehn, Germany, assignor to Bau-Stahlgewebe GmbH, Dusseldorf-Oberkassel, Germany
Filed Mar. 30, 1972, Ser. No. 239,685
Claims priority, application Germany, Apr. 3, 1971, 2116426
Int. Cl. B21h *8/00*; **B21b** *13/10*
U.S. Cl. 72—194 **5 Claims**

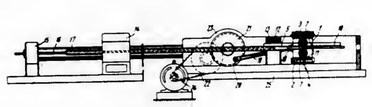


In a device wherein rod or wire is cold worked to provide it with one or more series of ribs thereon by being passed through three profile rolls simultaneously pressing against the rod or wire, a single drive is provided for said profile rolls, comprising a primary drive shaft and two secondary drive shafts at 60° to each other and to the primary drive shaft. Each of the shafts for the profile rollers is driven from its corresponding primary or secondary drive shaft and each of said shafts for the profile rollers is pivotally mounted with respect to its primary or secondary drive shaft. Means are provided to releasably hold the pivotally mounted profile rollers against the rod to be worked regardless of variations in diameter along the length of such a rod.

3,810,377
THIN-WALLED TUBE COLD-ROLLING MILL

Pavel Ivanovich Orro, ulitsa Kirova, 8, kv. 25, Dnepropetrovsk, U.S.S.R., and Anatoly Vasilievich Kirilenko, deceased, late of ulitsa Kirova, 7/4, late of Dnepropetrovsk, U.S.S.R. (by Nilla Sergeevna Kirilenko, administratrix)

Filed July 7, 1972, Ser. No. 269,817
Int. Cl. B21b *17/10*
U.S. Cl. 72—208 3 Claims

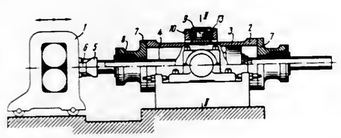


A mill with travelling stand, wherein to eliminate sliding of the passes on a tube being rolled, there is a mechanism for moving the racks during mill operation, the mechanism being designed so as to ensure variations in the rolling radius when the tube is strained.

3,810,378
APPARATUS FOR BALANCING INERTIAL FORCES OF RECIPROCATING MASSES OF TUBE COLD ROLLING MILL STAND

Sergei Nikolaevich Kozhevnikov, ulitsa Vystavochnaya, 3 kv. 73, Kiev; Jury Ivanovich Cherevik, ulitsa Belostotskogo, 114, kv. 1, Dnepropetrovsk; Arkady Semenovich Tkochenko, Prospekt Gegarina, 63, kv. 22, Dnepropetrovsk; Bronislav Mecheslavovich Klimkovsky, ulitsa Universiteskaua 1, kv. 12, Dnepropetrovsk; Valentin Ivanovich Toloka, Pervomaiskaya ulitsa, 32, kv. 18, Elektrostal Moskovskoi oblasti; Arkady Semenovich Malkin, Prospekt Lenina, 63, kv. 6, Nikopol Dnepropetrovskoi oblasti, and Yakov Maximovich Bykov, ulitsa Pushkina, 18, kv. 26, Elektrostal Moskovskoi oblasti, all of U.S.S.R.

Filed July 6, 1972, Ser. No. 269,407
Int. Cl. B21b *17/10*
U.S. Cl. 72—214 2 Claims



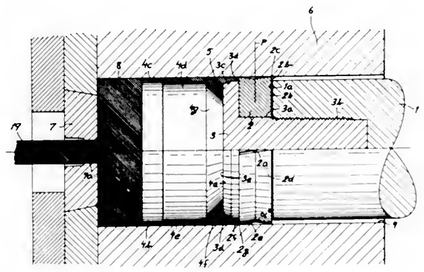
An apparatus for balancing inertial forces of reciprocatingly moving masses of tube cold rolling mill stand comprising an air cylinder connected with said stand by means of a plunger and having two vertically and two horizontally disposed journals, the longitudinal axes of which are arranged in one vertical plane.

3,810,379
APPARATUS FOR THE EXTRUSION OF BILLETS

Ferdinand Schlogelhofer, Amstetten, Austria, assignor to Vereinigte Metallwerke Ranshofen-Berndorf Aktiengesellschaft, Vienna, Austria

Filed June 15, 1972, Ser. No. 263,104
Claims priority, application Austria, June 16, 1971, 5188/71
Int. Cl. B21c *23/00*
U.S. Cl. 72—255 9 Claims

Billets are extruded from a container terminating in a die into which the extrusion ram or plunger is forced, to urge an extrusion or press disk toward the die orifice and drive the nonferrous metal of the billet therethrough. The ram is provided with a double-acting ejector disk which cleans the container wall and cooperates with the residual extrudable

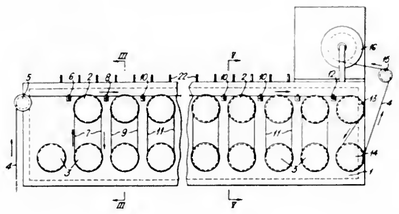


material, in the form of a lining or skirt, to withdraw it from the container.

3,810,380
METHOD OF AND APPARATUS FOR DRAWING WIRE

John Newberry, Warrenpoint, and Alan George Albert Edward Ettie, Newry County Down, both of Northern Ireland, assignors to British Insulated Callender's Cables Limited, London, England

Filed July 14, 1972, Ser. No. 272,081
Claims priority, application Great Britain, July 20, 1971, 34031/71; July 30, 1971, 35997/71; July 30, 1971, 35998/71
Int. Cl. B21c *1/12*
U.S. Cl. 72—279 3 Claims



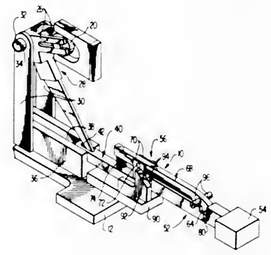
In a wire-drawing machine with at least two dies, each drawing block has an effective surface that is tapered from one end of its rotation axis to the other and has independently adjustable driving means having a working range in which the angular velocity of the drawing block can change in response to variations in the speed of wire frictionally engaged therewith without any substantial change in the torque of the driving means and independently of the other drawing blocks. Preferred driving means are turbine motors or pneumatic displacement motors, preferably supplied from a common source of working fluid, and electric torque motors.

After threading up, the blocks are driven at a low speed and the take-up is adjusted to a starting condition in which at least some of the drawing blocks are overdriven, and any that are not overdriven engage the wire without slip; each slipping block is slowed until slip ceases, and then the drawing blocks and the take-up are accelerated in unison without slip recurring.

3,810,381
DETACHABLE SLIDABLE FORM BLOCK FOR RECIPROCATING DIE PRESS

Josef Roth, 13694 Settlement Acres Dr., Brookpark, Ohio

Filed Mar. 13, 1973, Ser. No. 340,792
Int. Cl. B21j *13/00*
U.S. Cl. 72—421 10 Claims

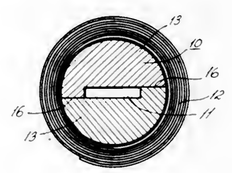


A form block is coupled to a driven slide for movement into and out of a path of a reciprocating die press ram permitting removal of a formed part outside of the press area and replacement with a new part which then moves into the path of the reciprocating ram. A driving slide coupled to the reciprocating die press ram oscillates to place the form block beneath the ram as the ram descends, and out of the path of the reciprocating ram as the ram moves away from the stationary bed. A mechanical clutch declutches the driven slide from the driving slide after the form block is aligned with the descending ram and just before impact of the ram with the work piece to insure cessation of movement of the work piece and the underlying form block during die forming.

3,810,382
MOULDS

Per-Olof Strandell, Taby, Sweden, assignor to Sandvik Aktiebolag, Fack, Sandviken, Sweden

Continuation of Ser. No. 47,684, June 19, 1970, abandoned. This application Oct. 12, 1972, Ser. No. 296,897
Claims priority, application Switzerland, June 25, 1969, 9025/69The portion of the term of this patent subsequent to Sept. 28, 1988, has been disclaimed.
Int. Cl. B21c *3/00*
U.S. Cl. 72—467 1 Claim

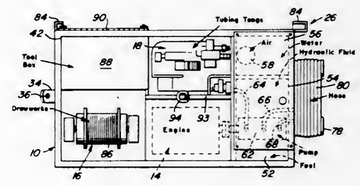


A reinforced mould, including a mould body having in at least one end surface thereof a mould cavity which presents relatively sharp corners when seen in cross section, and in which the mould body has arranged along at least part of its axial length a pre-tensioned reinforcing means in the form of at least one winding of thin metallic strip material and is slotted generally axially along at least two of said corners to form separate body portions, said body portions being held in contiguous relationship solely by the pre-tensioning force exerted by the reinforcing means on said body.

3,810,383
COMPACT TUBING TESTING UNIT

Carrol J. Matherne, P.O. Box 763, Houma, La.

Filed Mar. 17, 1972, Ser. No. 235,765
Int. Cl. G01m *3/08*
U.S. Cl. 73—40.5 R 12 Claims

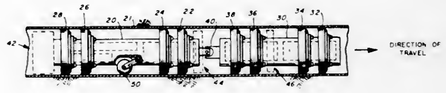


A mobile unit for use in testing tubing joints as the tubing is being made up and run into an oil well in which the mobile unit includes a framework compactly receiving an engine driving a hydraulic pump, a drawworks, high pressure hydraulically actuated pump for pressuring the tubing joint to be tested and tubing tongs for use in making up the tubing. The frame also includes the compact arrangement of tanks for hydraulic fluid, water, compressed air tank and fuel tank for the engine and a hose rack for storage of the hoses employed and a bar rack along one side of the frame. This enables a single unit to be employed for effectively testing tubing and replaces four separate pieces of equipment now being employed in the industry for testing tubing.

3,810,384
ULTRASONIC PIPELINE INSPECTION DEVICE

Dwight J. Evans, 4107 E. 49th, Tulas, Okla.

Filed Feb. 1, 1971, Ser. No. 111,550
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.8 S 9 Claims

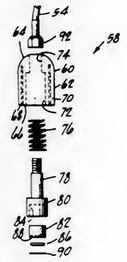


Ultrasonic instrumentation is incorporated into a self-contained and self-propelled unit capable of traversing through generally inaccessible pipe such as a buried pipeline to provide a record of pipe wall thickness variation and/or defects or other abnormalities which may exist in the pipeline under examination. The information is correlated to the rate of travel of the unit and with other orientation means, such as the physical configuration of the pipeline, fittings, valves, etc., to properly determine the location of any such abnormalities.

3,810,385
TRANSDUCER MEANS FOR ULTRASONIC EXTENSOMETER

Howard J. McFaul, Westminster; Donald C. Erdman, and Evan B. Friedmann, both of Pasadena, all of Calif., assignors to McDonnell Douglass Corporation and Donald C. Erdman Company, Inc., part interest to each

Division of Ser. No. 117,635, Feb. 22, 1971. This application Apr. 3, 1972, Ser. No. 240,871
Int. Cl. G01n *29/00*
U.S. Cl. 73—71.5 U **8 Claims**

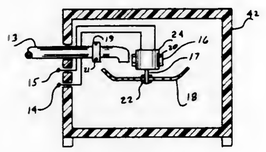


Magnetic transducer assembly for use with an ultrasonic extensometer for measuring the elongation of a bolt or the like being tightened against structure which it fastens, the extensometer including a transducer magnetically coupled to one end of the bolt, a pulser/receiver for generating a periodic pulse signal which energizes the transducer that is subsequently energized by the echo pulse from the far end of the bolt to provide an echo signal which is received and amplified, indicating circuit means for detecting and providing a correct couple indication between the transducer and its associated bolt end, and measuring circuit means for displaying a variable duration meter signal responsively produced by the amplified echo signal and controlled in duration by a vernier signal responsively produced by the pulse signal after a predetermined delay which is adjustable to index the vernier signal a desired amount with respect to the meter signal so that when the bolt has been elongated the proper amount, the amplified echo signal then coincides with the indexing vernier signal and the duration of the meter signal is reduced to zero.

3,810,386
ICE DISTRIBUTION AND LEVEL CONTROL

Robert Burton McAshan, Jr., 1719 S. Post Oak Ln., Houston, Tex.

Filed July 22, 1971, Ser. No. 165,144
Int. Cl. G01n *11/14*
U.S. Cl. 62—137 **9 Claims**

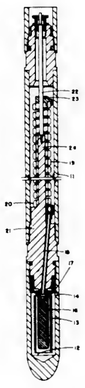


An apparatus for controlling filling of an ice bin from an ice refrigeration apparatus where the ice is added to the bin and distributed by a rotating slinger powered by an electric motor and including a switch in the refrigerator power supply. When ice accumulates in the bin, it drags the slinger and increases the power requirements to the motor. This is reflected as a current change. A level detector senses current flow outside a permitted range. The detected change opens the switch and turns off the refrigeration equipment.

3,810,387
APPARATUS FOR RECORDING BOREHOLE CONDITIONS AT THE SURFACE

Thomas H. Stancliff, Houston, Tex., assignor to Sperry-Sun Well Surveying Company, Sugar Land, Tex.

Filed Dec. 8, 1972, Ser. No. 313,367
Int. Cl. E21b *47/06*
U.S. Cl. 73—151 **15 Claims**

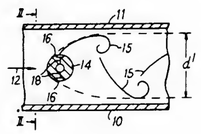


In a surface recording pressure gauge a bourdon tube is used to detect pressure change. Angular motion generated by the bourdon tube is detected by a scan system which in turn feeds digital data to the surface indicative of pressure change. The surface electronics are conveniently programmed for calibration of the particular gauge and provide computed read-outs of true pressure in psi.

3,810,388
FLOWMETERS

Terence Cousins, Luton, England, and Klaus Joachim Zanker, Kiriat, Israel, assignors to George Kent Limited, Luton, England

Filed Mar. 22, 1973, Ser. No. 343,913
Claims priority, application Great Britain, Mar. 22, 1972, 13384/72
Int. Cl. G01f *1/00*; G01p *5/00*
U.S. Cl. 73—194 B **13 Claims**

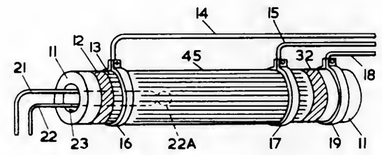


A flowmeter in which an elongated body extends across a conduit and causes vortices to be formed in a fluid flowing along the conduit. The frequency at which vortices are formed is proportional to the rate of flow of the fluid and sensing means are provided for generating a signal proportional to that frequency. The width of the body in a direction perpendicular to the direction of the flow is so arranged that the constant of proportionality between the frequency of vortex formation and the flowrate is at a minimum value.

3,810,389
HYGROMETERS

Alfred Charles Jason, Aberdeen, Scotland, assignor to National Research Development Corporation, London, England

Filed May 3, 1972, Ser. No. 249,793
Claims priority, application Great Britain, May 4, 1971, 12837/71
Int. Cl. G01n *25/56*
U.S. Cl. 73—336.5 **15 Claims**



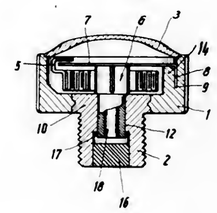
Vapour pressure of a substance in a quantity of gas, usually water in air, is measured by means of an electrical circuit element, the impedance of which is dependent on the amount of said substance adsorbed in the element. The impedance is sensed by a detecting circuit and any change in impedance controls through said circuit a supply of energy to a heater associated with the element so that the impedance of the element remains substantially constant. The power supplied to the heater is then a measure of the vapour pressure of the said substance.

By measuring the temperature of the electrical circuit element, and of the quantity of gas at a location away from the element by means of suitably selected thermistors the relative humidity of the substance in the gas can be determined.

3,810,390
MINIATURE PRESSURE GAUGE

Gerhard Neugebauer, Trennfurt, Germany, assignor to Alexander Wiegand Armaturen-und Manometerfabrik, Main, Germany

Filed Feb. 23, 1973, Ser. No. 335,338
Claims priority, application Germany, Feb. 25, 1972, 7207148
Int. Cl. G01l *7/04*
U.S. Cl. 73—418 **5 Claims**



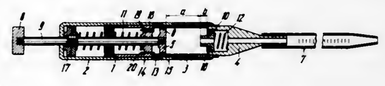
A miniature pressure gauge comprised of a housing with connecting sockets and with a spiral spring communicating with the inlet bore thereof. At the free end of the spring a pointer is arranged that is superimposed over a dial.

3,810,391
ADJUSTABLE PIPETTE

Osmo A. Suovaniemi, Makitorpantie 7 B 18, Helsinki 62, Finland

Filed June 19, 1972, Ser. No. 264,164
Int. Cl. B01l *3/02*
U.S. Cl. 73—425.6 **4 Claims**

A pipette includes a piston, the movement of which is limited by a regulating member. A scale indicates by the position of the regulating member relative to the body of the pipette the volume of liquid drawn into a container by the

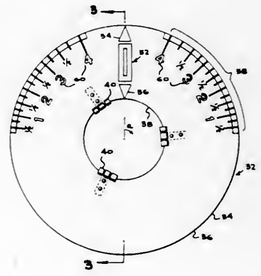


movement of the piston. The scale is readable through a transparent member in the body of the pipette.

3,810,392
VEHICLE WHEEL WEIGHT LOCATOR

Bernard J. Green, 905 Broad St., and Milton J. Green, 901 Anderson St., both of Bristol, Tenn.

Filed July 26, 1973, Ser. No. 382,790
Int. Cl. G01m *1/12, 1/16*
U.S. Cl. 73—458 **14 Claims**

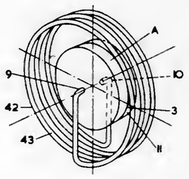


A vehicle wheel weight locator for use in positioning single sized weights after determination of the amount of unbalance of the vehicle wheel by a spin balancer. The weight locator having a plate member is secured onto the hub of the spin balancer and aligned by alignment indicia. The reading of the balancer is transferred to the weight locating indicia on the base member to permit single sized weights to be applied to the wheel to correct the unbalance of the wheel.

3,810,393
ANGULAR ACCELEROMETERS

William Ronald MacDonald, Hindhead, England, assignor to National Research Development Corporation, London, England

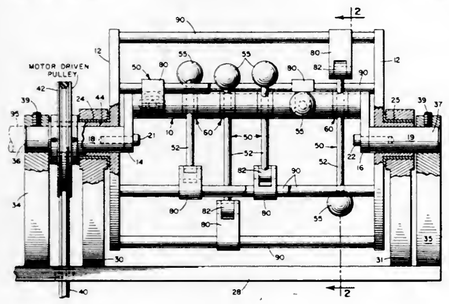
Continuation-in-part of Ser. No. 106,223, Jan. 13, 1971, abandoned. This application Jan. 15, 1973, Ser. No. 323,699
Claims priority, application Great Britain, Jan. 15, 1970, 1982/70
Int. Cl. G01p *15/08*
U.S. Cl. 73—505 **9 Claims**



An angular motion transducer comprises a rigid sealed gas-tight container, a spiral or toroidal tube mounted within the container and a variable capacitance detecting device con-

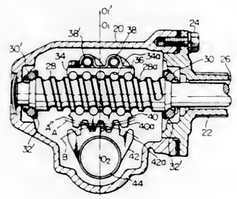
nected to the tube, the tube being provided with an opening at some point along its length communicating directly with the interior of the container, and a gas filling the tube and the container, the detecting device being responsive to a mechanical force exerted by the gas in response to angular movement of the transducer. The transducer can act equally well as an angular accelerometer or a torsional vibration transducer provided the natural frequency of the transducer is correctly chosen with respect to the variations to be measured.

3,810,394
CENTRIFUGAL MECHANICAL DEVICE
Leo J. Novak, 2941 S. Dayton Lakeview Rd., New Carlisle, Ohio
Filed Dec. 1, 1972, Ser. No. 311,116
Int. Cl. F16h *33/10*
U.S. Cl. 74—87 **6 Claims**



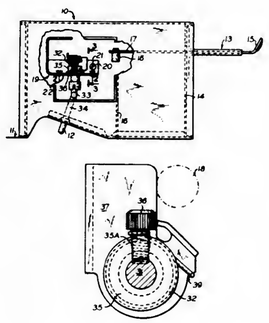
A machine for producing directable centrifugal force or thrust utilizing a series of off center rotating masses such that there is a total excess torque component of centrifugal thrust exerted in a predetermined direction over that produced in a direction opposite thereto.

3,810,395
WORM AND RECIPROCATING BALL TYPE STEERING GEAR FOR MOTOR VEHICLES
Koichi Takahashi, Yokohama; Nobuteru Hitomi, and Tokiyoshi Yanai, both of Yokosuka, all of Japan, assignors to Nissan Motor Company Limited, Yokohama, Japan
Filed Aug. 14, 1972, Ser. No. 280,177
Claims priority, application Japan, Aug. 19, 1971, 46-63254
Int. Cl. F16h *27/02*
U.S. Cl. 74—89.15 **3 Claims**



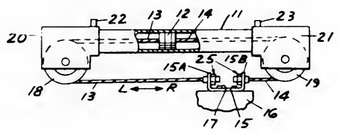
Herein disclosed is a worm and reciprocating ball type steering gear having a worm shaft connected to a steering shaft and having an external helical groove, a nut member longitudinally movably fitting on the worm shaft and having an internal helical groove aligned with the opposed helical groove in the worm shaft, balls rolling in the grooves in the worm shaft and nut member, and a sector gear in mesh with a rack portion formed on the nut member. Rotation of the worm shaft as brought about by the rotation of the steering shaft is converted into longitudinal movement of the nut member and this movement, in turn, results in rotation of the sector gear. The rack portion of the nut member is generally curved in a quadratic formation in the direction of axis of the worm shaft so that the steering gear ratio is smoothly varied as the steering angle is varied during steering operation.

3,810,396
COIN CONTROLLED APPLIANCE TIMER
Harry Greenwald, Whitestone, N.Y., assignor to Walter Kidde & Company, Inc., Clifton, N.J.
Filed Nov. 13, 1972, Ser. No. 305,974
Int. Cl. F16h *21/44*
U.S. Cl. 74—107 **1 Claim**



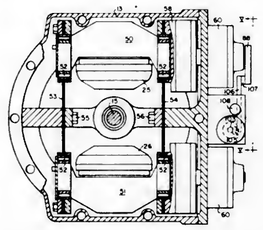
An appliance timer in which the timer control shaft is rotated to initiate a cycle of operation by the action of a coin slide upon a cam. The cam is connected to a collar coupled to the timer shaft, and is rotatable relative to the collar. A spring resiliently biases the cam for engagement with the head of a screw securing the collar to the timer shaft, so that when the coin slide is advanced forward the cam turns the timer shaft to a cycle starting position, and when the coin slide is withdrawn, the cam turns in the reverse direction to allow return of the coin slide to its starting position.

3,810,397
AUTOMATIC SLACK ADJUSTER FOR CABLE CYLINDER ASSEMBLY
Joseph H. Green, 7332 Greenfield Rd., Dearborn, Mich.
Filed Dec. 4, 1972, Ser. No. 311,880
Int. Cl. F16h *21/44*
U.S. Cl. 74—110 **6 Claims**



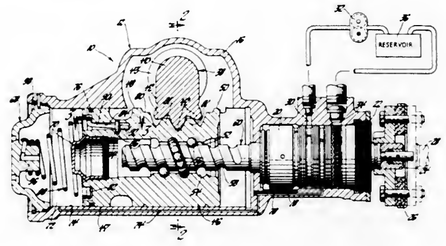
An automatic slack adjuster for the cables of a cable cylinder assembly having a work piece supporting bracket at the outboard ends of the cables. The invention resides in the provision of threaded fittings secured to the ends of said cables and slideable in bores formed in the bracket, and spring biased nuts rotatable on said fittings with means to permit the longitudinal movement but prevent the radial movement of said fittings when slack develops in either of said cables.

3,810,398
TORIC TRANSMISSION WITH HYDRAULIC CONTROLS AND ROLLER DAMPING MEANS
Charles E. Kraus, Austin, Tex., assignor to Tracor, Inc., Austin, Tex.
Filed Nov. 16, 1972, Ser. No. 306,909
Int. Cl. F16h *15/10, 15/12*
U.S. Cl. 74—200 **13 Claims**



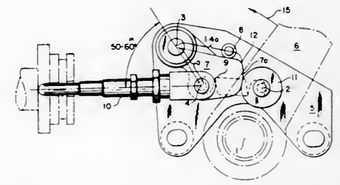
A rotary motion transmitting device having oppositely disposed toric discs mounted on its input and output shafts. Motion transmitting rollers are frictionally engaged between the toric discs for transmitting motion from one toric element to the other and supported by tension sheets extending between opposite rollers to balance forces exerted on the rollers. Independent hydraulic precess cams control the position of each roller.

3,810,399
STEERING GEAR ASSEMBLY
Floyd A. Schluckebier, Frankenmuth, and Ronald L. Harkrader, Saginaw, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Feb. 22, 1973, Ser. No. 334,586
Int. Cl. F16h *55/18, 1/12;* **B62d** *1/20*
U.S. Cl. 74—409 **3 Claims**



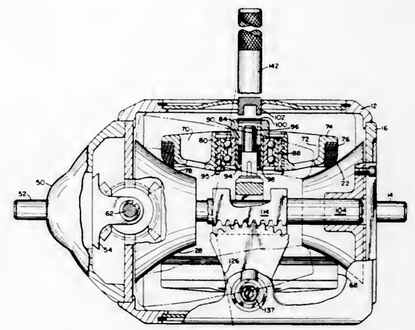
A steering gear assembly of the type adapted for automobile application and including a housing, a worm shaft rotatably supported on the housing, a rack nut disposed in the worm shaft for bodily shiftable movement in response to rotation of the worm shaft, a plurality of straight rack teeth on the rack nut, a pitman shaft rotatably supported on the housing and having a sector portion with a plurality of straight gear teeth, the roots of which are parallel to the longitudinal axis of the pitman shaft, and a torsion spring disposed between the rack nut and the housing, the torsion spring functioning to bias the rack nut toward a no-lash position wherein the rack teeth are disposed at an angle relative to the gear teeth so that the former wedgingly engage the latter to eliminate lash therebetween. The gear teeth generate a reaction force on the rack teeth during periods of force transfer therebetween which reaction force rotates the rack nut against the spring bias until the area of contact between the teeth is maximized.

3,810,400
VARIABLE RATIO BRAKE OPERATING LEVER
Hans O. Schroter, Robert-Koch-Strasse 18, 8 Munich 22, Germany
Filed Feb. 12, 1973, Ser. No. 331,698
Claims priority, application Germany, Feb. 12, 1972, 7205400
Int. Cl. G05g *1/04*
U.S. Cl. 74—518 **9 Claims**



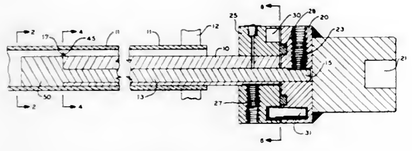
A variable ratio operating lever for the brake system of a vehicle includes a pivotally mounted operating lever upon which is a roller which is engageable with a hyperbolic cam surface formed on a pivotally mounted control lever. A rod which is adapted to actuate the brake system is pivotally connected to the control lever. When the operating lever moves in the braking direction, its roller will roll along the hyperbolic cam surface to produce a predetermined variable ratio of force applied to the operating lever and the force acting on the actuating rod. This ratio attains a maximum when the roller engages the apex of the hyperbolic curve and this maximum ratio is maintained upon continued movement of the operating lever in the braking direction.

3,810,401
TRANSMISSION
William Edlich, Union Hill, R.F.D. 1, Dover, N.J.
Filed Sept. 5, 1972, Ser. No. 286,034
Int. Cl. F16h *37/06, 15/08*
U.S. Cl. 74—691 **8 Claims**



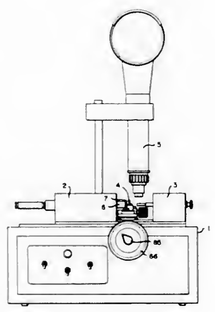
An improved split torque gear reducer transmission is disclosed which incorporates an improved novel ratio range selector transmission control and a disengaging mechanism for eliminating creep while the transmission is in the neutral mode. The ratio range selector comprises a lockable control lever moving a pivotable gear segment and gear rack to position the transmission elements in the desired mode.

3,810,402
TUBE SEVERING DEVICE
Charlie D. Miller, Manlius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed Nov. 9, 1972, Ser. No. 305,022
Int. Cl. B23b *5/14*
U.S. Cl. 82—82 **11 Claims**



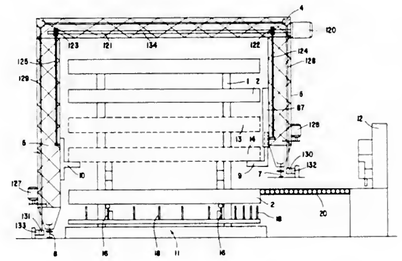
A cylindrical housing is dimensioned for insertion in a heat exchanger tube. The housing is formed with a bore extending therethrough and located eccentrically relative to the axis of the housing. A shaft is journaled in the bore and is provided at its inner end with a tube penetrating rib arranged eccentrically with the axis of the shaft. The eccentricity of the shaft penetrating rib relative to the axis of the shaft is comparable to the eccentricity of the housing relative to the axis of the shaft, whereby the penetrating shaft rib may be positioned in registration with the inner end of the housing to permit the same to be inserted in the tube. Driving means is operable to effect rotation of the shaft moving the penetrating rib thereon into engagement with the inner surface of the tube. This rotation on the shaft extends through a part of a revolution and thereupon, the driving means effects rotation of the shaft and the housing in unison effecting complete severance of the tube.

3,810,403
CONTACT LENS EDGING MACHINE
Joseph N. Ianuzzi, Binghamton, and Gordon Hurlbut, Windsor, both of N.Y., assignors to Union Electronics (a Division of The Union Corporation), Windsor, N.Y.
Filed Aug. 9, 1972, Ser. No. 278,940
Int. Cl. B23b *1/00*
U.S. Cl. 82—1 C **8 Claims**



A contact lens is edged by holding it against a rotating faceplate by suction and moving a cutting tool against it at a controlled rate of travel below that which would dislodge the lens from the faceplate. Suitable apparatus is disclosed.

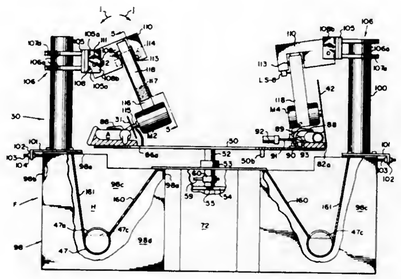
3,810,404
APPARATUS FOR SUPPLYING MATERIAL
Paul Stolzer, Achern, Germany, assignor to Keura Maschinenbau Gesellschaft vit beschrankter Haftung & Co. Kommanditgesellschaft, Achern, Germany
Filed Dec. 18, 1972, Ser. No. 316,427
Claims priority, application Germany, Dec. 18, 1971, 2163101
Int. Cl. B26d *7/06*
U.S. Cl. 83—71 **50 Claims**



Material supply apparatus including pallets of equal size on which material to be fed to a cutting machine may be stored. The pallets are arranged, one above another, in alignment with one another in storage bays formed by shelving units. The storage bays of each shelving unit are positioned one above another. At least one of the shelving units is positioned in spaced relation with respect to another of the shelving units transversely of the longitudinal extent of the pallets, providing a free space between these shelving units. The width of the free space is greater than that of the pallets. A conveyor which is drivable in two opposite directions is positioned between the cutting machine and a withdrawal bay operatively associated with one of the shelving units. The withdrawal bay is part of an arrangement which includes members for withdrawing material from the pallets onto the conveyor and for reinserting material from the conveyor onto the pallets. Pallet transport devices are arranged for transporting the pallets from the storage bays into the withdrawal bay and back again. The transport devices, the members for withdrawing and reinserting material, and the conveyor are coupled to a program control system and are controlled by signals therefrom. A data carrier provided on each pallet is adapted to store data which determine the working speed of the cutting machine and the pressure exerted by clamping devices associated with the machine on the material being cut with regard to the nature of the material assigned to each respective pallet. A sensor is operatively associated with the withdrawal bay for sensing the data carried by the data carriers. The cutting machine and the clamping jaws are responsive to signals from the sensor which establish the working speed of the machine and the pressure exerted by the clamping jaws.

3,810,405
TRIMMING APPARATUS
John W. Oberloier, 491 Somerset Rd., Saginaw, Mich.
Division of Ser. No. 79,206, Oct. 8, 1970. This application June 19, 1972, Ser. No. 263,847
Int. Cl. B26d *5/10, 7/06*
U.S. Cl. 83—100 **16 Claims**

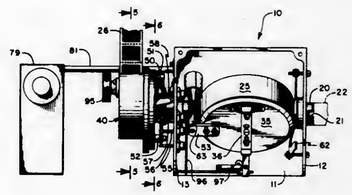
Apparatus for trimming hollow plastic articles including a turntable for supporting and moving articles positioned thereon in a circumferential path, at least one saw member at a peripherally disposed saw station, mounted on a support arm for swinging movement between radially spaced inoperative and operative cutting positions for removing at least one end portion of the article, a plunge milling member for cutting an aperture in the wall of the article, and a cutting member movable in a generally tangentially path of travel along a plane intersecting said aperture to remove an end portion of the article outwardly of the aperture to provide a cutout in the article.



3,810,406
CONVEYOR DEVICE FOR CONVEYING BARS
Carl Ullrich Peddinghaus, Lichtenplatzer Strasse 276, Wuppertal-Barmen, Obere, Germany
No Drawing. Filed July 11, 1972, Ser. No. 270,849
Claims priority, application Germany, July 12, 1971, 2134650; July 12, 1971, 2134652
Int. Cl. B26d *5/26*
U.S. Cl. 83—222 **10 Claims**

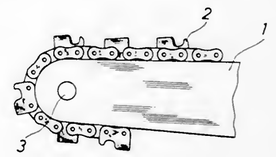
A conveyor device is provided for conveying bars longitudinally to a machine which processes the bars. A drive of a conveyor member which moves in the longitudinal direction can be switched off after predetermined section lengths have been attained and can be switched on again after processing has been carried out. The switching off and the switching on is controllable by means of impulses which are released by impulse generators when a pre-selectable section length is obtained by means of a section length selector switch or after processing has been carried out. The successive section length is pre-selected while the previous section length is being processed. The section length selector switches form together a sequence programme and the section length selector switches corresponding to the section lengths can be switched in to a programme storage circuit with a number of stores for forming the conveying programme. The circuit switches itself forward by one store at each switch-in step and is in turn able to be switched over to a control switch of a drive of the conveyor member in order for the conveying operation to be carried out, in which switch position it switches itself forward by one store after each section conveying and processing operation.

3,810,407
STAMP APPLICATING MACHINE
Robert N. Klund, Stillwater, and Merle H. Sorenson, Minneapolis, both of Minn., assignors to Delkar Industries, Inc., Minneapolis, Minn.
Filed Jan. 29, 1973, Ser. No. 327,634
Int. Cl. B65h *35/08, 37/04*
U.S. Cl. 83—285 **10 Claims**



A stamp applying machine wherein a roll of stamps is mounted to and for rotation with a stamp applying wheel and shaft assembly; the wheel has a stamp metering means mounted on the face thereof which is activated during a first limited part of the rotation of the stamp wheel to deliver one or more stamps to the outer periphery of the stamp applying wheel and a loop forming roller is operatively joined to the assembly intermediate the roll of stamps and the metering means and is moved transversely of the path of the stamps during a second part of the rotation of the assembly to form a free standing loop of stamps intermediate the metering means and the roll of stamps.

3,810,408
GUIDE FRAME FOR CHAIN SAW
Tetsuro Taira, and Akira Somekawa, both of Tokyo, Japan, assignors to Kaoru Tsumura, Miki, Hyogo, Japan
Filed Dec. 6, 1972, Ser. No. 312,503
Int. Cl. B27b *17/02;* **B23d** *57/02;* **G01d** *13/00;* **G01k** *1/02*
U.S. Cl. 83—802 **2 Claims**

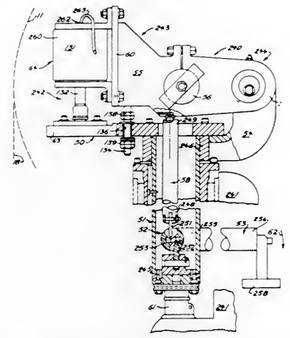


An improved chain saw guide frame for power-driven saw chain which is fitted with a heat-sensitive colorant at a concave region in the nose part of the guide frame for detecting heat accumulation of the guide frame.

3,810,409
BANDMILL STRAIN MECHANISM
Francis Edwin Allen, North Vancouver, and James Daniel McGuire, Surrey, British Columbia, both of Canada, assignors to Letson And Burpee Ltd., British Columbia, Canada
Filed Apr. 3, 1972, Ser. No. 240,649
Claims priority, application Great Britain, Apr. 6, 1971, 08905/71
Int. Cl. B27b *13/08;* **B23d** *55/10*
U.S. Cl. 83—819 **13 Claims**

Strain mechanism for bandmill using deadweight lever mechanism in which undesirable effects of inertia of counterweight and friction at knife edges are reduced. Rolling diaphragm air cylinder is used in one of three positions. In first position cylinder extends between arbor carrier arm and

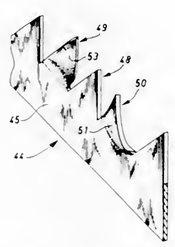
plunger tube and supplies portion of saw strain permitting lighter counterweight. In second position it extends between counterweight arm and plunger tube and eliminates counterweights. In third position counterweight is supported on counterweight arm by yoke supported by cylinder which resiliently mounts weight.



3,810,410
SAW BLADE

Evangelos G. Athanasoulas, 20 Alexandrou Zarra St., Arta, Greece

Division of Ser. No. 880,343, Nov. 26, 1969, Pat. No. 3,661,037. This application May 8, 1972, Ser. No. 251,033
Claims priority, application Greece, Nov. 28, 1968, 36114
Int. Cl. B27b *33/06*; **B23d** *61/12*
U.S. Cl. 83—852 **6 Claims**



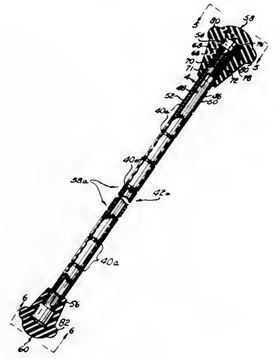
The teeth of a saw blade and particularly of a band saw blade are transversely set so that, for each such set tooth a portion of the tooth bounded by its leading edge and by an outwardly extending line of set is disposed transversely to the remainder of the tooth. The line of set extends edgewise outwardly from the leading edge of the tooth and preferably intersects the trailing edge of the tooth along a line generally parallel to the leading edge.

3,810,411
BATON

Eugene E. Schambacher, 12700 Eastwood Blvd., Garfield Heights, Ohio

Continuation-in-part of Ser. No. 638,032, May 12, 1967, abandoned. This application June 3, 1971, Ser. No. 149,707
Int. Cl. G09b *15/02*
U.S. Cl. 84—477 B **7 Claims**

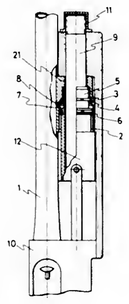
A baton shaft is constructed from aluminum tubing which is anodized and dyed a desired color. Portions of the dyed surface are then removed to expose the aluminum which contrasts with the dyed surface portion and forms a design. A steel member is inserted inside the aluminum tube to provide for additional strength of the baton shaft. Balancing weights are secured to each end of the baton shaft. A ball is then positioned on one end of the baton shaft and a tip is positioned on the other. The ball and tip have a number of lobes thereon to reduce rolling of the baton on a surface.



3,810,412
GAS CYLINDER FOR FIREARMS

Eduardo Iraegui Zamacola, San Ignacio 3, Elgoibar (Guipuzcoa), Spain

Filed Oct. 3, 1972, Ser. No. 294,594
Claims priority, application Spain, July 10, 1972, 182287
Int. Cl. F41d *5/10*
U.S. Cl. 89—191 A **2 Claims**

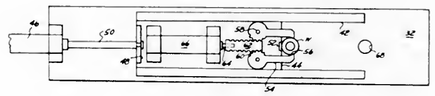


A gas cylinder for firearms includes a cylindrical hollow body fixed to the lower part of the barrel and loosely fixed to the tubular receiver or tubular magazine of the fire-arm. Such body is gas sealed as its bottom end with regard to the tubular magazine and has in its interior a piston which exactly fits into its inner surface and which can slide or be guided by the tubular magazine on being pushed or urged by the gasses which originate form a shot. The cylindrical body is interiorly stepped into two different diameters and the piston is loosely mounted on the tubular magazine and is prolonged, as a continuation of its adjustment area with the inner surface of the cylinder, into a coaxial tubular projections. Gas tight sealing of the cylindrical body or body of the gas cylinder is achieved with regard to the tubular magazine, by means of a joint or gland mounted on the smaller diameter part of such body which are held in place by a flexible washer or ring which fits on such coaxial projection of the piston.

3,810,413
PROGRESSIVE POT BROACH SYSTEMS

Raymond S. Kusz, Mt. Clemens, and Arthur B. Bassoff, Oak Park, both of Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed Oct. 2, 1972, Ser. No. 294,383
Int. Cl. B23f *1/08*
U.S. Cl. 90—10 **9 Claims**

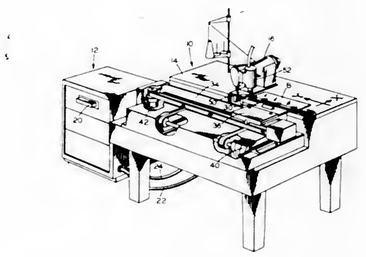


A broach system for broaching external gears comprising a plurality of separate broach units each comprising a generally tubular pot broach and a pusher located beneath the broach for receiving a work piece and pushing it upwardly through the broach. A work piece partially finished by one of the broach units is advanced into alignment in properly indexed position to the next broach unit.

3,810,414
METHOD FOR GENERATING CONTOURED PART HOLDERS

Heinz Joseph Gerber, West Hartford, Conn., assignor to The Gerber Scientific Instrument Company, South Windsor, Conn.

Filed July 26, 1972, Ser. No. 275,413
Int. Cl. B23c *1/16*
U.S. Cl. 90—11 C **9 Claims**

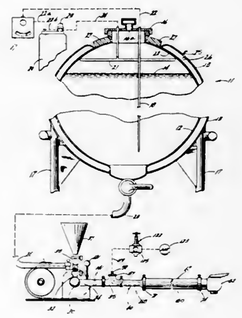


A method for generating contoured clamp members for part holders in an automatic sewing apparatus employs the sewing apparatus itself and a cutting tool such as a small motor-driven cutting wheel attached to the apparatus. The contour on a clamp member which later will form a portion of a part holder is generated by utilizing the same program tape as that used to control the relative motions of the part holder during a sewing operation. In carrying out the method, a non-contoured clamp member is positioned in the sewing apparatus and then the program tape controls the motions of the non-contoured clamp member relative to the cutting wheel so that the displacement routine followed is the same as in a sewing operation. The resulting contour formed by the cutting wheel on the clamp member is similar to the stitch path followed by the sewing apparatus on a collar, cuff, or other workpiece sewn by the apparatus.

3,810,415
WHIPPING APPARATUS

John MacManus, 143-16 - Twenty-second Rd., Whitestone, N.Y.

Division of Ser. No. 837,087, June 27, 1969, Pat. No. 3,713,841, which is a continuation of Ser. No. 571,885, Aug. 11, 1966, abandoned. This application Oct. 13, 1972, Ser. No. 297,377
Int. Cl. B01f *15/02*, *13/02*, *5/04*
U.S. Cl. 99—60 **5 Claims**

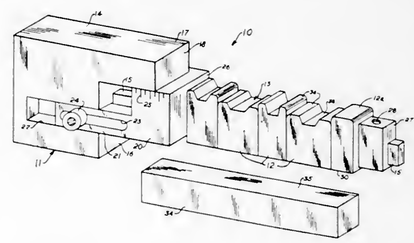


A static whipping apparatus, preferably for whipping animal or vegetable fat cream, including a large refrigerated storage vessel, a pump for pumping therefrom to a gas injection chamber where gas is injected in a plurality of streams, and then to a static whipping tube having irregular impediments of synthetic resin therein.

3,810,416
KEY-MODE APPARATUS AND SYSTEM

David E. Nelms, Jr., 6454 Lexleigh Rd., Reynoldsburg, Ohio

Continuation-in-part of Ser. No. 126,177, March 19, 1971, abandoned. This application Aug. 21, 1972, Ser. No. 282,589
Int. Cl. B23q *35/42*
U.S. Cl. 90—62 R **7 Claims**

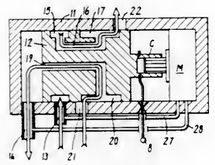


Apparatus and system is provided for enabling forming of lock keys on key duplicating machines. The apparatus includes a key-mode apparatus that has a structural frame and a number of bits from which are selected those that form the specific key desired to be formed. The selected bits are mounted on the frame in a particular relationship to a reference point with the apparatus then positionable in a key duplicating or cutting machine where a key blank may be cut in direct correspondence. Selection of the bits is based on a system of code identification that is related to the bit configuration.

3,810,417
METHOD AND APPARATUS FOR PRODUCING VIBRATORY MOTION

Helmut Sieke, 3001 Wulferode An der Trift 5, Wulferode, Germany

Filed Jan. 31, 1972, Ser. No. 222,163
Int. Cl. F15b *21/02*
U.S. Cl. 91—39 **10 Claims**

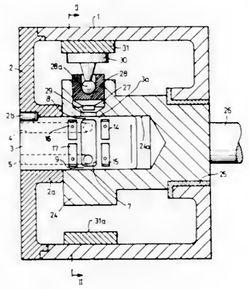


A method and apparatus for producing vibratory movement comprises a work piston reciprocable in a work cylinder, a supply of fluid under pressure and a slide valve for controlling the supply of pressure fluid to reciprocate the pistons. In one form the slide valve has a cylindrical housing and a piston that is rotatable by a motor to supply pressure fluid intermittently to the work cylinder and is axially movable manually, mechanically, hydraulically, electrically or by other power equipment to control the area the valve ports are opened and hence the rate of movement of the work piston. In another form the slide valve has a housing and a valve piston that is reciprocable by a cam wheel to supply pressure fluid intermittently to the work cylinder and is rotatable manually, mechanically, hydraulically, electrically or by other power equipment to vary the opening of the valve ports and hence the rate of movement. Selective action of the slide valve is obtained by providing two cam wheels of different characteristics and air springs for biasing the valve slide toward one or the other cam wheel.

3,810,418
CENTER RING ARRANGEMENT FOR A RADIAL PISTON MACHINE

Paul Bosch, Ludwigsburg, Germany, assignor to Robert Bosch, GmbH, Stuttgart, Germany

Filed June 27, 1973, Ser. No. 373,961
Claims priority, application Germany, Aug. 12, 1972, 2239757
Int. Cl. F01b *13/06*
U.S. Cl. 91—484 **10 Claims**

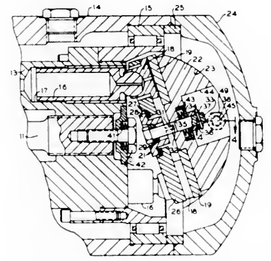


The rotary cylinder block of a radial piston machine surrounds a control member whose outer surface has high pressure ports and low pressure ports communicating with the cylinders during rotation. The outer cylindrical surface of the control member also has a pair of circumferentially aligned first and second high pressure balancing grooves on either side of the high pressure ports and a pair of circumferentially aligned first and second low pressure balancing grooves on either side of the low pressure ports. The control member is formed with preferably straight diametrical ducts connecting the first and second high pressure balancing grooves with the first and second low pressure balancing grooves located on the same side of the high pressure and low pressure ports, respectively. The high pressure balancing grooves and the low pressure balancing grooves are filled, respectively, with high pressure fluid and low pressure fluid from the high pressure and low pressure ports, respectively, through the gap between the inner surface of the cylinder block and the outer surface of the control member so that the pressure fluid in the balancing grooves substantially centers the cylinder block on the control member.

3,810,419
ADJUSTABLE FIXED DISPLACEMENT HYDRAULIC TRANSDUCER APPARATUS

Gary C. Smith, Westerville, Ohio, assignor to Abex Corporation, New York, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,321
Int. Cl. F01b *13/04*
U.S. Cl. 91—505 **2 Claims**



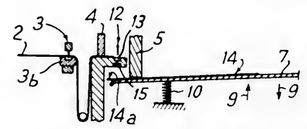
Fixed displacement hydraulic transducer apparatus of axial piston type having a rotatable piston barrel mounted within a body, a rocker cam defining a swash plate mounted in pivotable relation within a cam cradle defined within the body, and a plurality of pistons axially mounted within the piston barrel and abutting the swash plate. The pistons are adapted to reciprocation upon rotation of the barrel relative to the swash plate. The rocker cam may be pivoted to any angle relative to the axis of the pump from a maximum angle in one direction through a zero deviation to a maximum angle in the other direction to provide a constant rate of fluid displacement through the apparatus which is adjustable to a maximum rate from a minimum rate to a maximum rate in either direction. Anchor means are provided in association with the rocker cam and the body to fix the rocker cam at any position within its range of adjustment in a manner permitting the apparatus to be operated at a corresponding rate of fluid displacement.

3,810,420
MACHINES FOR THE MANUFACTURE OF PLASTIC BAGS

Leon Ravel, Sainte-Sigolene, France, assignor to Georges Lagain, Argenteuil, France

Filed Apr. 10, 1973, Ser. No. 349,735
Claims priority, application France, Apr. 11, 1972, 72.13669
Int. Cl. B31b *1/64, 1/98*
U.S. Cl. 93—93 HT **5 Claims**

A bag making machine for making plastic bags, gussetted or non-gussetted, from lay-flat plastics tubing in which the tubing is sealed and cut into bags and stacked on a pivotable platform by being clamped under an extension of the lower sealing jaw.

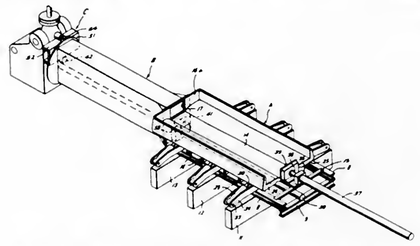


This jaw extension has a sealing electrode energized to seal the various bags of the stack to one another.

3,810,421
SCRAP FEEDING APPARATUS

Fred E. Mosley, Waco, Tex., assignor to Mosley Machinery Co., Inc., Waco, Tex.

Filed Sept. 18, 1972, Ser. No. 290,263
Int. Cl. B30b *15/08*
U.S. Cl. 100—95 **4 Claims**

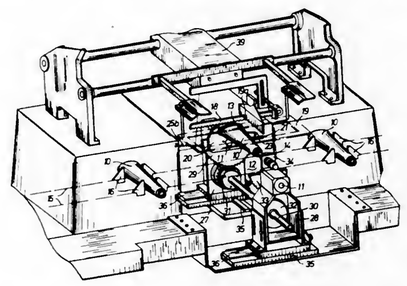


An indexing-type delivery device for interposition between a receiving chamber for material, such as scrap metal, and a device, such as shears, for acting upon or conditioning the material. The delivery device is rotatably mounted and has a pair of compartments for serially receiving the material from the reception chamber whereby the feed to the conditioning device may be substantially independent of the discharge of the material into the receiving chamber.

3,810,422
SCREEN PRINTING MACHINE FOR ARTICLES WITH CURVED NON-CIRCULAR CROSS-SECTIONAL

Wilfried Kammann, Buende-Suedlengern, Germany, assignor to Firma Werner Kammann, Westfalen, Germany

Filed Apr. 29, 1971, Ser. No. 138,676
Claims priority, application Austria, Apr. 30, 1970, 3980/70
Int. Cl. B41f *17/00*
U.S. Cl. 101—40 **6 Claims**

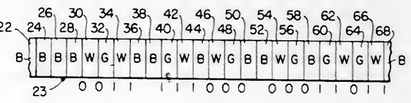


A screen printing machine includes holding members for holding articles to be printed and for transporting the articles to a printing station. The holding members are adapted to execute pivotal movement about an axis to transport the article to the printing station. The article is transported to the holding device by a conveyor mechanism, which conveyor mechanism is also adapted to receive the articles after they have been printed and released by the holding members.

3,810,423
COLOR BAR PRINTER

Raymond J. Hansen, Centerville; Ella B. Spialter, Dayton; Robert M. Whitely, Dayton, and Ning Wu, Dayton, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed July 31, 1972, Ser. No. 276,352
Int. Cl. B41f *1/44;* **B41j** *5/44;* **S41j** *33/00*
U.S. Cl. 101—93 C **11 Claims**



There is described a printer used in printing a three color transition bar code. The printer overprints a single color on a preprinted medium having alternating bars of the second and third colors thereon. The printer includes a printing station, a detector to determine which preprinted color is then aligned with the printing station, and logic means to determine if the printing station should overprint the preprinted color.

3,810,424
BI-DIRECTIONAL IMPRINTER

William P. Barbour, Gaithersburg, Md., assignor to Control Data Corporation, Minneapolis, Minn.

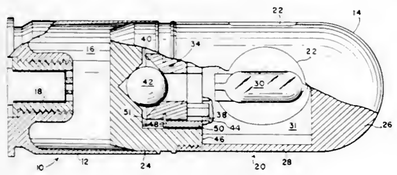
Filed May 2, 1973, Ser. No. 356,686
Int. Cl. B41f *3/04*
U.S. Cl. 101—269 **16 Claims**

An imprinter according to the present disclosure comprises a carriage nested between a pair of parallel longitudinal rails having upper and lower track surfaces. Wheels on the carriage bear against the lower track surface during an imprinting stroke so that mechanical forces created by the reaction of roller platens supported by the carriage bearing against a sheet or sheet set overlying printing plates are transferred to the wheels and lower track surface. One feature of the apparatus resides in the fact that an imprinting stroke may be accomplished upon movement of the carriage in either direction between the ends of the base. Another feature of the apparatus is a latch mechanism to lock the carriage at a rest position at either end of the base. Yet another feature of the apparatus resides in the provision of separately mounted roller platens to bear against the sheet being imprinted at the region of each of individual ones of a plurality of printing plates; an example being two separate roller platens to imprint from a dealer's plate and a credit card, respectively.

3,810,425
METHOD OF BLASTING WITH AN NH_4NO_3-NITROPROPANE BLASTING AGENT
John R. Post, P.O. Box 1134, Littleton, Colo.
Filed Dec. 4, 1972, Ser. No. 311,935
Int. Cl. C06c *13/00*
U.S. Cl. 102—23 10 Claims

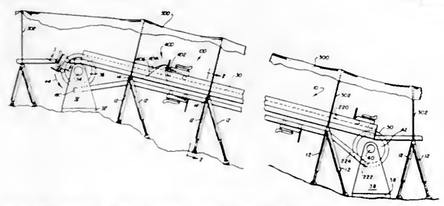
Crushed ammonium nitrate fueled with the proper nitropropane lower alcohol mix is a non cap-sensitive, field-mixable blasting agent that produces two to four times the detonation pressure obtainable with AN/FO, when loaded to densities between 1.10 and 1.55 by use of a simple over-hole mechanical device.

3,810,426
GUN LAUNCHED TRAINING PROJECTILE
Alan Clark Baker, Huntington Beach, Calif., assignor to Celesco Industries, Inc., Costa Mesa, Calif.
Filed July 9, 1973, Ser. No. 377,431
Int. Cl. F42b *13/20, 13/36, 13/42*
U.S. Cl. 102—87 13 Claims



A flashcube is mounted in the body of a marking projectile. Upon impact of the projectile, a hammer drives actuating fingers into the base of the flashcube to fire the flashlamps and provide an impact signal.

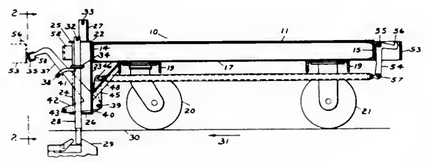
3,810,427
SKI LIFT
Truman C. Peck, Bloomington, Minn., assignor to Alpine Valley Resort, Inc., Milford, Mich.
Filed Oct. 3, 1969, Ser. No. 863,462
Int. Cl. B61b *9/00*
U.S. Cl. 104—173 4 Claims



A ski lift is provided having cars riding in a track up the slope by means of a rope trained about two wheels at opposite ends of the slope. The cars are manually engaged with the rope but are so designed that they may not be manually disengaged from the rope during their upward travel.

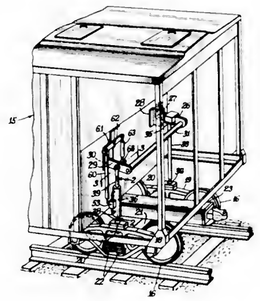
3,810,428
SUBFLOOR CONVEYOR TOW TRUCKS
Paul Klamp, 22730 St. Joan Ave., St. Clair Shores, Mich.
Filed Mar. 13, 1972, Ser. No. 233,908
Int. Cl. B65g *17/42*
U.S. Cl. 104—172 BT 7 Claims

The invention relates to subfloor conveyor tow trucks which are propelled by an endless chain with equally spaced pusher dogs, said chain and pusher dogs being positioned below floor level, while each tow truck is equipped with a tow pin which projects downward through a slit in the floor and is adapted to be engaged by one of the pusher dogs in order to propel the tow truck along the path the chain, where each tow truck is equipped with an accumulation bumper which, upon contact



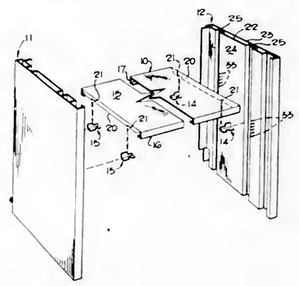
with a stationary tow truck or other obstruction, lifts the tow pin clear of the pusher dog, the tow truck being featured, according to the invention, by a novel and simpler anti-rebound device.

3,810,429
RAILWAY CAR ROLL CONTROL DEVICE
Ralph M. Kallenbach, 915 Carol Ave., Elgin, Ill.
Filed May 19, 1972, Ser. No. 255,109
Int. Cl. B61f *3/02, 5/24, 5/50*
U.S. Cl. 105—199 A 13 Claims



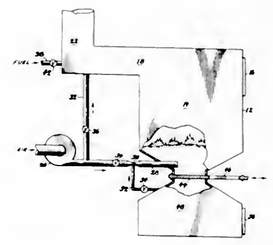
In one embodiment of the roll control device two levers positioned at opposite sides of the end of a car body are pivotally connected to the car body for movement about a common axis. At one side of the body, the lever is connected by a rigid strut to the side frame of the truck. At the other side, the lever is connected to the side frame of the truck by an energy absorbing device. The two levers are secured to each other so that they always pivot together. In another embodiment, the two levers are connected to the respective side frames by rigid struts. The pivotal mounting of one lever is a first shaft and the pivotal mounting of the other lever is a second shaft coaxial with the first. Between the shafts and coaxial therewith is an energy absorbing device. The energy absorbing devices can be hydraulic or frictional; but, in any event, they are adjustable so as to vary the resistance to relative movement between the two parts which are interconnected by the energy absorbing device. The adjustment is automatically made in a manner such that the heavier the weight that the car is carrying the greater the resistance and the less the weight the less the resistance. An automatic adjusting device is connected between the truck side frame and the car body to sense the deflection of the springs in the trucks caused by the load in the car body and thus signifying the weight of the load and making the adjustment accordingly.

3,810,430
SHELF ASSEMBLY
Burton L. Siegal, Chicago, Ill., assignor to Tiffany Industries, Inc., St. Louis, Mo.
Filed Oct. 16, 1972, Ser. No. 297,664
Int. Cl. A47b *57/10*
U.S. Cl. 108—144 10 Claims



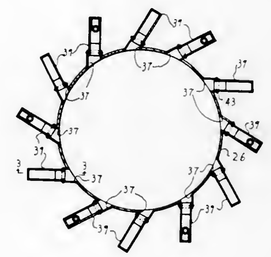
This shelf assembly includes a unitary shelf, which is adjustably supported between vertical end panels by a pair of brackets detachably attached to each panel. The panels include opposed pairs of vertical grooves, each groove providing a bearing face at one side, and vertically spaced seating slots at the other side. The brackets are ell-shaped and include an upright leg providing a bearing portion, and an outstanding leg providing a seating portion. The outstanding leg is wider than the groove, and the brackets are attached to the panel by inserting the outstanding leg seating portion into a slot at one side of the groove, and rotating the upright leg into bearing relation with the other side of the groove.

3,810,431
RECIRCULATION OF GASES GENERATED IN ASH PIT
Lloyd L. Lavely, Jr., and Noel D. Hazzard, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Mar. 29, 1973, Ser. No. 345,935
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 A 6 Claims



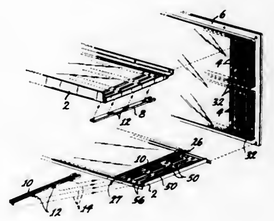
A grateless incinerator with a controlled atmosphere having a pyrolyzation chamber, an afterburner chamber that is downstream therefrom, and an ash discharge chamber subjacent the pyrolyzing chamber. Ash from incinerated refuse in the pyrolyzing chamber may be quickly dumped to the ash discharge chamber and a new charge of refuse placed back in the pyrolyzing chamber. Any smoke, dust or fumes generated by the hot ash in the ash discharge chamber is allowed to vent to an underfire air inlet to the pyrolyzation chamber.

3,810,432
APPARATUS FOR BURNING REFUSE
Edward T. Douglass, Jr., 2769 5th Ave. South, Birmingham, Ala.
Filed June 28, 1973, Ser. No. 374,470
Int. Cl. F23g *5/00, 9/00*
U.S. Cl. 110—18 R 3 Claims



A plurality of outwardly and downwardly extending hollow housings extend outwardly from a chimney structure, having a stack and a combustion chamber and communicate with an annular row of tangential air receiving openings through the structure which impart an upward spiral movement to ascending gases and solids discharged from the combustion chamber. Each hollow housing has a depending outer wall with the lower portion thereof spaced horizontally from the inlet for a tangential opening and terminating below and in spaced relation to the tangential opening.

3,810,433
PRINTED CIRCUIT CARD GUIDE
John David Posner, San Diego, Calif., assignor to The National Cash Register Company, Dayton, Ohio
Filed Aug. 9, 1972, Ser. No. 278,893
Int. Cl. H02b *1/02*
U.S. Cl. 211—41 2 Claims

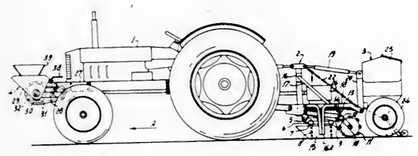


Guide-piece for sliding and aligning printed circuit boards into their proper positions when being plugged into a computer back panel, including in one embodiment a full-length slot for the circuit card, a trunnion for surrounding the back panel plug to ensure that the slot will guide the circuit card directly to the plug, and a self-attaching mechanism to allow the guide to be firmly affixed to the computer main frame.

3,810,434
AGRICULTURAL CULTIVATOR AND SEED FRILL COMBINATIONS

Ary van der Lely, 10, Weverskade, Maasland, and Cornelis Johannes Gerardus Bom, 36, Esdoornlaan, Rozenburg, both of Netherlands

Filed Apr. 14, 1972, Ser. No. 244,048
Claims priority, application Netherlands, Apr. 21, 1971, 7105355
Int. Cl. A01c *7/08*
U.S. Cl. 111—10 **1 Claim**

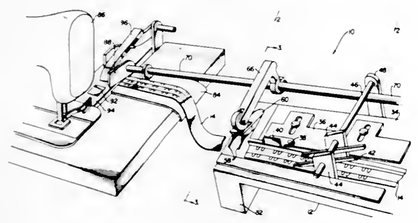


Combinations of agricultural implements are mounted to the front and rear of a tractor. The front of the tractor pushes a fertiliser preferably having its own source of power, to operate the delivery device. At the rear of the tractor is a cultivator with a plurality of soil working members that are rotatably connected to the power take off of the tractor. The cultivator is connected to a lifting hitch and a seed dispenser is pivotably connected to the rear of the cultivator and also connected to the upper point of the lifting device. Flexible chains interconnect the seed dispenser with the upper lifting point so that the dispenser can be raised with the cultivator by the lifting device. The dispenser is mounted on ground wheels which can power the operation thereof. At the rear of the cultivator a soil engaging roller is mounted which regulates the working depth of the cultivator and smooths the soil.

3,810,435
APPARATUS FOR MAKING A FASTENER SECTION FOR SECURING ELASTIC MATERIAL THERETO

Jack Simon, Rye, N.Y., assignor to L. M. Rabinowitz & Company, New York, N.Y.

Filed Sept. 26, 1972, Ser. No. 289,710
Int. Cl. D05b *3/18*
U.S. Cl. 112—105 **8 Claims**

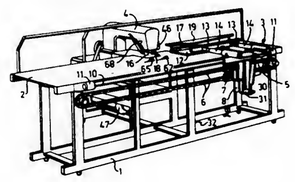


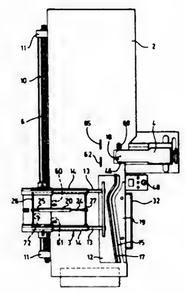
An apparatus comprising means for feeding a continuous rectangular shaped strip of tape, having eyelet fasteners secured thereto, with one edge of said tape having two separate folds, said apparatus having separating means to lift the upperfold to separate it from the lower fold. The apparatus is further provided with cutting means for making spaced parallel slits in the lower folded edge. Knife means are provided for cutting the continuous tape into individual pieces. Feed means are provided for feeding the individual pieces at right angles to the initial direction of travel of the continuous tape and sewing means are provided for sewing the opposite edges of the individual pieces into a continuous strip so that the finished product has transversely extending spaced parallel double folds for insertion of an elastic strip to be sewed therebetween.

3,810,436
APPARATUS FOR FORMING PATTERNED SEAMS IN FABRIC WORKPIECES

Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & Co., Milan, Italy

Filed May 17, 1972, Ser. No. 253,973
Claims priority, application Italy, June 17, 1971, 25942/71
Int. Cl. D05b *21/00*
U.S. Cl. 112—121.15 **1 Claim**





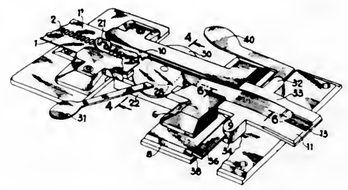
A cyclical workpiece control apparatus operatively associated with a sewing machine for holding a workpiece while moving the same through the stitch forming area of the machine and which is movable transversely with and while advancing the workpiece to form seams of stitches in accordance with the dictates of a predetermined pattern.

3,810,437
DEVICE FOR GUIDING AND PUTTING UNDER TENSION A BAND OF A SLIDING FASTENER

Guy S. P. Lacam, Paris, France, assignor to La Fermeture Ailee, Airaines, France

Filed Oct. 7, 1971, Ser. No. 187,437
Claims priority, application France, Oct. 12, 1970, 70.36747; Aug. 11, 1971, 70.29337
Int. Cl. D05b *35/06*
U.S. Cl. 112—152 **13 Claims**

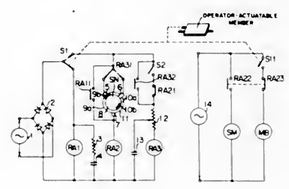
Device for guiding and putting under tension a band, such as a band of a sliding fastener, in the course of the stitching of the band to a workpiece. The device comprises a bridge adapted to be fixed to a sewing machine in the vicinity of the stitching part of the machine, a spring strip for pressing the band against an upper wall portion of the bridge and means for progressively regulating the pressure exerted by the spring strip on the band.



3,810,438
FIXED POINT STOP MECHANISM FOR SEWING NEEDLE IN SEWING MACHINE

Masahiro Yokoyama, and Takanori Kobayashi, both of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 4, 1970, Ser. No. 86,692
Int. Cl. D05b *69/22*
U.S. Cl. 112—219 A **9 Claims**



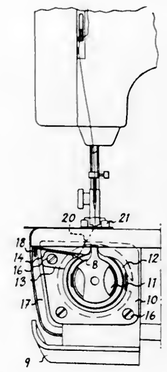
A fixed point stop mechanism for selectively stopping an output member, such as a sewing needle in a sewing machine in one of a plurality of predetermined positions comprises a position sensing means for sensing the sewing needle being at a selected one of predetermined positions, means for driving the sewing machine at a low speed sufficient to render the position sensing device operative, a first relay connected in series to said position sensing device, and a second relay energized upon operation of the first relay thereby to cause a set position, in which the sewing needle is to be selectively stopped, to be changed over from one to another of the predetermined positions without stopping the rotation of the sewing machine.

3,810,439
ARRANGEMENT FOR CUTTING THE THREADS IN A SEWING MACHINE WHEN CHANGING THE BOBBIN THREAD

Monica Linnea Giesselmann, Oxelgatan 3, 561 00 Huskvarna, Sweden

Division of Ser. No. 44,814, June 9, 1970, abandoned. This application Dec. 4, 1972, Ser. No. 311,640
Int. Cl. D05b *65/00*
U.S. Cl. 112—252 **3 Claims**

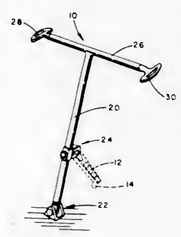
The changing or replenishing of the bobbin thread in a sewing machine in which the sewing is stopped while there is still bobbin thread in the machine, and the over thread is drawn up from the loop-taker mechanism by the thread take-up lever of the machine, with a full bobbin having a length of thread extending therefrom being placed in the machine and the extending thread end is positioned together with the thread end remaining in the machine when making the change.



3,810,440
STEERING MECHANISM FOR SAILBOATS AND THE LIKE

Curtiss S. Johnson, Jr., Middle Haddam, Conn., assignor to C. Sherman Johnson Co., Inc., Middle Haddam, Conn.

Filed Jan. 17, 1972, Ser. No. 218,379
Int. Cl. B63h *25/06*
U.S. Cl. 114—162 **6 Claims**



A steering mechanism for a sailboat is formed by a tiltable, vertically mounted steering post which connects through the tiller to the boat rudder. The steering post is mounted to the deck or other portion of the boat by a universal joint which permits the post to be tilted relative to the vertical axis of the boat. A pivot joint connects the tiller to the steering post at a point midway between the ends of the post so that the tiller is moved by the tilting motions of the post. With the tiller connected to the post in this manner and the post mounted forward of the rudder along the center line of the boat, lateral tilting motions of the post swing the tiller and turn the rudder.

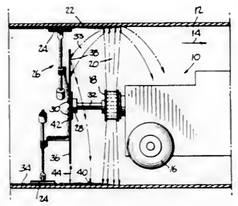
3,810,441
LINING MACHINE

Clifford A. Padgett, Lakewood, N.J., and Lester C. Slade, Escalon, Calif., assignors to Raymond International, Inc., New York, N.Y.

Division of Ser. No. 783,301, Dec. 12, 1968, Pat. No. 3,599,299. This application June 7, 1971, Ser. No. 150,333
Int. Cl. B05c *7/02, 11/04*
U.S. Cl. 118—105 **1 Claim**

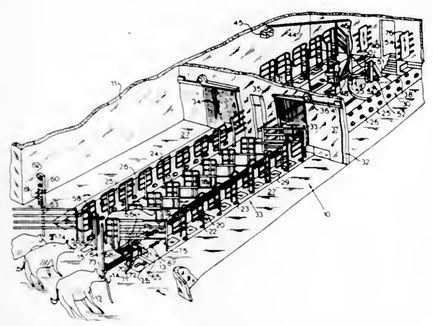
A machine for applying a fluent lining material to the inside of a pipe which is arranged to be progressed through the pipe and which includes distributor means for slinging material in a

generally radial spray on the walls of the pipe, and spaced trowelling means for smoothing the lining material on the wall, and a diaphragm interposed between the distributor means



and the trowelling means for intercepting rebound particles and preventing them from imbedding in the freshly trowelled surface.

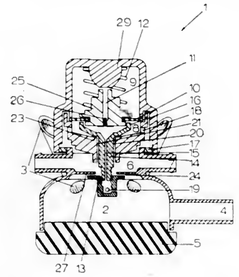
3,810,442
MILKING SYSTEM
Hubert Hudson Jacobs, and Virginia Michael Jacobs, both of 1035 Jacobs Rd., DeLand, Fla.
Filed Apr. 2, 1973, Ser. No. 347,162
Int. Cl. A01k *1/00*
U.S. Cl. 119—14.03 **22 Claims**



A milking parlor apparatus and method for milking large numbers of cows using a pair of batch loaded reciprocating shuttling platforms in which one platform is batch loaded and moved to a milking station where the cows are milked while a second parallel platform is being loaded. The second platform is moved to the milking station and the first platform returned to the original loading station and unloaded and reloaded, thereby delivering a continuous supply of cattle for milking. The milking station can utilize one operator for milking the cows on both shuttle platforms and the system avoids any electrical connections on the platforms.

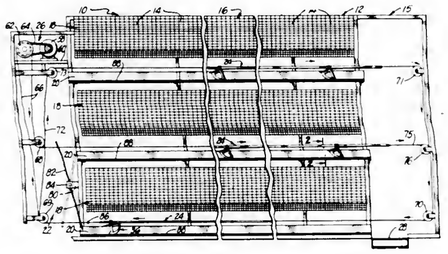
3,810,443
PULSATOR UNITS OF MILKING MACHINES
Syd Ernest Bodmin, 39 Seaway Dr., Otumoetai, Tauranga, New Zealand
Filed June 14, 1972, Ser. No. 262,883
Claims priority, application New Zealand, June 17, 1971, 163990
Int. Cl. A01j *5/10*
U.S. Cl. 119—14.37 **1 Claim**

The pulsator unit is to be used in an installation with central evacuation and central milk storage, with only one line (for vacuum and milk) of piping. It is integral with the cluster. It operates by a driving diaphragm and a piston valve. It may



apply to the outside of the inflations a pressure less than atmospheric.

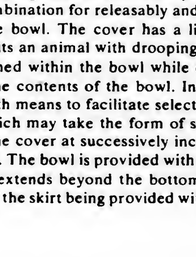
3,810,444
AUTOMATIC ANIMAL DROPPING PIT CLEANER
John L. Conley, 3870 Chino Ave., Chino, Calif.
Filed May 12, 1971, Ser. No. 142,518
Int. Cl. A01k *31/04*
U.S. Cl. 119—22 **3 Claims**



An automatic dropping pit cleaner for automated poultry handling systems and other automated animal handling systems. The pit cleaner has scrapers which are driven back and forth by a mechanism to scrape animal droppings and other debris from the pit floors onto a conveyor at one end of the pits. Each scraper has a unique design including rocker shoes removable and rotatably mounted on the ends of a supporting bar to which is attached the scraper driving mechanism and a scraper blade extending between and removably attached to the rocker shoes in such a way that the scraper rocks to scraping position during movement toward the conveyor end of its pit and to retracted position during reverse movement of the scraper. The removable mounting of the rocker shoes permits the latter to be readily replaced when worn. The pit cleaner is designed primarily for use in an automated egg producing poultry handling system.

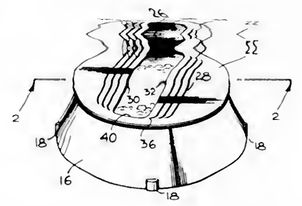
3,810,445
PARROT-STAND PERCH
Otto E. Stadler, Dufourstrasse 114, 9000 St. Gallen, Switzerland
Filed Nov. 13, 1972, Ser. No. 305,654
Claims priority, application Switzerland, Nov. 25, 1971, 17179/71
Int. Cl. A01k *31/12*
U.S. Cl. 119—26 **3 Claims**

A parrot-stand perch having a horizontally arranged member providing a walking area for a parrot and a vertically arranged member disposed downwardly from and perpendicular to the horizontal member for providing a vertical climbing member for the parrot. An adjustable chain is provided depending from the central portion of the front edge of the horizontal member for increasing or decreasing the available area of movement of the parrot. The chain is adjustable by



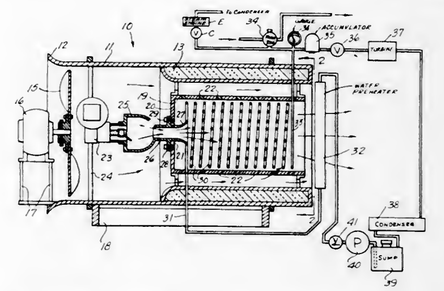
means of a clamp releasably securable to the stand shaft supporting the perch so that as the clamp is moved up or down the shaft, the length of the chain above the horizontal member is increased or decreased accordingly. A guide ring is provided directly beneath the horizontal member to guide the chain and support it so as to prevent entanglement.

3,810,446
ANIMAL FOOD BOWL AND COVER THEREFOR
Ronald J. Kightlinger, 11917 Paso Robles Ave., Granada Hills, Calif., and Robert S. Goodrich, 27901 S. Golden Meadow Dr., Palos Verdes Peninsula, Calif.
Filed July 18, 1973, Ser. No. 380,149
Int. Cl. A01k *5/00*
U.S. Cl. 119—61 **10 Claims**



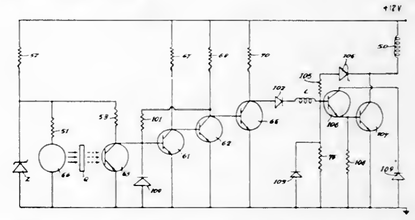
An animal food bowl and cover therefor are provided which have cooperating means as, for example, a bead and yieldable channel combination for releasably and rotatably securing the cover to the bowl. The cover has a limited access aperture which permits an animal with drooping ears to have access to food contained within the bowl while excluding the animal's ears from the contents of the bowl. In addition, the cover is provided with means to facilitate selective enlargement of the aperture which may take the form of score lines in the outer surface of the cover at successively increasing distances from the aperture. The bowl is provided with an outwardly disposed skirt which extends beyond the bottom of the bowl with the lower end of the skirt being provided with anti-skid means.

3,810,447
ANTI-POLLUTION STEAM GENERATION SYSTEM
Lewis M. D. Grainger, Rt. I, Glen Allen, Va.
Continuation-in-part of Ser. No. 182,456, Sept. 21, 1971, Pat. No. 3,713,433. This application Nov. 9, 1972, Ser. No. 304,931
Int. Cl. F22b *21/28*
U.S. Cl. 122—248 **2 Claims**



An anti-pollution steam generation system including an outer housing and a secondary combustion chamber spaced inwardly therefrom. An oil burner including a primary combustion chamber is connected into the secondary combustion chamber to provide heat therein and an air fan provides a flow of air through the outer housing and around the secndary combustion chamber with a portion of the air flowing into the secondary combustion chamber through a plurality of apertures in the secondary combustion chamber. Steam coils in the secondary combustion chamber are heated to provide steam with a water pre-heater being positioned down stream of the secondary combustion chamber to be heated by the exhaust gases therefrom to provide heated water for the steam coils.

3,810,448
FUEL INJECTION SYSTEMS FOR INTERNAL COMBUSTION ENGINES
Eric Harold Ford, London, England, assignor to Lumenition Limited, London, England
Continuation-in-part of Ser. No. 874,470, Nov. 6, 1969. This application Nov. 29, 1971, Ser. No. 202,979
Claims priority, application Great Britain, Feb. 25, 1970, 9049/70, Great Britain, Sept. 22, 1970, 45148/70
U.S. Cl. 123—32 EA **24 Claims**
Int. Cl. F02b 3/00 **24 Claims**

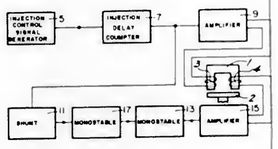


A device for generating a voltage pulse for use with a fuel injection system of an internal combustion engine utilizing infra-red radiation source and detector for obtaining a voltage pulse to operate the solenoids of the appropriate fuel injectors in cyclic order, which voltage pulse is timed from shutter means mechanically driven and interposed between the source and detector, transistorized circuitry including a plurality of transistors and a power transistor connected in cascade and inversely switched for fast switching the output from the detector in order to amplify it to operate the solenoid.

3,810,449
ELECTROMAGNETIC FUEL INJECTORS

Maurice Chollet, and Francois Denmat, both of Nantes, France, assignors to Societe Financiere Et Industrielle Des Ateliers, Nantes, France

Filed June 19, 1972, Ser. No. 264,329
Claims priority, application France, July 1, 1971, 71.24083
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **2 Claims**

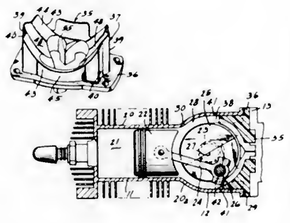


In an electromagnetic fuel injector the armatures are unstuck by inducing into the magnet a neutralizing field.

3,810,450
STUFFER FOR TWO-CYCLE ENGINES

John C. Woodhouse, Cheyenne, Wyo., assignor to Robert F. Delke, Cheyenne, Wyo.

Filed Aug. 29, 1972, Ser. No. 284,636
Int. Cl. F02b *33/04*
U.S. Cl. 123—73 A **4 Claims**



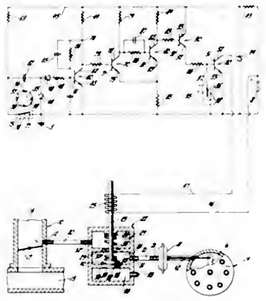
In two-cycle internal combustion engines where the mixture of gas and air is introduced from the carburetor to the crankcase, and thereafter flows from the crankcase to the combustion cylinder, a stuffer is provided surrounding the inlet from the carburetor to the crankcase in a manner which does not interfere with flow into the crankcase, the stuffer extends into the crankcase and surrounds a part of the crankshaft and its counterweights in a manner so as to not interfere with the operation of the crankshaft while at the same time reducing the volumetric area of the crankcase. The stuffer is particularly useful in a two-cycle engine equipped with a back pressure producing muffler or exhaust constriction.

3,810,451
IGNITION SPARK VACUUM ADVANCE SYSTEM

Douglas I. Fales, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1971, Ser. No. 209,281
Int. Cl. F02p *5/08*
U.S. Cl. 123—117 A **5 Claims**

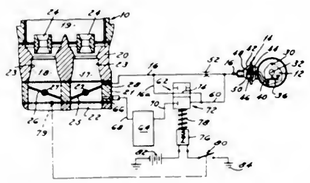
An ignition spark vaccum advance system for use with motor vehicle internal combustion engines. The collector-emitter electrodes of a switching transistor are connected in series in the energizing circuit of the operating coil of a two-way valve which normally establishes a vacuum connection between the carburetor vacuum spark advance port and the associated spark advance vacuum unit vacuum port and, upon the energization of the operating coil, vents the spark advance vacuum unit vacuum port to atmosphere. A trigger circuit responsive to a reference potential signal of a magnitude proportional to vehicle or engine speed produces a control signal during vehicle acceleration until the vehicle has accelerated to a speed of a selected magnitude and during vehicle deceleration after the vehicle has decelerated to a speed less than the selected magnitude which triggers the switching transistor conductive to complete the energizing circuit for the valve operating coil. The current carrying elements of a temperature sensitive switch which are operated to the circuit closed condition with engine temperatures less and greater than a selected engine temperature range are connected across the base-emitter electrodes of the switching transistor to provide for a normal ignition spark vacuum advance at any engine speed with a cold engine or an engine approaching over-heating.



3,810,452
ENGINE SPARK TIMING SYSTEM CONTROL

Thomas H. Morris, Southgate, and Tao-Yuan Wu, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 8, 1972, Ser. No. 232,808
Int. Cl. F02p *5/04*
U.S. Cl. 123—117 A **23 Claims**

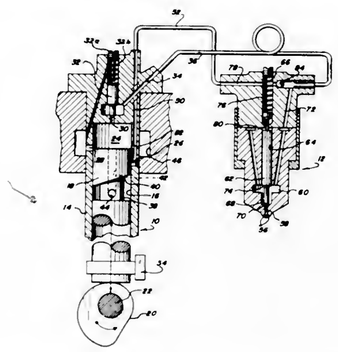


An engine spark timing control system includes a distributor servo actuator that normally advances the engine timing as a function of carburetor spark port vacuum changes, and retards the spark by means of a spring during acceleration and deceleration modes of operation; and additionally includes a control to temporarily advance the spark timing setting during acceleration modes of operation, with a built-in means to automatically return the spark timing setting to a level normally called for by the spark port vacuum after a predetermined adjustable time delay.

3,810,453
FUEL INJECTION SYSTEM

George D. Wolfe, 1512 Avenue F, NE, Winter Haven, Fla.

Filed Oct. 18, 1971, Ser. No. 190,142
Int. Cl. F02m *47/02*
U.S. Cl. 123—139 R **13 Claims**



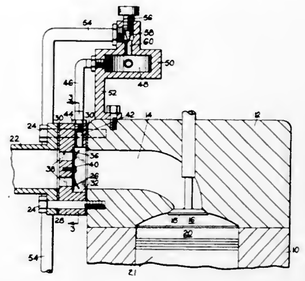
A fuel injection system for achieving a more complete and efficient combustion of the injected fuel and avoiding the problems associated with low residual line pressure in the system, such as cycling and cavitation erosion. Fuel is pumped in cyclic pressure pulses from a pump to an injection nozzle controlled by a spring loaded pressure responsive valve which is moved to an open fuel discharging position when the pressure of fuel within a discharge chamber overcomes the biasing force of the valve spring. A second chamber in the nozzle is located to apply pressure to the opposite side of the valve to augment the spring force urging the valve to its closed position. During the initial portion of each pressure pulse generated by the fuel pump, the entire pulse is conducted at full pump pressure to the discharge chamber, thereby opening the valve and discharging fuel from the nozzle to the firing chamber of the engine. At an adjustably selected point in the pressure generating portion of each pump cycle, the second chamber in the nozzle is connected to the pump chamber so that the two chambers at opposite sides of the valve are in fluid communication with the pump. At the instant the second chamber is connected to the pump, a positive pressure wave travels to the second chamber from the pump, thus temporarily dropping the pump output pressure until the system can become equalized. This sudden dropping of the pump pressure, in effect, transmits a negative pressure wave from the pump to the discharge chamber. Arrival of the positive pressure wave at the second chamber develops a pressure acting against the valve in a direction augmenting the spring force of the valve. The valve will move to its closed position when the sum of the spring force and pressure force exerted in the second chamber exceeds the opposing pressure force exerted on the valve by the pressure in the discharge chamber. In order to close the valve while the pressure in the discharge chamber is still at, or close to the full pump pressure, the fluid path between the pump and discharge chamber is of a greater length than the fluid path from the pump to the second chamber.

3,810,454
POLLUTION FREE FUEL INLET SYSTEM FOR INTERNAL COMBUSTION ENGINES

John Hunt, 8030 S.E. Barbara Welch Rd., Portland, Oreg.

Filed Sept. 25, 1972, Ser. No. 291,985
Int. Cl. F02m *17/00, 23/04*
U.S. Cl. 123—142 **4 Claims**

A reed valve is provided between the intake manifold of an internal combustion engine and the combustion chamber, allowing flow of air fuel mixture from the manifold into the combustion chamber and preventing backflow. An air inlet from an outside source is provided on the combustion chamber side of the reed valve, thus allowing free flow of an auxiliary supply of air under vacuum conditions into the combustion chamber. A valve is provided in the air inlet means to control the amount of auxiliary air flow.



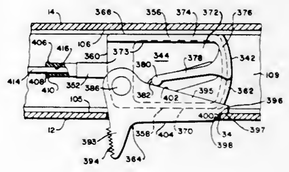
ERRATUM

For Class 126—190 see:
Patent No. 3,810,483

3,810,455
PNEUMATIC GUN WITH POLYGONAL CROSS-SECTION BOLT MEMBER

Lee F. Garmon, Jr., Rogers, Ark., assignor to Victor Comptometer Corporation, Chicago, Ill.

Filed June 16, 1972, Ser. No. 263,628
Int. Cl. F41b *11/00*
U.S. Cl. 124—13 A **11 Claims**



There is herein disclosed a pneumatic gun of the type having an air storage chamber selectively connectable to a firing chamber by a valve. The valve is movable between a closed position and an open position by a trigger actuated control lever. The control lever is movable between cocked and uncocked positions by a manually slidable bolt and is latched in a cocked position by a spring loaded trigger having a latching finger in constant abutting engagement with the control lever. Regarding the manually slidable bolt, this bolt has a polygonal cross-section with which to slidably fit onto a polygonal trackway. There is a lost motion connection between the control lever and the valve such that the valve is openable by the combined effects of air pressure and a spring by movement relative to the control lever. The storage chamber is formed between cylindrical block members held in spaced relationship in a common cylinder. A combination check valve and sealing annulus is compressibly mounted between the block members. A piston assembly is also mounted in the common cylinder and connected to a piston rod by a lost motion connection enabling movement of the piston assembly relative thereto under the influence of a resilient compressible annulus.

3,810,456
ABORTIFACIENT

Harvey Karman, Playa Del Rey, Calif., assignor to Medical Concepts, Inc., El Segundo, Calif.

Filed Apr. 3, 1972, Ser. No. 240,529
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R 3 Claims

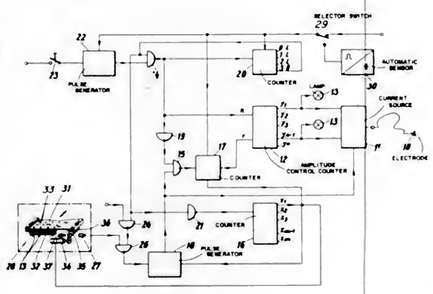


An intrauterine device for use as an abortifacient, a method of making the device, and method of inducing an abortion. The device is a strip or ribbon of plastic material set in a coiled configuration. The coiled strip retains a memory of its generally circular form and tends to maintain a coiled planar configuration after insertion into the uterus.

3,810,457
DIAGNOSTIC APPARATUS FOR AUTOMATICALLY GENERATING AN INTENSITY-TIME DIAGRAM SHOWING POINTS OF MINIMUM INVOLUNTARY MUSCLE MOVEMENT

Lutz Bottcher, and Karl-August Heyne, both of Berlin, Germany, assignors to Robert Bosch Elektronik GmbH, Berlin, Germany

Filed Oct. 27, 1972, Ser. No. 301,675
Claims priority, application Germany, Nov. 24, 1971, 2158132
Int. Cl. A61b *5/05*
U.S. Cl. 128—2.1 R 27 Claims

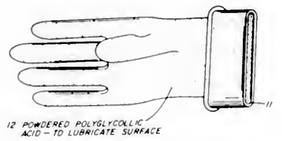


Both amplitude and pulse width of pulses applied to the muscle are varied automatically, a given number of pulses being applied at a given amplitude and pulse width prior to increasing the amplitude. The given number varies with the pulse width. The amplitude is increased until involuntary muscle movement results. The same procedure is repeated at the subsequent pulse width.

3,810,458
MINIMIZING TISSUE REACTION TO GLOVE POWDER

Bernard Albert Semp, Richmond, Va., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 117,998, Feb. 23, 1971, Pat. No. 3,728,739, which is a continuation-in-part of Ser. No. 770,792, Oct. 25, 1968, abandoned. This application Apr. 10, 1973, Ser. No. 349,875
Int. Cl. A41d *19/00*; A61b *19/00*
U.S. Cl. 128—1 R 11 Claims

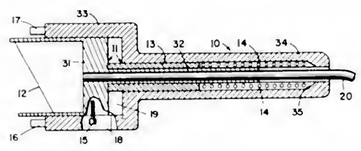


Natural or synthetic rubber surgical elements such as tubing, catheters, drains and gloves are "lubricated" so as to prevent sticking during storage, and permit easier emplacement, such as putting on the gloves by a surgeon or nurse, by applying to the surface of the rubber element finely divided polyglycolic acid powder. The polyglycolic acid powder is readily absorbed by living tissue without deleterious tissue reaction, thus minimizing tissue reaction from the transfer of the powder from the element such as a glove to internal sites in a subject. The rubber surgical elements are conveniently stored in a strippable package. Polyglycolic acid aids in reducing infection and promotes healing, when in contact with tissue.

3,810,459
TRANSCUTANEOUS BLOOD VESSEL PROBE WITH RELOCATION MARKER

Gerald O. Becker, Blackstone, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Apr. 27, 1972, Ser. No. 250,090
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 Z 4 Claims

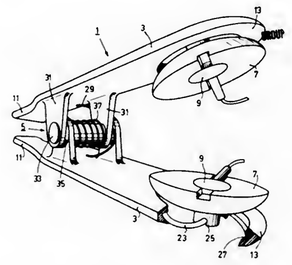


An external physiological sensor probe in which a transducer responsive to in vivo physiological signals is placed in an appropriate position on the body. The transducer is mounted in a housing to permit placement of the transducer next to the skin or in contact with the skin if necessary. A marker member or element is slideably mounted on the transducer housing and resiliently urged to a position distal of the transducer. The marker member acts as a handle and may be placed in contact with the body upon application of a certain predetermined force. The marker member produces an indication on the body as to the position of probe as well as its alignment thereby enabling its positioning in the exact same location at a remote time.

3,810,460
DETECTOR FOR PHYSIOLOGICAL QUANTITIES

Cornelis Pieter Van Nie, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 13, 1972, Ser. No. 297,243
Claims priority, application Netherlands, Oct. 23, 1971, 7114606
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 E 10 Claims

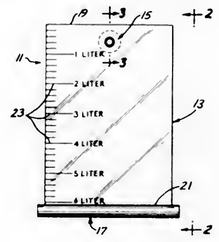


A device for detecting physiological quantities, comprising two hinged arms which are provided on their end with freely movable end members. When a part of the body, for example, an ear lobe, is clamped between the end members, the latter will be immovably retained in a mount.

3,810,461
DISPOSABLE PULMONARY FUNCTION KIT

James B. McCormick, Hinsdale, Ill., assignor to American Health, Inc., Hinsdale, Ill.

Filed Sept. 11, 1972, Ser. No. 287,766
Int. Cl. A61b *5/08*
U.S. Cl. 128—2.08 6 Claims



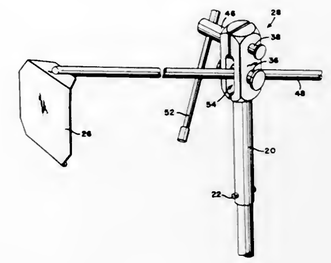
A disposable pulmonary function kit for use in post-surgical lung exercise and in testing lung capacity by exhaling into an inflatable bag having an input tube with valve means which, in one embodiment, is manually operable to close off the bag. The bag may then be rolled from one end, or separate means moved along the length of the bag, until the portion of the bag retaining the gas therein is taut whereupon the volumn of gas within the bag may be read from calibrations on the bag.

3,810,462
SELF-RETAINING SURGICAL RETRACTOR

Roman Szpur, Dayton, Ohio, assignor to Medicotech Company, Dayton, Ohio

Filed Mar. 5, 1973, Ser. No. 337,835
Int. Cl. A61b *17/02*
U.S. Cl. 128—20 11 Claims

A self-retaining surgical retractor having a retractor holder adapted to be attached to the side rail of an operating table. A retractor blade on a handle is attached to the retractor holder by means of a clamp head which permits four-way movement of the retractor blade for easy positioning. The clamp head

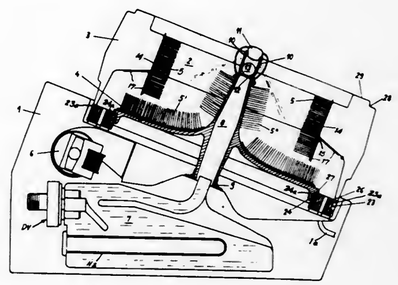


may be locked easily and quickly with a single adjustment. The retractor blade is thereby held steady in all planes to provide steady consistent retraction.

3,810,463
APPARATUS FOR PEDICURE

Leo Krummenacher, Luzernerstrasse 36, Ebikon, Switzerland

Filed Sept. 8, 1972, Ser. No. 287,334
Claims priority, application Switzerland, Sept. 9, 1971, 13282/71
Int. Cl. A61h *7/00*
U.S. Cl. 128—56 21 Claims



A rotary foot treatment arrangement having a basin within which a plurality of brush elements are rotatable about a central column from which treating fluid is directed onto feet within the basin and subjected to action of the brushes while undergoing the fluid treatment as well.

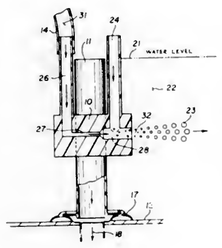
3,810,464
WHIRLPOOL BATH UNIT

William Sheeler, Brooklyn, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

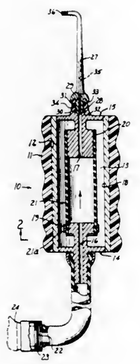
Filed July 17, 1972, Ser. No. 272,565
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 2 Claims

A whirlpool bath unit in which aerated water is circulated in a bathtub. The incoming water flows through a restricted orifice in a jet mixer unit to form a narrow jet stream which is directed into a larger final orifice and then into the bathtub. An air passage led into said larger final orifice of the jet mixer unit draws air that is sucked by the jet stream of water. The

combination of air and jet stream is directed into the bathtub to form a circulating whirlpool. The bathtub level is maintained at a constant level by a suitably located vertical tube mounted over the bathtub drain, with the jet mixer unit fastened to said vertical tube.

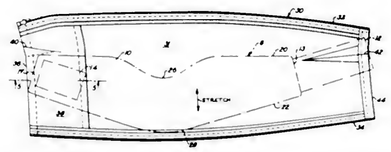


3,810,465
PULSATING SYRINGE
John W. Lambert, 18815 Milton Dr., Glendora, Calif.
Continuation-in-part of Ser. No. 110,094, Jan. 27, 1971, abandoned. This application Feb. 18, 1972, Ser. No. 227,379
Int. Cl. A61h 9/00
U.S. Cl. 128—66 13 Claims



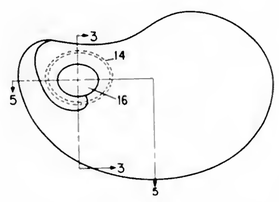
A hydraulic oscillator which produces a pulsed output from a steady flow input. The oscillator utilizes a rigid pressure chamber containing a charge of gas under pressure. A conduit passes through this chamber, and the conduit includes an inlet passage, an outlet passage and, interconnecting and extending between these passages, a flexible, resilient, collapsible-walled tubular portion. The outside of this portion is fully peripherally exposed to gas pressure in the chamber. When the impedance and resistance to liquid flow through the inlet and outlet passages, the elasticity and dimensions of the tubular portion, and the gas pressure in the chamber, are appropriately selected, then a liquid stream entering the inlet passage at a suitable pressure relative to the chamber pressure, will emerge as a pulsating flow. This pulsating flow is particularly suited to many purposes, including the cleaning, irrigating and massaging of biological living tissue, the creation of cavitation in a flowing stream, and the momentary and cyclical reversal of the direction of flow in a generally forwardly flowing system. Systems for utilizing this oscillator for these purposes are disclosed.

3,810,466
COVER FOR CERVICAL COLLARS
Betty W. Rogers, 43 Franklin St., Wilkes-Barre, Pa.
Filed Aug. 4, 1972, Ser. No. 277,879
Int. Cl. A61h 1/02; A61f 5/01
U.S. Cl. 128—75 10 Claims



A cervical collar enclosed in a normaly closed tubular cover that encases the collar along its length while leaving the ends of the collar exposed so that the collar ends can be attached to each other. The cover is formed of a one-way stretch material that is stretchable transversely of the length of the cover and the collar.

3,810,467
DEVICE FOR HERNIA CORRECTION
Luigi Frankenthal, Sao Paulo, Brazil, assignor to Dow Corning Corporation, Midland, Mich.
Filed Aug. 31, 1972, Ser. No. 285,270
Int. Cl. A61f 13/00
U.S. Cl. 128—95 1 Claim

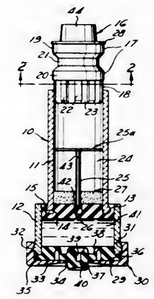


Surgically implantable device for hernia correction comprising a plate having a pair of partially overlapping resilient hooks formed integrally therewith and defining an orifice through the plate. In use, the hooks are spread apart allowing the esophagus or inguinal canal to be placed in the orifice; the hooks close and retain the device in position to close the hernia.

3,810,468
SORBENT
Billy G. Harper; Robert N. Bashaw, and Bobby L. Atkins, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 553,684, May 31, 1966, Pat. No. 3,520,925. This application June 8, 1972, Ser. No. 260,994
Int. Cl. A61l 15/00; A61f 13/16
U.S. Cl. 128—156 7 Claims

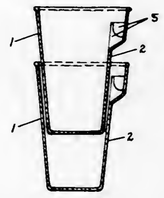
Articles having improved sorbency for aqueous body fluids are provided wherein novel classes of water-swellable, water-insoluble, lightly cross-linked polymers are employed as sorbents in conjunction with a body-conforming support.

3,810,469
MULTIPLE COMPARTMENT HYPODERMIC DEVICES
Alfred A. Hurschman, Hudson, Ohio, assignor to Ampoules, Inc., Macedonia, Ohio
Filed May 24, 1972, Ser. No. 256,407 The portion of the term of this patent subsequent to May 29, 1990, has been disclaimed.
Int. Cl. A61m 5/28; A61j 5/00
U.S. Cl. 128—218 M 6 Claims



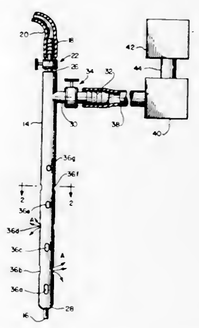
A multichamber hypodermic ampoule of the contained needle type and a method of assembling and filling such an ampoule are disclosed. The ampoule includes multiple chambers for premixing a powdered medicament with a diluent and injecting the mixture. One end of one chamber is closed by a plunger and the other end of that chamber is closed by a first pierceable diaphragm. A hollow needle is operatively associated with the plunger and is initially contained within that chamber. The first pierceable diaphragm is slidably mounted in one end of a second chamber which contains the diluent, and the other end of that chamber is closed by a second pierceable diaphragm. The plunger is provided with a first cylindrical portion having a plurality of axially extending and radially projecting ribs, and is provided with a second cylindrical portion which is adapted to form a seal with the chamber. The ampoule is assembled and filled by affixing the first diaphragm to one end of the first chamber, slidably mounting the first diaphragm in one end of the second chamber, filling the second chamber with a diluent, affixing the second diaphragm to the other end of the second chamber, staking the pointed end of a needle in said first diaphragm, partially filling the first chamber with a medicament to be lyophilized, and partially inserting the plunger in the first chamber so that passageways defined by the ribs permit vapor to be sublimed from the chamber during a lyophilization process. When lyophilization is complete and the medicament in the first chamber is in a powdered or freeze-dried condition, the plunger is fully inserted to seal the ampoule and to contact the head of the needle.

3,810,470
NESTABLE PILL-ADMINISTERING DRINKING VESSEL
Leo J. Von Gunten, 829 W. Nimisila Rd., Akron, Ohio
Filed June 15, 1971, Ser. No. 153,357
Int. Cl. A61j 7/00
U.S. Cl. 128—222 9 Claims



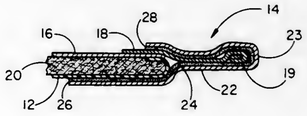
Nestable pill-administering vessels and nests thereof. Each vessel has an interior pill support, and the vessel wall is dished in beneath the support to allow nesting.

3,810,471
SURGICAL ASPIRATING CANNULA
Andrew Truhan, R.D. 3, Box 392T, Somerset, N.J.
Filed Mar. 22, 1972, Ser. No. 236,947
Int. Cl. A61m 1/00
U.S. Cl. 128—276 3 Claims



A surgical aspirating or draining device having means maintaining a zone of contamination free gas about the surgical site to reduce a minimum introduction of contaminated particulate and gaseous matter into the surgical site, cavity or wound.

3,810,472
FASTENING TAB ARRANGEMENT FOR DISPOSABLE DIAPERS
Karl E. Aldinger; Karl L. Pennau, and Richard H. Frick, all of Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Filed Oct. 10, 1972, Ser. No. 296,250
Int. Cl. A41b 13/02
U.S. Cl. 128—287 5 Claims



Pressure-sensitive fastening tabs for disposable diapers in which the free end of each tab is folded back transversely on

itself with the pressure sensitive adhesive surface on the inside. Disposed between the thus juxtaposed adhesive surfaces is a release sheet having multiple folds at one end adjacent the transverse fold of the tab. The release sheet permits the tab to be unfolded for use when applying the diaper, and the folds in the release sheet provide a handle for removing the release sheet completely from the tab.

3,810,473

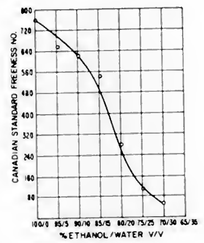
LIQUID-LAID, NON-WOVEN, FIBROUS COLLAGEN DERIVED SURGICAL WEB HAVING HEMOSTATIC AND WOUND SEALING PROPERTIES

Mamerto M. Cruz, Jr., Pennington, N.J.; Orlando A. Battista, Fort Worth, Tex.; LaVerne C. Tressler, Trenton, N.J., and Carmine Cirolla, Morrisville, Pa., assignors to Avicon, Inc., Ft. Worth, Tex.

Filed Dec. 4, 1972, Ser. No. 312,210

Int. Cl. A61b *17/04, 17/08*

U.S. Cl. 128—334 **13 Claims**



Liquid-laid, non-woven, fibrous web having hemostatic and adhesive properties sufficient to seal a wound formed of fibers of ionizable, water-insoluble, partial acid salts of collagen, the web having certain specified absorbency and porosity characteristics. In order to prevent excessive swelling of the fibers with resulting excessive hornification or densification upon drying, it is essential that mixtures of water-miscible organic liquids such as ethanol with specified minor porportions of water be utilized as the slurrying media.

3,810,474

TUBING

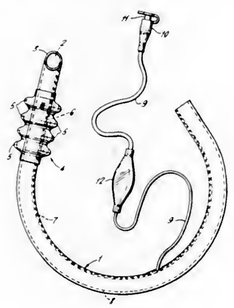
David Edward Cross, Folkestone, Kent, England, assignor to Smiths Industries Limited, London, England

Filed Sept. 21, 1972, Ser. No. 290,922

Claims priority, application Great Britain, Sept. 24, 1971, 44638/71

Int. Cl. A61m *25/00*

U.S. Cl. 128—351 **9 Claims**



An endotracheal tube has an inflatable cuff of undulatory bellows-like configuration to provide spaced circumferential convolutions, whereby cuff contact in establishing a labyrinth seal with the intubated patient's trachea is restricted to narrow bands so as to reduce the extent, and consequential healing-time, of any pressure-induced necrosis. A cuff convoluted over only part of its length is provided on a tracheostomy tube, and alternative configurations of cuff of partially-convoluted form and involving cylindrical shoulders of different lengths, are used for endotracheal and tracheostomy tubes. The cuff in each case is inflated from an air-line that includes a pilot balloon and is coupled into a passageway which is incorporated in the tube wall and which opens through the wall into the cuff.

3,810,475

CIGARETTE MAKING MACHINES

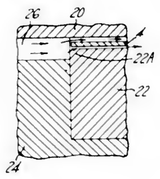
Francis Auguste Maurice Labbe, Neuilly-sur-Seine, France, assignor to Molins Limited, London, England

Filed Aug. 20, 1971, Ser. No. 173,384

Claims priority, application Great Britain, Aug. 21, 1970, 40390/70

Int. Cl. A24c *5/18*

U.S. Cl. 131—84 B **7 Claims**



A cigarette-making machine has an air-pervious band which is arranged to carry the cigarette filler stream by means of suction applied through the band from a suction chamber, and includes ports through which air from the atmosphere is drawn by the suction from the suction chamber so that air flows inwards from both edges of the band over both surfaces thereof to help in clearing particles out of the gap between the band and the surface of a fixed member supporting the band.

3,810,476

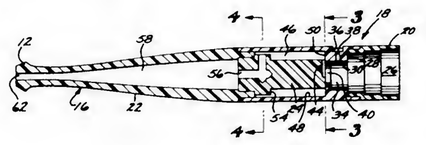
CIGARETTE HOLDER

Leonard L. Thomas, 375 N.W. Cypress St., Orange, Calif.

Filed June 16, 1972, Ser. No. 263,513

Int. Cl. A24f *5/04, 13/02*

U.S. Cl. 131—187 **3 Claims**



Apparatus to aid the tobacco smoker in overcoming the smoking habit in the form of a cigarette holder arranged to admit ambient air in parallel with the cigarette smoke in response to inhalation suction. The flowpath through the holder includes two smoke storage chambers and a flow restrictor between the two chambers. Air is admitted into the upstream chamber. The downstream chamber is larger than the upstream chamber. The flowpath is arranged so that smoking with the holder results in substantially the same "feel" in terms of temperature, flow rate and resistance to flow that he experiences when smoking without the filter. Moreover, the structure is arranged to accommodate a withdrawal method in which the size of the air inlet opening is increased from time to time. The device employs a single shank with a series of bodies each with a different size air inlet hole. The holder is dismantled from time to time during the withdrawal course. It is arranged so that the tars are filtered out of the smoke and retained in the holder where they will be visible for psychological effect.

3,810,477

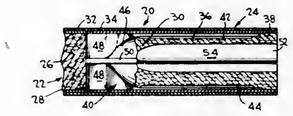
TOBACCO SMOKE FILTER

Richard M. Berger, Richmond, and Elwin W. Brooks, Mechanicsville, both of Va., assignors to American Filtrona Corporation, Richmond, Va.

Division of Ser. No. 261,835, June 12, 1972, which is a continuation-in-part of Ser. No. 155,705, June 23, 1971, which is a division of Ser. No. 45,109, June 10, 1970, Pat. No. 3,637,447, which is a continuation-in-part of Ser. No. 820,355, April 30, 1969, Pat. No. 3,599,646, which is a continuation-in-part of Ser. No. 727,477, May 8, 1969, Pat. No. 3,533,416. This application Apr. 5, 1973, Ser. No. 348,073. Notice: The portion of the term of this patent subsequent to Oct. 13, 1987 has been disclaimed.

Int. Cl. A24d *1/64;* **A24f** *7/64*

U.S. Cl. 131—261 R **4 Claims**



Tobacco smoke filter means, particularly for use with cigarettes and the like, having improved filtration efficiencies and/or reduced costs. One embodiment increases filtration efficiency by minimizing the crimped portion of the filtering material thereby maximizing the effective filtering area. Another embodiment reduces total weight of filtering material, and thereby costs of manufacture, while still producing high level filtration efficiency by utilizing a "double crimp" thereby forming an enclosed intermediate cavity means so that the smoke must pass through the filtering material twice.

3,810,478

SHAMPOO COMPOSITION POSSESSING SEPARATE LOTION PHASE

Frank Wesley Olson, Jr., Pompton Plains, and Karl Hutcheson Roberts, Flemington, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 16, 1972, Ser. No. 297,973

Int. Cl. A45d *7/00*

U.S. Cl. 132—7 **13 Claims**

A two-phase shampoo composition is made by preparing substantially polar and lipophilic portions of a shampoo composition, and mixing them together. As the result of the mixing, the lipophilic portion becomes emulsified and creamy in appearance, forming a lotion which is stable and which is lighter than the polar phase. The lotion floats on top of the polar phase and a sharp line of demarcation is subsequently exhibited between the phases. Apparently, minor proportions of components of the polar phase are absorbed into the lipophilic phase, forming the stable lotion.

The polar phase comprises amphoteric and also, cationic surface active agents, including higher alkyl di-lower alkyl amine oxide, N-higher alkyl beta-alanine, higher fatty acid amido-lower alkyl di-lower alkyl hydroxy-lower alkyl ammonium halide, and higher fatty acid di-lower alkanolamide, with lower alcohol, water, and means to adjust the pH to within the range of about 5 to 9.5.

The lotion portion comprises a suitable oil, such as a light mineral oil, plus constituents absorbed from the polar phase to form the lotion. Although mineral oil is an important constituent of the lipophilic phase and increases the stability of the resulting product, as compared to vegetable or animal oils and fats which are sometimes employed in shampoos, small proportions of such oils may often be used, in addition to a major proportion of mineral oil in the lotion phase.

The shampoo made is used as a homogeneous temporary emulsion of the lotion and polar phase, created by shaking, and imparts a conditioning action to the hair washed with it, due to the actions of the oil, amphoteric and cationic surface active agents and the conditioners in the formula.

3,810,479

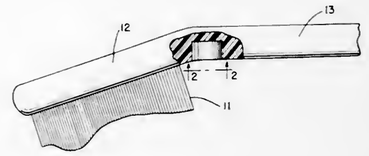
TOOTHBRUSH HAVING ANTIMICROBIAL MEANS

Gilbert Dwayne Miles, Ossining, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 17, 1972, Ser. No. 298,292

Int. Cl. A45d *44/18*

U.S. Cl. 132—84 **5 Claims**



A toothbrush of normal configuration and structure has a relatively small well on the side of the brush having the bristles and in relative proximity thereto. The well contains an antimicrobial material which is sparingly soluble so that as the brush is wetted the moisture will dissolve a small portion of the antimicrobial agent which is then distributed over the bristles by capillary action thereby sterilizing them.

3,810,480

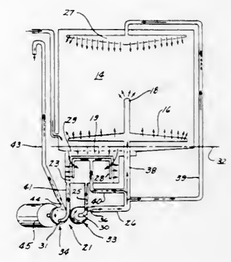
FLUID CONTROL SYSTEM

Thomas R. Smith, and Stewart W. Faust, both of Newton, Iowa, assignors to The Maytag Company, Newton, Iowa

Division of Ser. No. 27,883, April 13, 1970, abandoned, which is a division of Ser. No. 738,277, June 19, 1968, Pat. No. 3,542,594. This application June 5, 1972, Ser. No. 259,872

Int. Cl. B08b *3/02*

U.S. Cl. 134—104 **7 Claims**



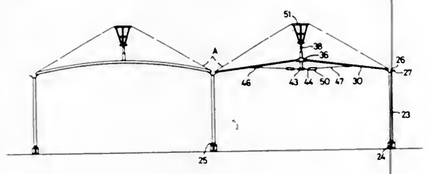
A fluid control system for a dishwashing apparatus is disclosed that includes a reversible two-cavity pump assembly with each of the cavities having an inlet in open fluid communication with the washing chamber and with the first cavity having an outlet in open fluid communication with the fluid distribution system and the second cavity having an outlet in open fluid communication with an external drain conduit. An impeller is disposed within each of the cavities and a divider is positioned between the cavities for defining an annular orifice therebetween. Operation of the impellers in a first direction effects pumping of fluid from said chamber to the fluid recir-

culation system with the first pump while the second pump maintains a substantially static low pressure head at the outlet thereof to prevent drainage of fluid from said chamber while preventing suction of fluid from the drain. The pumps are operable in the opposite direction to intially continue recirculation of fluid with the first pump while the second is operable for draining fluid from the chamber and pumping it toward an external drain.

3,810,481
TENT

Ryotaro Nohmura, No. 19-19, 3-chome, Senriyama-nishi, Suita-shi, Osaka-fu, Japan

Filed Nov. 13, 1972, Ser. No. 305,825
Claims priority, application Japan, Jan. 13, 1972, 47-5967; Jan. 13, 1972, 47-5969; Jan. 17, 1972, 47-9428; Mar. 9, 1972, 47-29619
Int. Cl. A45f *1/16*
U.S. Cl. 135—3 R **8 Claims**

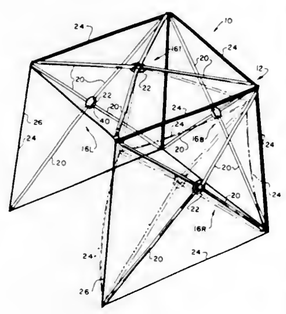


Apparatus for suspending a tent comprising support poles at each corner thereof, a top wall of the tent being supported by a center frame member supported by the support poles to thereby omitting a main center pole. The support poles are connected together by support beam which acts as rain gutters and the support poles serve as vertical rain conducts.

3,810,482
COLLAPSIBLE TENT AND FRAME THEREFOR

Allan E. Beavers, Denver, Colo., assignor to T. A. Pelsue Company, Englewood, Colo.

Filed Nov. 14, 1972, Ser. No. 306,403
Int. Cl. A45f *1/16*
U.S. Cl. 135—4 R **12 Claims**

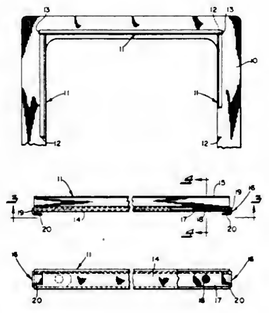


This invention relates to a collapsible tent structure in which both sidewalls, the rear wall and top are supported by nearly identical subframe assemblies, each of which has a length of stretchable cord fastening the ends of its jointed diagonally extending struts together. The struts of each subframe assembly are pivotally attached at their adjacent ends to a stop-forming connector at the intersection of the diagonals for foldable movement in one direction into side-by-side relation with one another while such connector limits their unfolded position to one in which they bear an angular relation of over 180° and less than approximately 220° to one another which position is maintained by the tension in the stretchable cord interconnecting the remote ends thereof. The cord preferably is reeved through marginal hems bordering the frame-supported walls thus defining a unitary foldable tent assembly. The frame itself comprises the four more or less identically constructed subframe assemblies pivotally interconnected to one another at their common corners together with the connectors for accomplishing the latter.

3,810,483
REMOVABLE OVEN DOOR SEAL

Arthur W. Vonderhaar, Mansfield, Ohio, assignor to The Tappan Company, Mansfield, Ohio

Filed Nov. 14, 1972, Ser. No. 306,213
Int. Cl. F24c *15/02*
U.S. Cl. 126—190 **1 Claim**

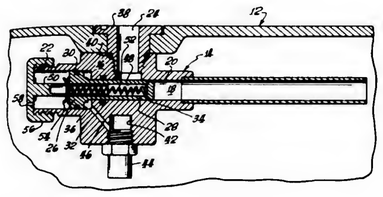


The seal includes a sleeve of silicone rubber or the like and metal hook-like retainers at the sleeve ends which are cemented to the sleeve and engage in slots provided in the seal support surface. The sleeve length is normally about 20 percent shorter than the spacing of the slots, so that the sleeve is stretched in the mounting and held under tension as installed to conform closely to and bear firmly against the surface.

3,810,484
COOLING WATER VALVE

Leonard J. Martini, Monrovia, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 30, 1973, Ser. No. 327,883
Int. Cl. F16k *13/04, 17/14, 17/40*
U.S. Cl. 137—70 **3 Claims**

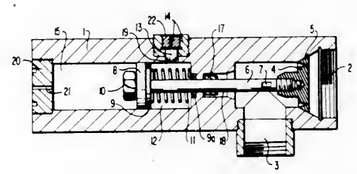


A water valve assembly which includes a valve body having a central passageway which has a water receiving portion and a counterbored portion, and a lateral water inlet port which opens into the water portion of the passageway. A piston and rod are provided with the piston sealably disposed within the counterbore portion of the passageway and the rod sealably disposed within the water portion of the passageway so that longitudinal movement of the piston in the counterbore causes the rod to open and close the water portion of the passageway to the inlet port. Means are provided for biasing the piston and rod to close the water portion of the passageway, and means are provided for applying pressurized fluid to the backside of the piston for driving the piston and rod to open the water portion of the passageway. Once the passageway is opened it may be maintained in an opened condition by the force of the water pressure on the end of the piston rod against the biasing means.

3,810,485
EXPLOSIVE CHARGE ACTUATED VALVE

Heinz Gawlick, Furth; Hellmut Bendler, Erlangen-Spardorf; Gunther Gottwald, Nurnberg; Gunter Hubsch, Kalchreuth, and Karl Egon Flach, Cologne-Riehl, all of Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

Filed May 5, 1972, Ser. No. 250,768
Claims priority, application Germany, May 6, 1971, 2122423
Int. Cl. F16k *13/06*
U.S. Cl. 137—71 **9 Claims**



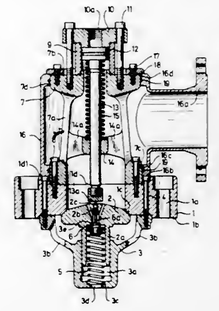
An explosive charge actuated pressure valve which combines the features of a self-sealing poppet valve with the advantages of a rupturing diaphragm by providing a sealing element connected to a piston and biased in the closed position against a valve seat disposed in the passage between an inlet opening and an outlet opening, the sealing element being connected to a piston in a chamber which is in communication with an explosive charge capable upon ignition of driving the sealing element against the valve seat with a force sufficient to rupture the sealing element to open the passage between the inlet and outlet openings.

3,810,486
VALVE FOR USE IN HYDRAULIC MACHINES

Werner Gutekunst, Partenstein, Germany, assignor to G. L. Rexroth GmbH, Lohr/Main, Germany

Filed Feb. 2, 1973, Ser. No. 329,190
Claims priority, application Germany, Feb. 10, 1972, 2206308
Int. Cl. E03b *9/02*; **F16k** *35/06*
U.S. Cl. 137—269 **5 Claims**

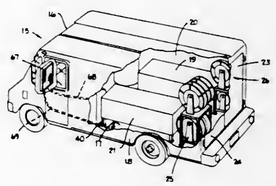
The novel valve can be used immersed in a liquid or it can be interposed in a conduit. It has a valve mechanism surrounded by a valve housing composed of an inner housing section and an outer housing section which surrounds the inner housing section. The inner housing section is used by itself in conjunction with the valve mechanism when the valve is installed immersed in a liquid, and when the valve is to be used interposed in a conduit both housing sections are employed.



3,810,487
MOBILE LUBRICATION APPARATUS

Russell D. Cable, Flora, and Homer K. Brenneman, Delphi, both of Ind., assignors to Porta Service, Inc., Lafayette, Ind.

Filed Nov. 22, 1971, Ser. No. 200,973
Int. Cl. B60p *3/24*
U.S. Cl. 137—351 **2 Claims**

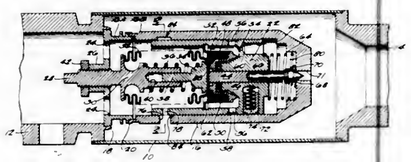


A mobile lubrication apparatus having a van truck with storage tanks mounted therein connected to pressure hoses. A pair of hose assemblies are mounted adjacent to the rear door of the truck with each assembly having four rotatably mounted reels with a hose wrapped around each reel. The hoses are extendable from the truck so as to allow lubrication of another vehicle. A row of tanks is mounted to the truck platform adjacent each one of the two side walls of the truck. The tanks adjacent one side wall are spaced from the tanks mounted adjacent the other side wall forming a walkway and a storage area therebetween. One row of tanks has a pair of engine oil tanks and a water/anti-freeze tank. The other row of tanks has a chassis lubrication tank, a transmission oil tank and a waste oil receiving tank. A generator is mounted within the truck being operably driven by the truck transmission and providing electrical energy to operate an air compressor mounted atop an air storage tank. Air pressure pumps are mounted atop the tanks being operable by the pressurized air provided by the air compressor to force the contents of the tanks out through the hoses of the hose assemblies. A waste oil receiver may be positioned under the vehicle being lubricated to receive waste oil and is connected to a suction hose which conveys the waste oil back to a storage tank within the truck. Another suction hose is provided so as to allow use of the customer's oil in lieu of the oil stored in the truck. Power outlets and a desk are mounted to the rear doors of the truck.

3,810,488
PRESSURE REGULATOR VALVE

Charles D. Orth, Cedarburg; Charles F. Treder, Brookfield, and Marcel P. Griffoul, West Allis, all of Wis., assignors to Controls Company of America, Schiller Park, Ill.

Filed Nov. 20, 1972, Ser. No. 308,029
Int. Cl. F16k 17/10
U.S. Cl. 137—489.3 4 Claims

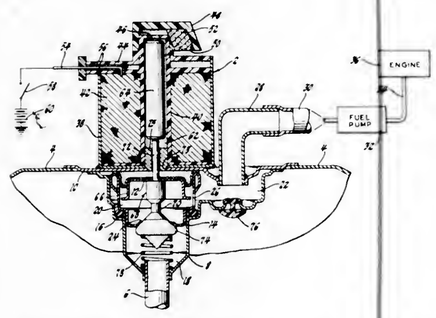


The interior of the bellows is sealed at atmospheric pressure so the pressure on the outside of the bellows is resisted by the atmospheric pressure within the bellows as well as by the spring. When the pressure on the outside of the bellows (which is evaporator pressure in a refrigeration system) exceeds a predetermined amount, the bellows tends to collapse and the head of the bellows pulls away from the actuating pin and allows the spring acting on the pilot valve to open the pilot valve whereupon the pressure to the right of the head of the piston is reduced, allowing the piston to move to the right against the return spring force and thus open the outlet by moving the end of the piston wall past the slot in the stationary sleeve. When the pressure falls below the desired amount, the bellows expands and moves the head of the bellows against the actuating pin to close the pilot valve. Flow through the bleed hole in the end of the piston to the pilot valve chamber rapidly raises the pressure therein so that the return spring can move the piston to close the outlet. Even with the outlet closed, the small port in the piston sleeve allows enough refrigerant flow to insure adequate flow to the compressor to keep the compressor lubricated. The bleed hole in the piston head is sized to require substantial opening of the pilot valve which, therefore, minimizes false opening of the main valve. Controlled leakage to the groove at the pilot end of the piston blocks flow from the pilot valve chamber to the main outlet and stabilizes valve operation.

3,810,489
SOLENOID LATCHED DIAPHRAGM FUEL SHUT-OFF VALVE ASSEMBLY

Daniel C. MacManus, Owosso; Carlen E. Larson, Davison, and Robert L. Lochmann, Grand Blanc, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 5, 1973, Ser. No. 329,905
Int. Cl. F16k 31/02
U.S. Cl. 137—495 2 Claims

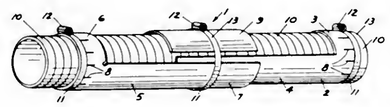


A fuel shut-off valve assembly for a vehicle fuel line comprises a chamber inserted in the fuel line with an inlet port having a spring biased check valve which opens toward the fuel tank and an outlet port open to the low pressure side of the fuel pump. The volume of the chamber is varied by a flexible diaphragm effective to open the check valve when the fuel pump tank operates. A solenoid energized through the engine ignition switch has an armature linked to the supporting brace and valve to help latch the valve open.

3,810,490
HOSE SUPPORT

Ralph Ludwick, 133 Gen. Lee Dr., Vivian, La.

Filed Oct. 30, 1972, Ser. No. 302,065
Int. Cl. F16l 3/02
U.S. Cl. 138—106 10 Claims

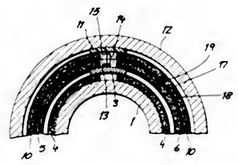


A hose support for maintaining drain hoses in the proper attitude and length to facilitate draining, which includes two L-shaped support collars and an upper support which are clamped to the hose in order to provide the necessary support.

3,810,491
METHOD OF INSULATING CONDUIT

Ullrich Hildebrandt, Munchen, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany

Filed Oct. 26, 1972, Ser. No. 300,884
Claims priority, application Germany, Oct. 27, 1971, 2153392
Int. Cl. F16l 9/14
U.S. Cl. 138—149 10 Claims

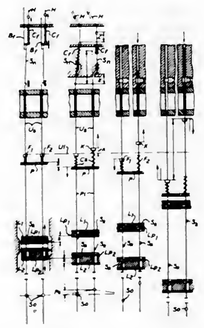


A method of insulating conduit of the double-wall type in which an inner pipe is coaxially surrounded by an outer pipe and the intervening space contains insulating materials as well as some means for positioning the two pipes coaxially. The inter-pipe space is evacuated and the inner tube may be employed for conducting low-temperature fluids and/or for receiving a low-temperature electrical cable, e.g., a superconductor. The insulating material is applied in generally helical bands while spacers are distributed in a helical pattern along the inner pipe and are subsequently removed to permit tension means to be provided between the inner and outer pipes so that the system for relatively positioning the two pipes is not under compression but exclusively under tension.

3,810,492
SHEDDING MOTION OF HEALDS FOR JACQUARD WEAVING MACHINES

William Eger Nyboe Lauritsen, Strandvagen 22, 443 00 Lerum, Sweden

Filed June 8, 1972, Ser. No. 260,926
Claims priority, application Sweden, June 9, 1971, 7444/71
Int. Cl. D03c 3/00
U.S. Cl. 139—59 3 Claims

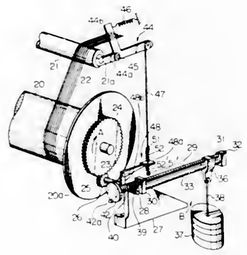


A shedding motion capable of individual operation of the healds in textile machines, particularly Jacquard weaving machines, involving high acceleration and deceleration of the healds. According to the invention, control of positive individual oscillatory and/or reciprocal movements of the yarn guiding means or the healds of the machine is realized by the intermediary of pulses from a selection device. The yarn guiding means are provided with catches and gripping or locking means are adapted, in their upper and lower positions, respectively, to engage the catches so that the yarn guiding means can be carried along by these catches.

3,810,493
TENSION REGULATING APPARATUS FOR LOOM

Yukio Mizuno, Tokyo, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

Filed Oct. 27, 1971, Ser. No. 192,973
Claims priority, application Japan, Oct. 30, 1970, 45-108588[U]; Nov. 4, 1970, 45-96577; Dec. 23, 1970, 45-116260; Dec. 23, 1970, 45-116261
Int. Cl. D03d 49/06
U.S. Cl. 139—110 24 Claims

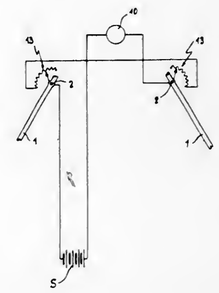


An improved apparatus for regulating a tension in warp yarns fed from a yarn beam of a loom is disclosed, which is adapted to regulate a torque on the yarn beam in accordance with the variation in the overall diameter of the roll of the yarns on the beam throughout the operation of the loom thereby to maintain the tension in the warps being unwound from the beam. The apparatus uses a weight which is in engagement with a threaded bar in a manner to vary the torque on the yarn beam. The threaded bar is mounted on a support structure which tends to turn relative to the yarn beam as the beam rotates. Such rotational deviation of the support beam is remedied by a position adjusting mechanism which is driven in synchronism with the loom so that the support means is returned to its initial position to transmit a proper torque to the rotating yarn beam.

3,810,494
DEVICE TO SUPPLY A THREAD

Jean Duplessy, "Le Sommet" 5 bis, rue J. B. Simon, Sainte Foy-Les-Lyon, France

Filed Dec. 1, 1972, Ser. No. 311,393
Claims priority, application France, Dec. 10, 1971, 71.45355
Int. Cl. D03d 47/34
U.S. Cl. 139—122 R 5 Claims



The invention relates to devices adapted to positively supply a thread or like elongated article under an approximately constant tension to a processing machine as it is pulled by the latter, of the kind comprising a thread advancing mechanism driven by a variable-speed electric motor, and two supports, such as pivoted levers, movable with respect to each other and urged apart by appropriate means such as springs, each carrying a number of guiding means between which the thread passes in zig-zag fashion, while means are provided to control the angular speed of the motor in such manner that it increases as the supports come nearer to each other and that it decreases when they move apart. In order to absorb the sudden variations of the linear speed at which the thread is pulled by the processing machine, as for instance a loom with stationary weft supply, in accordance with the invention the thread guiding means are carried by the movable supports through the medium of spring loaded pivoted arms of quite negligible inertia which follow closely the variations of the pulling speed of the thread without causing appreciable additional tensions. With such an arrangement the supports are practically only responsive to the variations in the average pulling speed of the thread.

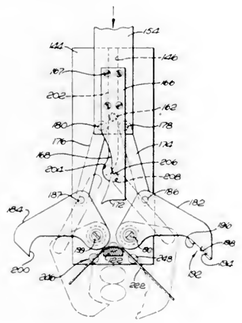
3,810,495
AUTOMATIC STAPLING SYSTEM

Kenneth E. Pack, Long Beach, Calif., assignor to Continental Drilling Co., Los Angeles, Calif.

Filed Feb. 12, 1973, Ser. No. 331,944
Int. Cl. B21f 15/06; B25b 25/00
U.S. Cl. 140—93 A 7 Claims

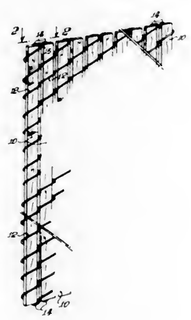
A stapling machine for automatically clamping a locking staple around a pair of rods. A pair of gripping jaws each have a first point pivotally fixed to the machine. A driver arm operates to close the jaws at different rates of speed, securing

the staple around the rods. A finger is connected to the driver arm for positioning the staple adjacent the rods upon closure of the jaws. A solenoid which actuates the driver arm also spring loads a mechanism. The spring loaded mechanism opens the jaws after the staple has been secured around the rods. A staple housing holds a plurality of staples therein.



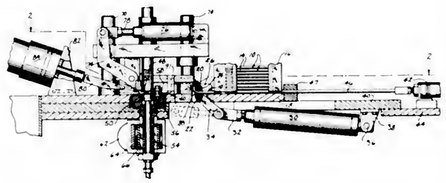
Each time the jaws are opened, the spring loading mechanism positions the front staple in the staple housing for the next operation. The staple includes an elongated member having a curved portion interconnecting a first end and a head end. The head end has an eyelet area into which the first end is inserted and crimped when the staple is positioned around the rods.

3,810,496
FABRICATION OF CHAIN WIRE FENCING INCORPORATING SLATS
Herbert E. Rohrbacher, Whittier, Calif., assignor to Bergandi Manufacturing Company, Inc., El Monte, Calif.
Filed Mar. 5, 1970, Ser. No. 16,810
Int. Cl. B21f *29/02, 27/14*
U.S. Cl. 140—25 **6 Claims**



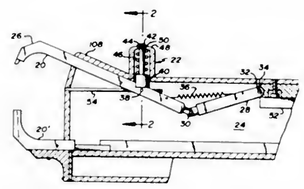
As chain link fencing is fabricated in a step-by-step manner, wood slats are automatically inserted into the flattened wire coils that extend transversely of the fencing to result in a fence structure that is especially suitable for dividing highways. Instead of anchoring the slats in place by staples, the present invention teaches captivating the slats in the transverse coils by bending wire ends of the fencing across the opposite ends of the flattened coils to block the paths of escape of the slats.

3,810,497
APPARATUS FOR BENDING RODS
James O. Werner, Greendale, Wis., assignor to Banner Welder, Inc., Milwaukee, Wis.
Filed Sept. 25, 1972, Ser. No. 290,939
Int. Cl. B21f *1/00*
U.S. Cl. 140—71 R **21 Claims**



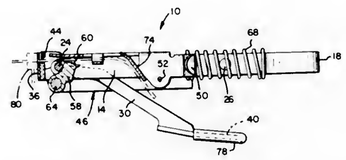
A rod for forming a glow plug is fed between two grooved rollers one of which is rotatable around the other to make a 90° bend in the rod. The rod is then fed to an arcuate die groove of small radius, the groove being carried by a two part die. The bent portion of the rod is clamped in front of the arcuate die groove and a grooved roller is swung orbitally 270° around the arcuate die groove to force the unbent portions of the rod into and around the arcuate die groove, thereby forming a 270° arcuate bend of small radius. The two parts of the die are then separated and the bent rod is removed therefrom.

3,810,498
TOOL JAWS
Laszlo Hidassy, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed Mar. 21, 1973, Ser. No. 343,415
Int. Cl. B21f *9/02*
U.S. Cl. 140—93 A **13 Claims**



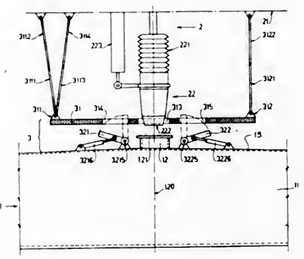
At least one of a pair of selectively operable tool jaws of a strap applying tool is cooperatively coupled to biasing means to permit selective displacement of the jaw or jaws in the event full closure of such jaws is restricted either by an obstruction or an oversized article situated between the jaws. In a preferred embodiment, the displaceable tool jaw is partially restrained by the bifurcated end of a plunger means having a shank portion engaged by a spring means resiliently coupling the plunger means to the tool housing. Adjusting means may be provided to selectively vary the pressure exerted by the biasing means.

3,810,499
BUNDLE TIE TOOL
David Van Dike Benfer, 131 Ridgeview Dr., Marysville, Pa.
Filed Feb. 21, 1973, Ser. No. 334,505
Int. Cl. B21f *9/02*
U.S. Cl. 140—123.6 **8 Claims**



A tool is disclosed for tightening a strap around a bundle of wires or the like, the tool having finger grips for drawing the strap to a tightened position and further having means for severing the excess portion of the bundle strap after the tightening operation.

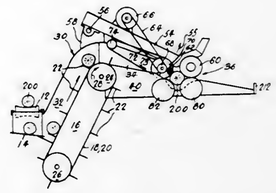
3,810,500
APPARATUS FOR CONNECTING A MOBILE TANK WITH LOADING PLATFORM
Marcel Brun, and Alfred Riegert, both of Aix en Provence, France, assignors to Pechiney Ugine Kuhlmann, Paris, France
Filed Oct. 18, 1971, Ser. No. 190,243
Claims priority, application France, Oct. 16, 1970, 70.37362
Int. Cl. B65b *3/06*; **B67c** *5/06*; **B65g** *69/22*
U.S. Cl. 141—231 **6 Claims**



The invention relates to an apparatus for connecting a mobile tank to a loading and unloading station including a platform for the guidance of the pipes of the loading station for alignment with the pipes of the tank in which the platform which is suspended at the station has two transverse guide ramps and one longitudinal guide stop, while the other member has a pivotable finger which can act upon the ramps and the stops.

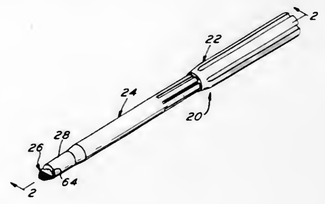
3,810,501
POST DOMER
Thomas B. Horel, Calgary, Alberta, Canada, assignor to Domtar Limited, Montreal, Canada
Filed Aug. 28, 1972, Ser. No. 284,034
Claims priority, application Canada, Mar. 20, 1972, 137,587
Int. Cl. B27m *3/00*
U.S. Cl. 144—30 **9 Claims**

An apparatus for automatically forming a curved dome on a post by individually, automatically feeding logs into a doming station, rotating and axially advancing the logs in the doming station to a contoured cutting head and then ejecting the log



from the doming station after the doming operation has been completed.

3,810,502
COMBINATION STRAIGHT SLOTTED AND CROSS SLOTTED SCREW STARTER
Smith Kyser, Lapeer, Mich., assignor to Aircraft Specialties, Inc., Lapeer, Mich.
Filed July 21, 1971, Ser. No. 164,650
Int. Cl. B25b *15/02*
U.S. Cl. 145—50 E **6 Claims**

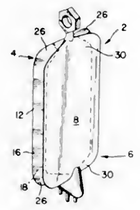


A screw starter is provided for use with either straight slotted or cross slotted screws. The starter includes a handle, a barrel and an actuating rod secured to the handle extending in one end of the barrel. The handle has a longitudinally extending opening for receiving the barrel. The handle is slidable longitudinally but fixed rotationally with respect to the barrel. Screw gripping means are provided which comprise a pair of blades which are connected together by an elongated spring bent back upon itself to form an elliptical portion and a straight portion. The actuating rod has a longitudinally extending portion which extends into the barrel for receiving the spring. The blades are spaced apart to grip the sidewalls of the screw slot when the elliptical portion of the spring is received in the opening of the actuating rod by movement of the handle towards the blades. The blades are tapered towards the end thereof for use on either straight slotted or cross slotted screws and have serrated outer surfaces to enable a more secure gripping action of the screw.

3,810,503
VARIABLE VOLUME CONTAINER FOR FLUIDS
Dan Lewis, Jr., Concord, and Raymond D. Von Alven, San Rafael, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.
Filed Aug. 22, 1972, Ser. No. 282,777
Int. Cl. B65d *33/02*
U.S. Cl. 150—8 **30 Claims**

A unitary, integrally molded variable volume container is disclosed for fluids. The container includes a pair of opposed rigid side walls extending between top and bottom portions for maintaining the top and bottom portions in fixed vertically spaced relationship and for supporting a pair of opposed flexible side walls. To provide uniform and controlled collapse of

the flexible side walls, each rigid side wall includes a pair of planar walls integrally connected to form a V-shaped cross section adapted to provide a surface against which the flexible side walls come into contact when in a fully contracted condition. In one embodiment the flexible side walls and the V-shaped rigid side walls are extended to form collapsible top and bottom portions. In a second embodiment, the top and



bottom portions each include an end panel connected to the side walls by a plurality of planar panels adapted to permit the end panel to move between retracted and extended positions. In yet another embodiment, the top and bottom portions are each formed of an integrally connected end panel, flexible side wall extensions and V-shaped panels adapted to permit substantial collapse of the top and bottom portions as fluid is withdrawn from the container.

3,810,504

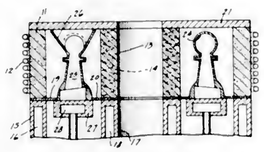
METHOD FOR DIRECTIONAL SOLIDIFICATION

Thomas S. Piwonka, North Canton, Ohio, assignor to TRW Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 128,273, March 26, 1971, abandoned. This application Mar. 30, 1973, Ser. No. 346,691

Int. Cl. B22d *25/06*

U.S. Cl. 164—60 **4 Claims**



Method and apparatus for improving the prodution rate of directionally solidified castings employing an annular mold having one or more molding cavities therein and a pair of heat radiating elements disposed concentrically with the mold, one being located inside and the other being located outside the mold, the heat radiating elements being arranged so that no temperature gradient exists across the mold. A pair of heat sinks is provided, the heat sinks being coaxial with the two heat radiating elements. Means are provided for causing relative movement between the annular mold and the heat radiating elements and the coaxially aligned heat sinks. The annular mold is positioned on a highly heat conductive pedestal or chill. The mold is preheated by the heat radiating elements to a temperature above the solidification temperature of the metal to be cast. After casting, the solidification of the metal progresses upwardly from the chill and the relative movement between the annular mold and the heat radiator-heat sink combination causes the solidification innerface to occur at or near the boundary between the heat radiators and the heat sinks. A baffle is advantageously positioned at this boundary to prevent heat being radiated from the heat radiators to the heat sinks. The solidified metal in passing through the heat sinks radiates heat uniformly to the heat sinks so as to prevent a lateral or radial thermal gradient across the mold during solidification of the metal therein.

3,810,505

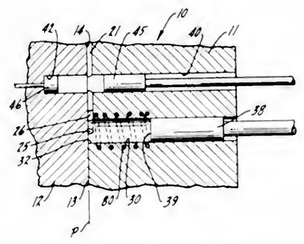
DIE CASTING METHOD

Raymond E. Cross, 910 Greenbay Rd., Lake Forest, Ill.

Continuation-in-part of Ser. No. 95,440, Dec. 7, 1970, which is a division of Ser. No. 865,397, Oct. 10, 1969, Pat. No. 3,646,990, which is a continuation-in-part of Ser. No. 769,598, Oct. 22, 1968, abandoned. This application Oct. 17, 1972, Ser. No. 298,409

Int. Cl. B22d *13/00, 27/10*

U.S. Cl. 164—113 **4 Claims**



A method of die casting parts with high temperature melting point metals and die casts parts in the form of turbine blades and ball valves. The die casting is done in a die element set having mold cavity and runner at parting surfaces and an injection cylinder opening its full bore diameter onto the parting surfaces. The mold cavity is preheated to a temperature of between 800°F. and 1,200°F., a casting temperature of about 3,000°F. is employed, and the injection plunger develops a casting pressure of between 8,000 psi and 12,000 psi.

3,810,506

MOLDING FOR USE IN STEEL INGOT MAKING BY BOTTOM POURING AND METHOD OF MAKING STEEL INGOT

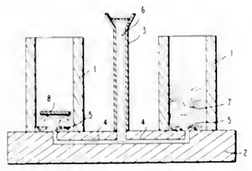
Hidetaka Kobayashi, Hasuda, Japan, assignor to Aikoh Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1972, Ser. No. 311,599

Claims priority, application Japan, Dec. 4, 1971, 46-97591

Int. Cl. B22d *1/00, 23/00*

U.S. Cl. 164—133 **15 Claims**



An erupting flow of molten steel in the early stage of the bottom pouring method to make a steel ingot is interrupted by disposing at the bottom of an ingot-making mold a molding which comprises about 40 to 96 percent by weight of a refractory material, 2 to about 50 percent by weight of a fibrous material and 2 to about 20 percent by weight of a binder. The molding has a size such that it is larger than the steel run-out hole in mold and can rise and float on the top surface of the molten steel within the mold. Thus, splashing can be prevented and a smooth casting surface can be obtained. The molding and the process are disclosed.

3,810,507

CONTINUOUS CASTING PLANT FOR SLABS

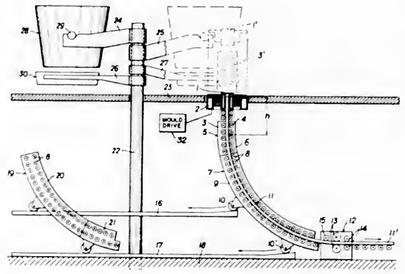
Rudolf Schoffmann, and Rudolf Rinesch, both of Linz, Austria, assignors to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Continuation of Ser. No. 39,479, May 21, 1970, abandoned. This application July 28, 1972, Ser. No. 276,099

Claims priority, application Australia, May 30, 1969, 5193

Int. Cl. B22d *11/12*

U.S. Cl. 164—260 **2 Claims**



A continuous casting plant for the production of slabs, comprising a straight, vertical mould which is water-cooled and releasably mounted in a frame, a secondary cooling or bar guiding means arranged below said mould and including a vertical part with a bending zone which is adapted to be lifted in and out in vertical direction through the frame after the mould has been lifted out of the frame, and a curved part which is adapted to be displaced in horizontal direction, and means for drawing and bending said bar, which are designed as a combined pulling, straightening and rolling stand adapted to be displaced in and out as an individual constructional unit. This plant affords the advantages of a low construction height, and of high operational safety. The quality of the products is improved because the occurrence of cracks is avoided and the bar may solidify symmetrically. Furthermore this plant may be built into existing steel works.

3,810,508

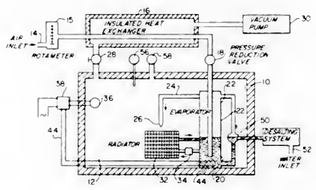
LOW PRESSURE STORAGE OF METABOLICALLY ACTIVE MATERIAL WITH OPEN CYCLE REFRIGERATION

Stanley P. Burg, Miami, Fla., and William J. Hentschel, Acton, Mass., assignors to The Dormavac Corporation, Miami, Fla.

Continuation of Ser. No. 879,178, Nov. 24, 1969, abandoned. This application Jan. 5, 1972, Ser. No. 215,688

Int. Cl. F24f *3/14*

U.S. Cl. 165—20 **12 Claims**



A controlled refrigerated storage environment conducive to preservation of stored respiring food tissue or other respiring matter is produced. Without the use of closed cycle refrigeration, by expanding atmospheric air and raising its relative humidity by passing it through a body of water while heating the body of water (except when the cooling demand exceeds the cooling capacity of the equipment) so that the air is cooled by its expansion and by evaporation of said water only to a preservation-conducive temperature (higher than the capacity of the equipment with that pressure drop at that rate of flow in the absence of such heating) and flowing the cooled expanded water-saturated air around the stored matter to sweep away gaseous products of metabolic reaction emitted from said matter. Heat input to the water is made responsive to cooling of the air in the vacuum chamber below a preservation-conducive temperature level and may be via an electric resistance element, e.g., immersed in the body of water, by heat exchange from an oil, water or air cooling system of a vacuum pump which serves as the air expansion means or from atmospheric air.

3,810,509

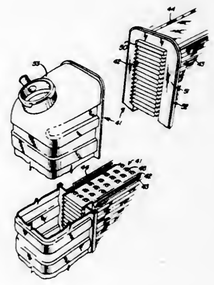
CROSS FLOW HEAT EXCHANGER

Leslie C. Kun, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 189,659, Oct. 15, 1971, Pat. No. 3,757,856, and a continuation-in-part of Ser. No. 270,259, July 10, 1972. This application Mar. 23, 1973, Ser. No. 344,429

Int. Cl. F28d *1/06*

U.S. Cl. 165—148 **23 Claims**



A cross flow heat exchanger comprising an outer structural frame, a multiplicity of channels longitudinally aligned in parallel spaced relation to form first fluid passageways within the channels, and a multiplicity of wall projection portions formed from the channel side walls and extending outwardly with load-bearing end segments of adjacent side walls abutting and transferring the channel load to the outer structural frame, the channels and wall projection portions arranged for flowing a second fluid normal to and in the space between adjacent channels, and fins extending from the channel edge walls having surface distortions.

3,810,510

METHOD OF VISCOUS OIL RECOVERY THROUGH HYDRAULICALLY FRACTURED WELLS

John L. Fitch, Dallas, and Malcolm K. Strubhar, Irving, both of Tex., assignors to Mobil Oil Corporation, New York City, N.Y.

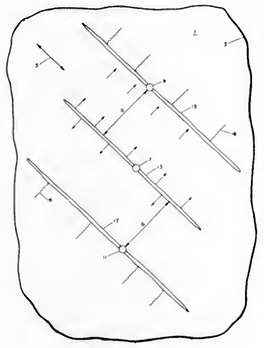
Filed Mar. 15, 1973, Ser. No. 341,431

Int. Cl. E21b *43/24, 43/26*

U.S. Cl. 166—271 **5 Claims**

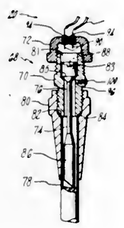
This specification discloses a method of producing viscous hydrocarbons from a subsurface formation having a preferred vertical fracture orientation. An injection well and a production well are provided which extend from the surface of the earth and communicate with the subsurface formation. The injection and production wells are spaced laterally one from the other a predetermined distance measured in a direction about normal to the preferred vertical fracture orientation and are fractured by hydraulic fracturing techniques to create ver-

tical fractures within the formation which communicate with each well. The vertical fractures extend into the formation and follow essentially the preferred vertical fracture orientation of the formation. A thermal recovery technique is initiated and a



hot fluid is injected into the fracture which extends from the injection well and viscous hydrocarbons flow from the formation into the fracture which extends from the production well and are produced via the production well to the surface of the earth.

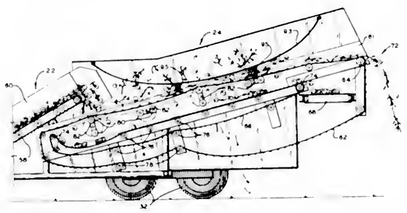
3,810,511
AUTOMATIC FIRE EXTINGUISHING SYSTEM
Russell H. James, Main St., Voluntown, Conn.
Division of Ser. No. 207,801, Dec. 14, 1971, Pat. No. 3,771,606, which is a continuation of Ser. No. 81,955, Oct. 19, 1970, abandoned. This application July 16, 1973, Ser. No. 379,766
Int. Cl. A62c *37/08*
U.S. Cl. 169—37 **8 Claims**



An automatic fire extinguishing system employing water as the firefighting medium and having sprinkler heads with nozzle apertures sealed with low melting point temperature responsive elements and charged with air under pressure to maintain the sprinkler heads dry while in a ready status.

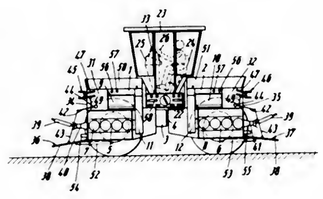
3,810,512
HARVESTING APPARATUS FOR REMOVING CROPS FROM PLANTS OR VINES
Wellington W. Porter, R.D. 2, Dublin Rd., Waterloo, N.Y.
Filed Dec. 1, 1972, Ser. No. 311,253
Int. Cl. A01d *17/04*
U.S. Cl. 171—14 **10 Claims**

Plants or vines having vegetables or fruit, e.g., tomatoes, attached thereto are picked up from ground level and deposited on a shaker belt formed of transverse links spaced more widely than the largest nominal dimension of the crops being harvested. As the plants are transported along the surface of the belt, the latter is oscillated to shake the fruit loose from the plants. Thus, the fruit may fall through the belt, between the links, while the plants remain thereon. A second belt is encircled by the first to catch the fruit falling therethrough. The



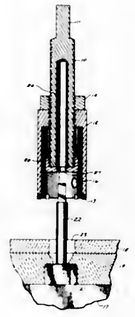
second belt is also formed of spaced links, to allow dirt, etc., to fall through, but spaced more closely than the smallest nominal dimension of fruit to be harvested. The shaker belt is oscillated by a plurality of rotating arms along each side, the arrangement and means of driving the arms being such that optimum shaking motion is achieved.

3,810,513
MOTOR VEHICLE WITH TWO DRIVING UNITS, ESPECIALLY FOR AGRICULTURAL PURPOSES
Richard Spiller, Bensberg; Gottfried Moser, Gergisch-Gladbach, and Walter Berthold, Schildgen, all of Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany
Division of Ser. No. 843,104, July 18, 1969, Pat. No. 3,690,395. This application Apr. 10, 1972, Ser. No. 242,696The portion of the term of this patent subsequent to Sept. 11, 1989, has been disclaimed.
Claims priority, application Germany, July 21, 1968, 1780052
Int. Cl. A01b *51/00*
U.S. Cl. 172—114 **7 Claims**



A vehicle, especially adapted for agricultural use, and having two engines in coaxial alignment in a frame and adapted for coupling together. Each engine drives the primary part of a torque transmitting arrangement, electrical or hydraulic, and secondary parts of the torque transmitting arrangement are connected to drive the vehicle wheels. Controls are provided to control the distribution of power from the primary parts to the secondary parts to determine the wheel, or wheels, to receive the power and the speed of rotation of the wheels. At both ends of the vehicle there are provided means for connection of implements to the vehicle and including lift type hitches and power take-off shafts.

3,810,514
CENTER GUIDED TILE DRILL
Steven J. Viscovich, Los Angeles, Calif., assignor to Relton Corporation, Arcadia, Calif.
Filed Dec. 8, 1972, Ser. No. 313,249
Int. Cl. E21b *9/16;* **E21c** *13/02*
U.S. Cl. 175—403 **9 Claims**

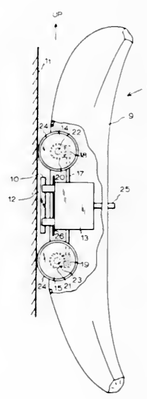


A self centering drill or hole saw particularly useful for drilling ceramic tile and removing grout from around a valve is described. The drill has an annular drilling face at one end of a hollow cylinder and is centered by a mandrel having a bore which fits over a valve stem. A cap on the mandrel provides adjustment for different size valve stems.

ERRATUM

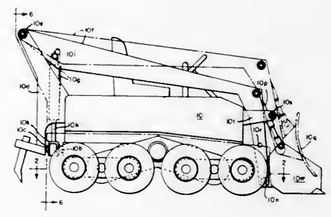
For Class 177—213 see:
Patent No. 3,810,638

3,810,515
WALL CLIMBING DEVICES
Ben Ingro, 2437 N. 73rd Ave., Elmwood Park, Ill.
Filed Oct. 10, 1972, Ser. No. 296,112
Int. Cl. B62d *63/02*
U.S. Cl. 180—1 VS **7 Claims**



A device adapted to travel up, down or horizontally on the side of vertical walls, having means to adhere to said wall, power means and traction means. In one form of this invention a magnet is employed to cause the device to adhere to a ferrous wall, the magnet being spaced a slight distance from said wall. Rubber tires are provided on the wheels for traction. In another form of this invention rubber coated magnetic wheels are used. In another form rubber coated magnetic treads are used. In another form of the magnetic climbing devices the power means may be omitted and the devices are adapted merely for climbing down on ferrous walls, they being drawn downwardly through the force of gravity. In another form the climbing device uses suction means to enable it to cling to a wall. This device can be used in air or under-water. In this form a pump is used to create a low pressure area between said device and said wall.

3,810,516
VEHICLE WITH MULTIPLE ROCKING BEAM SUSPENSION SYSTEM AND STEERING MEANS
Walter E. Reimer, 16201 Ridgecrest, Monte Sereno, Calif.
Filed Feb. 22, 1972, Ser. No. 228,014
Int. Cl. B62d *61/00*
U.S. Cl. 180—24 **7 Claims**

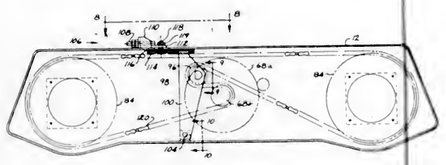


A tractor-type vehicle equipped with a suspension system of the type disclosed in my prior U.S. Pat. No. 3,313,555, equipped so that the vehicle may be used as a bulldozer, scarifier, plow and the like, all of these operations being under the control of the one hydraulic ram. The improved suspension system of this vehicle is provided with primary rocking beams, one on each side thereof and a pair of secondary rocking beams attached to each of the primary rocking beams, the wheels of the vehicle being mounted on the secondary rocking beams whereby the vehicle may be used over rough terrain and still operate with stability, smooth action and improved traction. The wheel mountings are constructed so as to provide ample clearance for the wheels during steering and turning of the vehicle. The steering mechanism is constructed so that the vehicle can be turned in a relatively small area without placing undue wear on the tires of the vehicle.

3,810,517
LOADER DRIVE
Joseph C. Hurlburt, Leola, and Lawrence M. Halls, New Holland, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Dec. 30, 1971, Ser. No. 214,038
Int. Cl. B66f *9/00*
U.S. Cl. 180—49 **7 Claims**

A simplified final drive system for a four wheel drive skid steer tractor vehicle. Generally, the basic structure of the final

drive of the present invention comprises a single drive chain trained around a pair of spaced apart wheel sprockets, a drive sprocket and back wrapped around an idler sprocket, said sprockets and single chain being housed within a chain casing containing a lubricant solution. The idler sprocket is rotatively

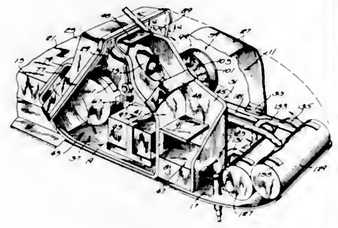


mounted about an idler mount which itself is pivotally mounted within said chain casing and operatively connected to an adjusting mechanism disposed exteriorly of said chain casing, thereby enabling the tension of the chain to be adjusted without opening the chain case.

3,810,518
QUIET SNOWMOBILE

William B. Smale, Cedarburg, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed May 31, 1972, Ser. No. 258,260
Int. Cl. B60k *11/06*
U.S. Cl. 180—54 A **13 Claims**



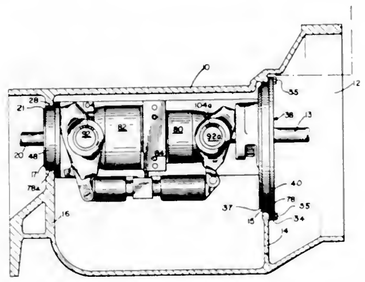
Disclosed herein is a snowmobile including a hood extending from a frame portion to a transverse partition extending upwardly from the frame portion and defining, with the frame portion and with the transverse partition, a substantially closed compartment, together with first wall means extending in the compartment and dividing the compartment into an air supply chamber and an exiting air chamber, second wall means extending in the air supply chamber and dividing the air supply chamber into an entering air sub-chamber and a carburetor air supply sub-chamber communicating with the entering air sub-chamber, and an internal combustion engine mounted on the frame within the compartment and including a pair of cylinders, an engine cooling system including means defining an engine cooling air passage communicating between the entering air sub-chamber and the exiting air chamber, and a carburetor operably communicating with the cylinders and including an air inlet communicating with the carburetor air supply sub-chamber. The snowmobile disclosed herein also includes separate first and second mufflers mounted on the frame in the exiting air chamber and connected to the respective exhaust ports of the cylinder, together with baffled air inlet means communicating with the air supply chamber and baffled air outlet means communicating with the exiting air chamber.

The mufflers disclosed herein each include a series of barriers dividing the muffler into a series of chambers with one of the chambers including a single exhaust megaphone and with another of the chambers including a perforated barrier adjacent to one of the end walls of the muffler.

3,810,519
VEHICLE TRANSMISSION ASSEMBLY

Imre Galos, Downers Grove; William C. Swanson, Clarendon Hills, and Vaugh A. Nelson, Downers Grove, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Mar. 1, 1972, Ser. No. 230,700
Int. Cl. B60k *17/00*
U.S. Cl. 180—70 R **5 Claims**

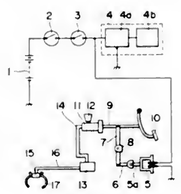


A frame structure which includes spaced apart extending aligned walls, front and rear plate members, and a center section extending between the walls. Transmission components are built into the frame structure such that an inseperable modularized sound dampening unit is formed.

3,810,520
AUTOMATIC DAMPING DEVICE FOR BRAKING A VEHICLE

Masayoshi Iwata, Gifu, and Tsuneo Maeda, Aichi, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed Dec. 28, 1971, Ser. No. 213,186
Claims priority, application Japan, Dec. 28, 1970, 45-132555; Dec. 28, 1970, 45-132556
Int. Cl. B60t *7/12*
U.S. Cl. 180—103 **11 Claims**

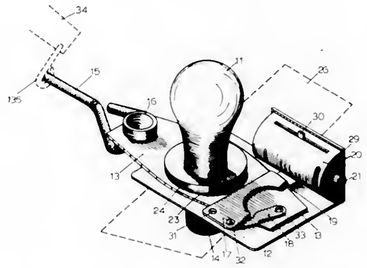


The present disclosure is directed to an automatic damping device for use in vehicles, said device being activated by collision of the vehicle and without the operation of the brake pedal by the driver. In a further embodiment of the present disclosure, the damping condition of the vehicle can be obtained and maintained in a collision situation as soon as the driver depresses the brake pedal. The function of the device does not interfere with the regular braking operation so as to insure the regular braking operation under normal operating conditions.

3,810,521
ANTI-FISHTAIL DEVICE FOR TRAILERS

Albert E. Sparr, Cutter Rd., Meadville, Pa.

Filed Aug. 18, 1970, Ser. No. 64,684
Int. Cl. B60t *7/20*
U.S. Cl. 180—103 **7 Claims**

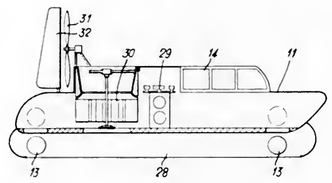


The specification discloses an anti-fishtail device for trailers. The device operates on the fact that application of the trailer brakes only will stop the fishtail of a trailer once it starts. An electric pickup is supported on the trailer coupler which is in turn secured to the frame of the automobile. It is actuated by the relative angular movement between the trailer and the towing vehicle. The apex of this angle is the center of the ball coupler on the hitch. This relative movement causes the pickup to send a signal through suitable circuitry to an amplifier which is connected to the electrical brakes of the trailer. The system, in effect, measures the rate of change of angle between the trailer and the vehicle and provides corrective action proportional to the disturbance.

3,810,522
AIR-CUSHION SUPPORTED VEHICLES

John Roderick Cromwell Morgan, 14 The Towers, Grand Ave., Worthing, Sussex, and Frederick William Albert Von Meijer, 82 Reigate Rd., Ewell, Surrey, both of England

Filed Sept. 24, 1971, Ser. No. 183,349
Claims priority, application Great Britain, May 13, 1971, 14804/71
Int. Cl. B60v *1/00*
U.S. Cl. 180—116 **18 Claims**

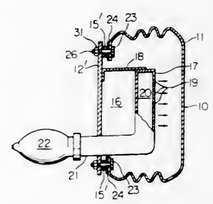


A ground effect vehicle or hovercraft has a main power plane or prime mover driving pumps from which hydrostatic circuits transmit power to individual hydraulic motors coupled, respectively, to the fan supplying air to the supporting ground cushion and to the drive propellers and other auxiliary facilities. The prime mover and principal mechanical components, as well as the control cabin of the vehicle, are built into a powered module that can be docked or mounted on any one of a number of platforms, which platforms are purpose-built for the functions the total vehicle is to perform and are provided with detachable skirts to retain the supporting air cushion.

3,810,523
SAFETY DEVICE FOR MOTOR VEHICLE

Michio Yamaguchi, Yokohama, and Yasumasa Kohno, Yokosuka, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 20, 1972, Ser. No. 219,265
Claims priority, application Japan, July 23, 1971, 46-65447
Int. Cl. B60r *21/02*
U.S. Cl. 280—150 AB **3 Claims**



A safety device for protecting a vehicle occupant from injury during a collision of a motor vehicle which safety device comprises, an inflatable confinement which is normally held in a contracted position, a source of a pressurized fluid capable of communicating with the inflatable confinement to supply the pressurized fluid to the inflatable confinement for thereby inflating the same when the motor vehicle is encountered the collision, a diffusing member operatively disposed in the inflatable confinement and having a plurality of apertures opening in a direction to inflate the inflatable confinement for directing the flow of the pressurized fluid to the inflatable confinement, the diffusing member communicating with the source of pressurized fluid, a mounting base member for supporting the inflatable confinement, and means for defining an exhaust passage opening to the atmosphere. The exhaust passage communicates with the inflatable confinement, whereby when the pressurized fluid is admitted to the inflatable confinement through the plurality of apertures of the diffusing member, the pressurized fluid initially inflates the inflatable confinement and subsequently discharges from the exhaust passage to absorb the impacting force of the vehicle occupant against the confinement.

3,810,524
APPARATUS FOR CARRYING A SEISMIC ENERGY GENERATOR

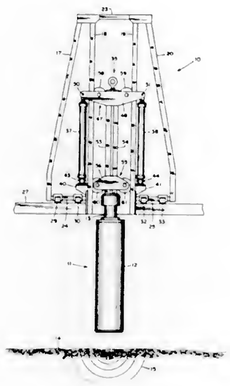
Clifford D. Dransfield, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Nov. 15, 1972, Ser. No. 306,895
Int. Cl. G01v *1/14*
U.S. Cl. 181—.5 H **13 Claims**

Apparatus for carrying a seismic energy generator includes a frame and a carriage movable with respect to each other interconnected by a unidirectional dashpot which allows the carriage upon which the generator is mounted to move freely upwardly and constrains it from moving rapidly downwardly. The dashpot, in one embodiment, includes a piston, with holes therethrough contained within a hydraulic cylinder and a plate mounted adjacent and spring biased away from the piston to cover the holes when the bias is overcome by hydraulic fluid pressure to restrict the fluid flow and movement of the carriage in one direction.

The dashpot, in an alternative form, includes a plurality of mechanical engaging assemblies for connecting in a selected

rotational direction disc brakes to respective sprocket gears, which, in turn, engage chains to thereby interconnect the carriage and frame. The brakes are thus operative to allow the generator to move freely upwardly and to constrain it from moving rapidly downwardly, or vice versa.



3,810,525
ACOUSTICAL EARPIECE FOR AIR-PUSH SOUND SYSTEMS

Richard D. Crenna, 3951 Valley Meadow Rd., Encino, Calif.

Filed July 26, 1972, Ser. No. 275,285
Int. Cl. G02k *13/00*; **H04r** *25/00*
U.S. Cl. 181—23 **6 Claims**



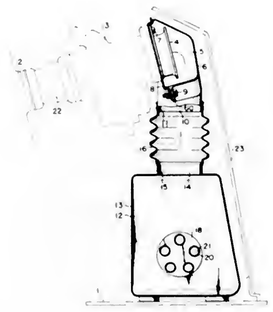
An acoustical earpiece having two cups connected by a headstrap and lined with acoustically transparent foam, the cups having plug-in sockets in their sides tightly receiving the ends of the two tubes of an earphone of an air-push sound system after removal of the standard ear cushions thereof.

3,810,526
INTAKE SILENCER FOR AN INTERNAL COMBUSTION ENGINE

Masaru Kawasaki, Hamakita, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata-shi, Japan

Filed Apr. 26, 1973, Ser. No. 354,763
Int. Cl. F01n *1/02*, *1/06*
U.S. Cl. 181—35 A **10 Claims**

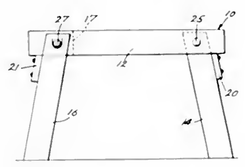
An intake silencer for an internal combustion engine includes two casings mounted one on a carburetor and the other on the chassis of a vehicle, each acting as an expansion chamber, one or more connecting means for connecting both the casings, and pipe assemblies mounted on the casing which is mounted on the chassis for sucking air therethrough whereby a suction noise produced by the carburetor and the engine is markedly muffled.



3,810,527
FOLDABLE SAWHORSE

John J. Kramer, 315 Hartel, Fox Chase, Pa.

Filed Aug. 2, 1973, Ser. No. 385,049
Int. Cl. F16m *11/00*
U.S. Cl. 182—155 **7 Claims**

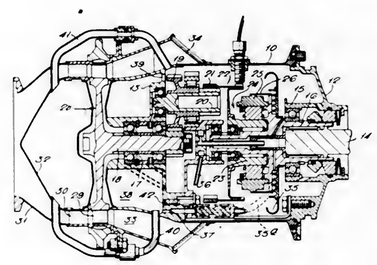


A three-legged sawhorse which is capable of being folded into a compact storage configuration and of being unfolded into an erect usage position is disclosed. The sawhorse comprises a pair of horizontally-disposed beams extending in spaced parallel relation and a double-leg assembly pivotally mounted thereto at one end and a single leg pivotally mounted between the beams at the other end. The leg carries a transverse abutment member which engages the undersides of the beams when the sawhorse is in its erect position to limit outward pivotal movement of the leg. The double-leg assembly has a pair of divergent legs which are interconnected by a brace which engages the undersides of the beams when the sawhorse is in its erect usage position to limit outward pivotal movement of the leg assembly. The leg-beam pivot connections are provided by threaded fasteners having wing nuts which permit the legs to be clamped in either their folded or usage positions.

3,810,528
TURBINE WITH LUBRICANT TANKS IN CENTRE BODY AND HOUSING

Charles Gordon Morley, Hemel Hempstead; Basil Charles James Stevenson, Warwicks; Llewellyn James Bedder, Coventry, and Arthur Henry Wells, Warwicks, all of England, assignors to Lucas Aerospace Limited, Birmingham, England

Filed Nov. 2, 1972, Ser. No. 303,276
Claims priority, application Great Britain, Nov. 4, 1971, 51316/71
Int. Cl. F16n *7/02*
U.S. Cl. 184—6.11 **4 Claims**

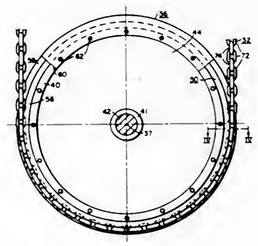


A turbine power unit includes a peripherally bladed turbine wheel coupled to the input member of a gear box which is accommodated within a casing. The casing in use contains oil which is supplied to the bearings of the gear box by a pump. The device also includes a centre body which forms the motive fluid stream into annular form, the centre body also being hollow and constituting an oil reservoir. An additional reservoir is provided intermediate the turbine wheel and the gearbox, the two reservoirs serving to receive a substantial portion of the oil contained within the casing when the device is in use.

3,810,529
ELEVATOR SYSTEM

Lawrence Tosato, Millburn, and Frederick Solymos, Glen Ridge, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 25, 1973, Ser. No. 364,162
Int. Cl. B66b *17/12*; **B66d** *1/36*
U.S. Cl. 187—94 **9 Claims**

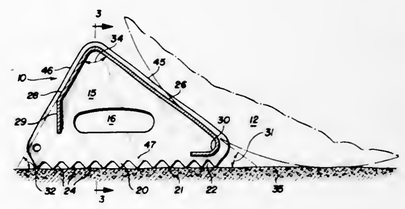


An elevator system including an elevator car and counterweight interconnected via hoisting roping for movement in the hoistway of a building having a plurality of landings to be served by the elevator car. Compensation for the hoisting roping includes a chain which interconnects the car and counterweight, and a compensator sheave which guides and tensions the chain. The sheave includes a circumferential groove formed by first and second axially spaced elastomeric members, with the grooves being sized such that alternate links of the chain extend edgewise into the groove, while the intervening links rest against the outer peripheries of the first and second members.

3,810,530
WHEEL CHOCK

Richard S. Jay, Evanston, Ill., assignor to Jarke Corporation, Chicago, Ill.

Filed Jan. 8, 1973, Ser. No. 321,832
Int. Cl. B60t *3/00*
U.S. Cl. 188—32 **6 Claims**

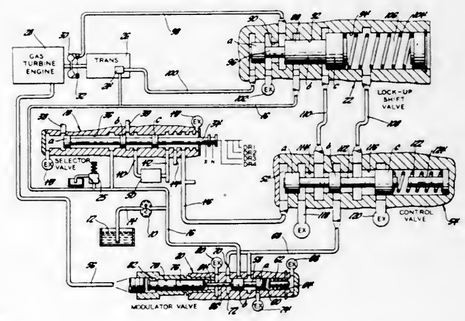


A wheel chock for use primarily with trucks is shown and described being of unitary construction and having parallel opposed complimentary side plates and an L-shaped member serving as a ramp plate and support plate portion. The unit is characterized by a plurality of uniformly spaced teeth at the bottom edge of the side plates for ground engaging contact, and hand hold portions including cutout ports in the opposed side plates as well as a reversely bent portion at the lower edge of the ramp plate. Optionally provided is a float plate at the underneath portion of the L-shaped support defining a substantially closed triangular member interior of the opposed side plates, with the float plate spaced closely above the ground engaging teeth to engage softer support materials when the teeth penetrate the same.

3,810,531
LOCK UP CLUTCH CONTROL

John O. Edmunds, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

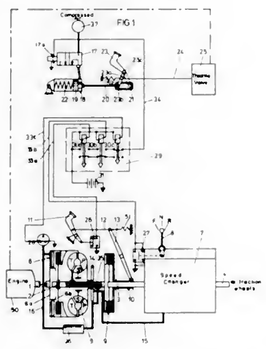
Division of Ser. No. 169,377, Aug. 5, 1971, Pat. No. 3,719,093.
This application Sept. 5, 1972, Ser. No. 286,161
Int. Cl. F16d *33/12*
U.S. Cl. 192—3.3 **2 Claims**



A control for a transmission having a fluid coupling and a lock up clutch for selectively providing a fluid or mechanical input from a gas turbine engine. A shift valve controls the engagement and disengagement of the lock up clutch in response

to a transmission output governor signal or a manual signal in cooperation with the governor signal. The manual signal is controlled by a control valve which also supplies a disengagement bias pressure to the shift valve when the manual signal is not directed to the shift valve. The manual signal is generated in response to an engine operating parameter, such as torque demand, and acts on the shift valve in such a manner as to prevent engagement of the lock up clutch at zero vehicle speed above a predetermined value of the operating parameter.

3,810,532
AUTOMOTIVE TRANSMISSION WITH CLUTCH PEDAL AND HYDRAULIC TORQUE CONVERTER
Friedrich Schuppel, Friedrichshafen, Germany, assignor to Zahnradfabrik Friedrickshafen Aktiengesellschaft, Friedrickshafen, Germany
Filed Jan. 22, 1973, Ser. No. 325,890
Claims priority, application Germany, Jan. 22, 1972, 2203057
Int. Cl. F16d *21/04*
U.S. Cl. 192—.062 **6 Claims**



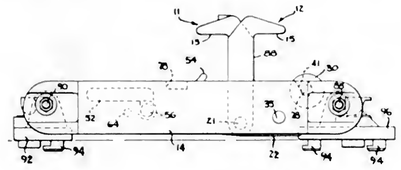
An automotive transmission with a hydraulic torque converter and a pedal-operated master clutch between that converter and a gear shifter includes an acceleration inhibitor which is activated in the disengaged position of the clutch and in a drive position of a selector lever controlling the gear shifter to prevent the driver from speeding up the engine by stepping on the gas pedal preparatorily to starting the vehicle by letting in the master clutch. The torque converter is provided with a bypass clutch which, when operated, disables the acceleration inhibitor.

3,810,533
TORQUE REDUCING CENTRIFUGAL CLUTCH
Ulrich O. Densow, Peterborough, Ontario, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed July 2, 1973, Ser. No. 375,713
Int. Cl. F16d *43/14, 43/06, 43/24*
U.S. Cl. 192—105 BA **7 Claims**



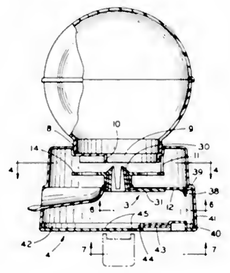
Disclosed herein is a centrifugal clutch including yieldable means connecting a drive element and a clutch shoe driver for rotating the clutch shoe driver in response to rotation of the drive element, together with means on a plurality of clutch shoes and on the clutch shoe driver for rotatably driving the clutch shoes and for guiding the clutch shoes for outward movement radially and angularly relative to the clutch shoe driver in response to clutch shoe rotation from a retracted position spaced from a clutch drum to an extended position in wedged driving engagement with the clutch drum, and means on the drive element limiting angular movement of the clutch shoes relative to the drive element, whereby thereafter to effect driving engagement by reason of centrifugal action as compared to wedging action and to thereby reduce torque transmission.

3,810,534
AUTOMATIC PALLET LOCKING DEVICE
Ernest Prete, Jr., Woodland Hills, Calif., assignor to Ancra Corporation, El Segundo, Calif.
Filed Apr. 22, 1970, Ser. No. 30,848
Int. Cl. B65g *11/00*
U.S. Cl. 193—40 **5 Claims**



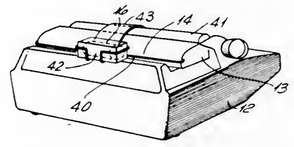
A cargo pallet locking device utilizing fully retractable locking arms which are automatically actuated by the passage of the cargo pallets over the device. Pallet position is sensed by means of a pallet pickup actuator lever, in such manner that cargo pallets may be passed over the device during the cargo loading operation without actuating the locking mechanism. As each pallet reaches its final position, it is automatically locked in place. When the final pallet is loaded, or if a pallet position is not occupied, the lock assembly is capable of manual erection with a pallet either aft or forward of the lock assembly.

3,810,535
GUMBALL MACHINE COIN BANK
Cornelius M. Phipps, Glen Ellyn, Ill., assignor to Superior Toy Manufacturing Co., Inc., Chicago, Ill.
Filed Mar. 5, 1973, Ser. No. 337,850
Int. Cl. G07f *11/50*
U.S. Cl. 194—85 **9 Claims**



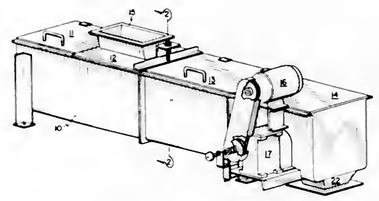
The entire gumball dispensing operating mechanism comprises a subassembly of plastic parts stacked upon a single post which is bifurcated to provide a spring catch to hold all of the parts together. This mechanism, fully assembled as a complete subassembly, is snapped into a housing with which it cooperates in the proper feeding and dispensing of the gumballs.

3,810,536
TYPEWRITER ROLL LABEL HOLDER
Roger J. Madore, Sudbury, Mass., assignor to The Raymond Lee Organization Inc., New York, N.Y., a part interest
Filed June 13, 1972, Ser. No. 262,273
Int. Cl. B41j *15/00*
U.S. Cl. 197—133 R **1 Claim**



A device for fastening a container of roll lables to the carriage frame of a typewriter to permit convenient typewriting on the labels. The device is formed of wire which is bent so as to fasten onto a stabilizing bar mounted on the rear of the typewriter carriage, with the wire shaped to firmly hold the container of labels, while permitting the labels to unroll into the typewriter carriage as required.

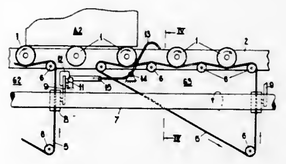
3,810,537
NOVEL BELT FEEDER
Fred R. Hungtington, Salt Lake City, Utah, assignor to The Galigher Company, Salt Lake City, Utah
Filed Apr. 13, 1972, Ser. No. 243,764
Int. Cl. B65g *47/18*
U.S. Cl. 198—57 **2 Claims**



A novel belt feeder for metering particulate materials is disclosed. The feed belt, enclosed in a dust-free enclosure, has flanged edges. The particulate material flows onto the belt through an opening which is elongated and has an increasing width in the direction of the belt travel to prevent bridging of the particulate material. An adjustable gate is disposed next to the downstream end of the feed opening to regulate the burden depth of material on the belt. A flexible skirt partially encircling the feed opening, substantially sealing the vertical space between the feed opening and the belt.

3,810,538
CONVEYORS
Martin Gerald Moyes, Melksham, England, assignor to Gec-Elliott Mechanical Handling Limited, Melksham, England
Filed Sept. 25, 1972, Ser. No. 291,769
Int. Cl. B65g *13/02*
U.S. Cl. 198—127 R **5 Claims**

A roller conveyor in which successive groups of one or more rollers are each associated with individual endless belts, each belt being associated with means for pressing it into contact with an associated drive means so as to cause it to drive the respective roller or rollers, and the conveyor including sensing means which, on the detection of the presence of an article on a group of rollers, causes the belt of the preceding group to be disengaged from the respective drive means, so as to arrest the drive to the roller or rollers of said preceding group.



3,810,539
PHOTOGRAPHIC SLIDE CONTAINER AND TRANSFER DEVICE
P. Russell Hiller, 1028 508th St., Allentown, Pa.
Filed Apr. 26, 1972, Ser. No. 247,601
Int. Cl. B65d *1/22*; **B66f** *19/00*; **G03b** *23/00*
U.S. Cl. 206—73 **2 Claims**

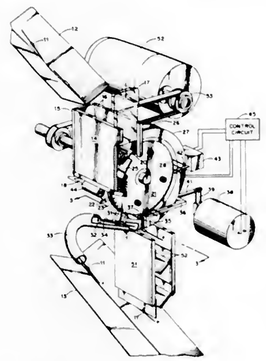


A rectangular box-like container, for storing and transferring photographic slides to a stack loader for a slide projector, has a bottom, four sides and an open end for receiving the slides. One of the sides is slotted inwardly from the open end and immediately adjacent its adjacent sides so that it may be flexed inwardly by finger pressure to grip the contained slides. A pad of resilient material may be affixed to the inner surface of the slotted side adjacent the open end to provide accommodation for possible slight variations in the size of the slides.

3,810,540
COMPONENT SORTING AND SEGREGATING SYSTEM
Michael P. Georges, Glendale Rd., Walpole, Mass.
Filed Oct. 10, 1972, Ser. No. 295,904
Int. Cl. B07c
U.S. Cl. 209—73 **14 Claims**

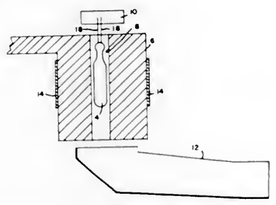
A transport mechanism having a wheel with uniformly spaced radial peripheral slots adapted to engage the axial leads of diode components transports the diodes, one in each set of peripheral slots from a supply bin past a polarity sensing station which registers the polarity of the diode in the slot and controls a drop gravity gate mechanism subsequent to the polarity sensing station to drop diodes of a given polarity and retain in the slots those diodes of the opposite polarity until the retained diode reaches a subsequent discharge station

which includes a physical reversing path between the discharge station and the ultimate delivery point for all diodes



whereby diodes delivered from both the drop station and the discharge station are delivered to a common delivery point with uniform polarity orientation.

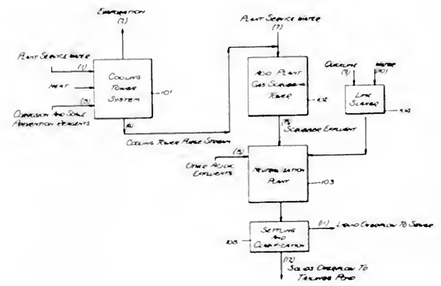
3,810,541
METHOD OF SEGREGATING TEMPERATURE RESPONSIVE CIRCUIT BREAKERS ACCORDING TO THEIR OPENING TEMPERATURE
Richard E. Perkins, South Windham, Maine, assignor to GTE Sylvania Incorporated, Danvers, Mass.
Filed Sept. 25, 1972, Ser. No. 291,785
Int. Cl. B07c *5/344*
U.S. Cl. 209—81 R **1 Claim**



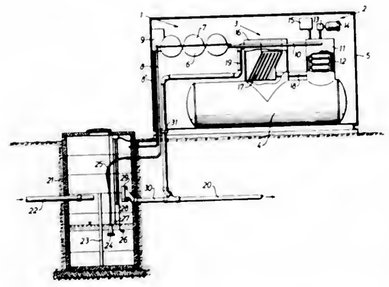
Circuit breakers are inserted into close fitting holes in a rotatable ring shaped metal block. The block is heated and maintained at a predetermined temperature that exceeds the normal opening temperature of the circuit breakers. At the time of insertion, the lead-in wires of each circuit breaker are clamped by a suitable device. When the circuit breaker thermostatically opens, the clamp releases and the circuit breaker falls from the block. The time interval between insertion and release permits segregation of the circuit breakers according to their opening temperature.

3,810,542
PROCESS FOR REMOVING CHROMIUM FROM COOLING TOWER BLOWDOWN STREAMS
Arthur Gloster, Highland Lakes, and Harry G. Bocckino, Somerville, both of N.J., assignors to Texas Gulf, Inc., New York, N.Y.
Filed Nov. 26, 1971, Ser. No. 202,379
Int. Cl. C02c *5/04*
U.S. Cl. 210—50 **4 Claims**

This disclosure is directed to a procedure for combining the streams from a cooling tower and an acid plant scrubbing tower to reduce the pollution problems of these industrial waste waters. The cooling tower stream is characterized by the presence of chromium products in which the chromium is in the hexavalent state, such as chromic acid or a chromate salt which are common corrosion inhibitors in cooling waters. The acid plant scrubbing tower is characterized by an acidic component such as sulphur dioxide dissolved in water. By combining these two streams the hexavalent chromium under acidic conditions is converted to trivalent chromium. The combined streams are then neutralized to precipitate chromium hydroxide and other compounds which are undesirable in the effluent. After settling out the chromium hydroxide and other compounds the waste stream may be discharged without presenting a pollution problem.

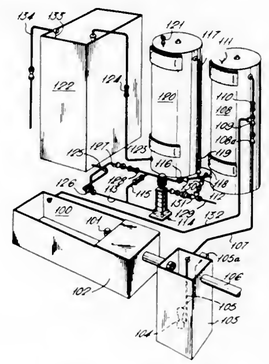


3,810,543
MOBILE PURIFYING PLANT FOR WASTE WATER
Bengt Olof Lundqvist, Gustavsberg, Sweden, assignor to AB Gustavsbergs Fabriker, Gustavsberg, Sweden
Filed Apr. 20, 1972, Ser. No. 245,778
Claims priority, application Sweden, Apr. 29, 1971, 5616/71
Int. Cl. C02c *1/02*
U.S. Cl. 210—152 **1 Claim**



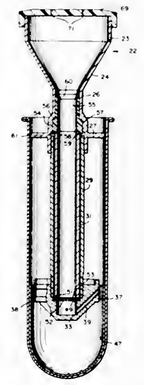
A purifying plant for waste water consists of a mobile housing of a size to be transported on public highways. The housing contains means for the biological purification of the waste water, means for mixing alumium suphate into the biologically purified water, a separator to separate the deposited particles from the water, and a tank to collect the particles separated in the separator. The various apparatuses are situated at one wall of the housing, so as to create a compact plant.

3,810,544
FILTER SYSTEMS
Allan Armstrong, Manchester, and Geoffrey Charles Fletcher, Cuffley, both of England, assignors to Sutcliffe, Speakman & Co., Ltd., Leigh, Lancashire and Alan Pond Equipment Limited, Harlow, Essex, both of, England
Filed June 21, 1972, Ser. No. 264,851
Claims priority, application Great Britain, June 16, 1972, 29435/72
Int. Cl. B01d *23/24*
U.S. Cl. 210—167 **4 Claims**



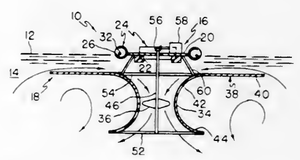
The invention relates to a filter and water reclamation system comprising two filter beds in series, one containing sand and one containing activated carbon granules, half a charge of water in a cycle passing only through the sand filter, the other half passing through the sand filter and the activated carbon, the water in the system remaining at a substantially constant volume.

3,810,545
CENTRIFUGE CHROMATOGRAPHY APPARATUS AND SYSTEM
Charles J. Filz, Hamilton, Mont.; George T. Maurice, New Haven, and Svein B. Rasmussen, Rowayton, both of Conn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of Ser. No. 95,546, Dec. 7, 1970. This application Dec. 29, 1972, Ser. No. 319,494
Int. Cl. B01d *15/08*
U.S. Cl. 210—198 C **5 Claims**



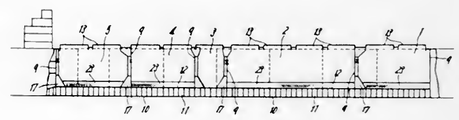
Centrifugal chromatography apparatus and system wherein means are provided for initially preparing a chromatography column and subsequently transmitting a chromatography sample through said column.

3,810,546
APPARATUS FOR CONTROLLING A POLLUTING LIQUID
James Preston Oxenham, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Continuation of Ser. No. 206,544, Dec. 9, 1971, abandoned, which is a continuation of Ser. No. 70,745, Sept. 9, 1970, abandoned. This application Mar. 28, 1973, Ser. No. 345,801
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **1 Claim**



There is disclosed apparatus for removing a pollutant, e.g., polluting liquid, floating on the surface of a body of water. The invention uses a skimmer utilizing liquid movement theretoward to facilitate separation of the polluting liquid from the water. The skimmer is arranged to remove the polluting liquid from all directions. The invention further uses means for circulating water adjacent the polluting liquid/water interface to present moving liquid to the skimmer approaching from all directions.

3,810,547
SLURRY CARRYING VESSEL
Yasunobu Shudo, Osaka, Japan, assignor to Hitachi Shipbuilding and Engineering Company Ltd., Osaka, Japan
Filed Jan. 30, 1973, Ser. No. 328,013
Int. Cl. B01d *21/24*
U.S. Cl. 210—242 **17 Claims**

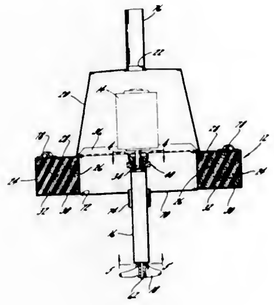


Vessel for carrying slurries and means for draining slurry water from the ship's hold.

3,810,548
FLOATING APPARATUS FOR LIQUID COMPOSTING
Ronald S. Blough, Fairfield, Iowa, assignor to Fairfield Engineering and Manufacturing Company, Fairfield, Iowa
Filed Jan. 26, 1973, Ser. No. 326,948
Int. Cl. C02c *1/10*
U.S. Cl. 210—242 **12 Claims**

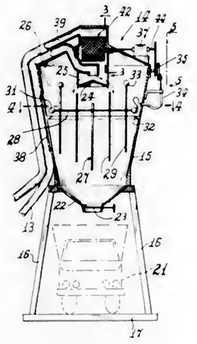
A floating apparatus for aerating and circulating animal waste material for use preferably in a realtively deep reservoir and comprising an outer float assembly for floatingly supporting the apparatus on the surface of the material in the reservoir, a roatable hollow shaft extending downwardly into the material, the lower end of which is adapted to permit air to exit therefrom, and axial thrust propeller rigidly attached to the lower end of the shaft, drive means for rotating the shaft and propeller to draw air downwardly out of the lower end of the shaft and generate a plurality of small bubbles and propel

them downwardly into the material. The apparatus also has a barrier including a hollow cylinder concentrically surrounding



the shaft, the barrier being adapted to prevent foaminated material from surrounding the drive means and shutting off the supply of air at the upper end of the hollow shaft.

3,810,549
DREDGE AND SLUDGE ALEMBIC
Sandor Gyorgy Kiss, 236 E. Sunset, Lombard, Ill.
Filed Nov. 24, 1972, Ser. No. 309,239
Int. Cl. B01d *33/02*
U.S. Cl. 210—297 **7 Claims**

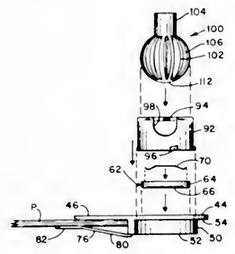


A combination dredge and sludge alembic, the latter comprised of a sludge receiving tank having vibratory means in its interior for settling out the sludge solids or residue, and a screen means through which discharged water must flow. The alembic, which may be stationary or portable, or mounted on a barge or dredge, is suitably located to permit the location of conveyor means therebeneath for transporting the slurry therefrom.

ERRATUM

For Class 211—41 see:
Patent No. 3,810,433

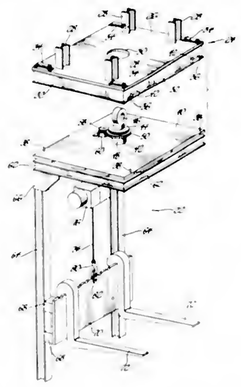
3,810,550
BALL, SOCKET AND CLIP DEVICE
Roland P. Longarzo, Valley Stream, N.Y., assignor to Ibex Precision Products, Inc., New York, N.Y.
Filed Sept. 15, 1972, Ser. No. 289,554
Int. Cl. A47f *7/00*
U.S. Cl. 211—69.6 **7 Claims**



A novel pen holder and integral pad support is provided comprising a socket mounted in a base member to which a spring clip is loosely attached for receiving a small pad of paper. A ball having a tubular stem integral therewith for receiving a pen or the like is snapped into the socket. A novel mold is disclosed for forming the ball and the tubular extension thereof.

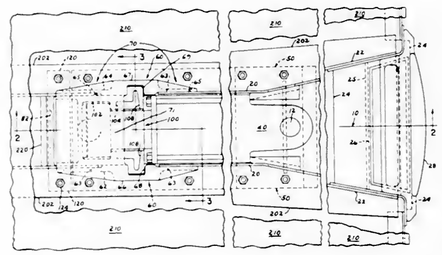
The aforementioned abstract is neither intended to define the invention of the application, which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,810,551
STACKER CRANE ATTACHMENT
Gordon A. Bust, 2340 116th Ave., Allegan, Mich., and Dean A. Polzin, 12055 Elm St., Birch Run, Mich.
Filed Oct. 24, 1972, Ser. No. 300,070
Int. Cl. B66c *19/00*
U.S. Cl. 212—135 **11 Claims**



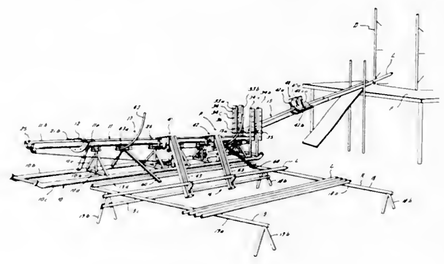
An overhead cable crane adapted to be moved in the horizontal plane along rails may be converted into a stacker crane through use of a horizontal platform supported below the crane carriage and adapted to engage a stacker attachment. The attachment includes a pair of vertical rails operative to support a pair of horizontally extending stacker forks. At their upper ends the rails are fixed to a horizontally aligned steel frame. An electric hoist mechanism fixed to the underside of the frame moves the stacker attachment vertically along the rails by means of its cable. The stacker platform is supported for rotation with respect to the crane carriage about a vertically aligned king-pin. The hook of the overhead crane is adapted to engage an eye of the king-pin to lift the stacker frame into engagement with the crane frame. Pins in the stacker are locked in holes in the crane frame to securely engage the two.

3,810,552
UNIVERSAL DRAFT POCKET ARRANGEMENT
Robert R. Girard, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Oct. 4, 1972, Ser. No. 294,936
Int. Cl. B61g *7/10, 9/12*
U.S. Cl. 213—8 **6 Claims**



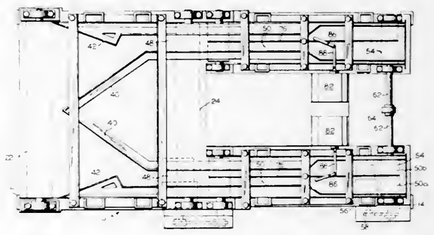
A universal draft pocket arrangement is disclosed comprising an integral adapter for receiving cushioning units of different manufacturers and a backstop retainer plate so that the backstop need not be removed when installing cushioning units of the same manufacturer as the backstop. The adapter is preferably made integral to insure that dimensional tolerances are maintained during welding of the adapter to the center sill and when cushioning units are installed therein.

3,810,553
PIPE HANDLING DEVICE
Roger A. Crocker, Box No. 448, Wickett, Tex., and Jim F. Schoolcraft, Wickett, Tex., assignors to said Crocker, by said Schoolcraft
Filed Aug. 31, 1972, Ser. No. 285,486
Int. Cl. E21b *19/00*
U.S. Cl. 214—2.5 **12 Claims**



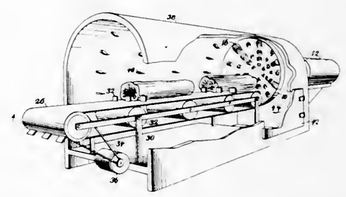
Apparatus for handling pipe including a frame having carriage means mounted therewith for receiving and moving a pipe length, lift means for lifting a pipe length from a pipe rack or the like upwardly to an intermediate position from which the pipe length is transferred to the carriage means by a platform arrangement and an inclined chute aligned with the carriage means whereby a pipe length is transferable therebetween.

3,810,554
FREEZER UNLOADING SYSTEM FOR HAMBURGER PATTIES
Eugene J. London, 324 College Dr., Allentown, Pa., and John L. Boncher, Jr., 25 Lewis St., Phillipsburg, N.J.
Continuation of Ser. No. 100,641, Dec. 22, 1970, abandoned. This application Sept. 8, 1972, Ser. No. 289,187
Int. Cl. B65g *57/09*
U.S. Cl. 214—6 D **3 Claims**



A freezer unloading system that accepts hamburger patties from a freezer discharge end or terminal in substantially semi-uniform rows of up to 12 patties across the terminal at a rate of 25,000 per hour which includes a means of a series of baffles or guides that orient the patties into single file rows. The rows are then discharged onto secondary conveyors which move the single file patties between a photoelectric light source and photo-receiver or other count sensor means which count each patty as it passes. The photoelectric cell works in conjunction with a count controller which is manually set for the desired number of patties to be stacked together on a discharge transition location. Immediately downstream of the photoelectric cell is a diverter gate which splits each secondary conveyor into two discharge lanes, which is accomplished automatically from one position to the other by an electric signal responsive to the count controller when a predetermined count is reached. The switching allows a predetermined number of patties to be collected at each discharge station, thereby allowing an operator to alternatively pick off stacks of patties for the packaging operation.

3,810,555
RAILROAD TIE REDUCER
Lubertus Bakker, and Eugene D. Krumm, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.
Filed Aug. 16, 1972, Ser. No. 281,083
Int. Cl. B02c *7/12*
U.S. Cl. 241—278 R **3 Claims**

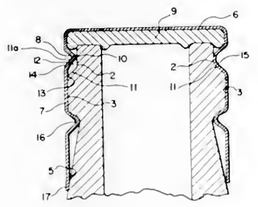


A material reduction device by which railroad ties may be quickly and effectively reduced to a finely divided form that promotes the disposal and ultimate decomposition thereof. Hardened drill bits are carried in a rotating head that is turned by a motor at a predetermined speed whereby the ties coming in contact with the drill bits of the rotating head are macerated into small pieces that are more readily subjected to natural decomposition or incineration.

3,810,556
TAMPER-PROOF EASY-OPENING BOTTLE CAP

Henri Coursaut, Etroyes, Mercurey, France, assignor to Le Bouchage Mecanique (L.B.M.), Paris, France

Filed June 26, 1972, Ser. No. 266,343
Claims priority, application France, June 25, 1971, 71.23211; Mar. 20, 1972, 72.09622
Int. Cl. H61j 1/00; B65d 55/02
U.S. Cl. 215—7 16 Claims

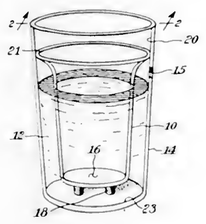


Tamper-proof, easy-opening bottle cap and combination thereof with bottle neck having a smooth cylindrical pouring spout, a flaring neck, and an interposed cylindrical enlargement forming first and second, upwardly- and downwardly-facing shoulders. The cap has a roof and a depending skirt constricted into channels at the levels of the shoulders. The upper constriction is of smaller dimension axially of the neck, than the spout and thus forms or defines an annular space facilitating insertion of a cutting blade to sever the roof from the skirt. The upper constriction also acts to hold a sealing pad against the roof. The lower constriction engages the second shoulder and retains the cap in place. The skirt terminates below the second shoulder in contact with the neck.

3,810,557
CHILLED DRINKING GLASS CONTAINER

William Cline, Huntington Station, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed July 6, 1972, Ser. No. 269,451
Int. Cl. B65d 11/16
U.S. Cl. 215—12 2 Claims

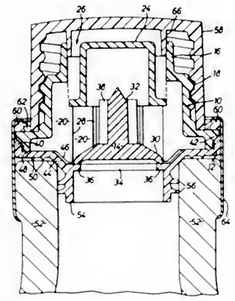


A drinking vessel, disposed within a hollow cylinder sealed at its bottom end and open at the top. The cylinder is formed of material that can stretch somewhat when forces directed outward are applied uniformly against the inner wall. The drinking vessel is spaced from the cylinder. Prior to use, water is poured through an opening in the wall of the cylinder into the annular region between drinking vessel and cylinder and is frozen thereafter.

3,810,558
NON-REFILLABLE FITMENT

David J. Crisp, and Roger A. Ford, both of London, England, assignors to N. R. Fitments Limited, London, England

Filed Mar. 1, 1972, Ser. No. 230,883
Claims priority, application Great Britain, Mar. 29, 1971, 8045/71; June 24, 1971, 29679/71
Int. Cl. B65d 49/02
U.S. Cl. 215—21 8 Claims



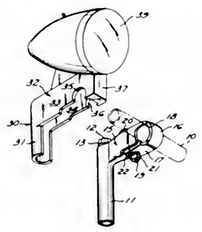
A non-refillable fitment comprises a housing including a lower member constructed for attachment on the neck of a bottle and an upper member surmounting the lower member. The lower member has internal walls defining an aperture and a valve seat surrounding the aperture. The upper member includes an annular wall extending in a direction away from the lower member and radial ribs extending inwardly from the annular wall. The radial ribs include radially directed inner edges which define cage-like guide means. A valve member located in the housing is disposed for movement towards and away from the valve seat within said cage-like guide means. A cap member surmounting the radial ribs has an upper surface that is substantially co-extensive with the upper end of the annular wall. The cap member has a smaller diameter than the upper end of the annular wall whereby the cap member and annular wall define an inner wall and outer wall, respectively, of an annular channel terminating in an annular liquid outlet orifice.

The fitment is used for preventing tampering with and unauthorised refilling of bottles containing high quality spirit such as Scotch whisky.

3,810,559
BICYCLE - ATTACHED ARTICLE CARRIER

Thomas A. Stanton, 350 S.W. 67th Ave., Pembroke Pines, Fla.

Filed Jan. 10, 1972, Ser. No. 216,379
Int. Cl. B62j 11/00
U.S. Cl. 224—41 10 Claims

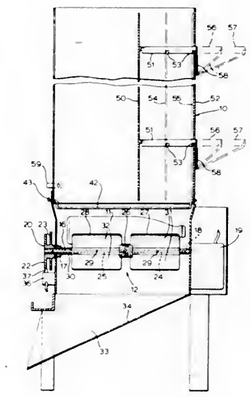


An article carrier for attachment to a bicycle at the front. This article carrier has internal surfaces which conform snugly to the external surfaces (including surface discontinuities) on the center post and neck of the bicycle to provide a non-slip attachment.

3,810,560
DISPENSER WITH ADJUSTABLE PADDLE VENDING MEMBER

Berend Stegeman, 16 Graham St., Belleville, Ontario, Canada

Filed May 21, 1973, Ser. No. 361,988
Int. Cl. G07f 11/24
U.S. Cl. 221—116 7 Claims

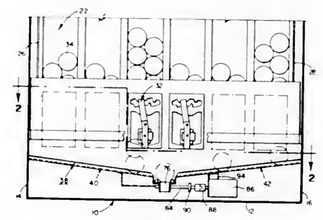


A vending machine for cans or bottles having a dispensing mechanism comprising a pair of paddle vending members onto which the cans or bottles are fed and from which these items are finally dispensed. A two piece shaft with a vending member on each has its two pieces coupled together by a two position coupling member, the position of the coupling being easily changed to alter the positions of the paddle vending members relative to each to thereby allowing vending of either short cans or long bottles by such change.

3,810,561
VENDING MACHINE DELIVERY APPARATUS

Lloyd D. Merkl, Mayville, Wis., assignor to Mayville Metal Products Co., Mayville, Wis.

Filed Mar. 17, 1972, Ser. No. 235,636
Int. Cl. B65h 5/00
U.S. Cl. 221—201 5 Claims

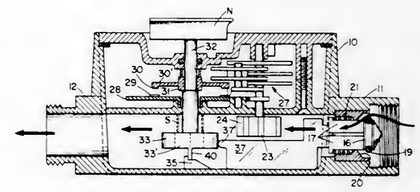


A vending machine delivery apparatus for dispensing containers of circular cross-section from a multiplicity of columns and including a removable tray comprising a pair of converging inclined planes or ramps, inclined at an angle of at least about 6°, including a trough at their confluence, a conveyor belt mounted in the trough and having one surface extending thereover and being driven to engage cans located in said trough, and transport them to the front end of the vending machine for discharge through a discharge port.

3,810,562
FLOWMETER

Robert E. Clarke, 1410 Saratoga Dr., Bel Air, Md.

Filed Oct. 13, 1972, Ser. No. 297,492
Int. Cl. B67d 5/30
U.S. Cl. 222—20 1 Claim

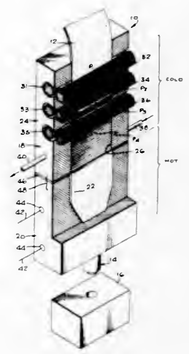


A meter for measuring the amount of fluid flowing through a conduit from a source of supply to a delivery point. A rotary impeller driven by the flow of fluid through the meter, an indicator shaft driven through a reduction gearing by the impeller and a cut-off valve functioning to stop the flow of fluid after the pre-set amount of fluid or the amount of fluid represented by a pre-set price on the indicator has been reached, the valve being a reciprocating spring actuated valve operated by a cam disc on the indicator shaft and an automatically operated clutch means on the indicator shaft to render the cam disc inoperative and hold the valve open for free unmetered flow of the fluid through the device when desired.

3,810,563
PLASTIC MELTING AND FEEDING MACHINE

Herbert La Mers, 2514 Greencastle Ct., Oxnard, Calif.

Filed July 14, 1972, Ser. No. 271,771
Int. Cl. B67d 5/62
U.S. Cl. 222—146 R 6 Claims

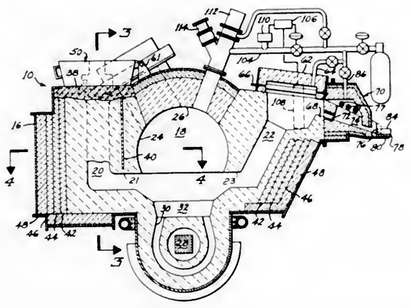


A simplified plastic extruder structure is provided having a wide and thin intake passage to receive wide and thin feedstock. A series of pairs of rollers are mounted in and spaced along the wide walls of the intake passage. Feedstock inserted into the passage is propelled therealong with great force. The intake passage and rollers are kept cold. The intake passage leads, through a short transition passage, into a hot heating passage. Feedstock is forced into the hot heating passage wherein it is melted and from which it can be extruded through an exit orifice. The short transition passage between the cold intake passage and hot heating passage is tapered to be larger at the hot passage end so that any back flowing material is chilled and forms a good pressure seal at the smaller end and yet does not seize through friction when it re-expands, as it is returned to the hot heating passage.

3,810,564
AIR PRESSURE DISCHARGE FURNACE HAVING PROTECTIVE ATMOSPHERE INLET AND OUTLET

Jerome B. Allyn, Graytown; John A. MacDougall, Toledo, both of Ohio, and John D. Nesbitt, Chicago, Ill., assignors to Midland-Ross Corporation, Toledo, Ohio

Filed June 18, 1973, Ser. No. 370,668
Int. Cl. B22d 37/00
U.S. Cl. 222—146 H 16 Claims

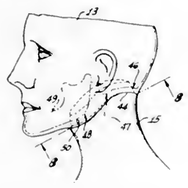


A furnace vessel for holding and pouring molten steel which vessel may be refilled intermittently while concurrently discharging molten steel at a controlled rate into a continuous casting mold. The furnace has a refractory lined and insulated reservoir which is pressurizable. Refractory lined and insulated pouring and filling spouts communicate with the bottom portion of the reservoir and extend vertically at least slightly above the maximum level of the steel in the reservoir. To prevent freezing of the metal in the spouts, heat generating means are provided at the top ends of the spouts and their bottom ends communicate with opposite ends of an inductively heated channel in the base of the reservoir. Also the cross sectional areas of the spouts are kept large with respect to their lengths so as to promote convection therein. The reservoir is pressurized to raise the liquid level above a flow restriction in the pouring spout and maintain the desired head above the bottom thereof to produce the required outflow rate. The flow restriction is designed to provide more precise control over the volumetric outflow rate of molten steel. Additional heat is supplied to the inlet and outlet ends of the flow restriction. Downstream from the flow restriction a means is provided for forming the cross sectional shape of the stream as it leaves the pouring spout. Protective atmosphere is provided for the exposed molten metal in the spouts.

3,810,565
MANIKIN CONSTRUCTION

Graydon C. Livingston, Los Angeles, Calif., assignor to Wolf & Vine, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 163,021, July 15, 1971, Pat. No. 3,769,134. This application Sept. 10, 1973, Ser. No. 395,614
Int. Cl. A41h 5/00
U.S. Cl. 223—68 16 Claims



A manikin simulating at least the upper portion of the human anatomy, and having a separately formed head, and a neck that extends downwardly from the underside of the head to the torso. The upper end of the neck and the underside of the head have interfitting joint members which both key the head in a selected angular position and have matingly complementary opposed surfaces which determine the longitudinal position of the head and define a relatively inconspicuous parting line in the region of the juncture of the head and neck in the human anatomy. In one embodiment, the joint members are molded integrally with the head and the neck, as a non-circular socket in the head and a correspondingly shaped stub on the neck, surrounded by a non-planar shoulder for abutting against the underside of the head around the socket. In another embodiment, the joint members are formed by injection molded parts (a ring and a shaped cap) which fit or nest closely together. These parts are placed in the head and body molds, and are joined to the head and to the body as an incident to the molding thereof. In each embodiment, the joint is finished and concealed, after assembly of a selected head style on a selected body style, by filling the parting line with adhesive and coating the entire manikin with the usual finish. The position and nature of the joint make it possible to produce a wide variety of manikins with customized facial configurations, and different torso and neck configurations artistically simulating different body positions, without the necessity of providing a new body mold for each facial configuration.

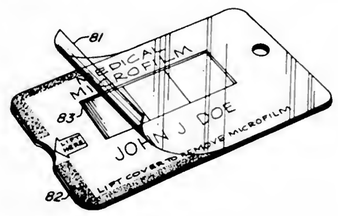
ERRATUM

For Class 224—41 see:
Patent No. 3,810,559

3,810,566
PERSONAL MEDICAL RECORD CARRIER

William E. Adams, 6279 E. Earl Dr.; Vernon L. Tufte, and Paul A. Tufte, both of 8719 E. Clarendon, all of Scottsdale, Ariz.

Filed Nov. 8, 1972, Ser. No. 304,852
Int. Cl. A44c 5/00
U.S. Cl. 224—28 B 1 Claim



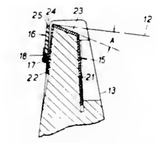
Apparatus is provided for carrying medical records on the person and comprises, in combination, at least one microfilm chip bearing medical indicia and a receptacle for the chip adapted for attachment to the human body to enclose and protect the chip until needed.

3,810,567
TAPE DISPENSER ATTACHMENT

George David Malcolm, Sydney, New South Wales, Australia

Filed June 14, 1972, Ser. No. 262,556
Claims priority, application Australia, July 13, 1971, 5530/71
Int. Cl. B26f 3/02
U.S. Cl. 225—67 4 Claims

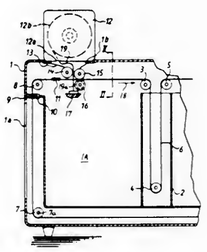
A tape severing and tab forming device formed integral with, but preferably forming an attachment for, a tape dispenser; the device incorporating a tape contacting member and a tape severing member. One of the members, preferably the severing member, is moveable toward and away from the other whereby a free end portion of a tape extending from a reel and between the two members is folded upon itself to form a tab responsive to movement of one of the members toward the other.



3,810,568
APPARATUS FOR TRANSPORTING WEBS OF PHOTOSENSITIVE MATERIAL THROUGH DEVELOPING MACHINES OR THE LIKE

Wolfgang Kwiatkowski, Unterhaching; Milovan Vidakovic, and Horst Kempe, both of Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 15, 1973, Ser. No. 341,606
Claims priority, application Germany, Mar. 16, 1972, 2212689
Int. Cl. G03b 1/56
U.S. Cl. 226—92 23 Claims



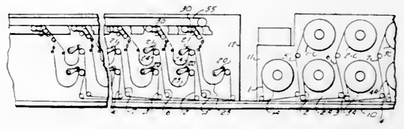
A developing machine for webs of photosensitive material wherein a band is trained over a set of guide rolls and can transport a separable clamp through a series of vessels containing developing, fixing and other liquids. A portion of the clamp extends sideways from the band and has a set of mushroom-, pin- or barb-shaped projections which are caused to penetrate through the leader of a web so that the latter is entrained through the developing machine. The projections can be attached to the leader outside or in the interior of the machine by causing the leader and the clamp to pass between two rollers one of which is grooved to receive the projections and is sufficiently close to the other roller to cause the projections to puncture the leader. The leader is folded over the clamp to reduce the strain on the punctured portions.

3,810,569
METHOD AND APPARATUS FOR GATHERING WEBS OF PAPER

James B. Fulk, 14668 Wildberry Ln., Saratoga, Calif.

Filed Jan. 2, 1973, Ser. No. 320,663
Int. Cl. B65h 17/42
U.S. Cl. 226—109 18 Claims

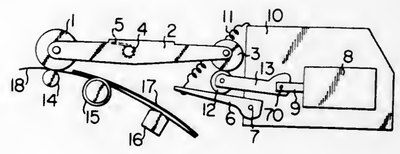
A method and machine for gathering together in superposed and in exact timed relationship a plurality of webs of paper from independent rolls of paper. The webs on the rolls have a prepunched row of regularly spaced holes extending longitudinally and along at least one edge thereof. Each web is pulled from a roll and is guided to a lower moving endless belt having pins thereon which enter certain of the holes in the web from the under side thereof and pull it into a horizontal position. Each web is passed from one such belt to another to gather the webs into superposed relationship. Each web has a slack portion in the form of a festoon therein after it is pulled from a roll, and each web has a frictional restraint at the end of the festoon to maintain the web in taut condition as it approaches a lower belt. There may be an upper moving belt which has pins thereon which enter holes in the webs, from the upper side thereof, and said upper belt extends beyond all of the lower belts and maintains control of the webs continuously while they are moving over the spaced lower belts and also while they are moving between the spaced lower belts. The upper belt may partially overlap another moving lower belt having pins thereon which enter holes in the webs other than those occupied by the pins on the upper belt. The last mentioned lower belt controls the movement of the webs while operations are being performed thereon and discharges them from the machine. The method enables rolls to be prepunched and stored indefinitely under different climatic conditions then selected for use in any number of multi-part forms and gathered together into exact lengths. Additionally, the method permits relatively heavy rolls of paper to be mounted near the floor level and at one end of the machine for convenience and alacrity in handling and replenishment.



3,810,570
TAPE DRIVING MECHANISM IN RECORDING AND/OR REPRODUCING APPARATUS

Tadashi Nagaoka, Nishinomiya, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 30, 1972, Ser. No. 311,000
Claims priority, application Japan, Dec. 1, 1971, 46-113399
Int. Cl. B65h 17/22
U.S. Cl. 226—176 7 Claims

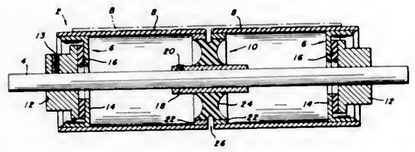


A pinch roller mechanism for driving a tape-like article, comprising a pinch roller arm having a pinch roller rotatably mounted thereon and being urged to move the pinch roller away from a capstan, and an actuating member provided adjacent said pinch roller arm and reciprocated with a predetermined stroke, said actuating member at an end of its stroke engaging said pinch roller arm through a projection or projections having a curved edge, thereby causing said pinch roller arm to make a pivotal movement against the biasing force.

3,810,571
SELF-CENTERING ROLLS

James J. Fatula, Perry Township, Lawrence County, Pa., assignor to Ryman Engineering Company, Ellwood City, Pa.

Filed Apr. 12, 1973, Ser. No. 350,618
Int. Cl. B65h 17/20
U.S. Cl. 226—192 10 Claims

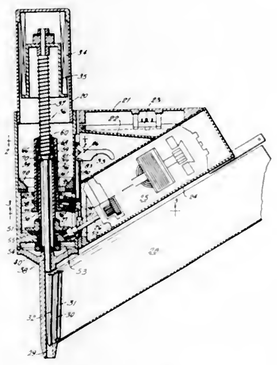


A self-centering roll for tracking webs includes a shaft, an end web secured to the shaft adjacent each end, and a tubular rim section secured to each end web and arranged with a space between their adjacent ends sufficient to permit deflection of these adjacent ends toward the shaft. Each of the end webs includes a compressible member, such as rubber, for transmitting a load from the rim portion to the shaft. It is preferred to use a central web including a compressible member for transmitting load from the rim portions to the shaft and to have the space within the roll entirely enclosed.

3,810,572
ELECTRIC NAILER

Bruce Malkin, Norwalk, Conn., assignor to Electro-Speed Tool Corp., Norwalk, Conn.

Filed Nov. 17, 1972, Ser. No. 307,415
Int. Cl. B25c 1/06
U.S. Cl. 227—132 11 Claims



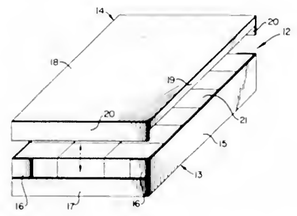
An automatic nailing device employs a cartridge of nails which are supplied in series beneath a spring driven hammer. An electric motor charges the spring-driven hammer after each operation.

3,810,573
TWO PIECE STORAGE AND SHIPPING CARTON

Lee E. Russell, 2015 Idlewild Ave., Tampa, Fla., and Douglass M. Stegner, 1816 Circle Rd., Ruxton, Md.

Filed Mar. 23, 1972, Ser. No. 237,478
Int. Cl. B65d 5/26
U.S. Cl. 229—32 6 Claims

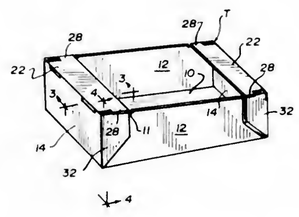
A storage and shipping carton or case comprising a bottom section or tray in which cans, jars, bottles, boxes and other containers for various commodities, as well as loose commodities such as fruits, certain vegetables, soap and the like, may be stored for shipment at a later date, and from which the contents can be readily removed for labeling or for repacking to provide split cases or other customer needs not apparent until time for shipment, with a minimum amount of labor involved and without risk of damage to the tray. The other lid or cover section is applied after labeling of the individual containers and repacking and may include indicia identifying the contents of the case and the purchaser and will be new at the time of application to provide a case having a generally new and undamaged appearance.



3,810,574
SELF-LOCKING TRAY

Jeffrey M. Gardner, Moline, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed Oct. 16, 1972, Ser. No. 297,846
Int. Cl. B65d 5/24
U.S. Cl. 229—31 FS 4 Claims



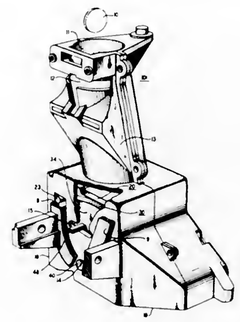
A self-locking tray formed from a unitary blank of foldable paperboard having bottom, side and end walls with corner gusset members interconnecting the side and end walls and having portions disposed in interlocking engagement with end flanges at the upper ends of the tray.

3,810,575
COIN COLLECTING APPARATUS

Glen A. Breitung, and Harold Jacob Hershey, both of Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 29, 1972, Ser. No. 310,270
Int. Cl. B65g 1/04
U.S. Cl. 232—57.5 5 Claims

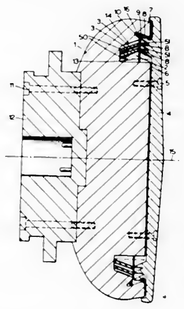
A coin hopper having increased capacity and a reduced number of parts utilizes a single-piece coin trap supported by rollers or linkages on a rotatable selector vane and journals on the trap. The selector vane is connected to a relay and rotates in an appropriate direction determined by the collect or refund signal applied to the relay. The rotation of the selector vane locks appropriate ones of the journals in position causing the trap to rotate thereabout under the coin load and dump the coins into the appropriate collect or refund channel.



3,810,576
ULTRACENTRIFUGE ROTOR

Alfred Polson, Milnerton, Cape Town, and Karl Josef Kaufmann, Rondebosch, Cape Province, both of South Africa, assignors to South African Inventions Development Corporation, Pretoria, Transvall, South Africa

Filed Sept. 24, 1970, Ser. No. 75,146
Claims priority, application South Africa, Sept. 29, 1969, 69/6838; Sept. 29, 1969, 69/6839; Sept. 29, 1969, 69/6840; Sept. 29, 1969, 69/6841
Int. Cl. B04b 1/00
U.S. Cl. 233—37 7 Claims

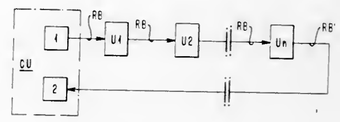


An ultracentrifuge is adapted to provide fractionation of virus particles without packing the virus into a pellet but instead concentrating it into a small volume of fluid in an outer collection groove. Thin-layer centrifugation is achieved by means of a plurality of sedimentation walls giving a large area for sedimentation and a small sedimenting distance. Sedimentation walls are inclined to an axis of rotation of the ultracentrifuge by an angle between 0° and 90°, preferably about 20° to cause outward transference of a sediment to a collection groove. Sedimentation walls parallel to the axis of rotation have valves operable at desired times, during rotation of the ultracentrifuge to permit transferring a supernatent fluid from one chamber outwardly to other chambers. A penetrable mat on the parallel sedimentation walls and a ring in the collection groove inhibit backwashing of sediment during deceleration of the ultracentrifuge. Relatively low centrifuging rotational speeds are used.

3,810,577
ERROR TESTING AND ERROR LOCALIZATION IN A MODULAR DATA PROCESSING SYSTEM

Heinz Drescher, Schoenaich; Hans Hermann Lampe, Oberjesingen; Peter Rudolph, Schoenaich, all of Germany, and Franco Simonini, Vimercate, Italy, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 25, 1972, Ser. No. 300,635
Claims priority, application Germany, Nov. 25, 1971, 2158433
Int. Cl. G06f 11/04
U.S. Cl. 235—153 AC 13 Claims

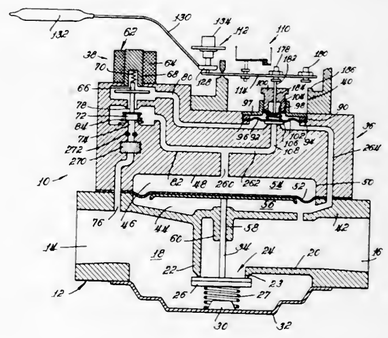


In a modular data processing system wherein the individual processing units are linked with each other via a bus system and with a central control, a tester is provided in each processing unit. The tester includes a test reply information register, an address generator for generating the processing unit address, a compare circuit for comparing the address transferred from the control unit via the address bus and stored in the address register with the processing unit address, a pattern generator for terminating the address bus with a given bit pattern of correct parity, a parity check circuit for signalling parity errors on the address bus, and a parity circuit for generating the correct parity bit from the bit pattern on the data bus. The output bits of these parity circuits together with the generated processing unit address are fed to the test reply information register for transmission. The tester also includes a control circuit for controlling the transmission of the addresses, the data patterns, and the test reply information.

3,810,578
BULB MODULATING GAS VALVE

Russell B. Matthews, Goshen, Ind., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Oct. 17, 1972, Ser. No. 298,289
Int. Cl. F16k 31/145
U.S. Cl. 236—80 12 Claims



The disclosure of this invention describes a gas valve having an on — off control valve and a modulator valve which will modulate the gas flow from high fire to low fire over a predetermined temperature throttling range. The on — off control valve and modulator valve are mounted on top of a central body having a main gas passageway interconnecting its inlet and outlet. A main valve is used to open and close a main

port formed within the gas passageway and a pressure diaphragm, which forms one wall of a closed chamber, is operably connected to this main valve such that increases in pressure within the chamber tend to open the main gas port. The on — off control valve includes a two-position valve means for providing the opening and closing of a second port disposed in a bypass passageway extending between the inlet and closed chamber. A remote thermostat provides actuating signals for energizing or deenergizing the on — off control valve to reposition the two-position valve means. A modulating valve means is used to open and close a third port formed in a passageway between the closed chamber and outlet, and a temperature responsive means operates the modulating valve means in response to temperature variation sensed at a local point. The temperature responsive means includes an output member movable in response to temperature variations of the environment surrounding the temperature sensing means and also includes a signal actuating means. This signal actuating means provides actuating signals to energize and deenergize the on — off control valve in response to temperature changes about the local temperature sensing means.

3,810,579

AUTOMATIC SPRINKLING APPARATUS

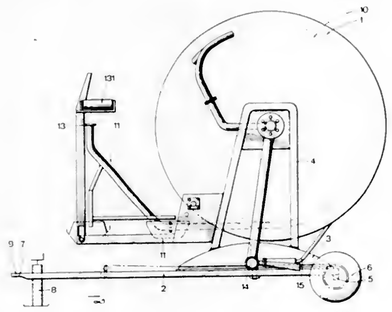
Hugo Roland Di Palma, Lot et Garonne, Fauillet, France

Filed Apr. 17, 1972, Ser. No. 244,494

Claims priority, application France, Apr. 19, 1971, 71.13802; Apr. 13, 1972, 72.12990

Int. Cl. B65h *75/00*

U.S. Cl. 239—197 **11 Claims**



A sprinkling apparatus comprising two distinct parts, one movable part or carrier securing sprinkling, and a fixed part or frame provided with a drum and securing the recuperation and winding around this drum of an under pression water feeding pipe, connecting the said fixed part to the sprinkling movable one, the travelling of the sprinkling movable part being secured by means of the pipe and from a jack actuated during sprinkling by the pressure of the sprinkling water, this jack being fitted onto the fixed part and securing the rotary motion of the drum for the recuperation and winding of the said pipe.

3,810,580

ADJUSTABLE SHOWER HEAD ASSEMBLY WITH DIVERTER VALVE

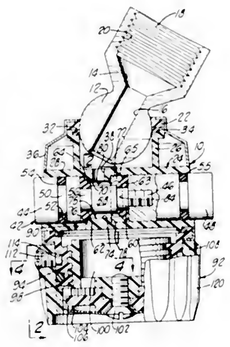
Jack Rauh, Hacienda Heights, Calif., assignor to Modern Faucet Manufacturing Company, Los Angeles, Calif.

Division of Ser. No. 153,578, June 16, 1974, Pat. No. 3,722,799. This application Oct. 30, 1972, Ser. No. 301,991

Int. Cl. B05b *1/32*

U.S. Cl. 239—460 **4 Claims**

A shower head assembly having an upper and lower portion, wherein the upper portion has a diverter valve mechanism slidably mounted therein, and the lower portion of the assembly is in threaded contact with the upper portion and



moveable with respect thereto, thereby altering the exit apertures of the shower head assembly and adjusting water flow therefrom.

3,810,581

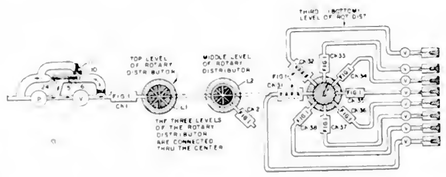
TIMED PULSED FUEL INJECTION APPARATUS AND METHOD

Samuel Rhine, RFD 424A, Tillson, N.Y., and Merle Robert Showalter, 4733 Shoremeade Rd., Richmond, Va.

Filed Mar. 8, 1973, Ser. No. 339,153

Int. Cl. F02m *47/02*

U.S. Cl. 239—533 **11 Claims**



A timed pulsed fuel injection device which meters fuel continuously and distributes flow pulses to *n* nozzles through a rotary distributor pressure cascading device which totally isolates the metering event from variations and dynamic effects in the *n* injection lines.

3,810,582

IRRIGATION SYSTEM

Hilmer G. Lodge, Pala, Calif., assignor to Conflow Irrigation Systems, San Diego, Calif.

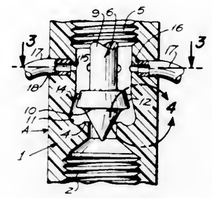
Continuation-in-part of Ser. No. 131,225, April 5, 1971, abandoned. This application Oct. 16, 1972, Ser. No. 297,959

Int. Cl. B05b *1/14*

U.S. Cl. 239—542 **6 Claims**

An irrigation system utilizing a set of irrigation devices joined to risers connected to a common supply line, the supply line terminating in a flush member adapted, when open, to permit flushing of the supply line to remove particulate

matter; each irrigation device including a distributor manifold having a set of outlets connected to corresponding distributor



tubes of small diameter, and a metering valve, the valve having means for causing turbulent flow to effect pressure reduction prior to entrance of water into the distributor tubes.

3,810,583

BURNERS FOR CHEMICAL ANALYSIS

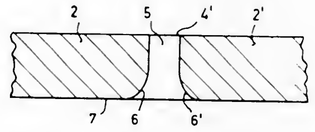
Richard Alexander George, Cambridge, England, assignor to Pye Limited, Cambridge, England

Filed Jan. 30, 1973, Ser. No. 328,034

Claims priority, application Great Britain, Feb. 2, 1972, 4899/72

Int. Cl. B05b *1/00*

U.S. Cl. 239—597 **2 Claims**



A burner for chemical analysis such as flame spectroscopy, is provided with a burner plate having a flame aperture comprising a long slot extending through the upper and lower surfaces of the burner plate. The slot has a longitudinal profile taken at right angles to the length of the slot which is at least partly arcuate about an axis parallel to the length of the slot and tapers inwardly from the fuel inlet region adjacent the lower surface of the burner plate. In one embodiment the lower edge of the slot is defined by an arc of a circle at least 3 mm in radius. The specified profile minimizes turbulence in the slot region adjacent the lower surface of the burner plate and hence reduces the deposition of sample material on the burner plate.

ERRATUM

For Class 241—278 see:
Patent No. 3,810,555

3,810,584

GRINDING APPARATUS FOR FIBROUS MATERIAL

Albrecht Kahmann, Weingarten, Germany, assignor to Escher Wyss GmbH, Ravensburg, Germany

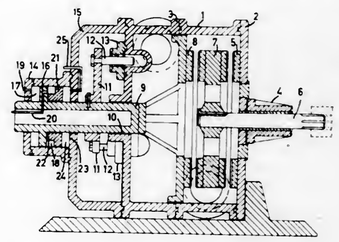
Filed Sept. 14, 1972, Ser. No. 288,943

Claims priority, application Germany, Sept. 17, 1971, 2146548

Int. Cl. B02c *7/14*

U.S. Cl. 241—37 **7 Claims**

Grinding device, more especially a disc refiner for the paper industry; a rotor and a stator arranged in a housing; the stator guided radially but non-rotatably relatively to the housing and displaceable axially relatively to the rotor; a hydraulic servomotor provided for the displacement of the stator; on the servomotor an adjustable device for limiting the displacement of the stator in the direction to the rotor; the pressure chamber of the servomotor which is intended for moving the stator away from the rotor is provided with an axially displaceable abutment piston; means are provided for adjusting and keeping constant a required position of the abutment piston; the position of the abutment piston limits the displacement of the main piston of the servomotor and in that way the displacement of the stator.



3,810,585

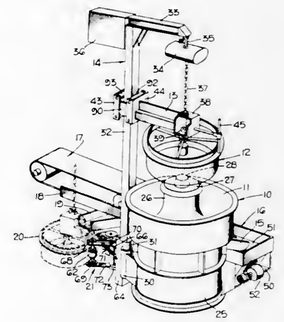
MATERIAL HANDLING SYSTEM FOR VIBRATORY MILLS

John R. Strom, Fullerton, Calif., assignor to Sweco Inc., Los Angeles, Calif.

Continuation of Ser. No. 825,860, May 19, 1969. This application May 5, 1972, Ser. No. 253,272

Int. Cl. B02c *17/00, 23/02*; **B24b** *31/06*

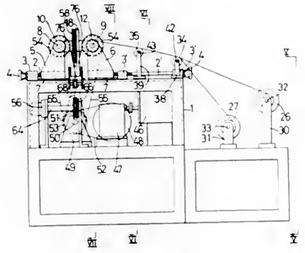
U.S. Cl. 241—171 **14 Claims**



A material handling system for vibratory finishing or grinding mills into which are placed materials and abrasive media and wherein the materials are operated upon. In a finishing mill the materials are parts which are finished, polished, or deburred, and in a grinding mill the materials usually are chemicals which are reduced in size. The system includes a vibratory mill into which such materials and media are placed, a vibratory screen separator for separating the materials from media after completion of the operation thereon, a hoist pan for handling the media or material and media, and a jib hoist system for moving and positioning the pan. Media or material and media are loaded into the pan, and same is lowered to the top of the finishing machine causing the load to be evenly dumped into the finishing machine. After the finishing operation, the material may be moved or transported in any suitable manner to any further operation stage, and the media is returned to the hoist pan. A pan driving mechanism is provided for rotating the pan as the media is supplied thereto

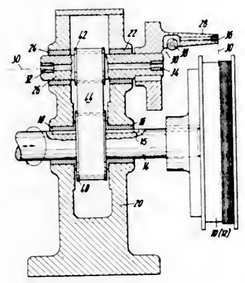
from the separator or mill such that the pan is evenly loaded. Several bottom-dumping pan configurations are disclosed which provide a relatively even discharge of the media into the mill when the pan engages the mill.

3,810,586
WINDING DEVICE FOR ELECTRICAL MACHINERY
Shohei Tsukajaki, Tokyo, Japan, assignor to Kabushiki Kaisha Meidensha, Tokyo, Japan
Filed Aug. 17, 1971, Ser. No. 172,413
Claims priority, application Japan, Sept. 5, 1970, 45-77605
Int. Cl. H02k *15/085*; **H01f** *41/08*
U.S. Cl. 242—1.1 A **3 Claims**



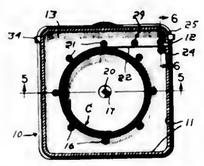
Winding device for electrical machinery, namely for winding electric wire from a drum several times between winding frames through at least two holes of an iron core of the machinery, bonding an end portion of the wire wound on said winding frames, effecting the winding by rotating the frames, and detaching the wound wire on the core from the frames, wherein the device comprises at least two of the above-mentioned winding frames, provided with a mechanism for detaching the wound electric wire after it is wound on the iron core, through the two holes, and a motor-operated mechanism for rotating the frames.

3,810,587
COIL WINDING METHOD AND APPARATUS
Willi Muskulus, Bergen-Enkheim, Germany, assignor to Blazer Droll KG., Neiderdorfelden, Germany
Filed Mar. 23, 1972, Ser. No. 237,265
Claims priority, application Germany, Mar. 31, 1971, 2115579
Int. Cl. H01f *41/06*
U.S. Cl. 242—7.03 **22 Claims**



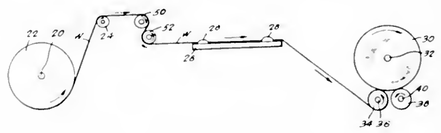
A method and apparatus for winding a coil for an electric machine or the like onto a polygonal former. A wire guide is rotated through a circular path relative to the former on which the coil is being wound; and additional movements are superimposed on said circular path such that the resultant path is flattened, relative to a circle, along at least the longest side of the polygon and /or the angular speed of the former and the wire guide is decreased at least at the angular range where the wire is laid onto said longest side.

3,810,588
DISPENSING CONTAINER ENABLING A COIL OF A RESILIENT, EDGED METAL BAND TO BE FORMED THEREIN
Ralph P. Mahoney, Two Lights Rd., Cape Elizabeth, Maine
Filed July 28, 1971, Ser. No. 166,737
Int. Cl. B65h *19/00*
U.S. Cl. 242—55 **8 Claims**



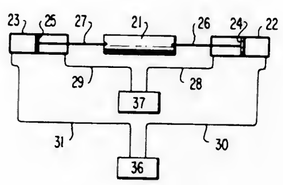
A container is disclosed that enables a long length of an edged metal resilient band, paper mill doctor blade stock for example, to be formed as a coil therein and dispensed to permit desired lengths to be cut therefrom. The container, which also serves as a shipping case, has a port through which an end of the band may be introduced and caught by a detachable winding key by which the coil is formed. The coil is within and confined by a circular series of rollers and the outer end of the contained band is held adjacent the exit port between a pair of members rotatable only in a band-dispensing direction. One of the rotatable members is movable into and out of its band-nipping position relative to the other to permit an end of another band to be introduced through the port when the container is to be refilled.

3,810,589
PROCESS AND APPARATUS FOR WINDING SHEET MATERIAL
Jean-Marie Mousseau, 6304 P. E. Lamarche, St. Leonard, Montreal 458, Quebec, Canada
Filed Jan. 28, 1972, Ser. No. 221,647
Int. Cl. B65h *17/08*; **B65b** *59/00*
U.S. Cl. 242—66 **10 Claims**



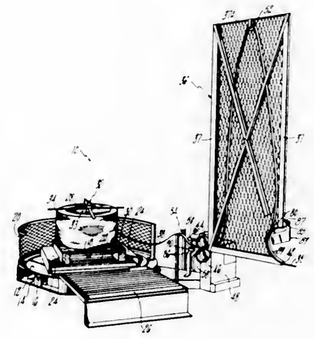
There is provided an apparatus and process for providing the desired density and consistency characteristics in rolls of wet material — e.g., newspaper rolls, which are used in subsequent operations such as newspaper printing and where the properties of the roll are to be matched to those required during the subsequent operation.

3,810,590
METHOD AND MEANS FOR MOVING A SHIFTABLE HOLDER FOR A ROLL CORE OR THE LIKE
Yoshiaki Miyake, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed May 25, 1972, Ser. No. 257,035
Claims priority, application Japan, May 27, 1971, 46-36433
Int. Cl. B65h *19/02*
U.S. Cl. 242—68.4 **5 Claims**



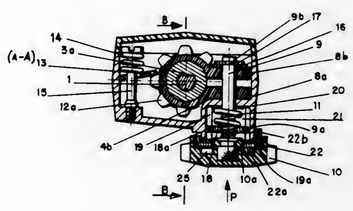
Two oil pressure cylinders are disposed on both sides of a roll core. Each cylinder has a piston and a piston rod which is connected to the end of the roll core. Oil pressure pipes are connected between the roll core-side end of each cylinder and an oil pressure actuator for shifting the roll core. Additional oil pressure pipes are connected between the other end of each cylinder and another actuator for chucking to hold the roll core.

3,810,591
DISPENSING MACHINE FOR COIL STOCK
Robert L. Haven, Enfield, Conn., assignor to The Stanley Works, New Britain, Conn.
Filed July 13, 1972, Ser. No. 271,420
Int. Cl. B21c *47/16*
U.S. Cl. 242—78.6 **10 Claims**



A machine having a horizontally disposed turntable for paying-out stock from an outer periphery of a coil supported on the turntable, an accumulator, a feed roll for pulling stock from the coil and feeding paid-off stock to the accumulator, a common drive for operating the turntable and the feed roll in unison, a control switch in the accumulator operable for activating and deactivating the common drive responsive to entangling of the stock upstream of the feed roll, and an antislack unit for controlling and tensioning lengths of stock paid-out from the coil.

3,810,592
FISHING REEL
Pierre L. Host, Cluses, France, assignor to Establissements Carpano & Pons S.A., Cluses, France
Filed July 2, 1971, Ser. No. 159,288
Claims priority, application France, July 8, 1970, 70.25360
Int. Cl. A01k *89/02*
U.S. Cl. 242—84.51 A **3 Claims**



A casting reel with a torque limiter of which the adjustment member is located at a point enabling the angler to actuate this member without releasing the crank, comprises means for reducing or even zeroing the braking torque value by simply exerting an axial pressure with the hand against said adjustment member, the release of said axial pressure causing the braking torque to resume instantaneously its preset value.

3,810,593
HAND-CRANK TOY WINCH
Melvin F. Krysl, R.R. 2, Stuart, Nebr.
Filed Dec. 21, 1972, Ser. No. 317,231
Int. Cl. B65h *75/40*
U.S. Cl. 242—86.5 **1 Claim**

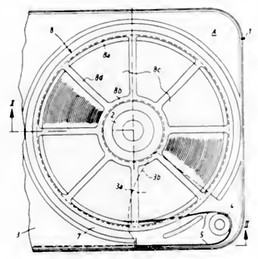


A mechanical toy for children, the toy consisting of a mechanical drive that is mounted on a toy vehicle such as a farm tractor, the drive consisting of a frame on which is mounted a rotatable spool or drum operated through gearing by a hand crank, and an anchor pivotally attached to the frame.

3,810,594
CARTRIDGE FOR MOTION PICTURE FILM
Josef Gersch, Unterhaching; Otto Wiedemann, Starnberg, and Werner Kiessling, Unterhaching, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sept. 1, 1972, Ser. No. 285,863
Claims priority, application Germany, Sept. 4, 1971, 2144408
Int. Cl. G03b *23/02*
U.S. Cl. 242—194 **9 Claims**

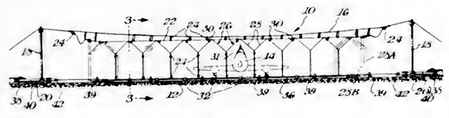
A cartridge for 8-millimeter motion picture film has a housing wherein a partition extends between a first chamber for a supply of convoluted unexposed film and a second chamber for a takeup reel and has an opening through which the film passes toward the takeup reel. The supply of unexposed film loosely surrounds a core of the partition and the first chamber contains a rigid disk-shaped confining member having a relatively short outer flange which surrounds the outermost convolution of unexposed film and is surrounded by an extension

of the partition. The coupling member can rotate with the supply of unexposed film and has a relatively long inner flange which extends between the core and the innermost convolution of unexposed film. The main portion of the confining



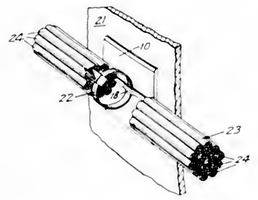
member is located between the supply of unexposed film and an end wall of the housing and has coplanar radial spokes extending between the inner and outer flanges. These flanges prevent clockspringing of unexposed film in the first chamber.

3,810,595
AIRCRAFT ARRESTING BARRIER
Donald B. Doolittle, Wilmington, Del., assignor to All American Industries, Inc., Wilmington, Del.
Filed Dec. 5, 1972, Ser. No. 312,254
Int. Cl. B64f *1/02*
U.S. Cl. 244—110 C **21 Claims**



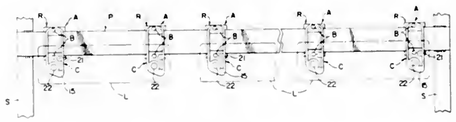
An array of open loops having a maximum dimension slightly smaller than the wing spread of an aircraft to be arrested are laterally detachably hung from a pair of suspension lines stretched above and across the runway. A number of these arrays are staggered relative to each other to provide enough of the loops to securely engage and restrain an aircraft which penetrates any portion of the barrier. Slide connectors attach lower portions of the loop to a horizontal cross runway linear component attached to an energy absorbing device. When an aircraft impinges upon the barrier, the loops break away from the suspension line and freely move to engage stronger larger dimensional portions of the aircraft and apply the restraint of the energy absorbing device to the aircraft from behind and below it. The loops are conveniently deployed in a pentagonal configuration with their peaked tops connected to the suspension lines, their sides breakably connected to each other and bottoms attached by the slide connectors to the cross runway energy absorbing lines—one for each array. The lower cross runway lines are bunched together for optional engagement by a hook-equipped aircraft. The horizontal deployment of the slide connectors behind the vertically deployed loops permits the nose wheels of the aircraft to pass over and clear the cross runway lines before the engaging movement of the barrier is actuated. The upper suspension lines and loops are effectively made of relatively unyielding materials, such as a relatively inelastic textile or a textile covered metallic cable and the lower horizontal linear components are efficiently provided by an energy absorbing material, such as nylon.

3,810,596
FLEXIBLE BASE FOR CABLE TIE
Robert A. Elm, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed May 16, 1972, Ser. No. 253,829
Int. Cl. F16l *3/08*
U.S. Cl. 248—74 PB **5 Claims**



A flexible base for a cable tie, made by a simple extruding, cutting and shaping operation, serves as an inexpensive but fully effective means for adherently fastening the strap-like cable tie to flat or rounded structural surfaces.

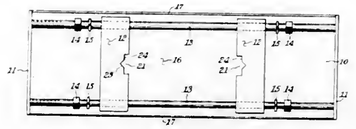
3,810,597
LAVATORY CARRIER BRACKET AND SUPPORT
George J. Flegel, and Nicholas G. Scheuer, both of Michigan City, Ind., assignors to Josam Manufacturing Co., Michigan City, Ind.
Filed May 5, 1972, Ser. No. 250,575
Int. Cl. F16b *1/00*
U.S. Cl. 248—214 **8 Claims**



To mount an array of lavatory and other sanitary or plumbing fixtures each requiring a pair of carrier arms or other wall mounted support elements, a horizontally elongated support plate rigid in the wall, and a bracket assembly for each element comprising a front bracket plate casting and rear plate clamped on the support plate therebetween by upper and lower clamp bolts. On the flat casting back, to either side of a top bolt aperture, an interrupted lip engages the support plate top edge, spacing the top bolt from shearing engagement; the casting having at least one further threaded aperture receiving threaded lavatory support mounting means, and plural locations adapted for tapping to receive mounting bolts of diverse lavatory support elements. Thus assemblies are easily clamped in proper adjusted positioning and spacing along the support plate for mounting different fixtures with diverse support elements.

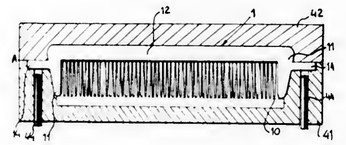
3,810,598
MAIL BOX MOUNTING DEVICE
Leroy E. Bender, Bakersfield, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Sept. 5, 1972, Ser. No. 286,553
Int. Cl. F16m *13/02*
U.S. Cl. 248—221 **1 Claim**

A mounting unit upon which a standard rural mail box may be mounted. The underside of the device includes two shaped jaws slidably fitted over threaded rods which run the length of the underside of the device. The shaped jaws may be gripped about the top end of any conventional vertical support



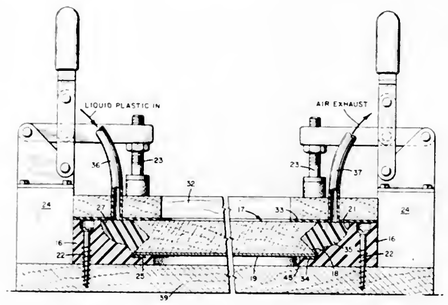
member for the purpose of fastening the mail box and the attached mounting unit permanently to the said vertical support member.

3,810,599
MOLD FOR MANUFACTURING TOOTHED ARTICLES SUCH AS COMBS
Massima Fornari, Via 1 Maggio 61, Vedano Olona, Italy
Filed Dec. 27, 1971, Ser. No. 211,942
Int. Cl. B29c *7/00*
U.S. Cl. 249—67 **1 Claim**



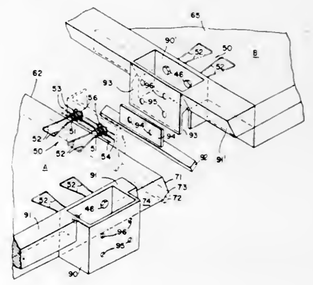
In the molding of an article, such as a comb, comprising a back from which project a plurality of side-by-side substantially parallel teeth, use is made of a two-part mold which (instead of being split in a plane registering substantially with the plane of the article or the axes of the teeth, as is conventional) is split in a plane to which the axes of the teeth are perpendicular, so that removal of the article from the mold takes place in a direction parallel to the axes of the teeth.

3,810,600
AN EDGE MOLD HAVING EPOXY RESIN WALLS
Gary E. Smith, and John G. Bailey, Jr., both of Collinsville, Va., assignors to Chem Dynamics, Inc., Martinsville, Va.
Filed Dec. 1, 1972, Ser. No. 311,135
Int. Cl. B29c *1/02*
U.S. Cl. 249—95 **5 Claims**



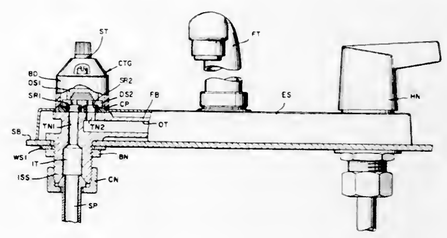
A mold provided for forming a shaped integral resinous edge about a wood panel has epoxy resin walls about a cavity conforming to the size and configuration of a pattern having a shaped edge, said mold being adapted to support in the cavity a panel without the shaped edge with a gap thereabout corresponding to the shaped edge of the pattern.

3,810,601
FORM FOR USE IN BUILDING CONSTRUCTION
Oleg V. Miram, 759 Flood Bldg., San Rafel, Calif.
Division of Ser. No. 134,623, April 16, 1971, Pat. No. 3,724,157. This application Aug. 21, 1972, Ser. No. 282,402
Int. Cl. B28b *7/22*
U.S. Cl. 249—189 **10 Claims**



A method of constructing buildings of modules is disclosed in which the modules are formed of overhead and wall panels fabricated with means embedded therein having no portion extending beyond the boundaries thereof for distributing the weight thereof to a plurality of points spaced from each other along their edges, which edges are mechanically interconnected by removable hinge joinder means extending between the embedded means in adjacent panels when they are in selected juxtaposition. Means for raising the overhead panels to an elevated position including said removable hinge joinder means are described. Preferred means for forming the overhead and wall panels in the selected juxtaposition and preferred removable hinge joinder means are disclosed. Preferred methods and means for interconnecting vertically and horizontally adjacent modules into structural units of the final building structure before or after removal of said removable hinge joinder means are described.

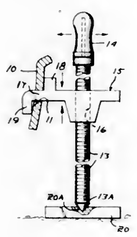
3,810,602
CERAMIC DISK FAUCET
Richard Grant Parkinson, Somerville, N.J., assignor to American Standard Inc., New York, N.Y.
Filed Apr. 17, 1972, Ser. No. 244,503
Int. Cl. F16k *31/60*
U.S. Cl. 251—304 **17 Claims**



This covers a control valve for a kitchen or like faucet embodying a cartridge or container housing two contiguous

ceramic disk elements and a vertical rotary stem. One of the elements is positioned at the base of the stem and is a rotatable member while the other element is a stationary member upon which the rotatable member is slid. The stationary member has inlet and outlet ports both so arranged that, when the movable member is rotated about its axis through a limited angle, the movable member is rotated about its axis through a limited angle, the movable member will be rotatably slid over both ports of the stationary ceramic member to determine the relative sizes of the openings of both ports. Either hot water or cold water, whichever is fed to the inlet port, may be transmitted through the valve and the angular position of the movable member will alone control the volume of water flow through the valve. The slidable member includes a cavity having a plurality of steps or ridges positioned in the path of the water reaching the slidable member, and they reduce the noise level that would otherwise be developed upon water flow through the valve. The entire flow path within the valve is essentially free of parts which expand or contract to vary the flow as the water temperature changes. Each angular valve setting will correspond to a particular flow rate which may be changed as desired but will remain independent of changes in the water temperature.

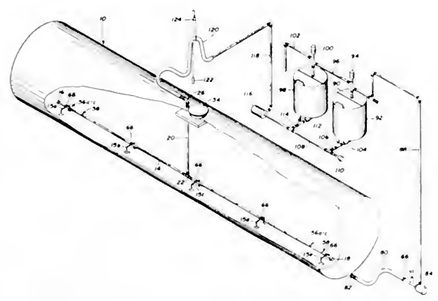
3,810,603
BUMPER JACK
Anthony B. Metz, 129 Chester Ave., Chelsea, Mass.
Filed June 9, 1972, Ser. No. 261,155
Int. Cl. B66f *3/08*
U.S. Cl. 254—100 **4 Claims**



A bumper jack is disclosed that consists of a holder through which an elongated supporting screw is threaded. The jack requires that bumpers have fore and aft opening ports and the holder includes a hook portion dimensioned to be inserted inwardly through a port and a stop that is engageable with the outer surface of the bumper when the screw is vertically disposed then to cooperate with the hook in connecting the jack positively to the bumper while the jack is in service.

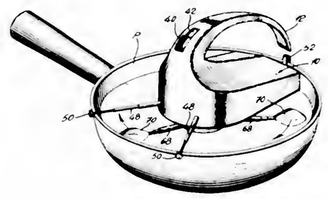
3,810,604
TANK AGITATING AND CLEANING SYSTEM
Jerome A. Reiter, Lancaster, Tex., assignor to Reiter Industries, Inc., Dallas, Tex.
Filed Apr. 16, 1971, Ser. No. 134,698
Int. Cl. B01f *5/04*
U.S. Cl. 259—18 **9 Claims**

The specification describes a food product tank agitation and cleaning system comprising an elongated pipe which is extended along the length of a food product tank. A plurality of grooves are spaced along the pipe to form spray nozzles. A vertically extending conduit extends through an opening in the upper portion of the tank and connects to the pipe. A plurality of spaced apart clamps are connected to the bottom of the tank and include hooks for removably clamping the pipe a predetermined distance above the bottom of the tank. When it is desired to agitate the food product in the tank, pressurized air is applied through the conduit and is directed from the grooves in the pipe to bubble up through the food product. When it is desired to clean the interior of the tank, pressurized fluid is forced through the conduit and is sprayed from the



pipe to clean the interior of the tank. The pipe is constructed and is supported in such a way that food products do not accumulate in the area of the pipe.

3,810,605
STIRRER FOR COOKING VESSELS
Benoit Lambert, 8750 Marjolaine, St-Leonard, Montreal 457, Quebec, Canada
Filed Aug. 4, 1972, Ser. No. 278,073
Int. Cl. B01f *7/16*
U.S. Cl. 259—108 **3 Claims**

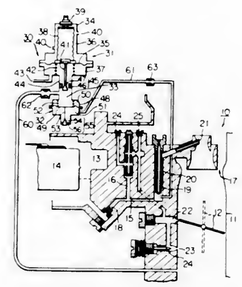


The invention relates to a stirrer with adjustable supports for installation and centering on variable diameter pots and with longitudinally and angularly adjustable paddles for use with pots of various depths.

3,810,606
CARBURETOR OUTPUT CONTROL DEVICE
Kenji Masaki, Yokohama, Japan, assignor to Nissan Motor Company Limited, Yokohama City, Japan
Filed Jan. 26, 1973, Ser. No. 326,993
Claims priority, application Japan, Feb. 1, 1972, 47-11972
Int. Cl. F02m *1/10, 1/14*
U.S. Cl. 261—39 A **10 Claims**

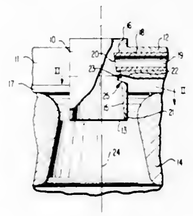
A device for optimizing the air/fuel ratio of a combustible mixture produced in a carburetter when atmospheric pressure and temperature deviate from given levels. When a bellows extends in response to the deviation from the given levels, atomospheric air is supplied downstream of a carburetter throttle valve through a diaphragm valve assembly responsive

to the extension of the bellows during idling or light-load operation of an engine, while air is supplied to a main mixture



supply passage through another diaphragm valve assembly responsive to the operation of the first-mentioned assembly during full-load operation.

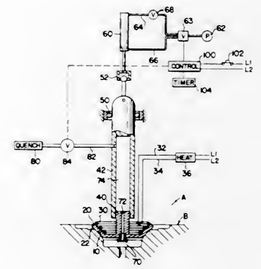
3,810,607
CARBURETOR FOR INTERNAL COMBUSTION ENGINES
Hans-Jochen Blohm, Neustadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Nov. 4, 1971, Ser. No. 195,672
Claims priority, application Germany, Nov. 5, 1970, 2054430
Int. Cl. F02m *19/08*
U.S. Cl. 261—78 R **6 Claims**



A carburetor for internal combustion engines in which a radial outlet arm for fuel or fuel and equalization air terminates in the central bore of a ring-shaped pre-atomizer which projects into the diffusor, at least one approximately radial air channel thereby terminates in the central bore while the discharge opening of this air channel is disposed between the outlet arm and the atomizer discharge into the diffusor.

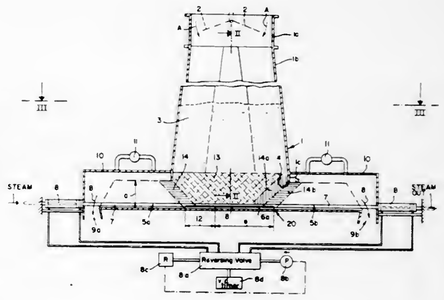
3,810,608
METHOD AND APPARATUS FOR QUENCH HARDENING VALVE SEATS
Robert V. Vickers, Shaker Heights, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio
Filed Nov. 24, 1972, Ser. No. 309,087
Int. Cl. C21d *1/62*
U.S. Cl. 266—4 E **9 Claims**

An apparatus for hardening the conical surface of a valve seat of an internal combustion engine, which device comprises an iron having an outer conical surface matching the conical surface of the valve seat, means for heating the iron to a temperature at least as high as the quench hardening temperature of the valve seat surface, means for moving the iron into a position with the conical surface of the iron against the conical surface of the valve seat, timer means for maintaining the conical surfaces together for a preselected time, means for



moving the iron away from the valve seat surface, and means for quenching the valve seat surface to provide a hardened wear surface.

3,810,609
SHAFT-TYPE DIRECT-REDUCTION FURNACE
Ludwig Von Bogdandy, Oberhausen-Sterkade; Helmut Becker, Bottrop; Rudolf Grewer, Oberhausen; Heinz Dieter Pantke, Essen-Frintrop, and Ulrich Pohl, Mulheim/Ruhr, all of Germany, assignors to Thyssen Niederrhein GmbH Hutten und Walzwerke, Essener Oberhausen, Germany
Filed Nov. 3, 1971, Ser. No. 195,261
Claims priority, application Germany, Nov. 3, 1970, 2053950
Int. Cl. C21b *13/02*
U.S. Cl. 266—25 **3 Claims**



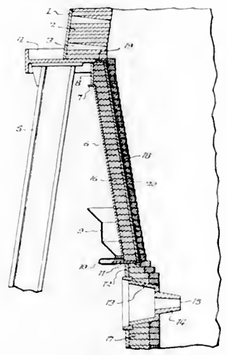
A shaft-type direct-reduction furnace in which a descending charge in an upright furnace chamber of particulate iron oxide or like iron-oxide bodies moves countercurrent to a rising reducing-gas stream (e.g., a mixture of carbon monoxide and hydrogen) and sponge iron is discharged at the bottom of the furnace. The discharge mechanism comprises a horizontally reciprocable discharge plate underlying the mouth of the furnace such that a conical pile of sponge iron is formed thereon and the mouth of the furnace bottom remains free from gas-distributing or discharge-mechanism obstructions.

3,810,610

BOSH CONSTRUCTION FOR METALLURGICAL FURNACES

Frank A. Berczynski, Williamsville, N.Y., assignor to Andco Incorporated, Buffalo, N.Y.

Filed Sept. 11, 1972, Ser. No. 287,725
Int. Cl. C21b *7/06*; **C21c** *5/44*
U.S. Cl. 266—43 **8 Claims**



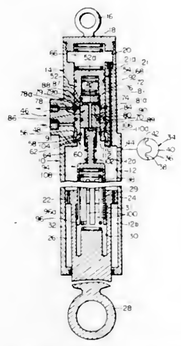
A metallurgical furnace bosh construction has a protective liner over the heat conductive lining along the interior surface of the outer jacket, the protective liner forming an adhesion surface for slag formed as a by-product of the metallurgical reaction within the furnace, the liner being positioned substantially outside the tuyere raceway initially and being covered by a temporary layer of refractory material.

3,810,611

HYDROPNEUMATIC SUSPENSION UNIT FOR A ROAD VEHICLE

Naganori Ito, and Hiroshi Aikawa, both of Tokyo, Japan, assignors to Nissan Motor Comapny, Limited, Yokohama City, Japan

Filed Feb. 7, 1973, Ser. No. 330,323
Claims priority, application Japan, Feb. 8, 1972, 47-13258; Feb. 8, 1972, 47-13259
Int. Cl. F16f *5/00*
U.S. Cl. 267—64 R **26 Claims**



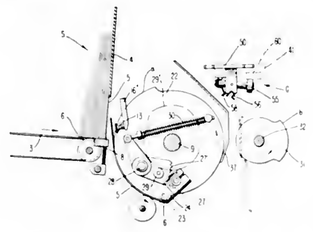
A hydropneumatic suspension unit adapted to be mounted between a wheel supporting means and a body of a road vehicle for maintaining the vehicle body level substantially constant irrespective of weight and load of the vehicle. The hydropneumatic suspension unit includes besides a hydropneumatic spring unit, a cylinder body having a cylinder head and a cylinder chamber filled with hydraulic fluid under pressure, and a main piston slidably received in the cylinder chamber. The cylinder head is formed with a hydraulic fluid inlet and an outlet, which communicate with the cylinder chamber through inlet and outlet passages, respectively. The hydropneumatic suspension unit also includes inlet and outlet valves provided in the inlet and outlet passages, respectively. The inlet passage is formed of an inner wall of an axial bore formed in the cylinder head and an outer periphery of a first floating piston slidably received in the axial bore of the cylinder head, whereas the outlet passage is formed of a radial bore formed in the first floating piston and bores formed in a second floating piston slidably received in an axial bore formed in the first floating piston.

3,810,612

METHOD AND APPARATUS FOR HANDLING SHEET MATERIALS, SIGNATURES AND THE LIKE

John O. McCahon, Simsbury, Conn., and William J. Byrne, Pearl River, N.Y., assignors to The Smyth Manufacturing Company, Bloomfield, Conn.

Division of Ser. No. 706,926, Feb. 20, 1968, Pat. No. 3,591,165. This application July 2, 1971, Ser. No. 159,394
Int. Cl. B65h *5/08*
U.S. Cl. 271—11 **5 Claims**



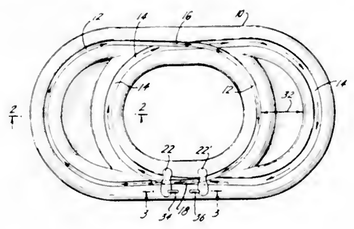
Apparatus for feeding signatures from a stack thereof comprising means for transferring signatures one at a time from a feed hopper by rotary grippers and feed rollers to linearly traveling grippers on an endless conveyor from which the signatures are suspended to travel edgewise.

3,810,613

EXERCISE AND WEIGHT REDUCTION DEVICE

Mildred M. Jorwa, 71 Lincoln Ave., Fairlawn, N.J.

Filed Aug. 13, 1973, Ser. No. 388,119
Int. Cl. A63b *23/04*
U.S. Cl. 272—57 R **4 Claims**



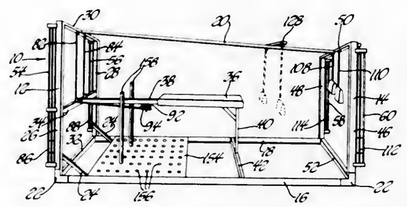
Two elliptical channels which have congruent major axes are utilized as tracks. The channels are integrally molded in a base which supports upright members which terminate in hand grips. Alternatively, the upright members may be attached to the ceiling. Set within and constrained to move respectively inside of each of the channels is a skate which engages the bottom of the channel through an integrally depending vertical connecting member which terminates in a spherical ball bearing. A user places his feet on the skates and, while grasping the hand grips, moves his feet in the elliptical paths defined by the tracks. Such use exercises the entire body with particular emphasis on the upper thighs and hips.

3,810,614

TRAINING DEVICE FOR SWIMMERS

Philip C. Hessburg, 1169 Three Miles Dr., Grosse Pointe, Mich.

Filed June 29, 1972, Ser. No. 267,675
Int. Cl. A63b *69/10*
U.S. Cl. 272—71 **3 Claims**



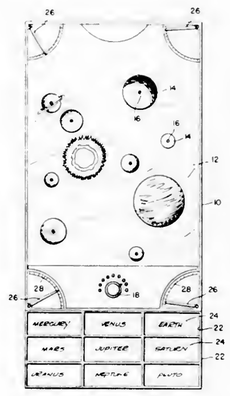
A training device for swimmers which includes a framework with vertically disposed end frame sections having a cushioned body support provided therebetween to support a swimmer in an elevated prone or supine position for relatively free arm and leg movement, weights in weight cages at each corner of the end frame sections, hand hold grips tied to weight lifting ropes received through pulleys on the front frame section for fore and aft activated arm-shoulder muscle group toning, and foot slings tied to weight lifting ropes received through pulleys on the back frame section for vertical activated leg-pelvic muscle group toning. For easy access to the weights, the weight cages in which they are housed are provided with an open side and are pivotally mounted.

3,810,615

EDUCATIONAL GAME: SPACE STATION

Kenneth W. Miller, Dallas, Tex., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Apr. 23, 1973, Ser. No. 353,894
Int. Cl. A63f *9/18*
U.S. Cl. 273—1 E **4 Claims**



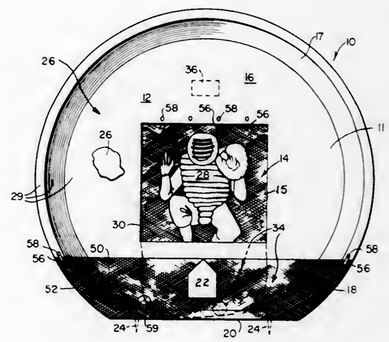
A game employing a game board showing all nine planets. Nine different card receiving means, each associated with a different planet, are disposed on the board. Nine sets of cards, each disposed removably in the corresponding means, each carry questions associated with the particular planet on one face as well as answers to the questions on the opposite face. Each planet is provided with a lamp. A ten position manually operative switch and battery are connected in circuit with the lamps whereby any lamp can be energized individually or all lamps can be dark. Four score keeping devices in the form of moveable pointers are also provided on the game board.

3,810,616

TARGET APPARATUS WITH BALL CATCHING MEANS

Lillian A. Murphy, 145 Elliott St., Haverhill, Mass.

Filed Dec. 26, 1972, Ser. No. 318,544
Int. Cl. A63b *69/40*
U.S. Cl. 273—26 A **6 Claims**



A backstop device of low cost, lightweight, thin sheet material adapted to stop and collect thrown balls or the like. The device comprises a deeply dished nestable shell having a flat, chordal base segment upon which it stands on edge, and fence means for retaining the balls within the rim or flange of the shell. The shell surface against which the balls are directed is conveniently lined with some energy absorbing material to reduce the noise and distribute the impact forces. The ball collection means is of fabric or netting to permit nesting and a back brace is foldable for the same purpose.

3,810,617

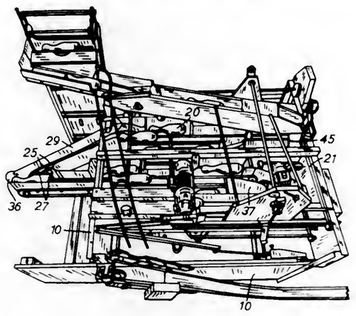
BOWLING PIN LOADING APPARATUS AND METHOD

August Schmid, Schwerzenbach, Switzerland, and Georges Goens, Heverlee, Belgium, assignors to Patentverwertungs- und Fianzierungsgesellschaft Serania AG, Glarus, Switzerland

Filed Sept. 20, 1972, Ser. No. 290,547
Claims priority, application Switzerland, Sept. 22, 1971, 13872/71
Int. Cl. A63d *5/09*
U.S. Cl. 273—43 D **12 Claims**

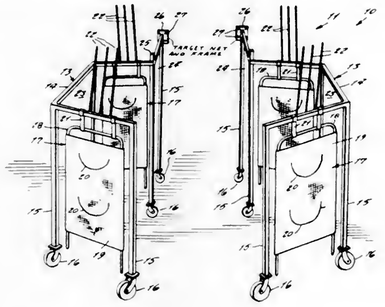
Bowling pins are conveyed consecutively in an essentially horizontal plane along a common path alongside of which are loading bins, one each for the reception of a pin in a spotting

position, the pins being conveyed along the path for transfer into the first available empty bin, the conveyors being



preferably rubber ropes or belts with deflectors which are electrically controllably operated to deflect pins laterally if a pin is to be loaded.

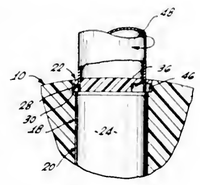
3,810,618
QUARTERBACK FOOTBALL TRAINER WITH ATTACHABLE TARGET UNIT
Zygmund Nedwick, Glen Cove, N.Y., assignor to Athletics Devices, Inc., Glen Cove, N.Y.
Filed Nov. 8, 1971, Ser. No. 196,661
Int. Cl. A63b *67/00*
U.S. Cl. 273—55 R **1 Claim**



An apparatus for developing skill in playing football, the device consisting of a target game unit and a training unit which are detachably attached together; and in which the training unit includes a pair of upstanding frames mounted upon caster wheels so to be movable across the ground, the frames supporting several simulated player rusher's consisting of a fabric sheet stretched on a depending frame and the sheet having slits; and the target game unit consisting of netting pockets formed on a fabric sheet supported along its edges by tension springs from a tubular metal frame provided with means for being retained in an erect position while players toss a ball or the like into the pockets.

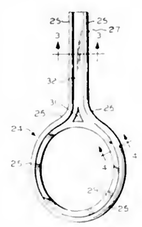
3,810,619
BOWLING BALL AND METHOD OF CLOSING AND OPENING A CAVITY OPENING THEREIN
Wilson G. Taylor, 2901 W. Valley, Alhambra, Calif.
Filed Oct. 3, 1972, Ser. No. 294,645
Int. Cl. A63b *37/00*
U.S. Cl. 273—63 E **7 Claims**

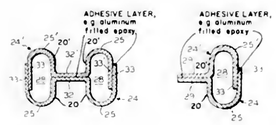
The system generally comprises a typical bowling ball having an elongate cavity extending inwardly generally radially a predetermined distance toward the center and a cap fitted at its outer end to restore the contour of the ball. The axis of the cavity usually extends at a substantial angle to the plane generally including the thumb and finger holes, and it may be left empty or filled with a weighting mass e.g. a barium compound, to vary the weight and performance characteristics of the ball. The cap is disc-like with a spherical outer surface to match the contour of the ball and has at least one recess in the



marginal portion extending inward toward the axial center. The diameter of the disc is slightly more than that of the outer end of the cavity to produce an interference or force fit so that it cannot be removed without destroying it, thus preventing unauthorized weight changes from going unnoticed. To make an authorized change, a hole is drilled in the cap large enough to intersect the recess, leaving a ring which may be easily snapped out because of the great reduction in hoop compression force.

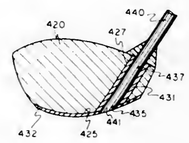
3,810,620
SPORTS RACKET
Charles R. Decker, III, 455 N. 5th St., Warsaw, Ill., and Gregory K. Harris, Rural Rt. 2, Mooar, Keokuk, Iowa
Filed Dec. 28, 1971, Ser. No. 213,040
Int. Cl. A63b *49/12*
U.S. Cl. 273—73 H **6 Claims**





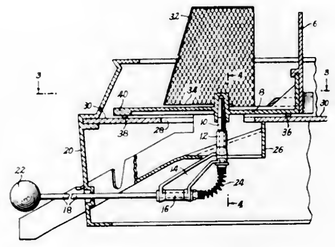
A frame for a sports racket comprising a pair of adhesively united metallic stampings and a handle for same. Each stamping is made from a metallic blank initially shaped similarly to the outline of the finished frame. Each blank is stamped to form a channel around its periphery. The channels in the respective blanks being so sized that when the blanks are assembled the outer legs of the channels overlap one another. The handle may be a molded rigid structural plastic foam.

3,810,621
HOSEL-LESS WOOD TYPE GOLF CLUB
Truett P. Mills, 1700 Second Ave., Tuscaloosa, Ala.
Division of Ser. No. 74,656, Sept. 23, 1970, Pat. No. 3,759,517. This application Sept. 18, 1972, Ser. No. 289,799
Int. Cl. A63b *53/02*
U.S. Cl. 273—80.2 **10 Claims**



A wood type golf club having a club head with a frontal striking surface, toe and heel portions, a bottom surface, and a top surface, the club head having a shaft receiving opening in the top surface at said heel portion and said top surface being a continuation of the general contour of the club head from the toe to the heel portions. The club head is provided on its bottom surface with a sole plate which is associated with a shaft retainer that is received in the shaft receiving opening in the club head. A shaft is received in the shaft retainer and secured therein.

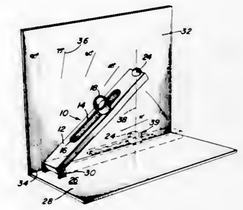
3,810,622
HOCKEY GAME PLAYING PIECE
Calvin L. Payne, Jr., Hastings-on-Hudson, N.Y., assignor to Tudor Metal Products Corporation, Brooklyn, N.Y.
Filed Aug. 11, 1972, Ser. No. 279,990
Int. Cl. A63f *7/06*
U.S. Cl. 273—85 A **2 Claims**



A hockey game goalie accessory which, by appropriate mechanisms, is enabled to turn about nearly on its own vertical axis on one side of a simulated cage at the instance of a rod extending from the frame for the game, which is finger manipulated, to turn on its own axis in the horizontal plane The goalie piece is rotated on a sweep arm which serves additionally to provide a sweep member on the other side of the cage which is used simultaneously to strike a puck in that location and thereby send it to a place on the game board where play may be resumed in the normal fashion.

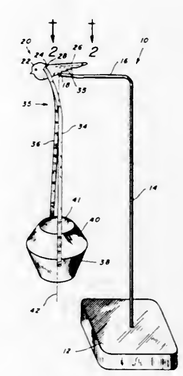
3,810,623
BALL AND CUP GAME DEMONSTRATING PROPERTIES OF INERTIA
Jimmy L. Jacobs, 3409 Turlane Dr., 31, Hyattsville, Md.
Filed Mar. 21, 1973, Ser. No. 343,239
Int. Cl. A63b *71/02*
U.S. Cl. 273—101 **6 Claims**

A lever is pivoted at one end near a playing surface while the opposite free end is held at some position above the playing surface. A ball is made to rest on the free end of the lever while a cup-shaped receptacle is adjustably positioned along its length. When the free end of the lever is released, the cup describes an arc while the ball falls in a separate, vertically



downward, free fall path, due solely to the effect of gravity. If the receptacle is properly positioned, the described arc will intersect the free fall path and the ball will be received in the receptacle.

3,810,624
MYSTERY GAME WITH BALANCED PACKETED CONTAINERS
Edward R. McNemar, Rt. 1, Box 118C, Hulbert, Okla.
Filed July 16, 1973, Ser. No. 379,252
Int. Cl. A63b *71/02*
U.S. Cl. 273—102.1 C **8 Claims**

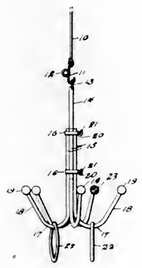


This disclosure describes a balance game in which a container is supported by means of a semi-rigid strap, or strip, which is fastened to a small elongated article that is supported on a wire frame. The strap fits into a sloping slot or notch in the elongated article in such a way that there is a twisting or bending of the strap which tends to hold the article in a somewhat horizontal position, supported on a frame, in a groove in the bottom of the article. A container is supported by the strap. As weights are thrown into the container there is additional pull downward on the straps which causes the article to tilt and as it tilts the notch then permits it to slide off of the frame when the downward force, due to the weights in the container, is sufficiently great. A plurality of notches are provided so that the device can be made more or less sensitive to weights.

3,810,625
SUSPENDED QUOIT TARGET

Jack N. Gulling, 109 E. Elsa Rd., Jupiter, Fla.

Filed May 11, 1972, Ser. No. 252,242
Int. Cl. A63b 71/04
U.S. Cl. 273—104 2 Claims

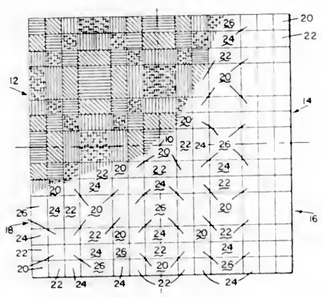


This invention basically comprises a flexible resilient suspension element suspending in limited rotational relationship, a rigid support tube or rod, having adjustably secured thereto a plurality of anchor flutes. The invention further embraces a plurality of rings for manually tossing at the resiliently suspended anchor flutes. The supporting rod or tube and the plurality of anchor flutes may be casted as a single unit, or the anchor flutes may be casted as a single unit, but it is desired for packaging to have each of the units separate.

3,810,626
BOARD GAME APPARATUS

William C. Eberle, 22 June St., Worcester, Mass.

Filed Nov. 30, 1972, Ser. No. 310,855
Int. Cl. A63f 3/00
U.S. Cl. 273—131 AB 16 Claims

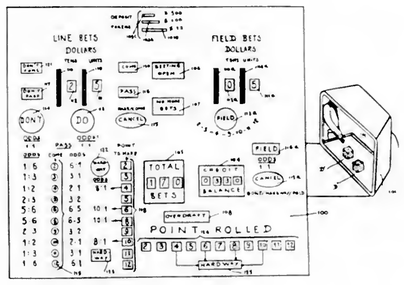


A game board for a plurality of games, this game board comprising a plurality of main sections, all of which are substantially identically provided with a certain number of square (spaces) of different colors in a symmetrical arrangement. Any one of the main sections may be used to play upon, or games may be played using two or more of the main sections simultaneously. Also, several different types and colors of pieces may be utilized with as many different colors appearing on the game board. The game board may be of different sizes and shapes, i.e., square, rectangular, triangular, etc., and there may be as many main sections as may be desired.

3,810,627
DATA-PROCESSING SYSTEM FOR DETERMINING GAINS AND LOSSES FROM BETS

David Levy, 230 W. 54th St., New York, N.Y.

Continuation-in-part of Ser. No. 699,509, Jan. 22, 1968, abandoned. This application Apr. 2, 1970, Ser. No. 25,227
Int. Cl. A63b 71/06
U.S. Cl. 273—138 A 21 Claims

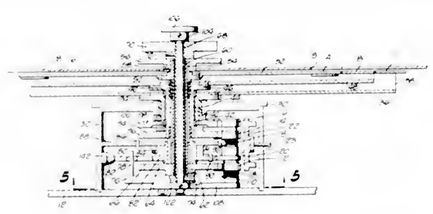


In an establishment in which wagers are placed on the outcome of a fortuitous event, such as the roll of a pair of dice, the spin of a roulette wheel, the result of a horse race, or the like, a player operates a remote selector panel on which a register displays a previously established credit balance. Bets on the event are made from the panel by wagering any amount up to the limit of the credit balance. The amount wagered is automatically deducted from the credit balance, and in the event of a win the amount wagered is multiplied by a predetermined odds factor for the event and added to the credit balance.

3,810,628
PLURAL ROTATABLE DISCS CHANCE DEVICE

Elaine G. Vigan, 1932 Weepah Way, Hollywood, Calif.

Filed Aug. 25, 1971, Ser. No. 174,726
Int. Cl. A63f 5/04
U.S. Cl. 273—142 HA 5 Claims

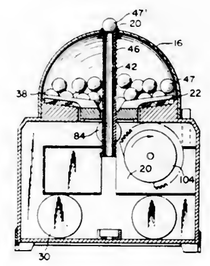


A plurality of of indicia bearing discs are rotatably supported in a windowed casing. The discs are indexed by ratchet wheels and pawls. Manual turning of a handle against spring tension in one direction moves the pawls in a circular arc with the pawls moving the ratchet wheels and discs therewith. The pawls on nearing the end of their circular arc contact one end of a pivoted timer lever having a suction cup thereon so as to press the suction cup against the casing. When the handle is released, the spring tension moves the pawls in the opposite direction with the pawls moving the ratchet wheels and discs therewith. On the pawls nearing the end of their circular arc in this opposite direction, they contact the other end of the suction held timer lever and are pivoted out of contact with the ratchet wheels which lets the discs spin freely. On sufficient air entering the suction cup through a adjustable air valve, the suction cup releases, thereby pivoting the timer lever out of contact with the pawls which then let the pawls pivot into contact with the ratchet wheels to index the discs. A knob controlled cam may be utilized to pivot one of the pawls out of engagement with its ratchet wheel so that seond handle can be used to rotate the disc associated therewith with respect to the other indexed discs.

3,810,629
MIXING AND DISPENSING RANDOM SELECTION DEVICE

Hideyuki Yamamoto, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan

Filed Mar. 15, 1973, Ser. No. 341,727
Claims priority, application Japan, July 3, 1972, 47-78533
Int. Cl. A63b 71/06
U.S. Cl. 273—144 A 9 Claims



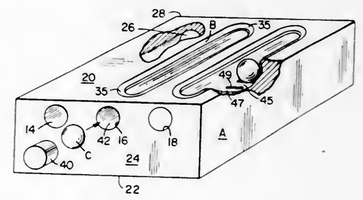
A random selection device which, by way of exemplification but not by way of limitation, may be used to mix and select at random indicia bearing pieces during the playing of the popular games such as "Bingo". The device includes a casing provided with a downwardly sloping surface and a cover removably attached to the casing and extending over the surface. The indicia bearing pieces are positioned within the cover and supported generally by the surface of the casing. A blade is operatively mounted for rotation near the surface of the casing to continuously mix the pieces while a rod is operatively mounted for reciprocating movement between a first position wherein the top or lift portion thereof is adjacent the surface immediately below the most centrally positioned of the pieces and a second position wherein the top portion thereof is adjacent an opening provided in the cover. The user pushes a switch causing a miniature electric motor to be energized activating the blade through a gear train. In this manner, the rotating blade continuously mixes the pieces. During mixing, the gear train activates the rod causing same to move upwardly. Thus, the "selected" piece is lifted upwardly eventually passing through the opening of the cover permitting the user to retrieve same.

3,810,630
GAME HAVING CAPTURED MARBLE EXPOSED FOR DIGITAL MANIPULATION

Michael Gonzales, Sebastopol; Richard H. Benton, and William G. Moore, both of Mill Valley, all of Calif., assignors to Leland Dibble, Jr., Santa Rosa, Calif.

Division of Ser. No. 158,002, June 29, 1971, Pat. No. 3,706,457. This application June 23, 1972, Ser. No. 265,895
Int. Cl. A63f 9/08
U.S. Cl. 273—153 S 4 Claims

A plurality of side by side cylindrical bores are each drilled from a vertical edge of a block with one edge of each bore adjacent a planar and major surface of the block. At least some of the bores are partially exposed to the surface of the block by routing out a channel to expose less than a diameter of the cylindrical bore through the major surface to the exterior of the block. Spheres having a diameter less than that of the bore, but greater than that of the channel, are inserted interior of the bore. The bore is plugged at its end to trap the spheres. The spheres are thus held within the bore and yet exposed to external view and digital manipulation through the routed channel. According to one aspect of the invention, transverse ridges and valleys interior of the bore can be used to hold the

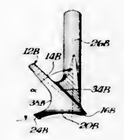


spheres in preselected positions for marking turns in the game relating to sequential movement of a plurality of spheres in a plurality of exposed bores. According to another aspect of the invention, two exposed passages can be communicated to a hidden passageway and trap; through manipulation of observed spheres and each marked with different indicia, the order of spheres can be changed.

3,810,631
GOLF CLUB HEAD OF THE IRON TYPE HAVING A CONCAVE SOLE

Joseph M. Braly, Kennett Square, Pa., assignor to Con-Sole Golf Corporation, Chadds Ford, Pa.

Filed July 24, 1972, Ser. No. 274,563
Int. Cl. A63b 53/04
U.S. Cl. 273—167 A 4 Claims



A golf club of the iron type having a novel golf club head comprising a striking face with a leading lower edge, a toe, a heel, and a novel concave sole; said concave sole imparting improved ball striking characteristics such as improved dynamic stability of the head in contact with the ground and minimize deceleration of the club head speed in contact with the ground. The golf head is useful for the manufacture of golf clubs of the iron type.

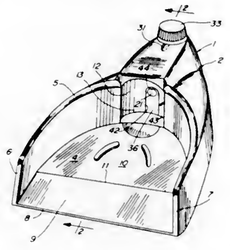
3,810,632
GOLF PUTTING PRACTICE DEVICES

John R. Brandell, Glenview, Ill., assignor to Brandell Products Corporation, Rosemont, Ill.

Filed May 30, 1972, Ser. No. 257,849
Int. Cl. A63b 57/00
U.S. Cl. 273—179 A 4 Claims

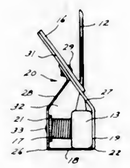
A golf putting practice device embodying a kicker for returning a ball to a person making a putt into the device, and wherein the kicker may be freely slid into and out of the device with a straight-line motion between supporting members disposed at the opposite ends thereof which are effective to prevent turning of the kicker around its longitudinal axis, the kicker having an elongated abutment with parallel sides, with the abutment slidably mounted in an elongated slot in

one supporting member and having the parallel sides disposed in abutting engagement with the longitudinal sides of the slot,



and other of the supporting members being spaced from the one supporting member and from each other to receive and restrain the other end of the kicker therebetween.

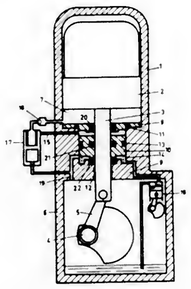
3,810,633
GOLF PUTTER SIGHTING DEVICE
Wray M. Scott, III, 1317 Park Ave., Apt. No. 3, Omaha, Nebr.
Filed Apr. 23, 1973, Ser. No. 353,628
Int. Cl. A63b *69/36, 53/00*
U.S. Cl. 273—183 D **7 Claims**



A golf putter sighting device having a housing which will slide over the head of a golf club and utilizing a biasing element for securing the housing on the club and a mirror secured to and projecting upwardly at an angle from the housing wherein a golfer can align the club face to a hole by merely sighting the hole via the mirror.

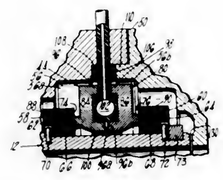
3,810,634
RECIPROCATING ROD SEALING MEANS FOR HOT GAS ENGINES
Sven Anders Samuel Hakansson, Karolingatan, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden
Filed Aug. 29, 1972, Ser. No. 284,469
Claims priority, application Great Britain, Sept. 3, 1971, 41151/71
Int. Cl. F16j *15/56*
U.S. Cl. 277—3 **7 Claims**

In a hot gas engine of the Stirling type, a reciprocating piston rod is sealed by means of two stationary sealing glands spaced apart and a movable sealing gland in the space between the two stationary glands. A pressure chamber is provided on each side of the movable sealing gland with a pressure respectively in each pressure chamber on opposite sides



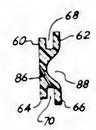
of the fixed sealing glands, corresponding in magnitude to an operating pressure in one of the engine chambers.

3,810,635
MECHANICAL SEAL
Harvey E. Richter, Farmington, Conn., assignor to The Tec Group, Inc., Bloomfield, Conn.
Filed Mar. 20, 1972, Ser. No. 236,433
Int. Cl. F16j *15/46*
U.S. Cl. 277—34 **10 Claims**



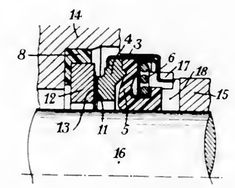
A mechanical rotary seal for sealing fluid flow between a generally cylindrical rotor and a generally cylindrical stator, the seal including seal ring means concentrically mounted for limited axial movement on the stator and seal mating ring means fixed on the rotor and jointly defining with the seal ring means an enclosed annular compartment located radially inwardly of the seal interfaces between the seal ring means and the seal mating ring means, and a fluid energized sealing member fixed to the stator and serving to bias the seal ring means into engagement with the seal mating ring means.

3,810,636
BEARING SEALING STRUCTURE
Paul T. Gorski, Mishawaka, Ind., assignor to Reliance Electric Company, Mishawaka, Ind.
Filed Feb. 14, 1972, Ser. No. 226,126
Int. Cl. F16j *15/34*
U.S. Cl. 277—94 **11 Claims**



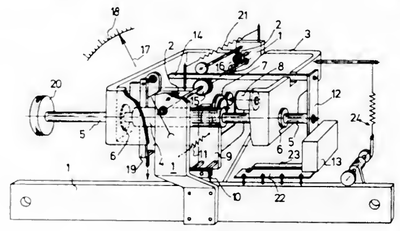
A sealing structure for a bearing having an outer race with an inwardly extending annular rib and an inner race with an outwardly extending annular rib in which said sealing structure consists of an annular plastic member having an inner and outer pair of spaced radially extending flanges for embracing the respective annular ribs on the inner and outer races, forming sealing surfaces between said respective flanges and the sides of the respective ribs. The material from which the sealing structure is made is preferably plastic, such as nylon, and an annular recess may be provided in the center of the outside surface of the structure to improve the flexibility thereof. A lubricant passage connects the inner surface of the bearing with space between one pair of flanges.

3,810,637
SHAFT PACKING
Jacques Bonvin, Colombes, France, assignor to Societe Internationale De Mecanique Industrielle, S.A., Luxemburg, Luxembourg
Filed Jan. 14, 1972, Ser. No. 217,800
Int. Cl. F16j *15/34*
U.S. Cl. 277—96 **3 Claims**



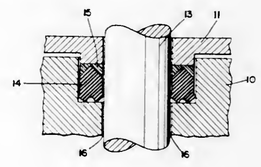
Shaft packing wherein the sealing ring and/or the counter-ring are coated with a thin layer of refractory or non-refractory material deposited thereon by using a plasma blowpipe.

3,810,638
WEIGHING APPARATUS
Werner Haack, Chur, Germany, assignor to Pfister Waagen GmbH, Augsburg, Germany
Filed Jan. 5, 1973, Ser. No. 321,542
Claims priority, application Germany, Jan. 7, 1972, 2200533
Int. Cl. G01g *7/00, 11/14, 23/10*
U.S. Cl. 177—213 **7 Claims**



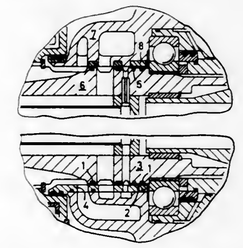
The poise of weighing apparatus is displaced by driving means if the weighing beam is not in the equilibrium position. A very small working force is sufficient to displace the poise because, in an embodiment in which the poise is guided so as to slide along a shaft, permanent relative rotation is maintained between poise and shaft, even in the equilibrium position of the poise. Either the shaft or the poise is constantly rotated. In an alternative embodiment, the poise together with at least one shaft forms one unit which is slidably and rotatably supported in bearing bushes, either the unit or the bearing bushes once again constantly rotated even when the driving means no longer produce any displacement of the poise.

3,810,639
FRANGIBLE BACKUP RING FOR SEALING RINGS
John B. Scannell, Long Beach, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
Filed Aug. 31, 1972, Ser. No. 285,182
Int. Cl. F16j *15/24*
U.S. Cl. 277—188 **3 Claims**



An anti-extrusion backup ring for use on the downstream side of a sealing ring which is manufactured and installed as one piece and will fracture at a fluid pressure magnitude less than that which will cause extrusion of the sealing ring whereby two or more anti-extrusion rings are formed which function independently of each other to prevent extrusion of the sealing ring at two or more different locations, such as at the ID and OD of the sealing ring.

3,810,640
SEALING RING ARRANGEMENT
Karl Gustav Ahlen, Stockholm, Sweden, assignor to S.R.M. Hydromekanik Aktiebolag, Ualingby, Sweden
Filed Mar. 1, 1972, Ser. No. 230,596
Claims priority, application Great Britain, Mar. 5, 1971, 6154/71
Int. Cl. F16j *15/28*
U.S. Cl. 277—235 A **21 Claims**

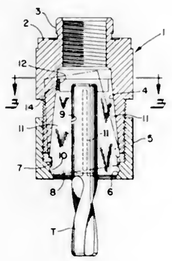


A sealing arrangement for forming a seal between inner and outer relatively rotating parts. A sealing ring is mounted in a groove in the inner part and it contacts a cylindrical surface on the outer part. The contacting surfaces of the sealing ring with the outer part and the groove constitute sealing surfaces and at least one of these sealing surfaces is porous and made of material having a low coefficient of friction. The porous and low coefficient of friction material may comprise a layer on either the outer part or the sealing ring or the sealing ring may be made of such material. An example of such a material is molybdenum.

3,810,641
COLLET CHUCK FOR ROUTER HEAD AND THE LIKE
Milton L. Benjamin, Chagrin Falls, Ohio, assignor to Erickson Tool Company, Solon, Ohio
Filed Sept. 1, 1972, Ser. No. 285,744
Int. Cl. B23b *31/20*
U.S. Cl. 279—51 **5 Claims**

A three piece collet chuck of the push-pull type wherein a nosepiece having threaded engagement with the chuck body

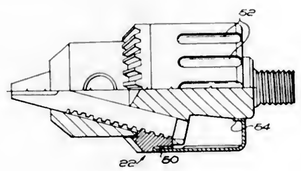
has radially interfitting engagement with the axially outer end portion of a tapered contractible collet to force the collet into, and to withdraw it from the correspondingly tapered bore in the chuck body respectively to grip and release the shank of a cutter therewithin, said collet being characterized in that it is axially slotted from its axially outer end to form at least three segments of relatively thick radial cross section which are integrally connected to a thin and flexible split ring portion at the axially inner end of the collet. The split ring portion aforesaid is formed by a counterbore in the axially inner end



of the collet, one of the slots extending throughout the entire length of the collet and the remaining slots extending from the axially outer end of the collet to at least the bottom of the counterbore.

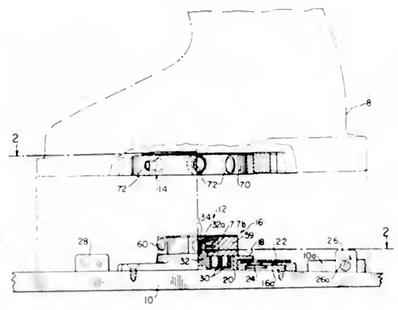
In another form of contractible collet, there is one axial slot through its entire axial length and radial wall thickness, and at least two peripheral axial grooves extending throughout the length of the collet leaving radially thin segment-connecting portions to enable wrapping of the segments around the cutter shank when the collet is forced into the tapered bore of the chuck body.

3,810,642
DRILL CHUCKS
George Cecil Derbyshire, Sheffield, England, assignor to The Jacobs Manufacturing Company Limited, Sheffield, England
Filed Apr. 28, 1972, Ser. No. 248,543
Claims priority, application Great Britain, July 21, 1971, 34252/71
Int. Cl. B23b *31/04*
U.S. Cl. 279—62 **3 Claims**



A drill chuck having a body part and a cylindrical sleeve connected to the usual nut member engaging the jaws, the cylindrical sleeve extending rearwardly to engage a cylindrical portion of the body remote from the nut member.

3,810,643
SKI BINDING
Barry Lewis Druss, Holliswood, N.Y., assignor to Chimera R. & D., Inc., Holliswood, N.Y.
Continuation-in-part of Ser. No. 23,876, March 30, 1970, Pat. No. 3,727,932. This application Nov. 1, 1972, Ser. No. 302,786
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 R **20 Claims**

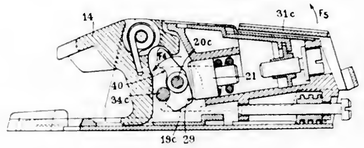


A ski binding comprising an interengaging mechanism between the ski boot and the ski, allowing the skier to transfer his weight to the ski. The essential elements of the binding consist of a plug member and an interengaging socket member, one of the members being associated with the ski boot and the other with the ski. In a preferred form, the plug member is removably secured to the ski and the socket member is associated with the boot; it may be integrally formed with the sole or removably inserted in a recess formed therein. The ski binding has a central rotational member journaled in the plug member for selectively loading and at least partly unloading detent elements by means of interposed parts, such as pawls and supports therefor. The detent elements are either balls or plunger-like elements, by which the two members are allowed to become detached from one another. The socket member has an opening sufficient to receive the plug member. The latter may be made with flat outer sides so as to allow additional clearance between the interengaging members. A plurality of recesses are spaced on the inner wall of the socket member to register with the detent elements of the plug member. Any force whether longitudinal of the ski, or as a torque about the skier's body or legs, will develop a reactive force through or about the area of the geometric center of the binding. If the force is sufficient in magnitude and duration an automatic separation of the interengaging members is effected in response to the force. The invention also provides an over-center action lever arrangement by which the loading force on the detent elements can be selectively applied and at least partly removed when the skier attaches or removes the ski.

3,810,644
SKI BINDING
Jean Joseph Alfred Beyl, 10 Boulevard Victor Hugo, 58 Nevers, France
Filed July 24, 1972, Ser. No. 274,498
Claims priority, application France, July 30, 1971, 71.27975
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 T **10 Claims**

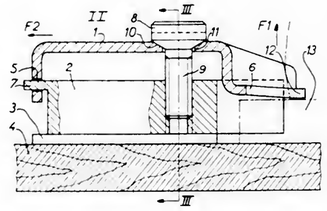
Quick-release heel hold-down device for ski binding, comprising a heel retaining jaw pivotally mounted on a fixed base member and responsive to the force of a spring constantly urging said jaw upwards to its release position. The resilient return means comprise a spring-loaded piston adapted to hold said jaw in its lower or operative position, and a pivoting member engaging on the one hand said pivoting jaw and on the other hand said piston of said resilient return means.

Said pivoting member comprises a control edge in bearing engagement with the operative face of said spring-loaded piston of said resilient return means, said last-mentioned means acting through said control edge for constantly urging



said pivoting member in the direction of rotation corresponding to the closing of said jaw. Said pivoting member has two end stable positions corresponding the one to the jaw opening position and the other to the jaw closing position, and said jaw comprises a control lug co-acting with said pivoting member in order to produce a self-locking action against the pressure force developed by said resilient return means in the end position corresponding to the open jaw position.

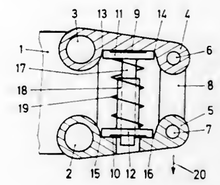
3,810,645
SKI BINDING
Marcel Vouthier, Cluses, France, assignor to Etablissements Carpano & Pons S.A., Cluses, France
Filed July 24, 1972, Ser. No. 274,796
Claims priority, application France, July 28, 1971, 71.27620
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 T **8 Claims**



A ski binding comprises a pivoted lever having one end shaped to constitute a boot-sole retaining jaw and an opposite end pivotally connected to an outer end of the ski binding body, an intermediate screw permitting adjustment of the height of the jaw by engaging a tapped hole in said case and bearing with a frustoconical surface of its head against an inclined edge of an aperture in said lever. The lever is held against said head by spring means or by a cross pin or spring ring.

3,810,646
SKI BINDING CONSTRUCTION
Willy Suhner, Aarauerstrasse 38, 5200 Brugg, Switzerland
Filed Sept. 14, 1972, Ser. No. 289,127
Claims priority, application Switzerland, Sept. 15, 1971, 13532/71
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 T **18 Claims**

In a ski binding having a four-bar kinematic chain which includes two opposite first elements one of which is to be secured to a ski and the other of which carries a boot-engaging portion and is displaceable in a predetermined plane from and to a rest position, and two opposite second elements linked with the first elements, the invention provides a pretensioned energy storing spring which acts between the second elements of the chain, and at least one abutment interposed between the spring and one of the second elements. The abutment en-



gages the associated second element in point or line contact at a surface thereof which extends substantially normal to the plane of movement of the displaceable element, and the abutment is spaced from the locus at which the force of the spring acts upon the other second element by a distance which decreases with increasing displacement of the movable first element from its rest position.

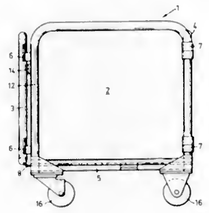
3,810,647
SKI POLE WITH CAMERA MOUNTING MEANS
Earl J. Martchenke, P.O. Box 8831, Albuquerque, N. Mex.
Filed July 20, 1972, Ser. No. 273,631
Int. Cl. A63c *11/22*
U.S. Cl. 280—11.37 E **6 Claims**

A ski pole of a conventional type is utilized in a manner that special means is mounted accessibly and operatively atop the handgrip for detachably mounting, transporting and supporting photographic camera equipment whereby to in this manner permit the ski pole to be employed in the usual manner while skiing and in addition to serve as a stabilizing, aiming support for the photographic camera equipment when the skier feels called upon to use the same.

3,810,648
COLLAPSABLE STORAGE CONTAINER
Nils Ragnar Hallenius, Goteborg, Sweden, assignor to Innovia Logistikmaskiner AB, Goteborg, Sweden
Filed June 15, 1972, Ser. No. 263,207
Claims priority, application Sweden, June 18, 1971, 7967/71
Int. Cl. B62b *1/12, 1/00*
U.S. Cl. 280—33.99 R **12 Claims**

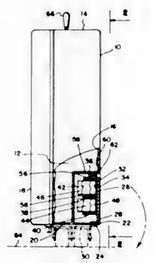
The present invention relates to a storage container intended for loose stacking and transport of piece goods, e.g. cartons of milk, which has at least three wall members of which one is a front wall and the other two are side walls hin-

gedly connected with at least one of the wall members and collapsable against the same. Said storage container is also convertible from a normal position in which it has essentially the form of a parallelepiped, to a stowing position requiring less space. The invention is mainly characterized in that the side walls are swingable out from their normal positions, in which they form essentially a 90° angle with the front wall, to outer



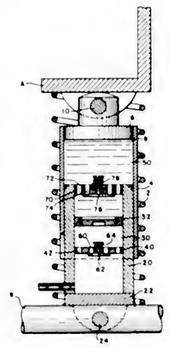
positions appropriate for stowing the container, in which positions said angle is obtuse and in which the internal distance between the rear edges of the side walls is greater than the breadth of the front part of the container. The swinging outward of the side walls is limited at the outer positions by a blocking member, mounted on the side walls or parts connected to the side walls, stopping against the front wall or against parts connected thereto or vice versa.

3,810,649
ARTICLE TRANSPORT MEANS
John J. Fahey, Jr., 351 E. Thomas Rd., Apt. D203, Phoenix, Ariz.
Filed Feb. 28, 1973, Ser. No. 336,535
Int. Cl. A45c *5/14*
U.S. Cl. 280—37 **7 Claims**



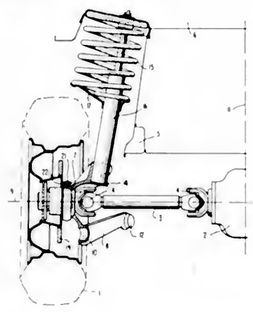
An article transport means adapted to carry the weight of various articles such as heavy luggage cases or appliances while such articles are manually moved along a surface such as a floor or the like from one place to another. The transport means having a housing provided with a bottom and a side at the juncture of which a hinge hingedly supports a roller carriage plate which is adapted to move from a normally vertical position at the side of the housing to a horizontal position beneath the bottom of the housing so that rollers rotatably mounted on the rotor carriage plate may be carried inside the housing in a compartment therein and may alternately be pivoted about the hinge to be disposed beneath the housing so that the peripheries of the rollers may support the housing on a horizontal or other surface such as a floor; a flexible endless belt means is positioned over the rollers so that they may be operated in unison and operate quietly as well as to provide extended traction for the rollers to support the housing and to assist in static balancing thereof when manually transported by handle or other means preferably on the top of the housing.

3,810,650
ANTI-DIVE BANKING SUSPENSION APPARATUS FOR VEHICLES
Norman H. Hudson, 805 Franklin Rd., Clinton, Miss.
Filed May 3, 1972, Ser. No. 249,777
Int. Cl. B60g *11/58*
U.S. Cl. 280—124 F **4 Claims**



Apparatus for maintaining a vehicle body in substantially level condition and absorbing shock has pistons mounted respectively on the body and the axle and relatively movable with respect to each other. A cylinder is connected to the body-attached piston and provides a cylinder for the axle-attached piston, but does not engage the axle. The axle-connected piston has a central bore within which there is a smaller floating piston. The two axle-connected pistons have a combined area equal to that of the body-connected piston. The space between the body-connected piston and the two axle-connected pistons is filled with oil, and the inner of the axle-connected pistons is suspended within the outer piston between oil on its upper surface and air pressure on its lower surface.

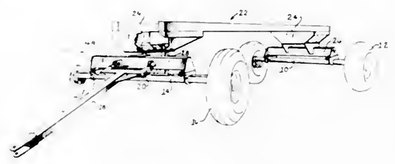
3,810,651
SUSPENSION FOR THE REAR WHEELS OF A MOTOR VEHICLE
Christian Puchas, Fellbach, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed June 28, 1972, Ser. No. 267,116
Claims priority, application Germany, June 28, 1971, 2132087
Int. Cl. B60g *11/56*
U.S. Cl. 280—124 A **17 Claims**



A suspension for the rear wheels of a vehicle, especially a passenger motor vehicle, in which each wheel is supported in a

wheel carrier which, in turn, is supported in the horizontal direction by means of a longitudinal strut extending at an inclination to the vehicle longitudinal axis and by means of a transversely disposed tie-rod and in the vertical direction by means of a full load-bearing spring leg consisting of a spring and a shock absorber which is secured at the wheel carrier.

3,810,652
RUNNING GEAR
Jack M. Quirk, 1618 Gainsborough, Amarillo, Tex.
Filed Oct. 25, 1972, Ser. No. 300,439
Int. Cl. B62d *1/02*
U.S. Cl. 280—125 **11 Claims**

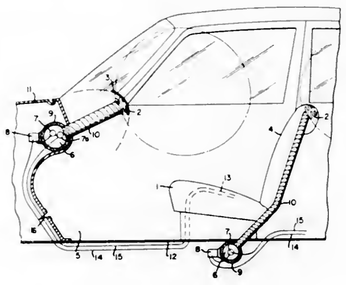


On a swinging axle wagon or trailer, the front axle is articulated by ball socket joints rather than a flat fifth wheel. A bracket on the reach structure has a top and bottom socket connected by a torsion bar to stabilize the front axle. The bottom ball is vertically aligned with the top ball on the front axle.

ERRATUM

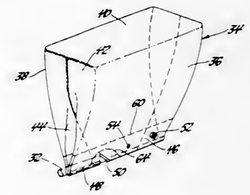
For Class 280—150 see:
Patent No. 3,810,523

3,810,653
MOTOR VEHICLES EQUIPPED WITH GAS CUSHION
Gerhard Schiesterl, Stuttgart, and Helmut Wulf, Nellingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed May 21, 1971, Ser. No. 145,639
Claims priority, application Germany, May 21, 1970, 2024813
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 AB **24 Claims**



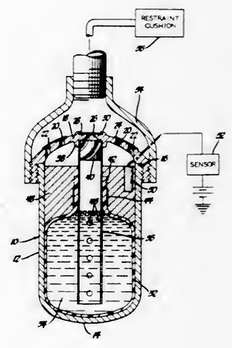
A motor vehicle equipped with gas cushions arranged on the inside of the vehicle which are adapted to be inflated for the protection of the vehicle passengers in case of a collision by means of a gas stored in tanks and released by the ignition of blast cartridges initiated by deceleration measuring devices whereby the containers and blast cartridges are arranged outside of the vehicle passenger space itself, for example, in the engine space, and/or in the luggage space.

3,810,654
OCCUPANT RESTRAINT CUSHION ASSEMBLY AND METHOD OF MANUFACTURE
John DeBano, Jr., Roseville, and James L. Noll, Livonia, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed May 5, 1972, Ser. No. 250,674
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **5 Claims**



An occupant restraint cushion of tapered cross section is manufactured from a single sheet of suitable material which is folded and stitched in a series of steps to complete the cushion. There is no cutting of the material to provide the desired shape to the cushion. The cushion includes a pair of body walls, an end wall integrally connecting the body walls and providing the basal end of the cushion, and side walls integral with the body walls and stitched to the end wall. The side walls have a center stitch line. The side walls adjacent their free ends are folded upon themselves and stitched to the body walls adjacent their free ends to provide the apical end of the cushion. One of the body walls is provided with an opening intermediate the side walls for receiving an inserted portion of a diffuser. The inserted portion of the diffuser is secured to the one body wall.

3,810,655
GAS GENERATOR WITH LIQUID PHASE COOLING
Otaker P. Prachar, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 21, 1972, Ser. No. 282,069
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **2 Claims**



A cylindrical housing has one closed end wall and an opposite end wall provided with an atomizing nozzle and a pair of concentric rows of nozzles encircling the atomizing nozzle. A flexible container within the housing contains a mixture of water and ethyl alcohol. A conduit connects the atomizing nozzle and the container. A charge of propellant material is located within the housing. When the charge is ignited, the hot

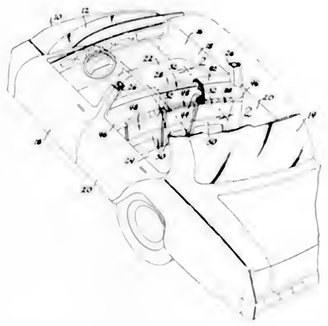
gases compress the container to force the liquid therein through the conduit and the atomizing nozzle to atomize the liquid. The droplets mix with the hot gases flowing through the concentric rows of nozzles to cool the gases as the gases flow to an inflatable occupant restraint cushion.

3,810,656

VEHICLE BODY ENERGY ABSORBING PANEL

Robert M. Fox, Warren, and Karl Truran, Southfield, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 26, 1973, Ser. No. 335,445
Int. Cl. B60r 21/02
U.S. Cl. 280—150 B 3 Claims



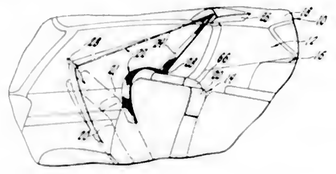
An elongated energy absorbing panel extends between the side pillars of a vehicle body in proximity to the upper seat back edge of the vehicle front seat so as to function as a headrest for front seat occupants and a frontal restraint for rear seat occupants. Each panel end supports a channel member extending longitudinally of the vehicle and opening to an opposed channel member on the adjacent side pillar, and slide members slidably interconnect each pair of these channel members so that the panel is supported for both forward and rearward movement. A first pair of die and draw rod arrangements are respectively mounted between the side pillars and the panel ends, and absorb a controlled level of energy during forward panel movement so as to cushion the frontal restraint provided for rear seat occupants. Tongue and slot connections of these arrangements slidably release them from their mounted relationship during rearward panel movement so they do not limit such rearward movement. A similar second pair of die and draw rod arrangements are likewise mounted between the side pillars and the panel ends, but are oriented in the opposite direction to the first pair so that they absorb energy during rearward panel movement and are slidably released from their mounted relationship during forward panel movement so as not to limit such forward movement. Two outboard knee pads and one center one are mounted on the vehicle floor below the panel and are movable forwardly during an impact upon engagement thereof by the knees of a forwardly moving rear seat occupant. Deformable slide strap arrangements extend between the outboard knee pads and the side pillars respectively adjacent to them so as to be deformed by such forward knee pad movement and to thereby absorb energy. The center knee pad is also provided with a suitable energy absorbing device to cushion its forward movement.

3,810,657

SHOULDER BELT POSITIONING ARRANGEMENT

David D. Campbell, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 9, 1973, Ser. No. 339,512
Int. Cl. B60r 21/02
U.S. Cl. 280—150 SB 3 Claims



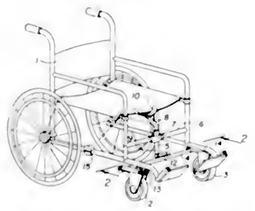
A positioning arrangement for the front seat shoulder belt of a two door type vehicle body in which the front seat back moves between a generally upright seating position and a forwardly tipped easy-enter position. The shoulder belt extends forwardly from an attachment to an outboard roof portion rearward of the front seat and has an intermediate portion slidably received by an aperture in the upper end of an elongated belt guide on an outboard upper portion of the front seat back. The belt guide is slidably mounted for movement between retracted and extended positions relative to this seat back and is reciprocated by a linkage between these positions in response to the seat back movement. When the seat back is moved to the forwardly tipped easy-enter position, the linkage moves the belt guide to the extended position so as to position the shoulder belt upwardly and to thus allow an occupant access to the vehicle rear seat without belt interference. Upon return movement of the seat back to the upright seating position, the linkage retracts the belt guide and moves the shoulder belt to a location where it can extend forwardly from the guide diagonally inboard across an occupant's chest in a restraining manner.

3,810,658

WHEELCHAIR STEERING APPARATUS

Howard A. Weimer, Sr., Hawthorne, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Nov. 7, 1972, Ser. No. 304,372
Int. Cl. B62b 11/00
U.S. Cl. 280—269 3 Claims



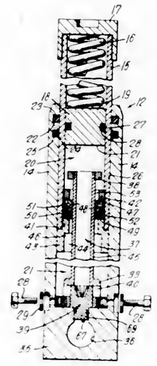
Apparatus for steering a wheelchair having two pivotally mounted front wheels comprises a connecting rod removably coupled to the front wheels to move the front wheels in unison. A pivot rod is mounted in substantially upright position in a cross rod for movement side to side relative to its axis. A leg rest is affixed to the upper end of the pivot rod in a manner whereby the leg rest and the pivot rod move together relative to the axis of the pivot rod. A radius rod couples the lower end of the pivot rod to the connecting rod in a manner whereby movement of the pivot rod to either side relative to its axis moves the connecting rod in a corresponding direction in a substantially horizontal plane to rotate the front wheels in unison about their pivots so that an occupant of the wheelchair steers the wheelchair with a leg by resting the leg on the leg rest and moving the leg in the desired direction.

3,810,659

SUSPENSION DAMPING DEVICE

Jean Pierre Marcil, 22 MacDonald St., Maple Grove, Quebec, Canada

Filed Feb. 2, 1973, Ser. No. 328,902
Int. Cl. B60g 11/00
U.S. Cl. 280—276 10 Claims



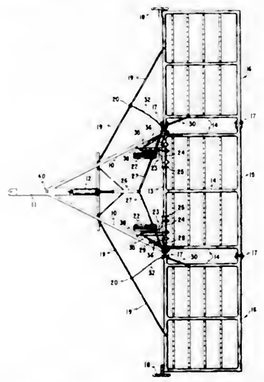
A suspension damping device comprising an elongated tubular housing having a closed lower end for connection to an axle of a wheel and an open upper end having an elongated tube in sealed sliding engagement retained therein. A coil spring is located in the upper part of the tube and is retained between the upper end of the tube and a floating piston positioned in sealed sliding engagement in the tube. An upper and a lower oil chamber is formed in the tube and tubular housing below the piston. First and second passage means are provided between the first and second oil chambers with the second passage means having valve means which is responsive to lateral displacement of the wheel.

3,810,660

FOLDING IMPLEMENT CART

Harold B. Peterson, Larchwood, Iowa

Filed July 21, 1972, Ser. No. 274,112
Int. Cl. B62d 53/00; A01b 19/04
U.S. Cl. 280—411 A 11 Claims



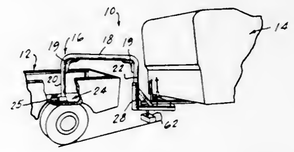
A folding cart for an agricultural drag. The cart includes a center section and lateral wings all of which are raised and the wings of which swing together under the influence of a single actuating device. Novel means for raising the cart and pulling the wings into place are provided.

3,810,661

TRAILER HITCH

Larry D. Lowrance, Rt. 1, Robinson, Ill.

Filed Oct. 5, 1972, Ser. No. 295,129
Int. Cl. B62d 53/04
U.S. Cl. 280—415 B 11 Claims



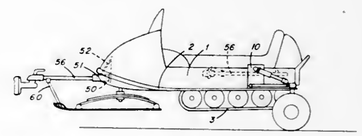
In a trailer hitch a U-shaped tow beam has a ball and socket connector at one end thereof for connection to the bed of a pickup truck at one end of the tow beam, and a tongue receiving assembly secured to the other end of the tow beam. The tongue receiving assembly is bifurcated and provided with U bolts for releasably securing the tongue of a trailer thereto. The tow beam is provided with means for adjusting the relative elevation of its two ends, and with means for permitting the tow beam to be swivelled about a vertical axis, for storage adjacent the front portion of the trailer.

3,810,662

RETRACTABLE WHEELS FOR SNOWMOBILES

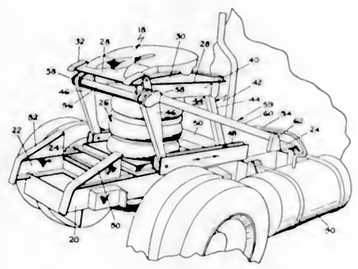
Ephrem Commanda, P.O. Box 1244, Esponola, Ontario, Canada

Continuation-in-part of Ser. No. 194,126, Nov. 1, 1971, abandoned. This application Feb. 2, 1973, Ser. No. 329,165
Claims priority, application Canada, Nov. 9, 1970, 97699
Int. Cl. B60g 3/14; B60d 1/14
U.S. Cl. 280—415 R 11 Claims



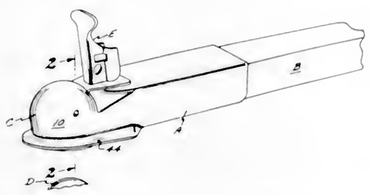
A kit of parts for attachment to a snowmobile, to allow the snowmobile to be transported by road without the use of a trailer. The kit of parts includes retractable or removable road wheels carried by suspension means including springs and shock absorbers, and a tow bar by which the snowmobile may be hitched to a car for towing along a road on the road wheels. The suspension means includes a fixed part including the spring and shock absorber means, and a retractable part.

3,810,663
VEHICULAR BAG HOIST
Howard P. Berends, Fruitport, Mich., assignor to Holland Hitch Company, Holland, Mich.
Division of Ser. No. 103,689, Jan. 4, 1971. This application Oct. 25, 1972, Ser. No. 300,642
Int. Cl. B62d *53/08*
U.S. Cl. 280—425 4 Claims



An elevatable vehicular hauling assembly employing expandable hoisting bellows, a pair of sliding parallelogram linkages, and vertical alignment retention and position control means interlinked therewith.

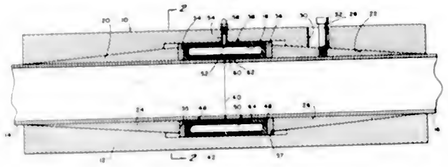
3,810,664
TRAILER VEHICLE ANTI-THEFT PLUG ASSEMBLY
Charles P. Nunnink, Jr., Hawthorne, and Marvin D. Bell, Chatsworth, both of Calif., assignors to Recreation Creations, Inc., Chatsworth, Calif.
Filed Sept. 18, 1972, Ser. No. 290,239
Int. Cl. B60d *1/12*
U.S. Cl. 280—507 4 Claims



An anti-theft, lock-operated plug assembly capable of being removably mounted in the socket portion of a trailer hitch to prevent the trailer vehicle of which the hitch forms a part from being moved by a power vehicle having a trailer hitch ball. The assembly includes a disposable guide for drilling holes at predetermined positions in said socket portion to permit use of said anti-theft plug.

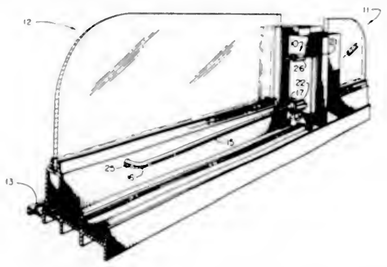
3,810,665
PIPE COUPLING
Fletcher Rodgers, Alva, Okla.
Continuation-in-part of Ser. No. 199,585, Nov. 17, 1971, abandoned. This application May 14, 1973, Ser. No. 359,742
Int. Cl. F16l *17/00*
U.S. Cl. 285—97 1 Claim

A coupling for tubular members wherein a sleeve member is provided for quickly receiving the ends of adjacent tubular members, such as pipe sections, therein. Wedge members are provided within the sleeve for securely retaining the pipe ends therein, and sealing means is provided for the joint between the adjacent pipe ends for not only precluding leakage of fluid



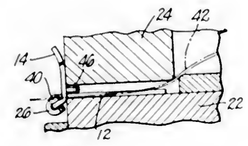
from the pipe sections, but also precluding leakage of fluid into the pipeline in the event the pipe joint is disposee beneath liquid, such as water, or the like.

3,810,666
PANEL SECURING LATCH
Victor E. Hatcher, 3825 Calle Del Monte, Albuquerque, N. Mex.
Filed Apr. 10, 1972, Ser. No. 242,680
Int. Cl. E05c *17/04*
U.S. Cl. 292—262 6 Claims



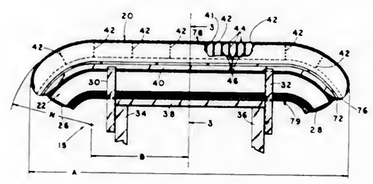
A latch assembly for securing a sliding panel with respect to an adjacent panel. The latch assembly includes a rod which is hingeably or rotatably carried at one end within a socket affixed to one of the panels. The rod is configured at its other end to be received into a locking structure upon or in the other panel to thereby prevent movement of the sliding panel.

3,810,667
LATCH
Thomas J. Dugan, 99 Avenida Serra, San Clemente, Calif.
Filed Aug. 9, 1971, Ser. No. 170,232
Int. Cl. E05c *3/14*
U.S. Cl. 292—346 7 Claims



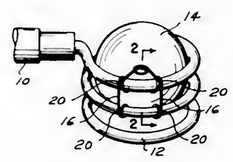
A pick-proof latch for a closure, such as a door, having a keeper plate for attachment to the closure frame or jamb and a striker plate hinged to the keeper plate for movement to a locked closure-engaging position wherein the striker plate is located in the path of opening movement of the closure to lock the latter in closed position. The latch is released to open the closure by first raising the striker plate and then swinging the latter plate to a closure-releasing position. The keeper plate projects beyond the lower end of the striker plate in the locked closure-engaging position of the latter plate and may have an abutment, such as a screw, to extend between the keeper plate and closure to prevent raising of the striker plate to release the latch by insertion of a card between the closure and its jamb or frame.

3,810,668
ENERGY ABSORBING BUMPER SYSTEM
Murray Kornhauser, Wynnewood, Pa., assignor to Safety Consultants, Berwyn, Pa.
Filed Mar. 19, 1971, Ser. No. 126,155
Int. Cl. B60r *19/10*
U.S. Cl. 293—71 P 12 Claims



An energy absorbing bumper system for protection of moving vehicles. The system comprising a storage tank and an impact bag, each containing compressed air, and means for controlling the flow of air between the bag and the tank. The bag is contoured for a generally flat impact surface to provide efficient operation and compact size, and to yield an aesthetically pleasing shape, and is held in shape by dividing the bag into a large number of compartments lying adjacent to each other along the direction of the surface to be protected, and by introducing compressed air into each compartment. Each one of the compartments of the bag is connected to the tank by means of an orifice.

3,810,669
GOLF BALL PICKUP DEVICE
Claude L. Reid, St. Catharines, Ontario, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Jan. 5, 1973, Ser. No. 321,316
Int. Cl. A47f *13/06*
U.S. Cl. 294—19 A 2 Claims



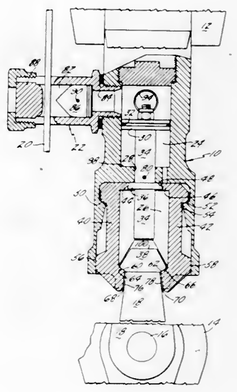
A device comprising: an elongated handle; a coil spring having an inner diameter large enough to receive a golf ball, said spring being secured to the handle in such manner that the axis of the spring extends at right angles to the direction of elongation of the handle; and clip means secured to the periphery of the spring and having an extnension which is flexible and extension inwardly towards the axis of the spring to engage and hold the ball in the spring once the ball is disposed in the spring.

3,810,670
SANITARY DEVICE
Dino P. Turi, Middle Village, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Jan. 5, 1973, Ser. No. 321,552
Int. Cl. A47f *13/06*
U.S. Cl. 294—19 R 1 Claim



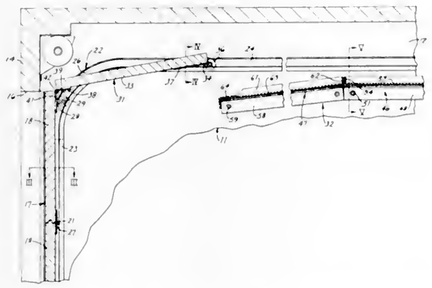
A sanitary device comprising an elongated hollow tube open at one end; a wire frame secured to the other end of the tube; an elongated rod, one end of the rod slidably engaging the open end of the tube; and a disposable scoop secured to the other end of the rod.

3,810,671
JETTISON DEVICE FOR HELICOPTER LOAD CARRYING SYSTEM
Philip Auriol Edgar Jeffery, Trumbull, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Aug. 30, 1972, Ser. No. 284,827
Int. Cl. B64d *1/12*
U.S. Cl. 294—83 AE 6 Claims



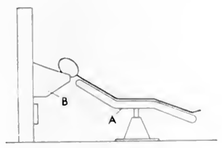
A jettison device for the load carrying system of a helicopter which comprises an explosively operated mechanism for both jettisoning the load held by a hook at the end of a pendant and simultaneously cutting the hook retrieval cable.

3,810,672
CARGO DEFLECTOR PANEL
Flay D. Crosswell, and Gerald W. Galbreath, both of Marion, Ohio, assignors to Overhead Door Corporation, Marion, Ohio
Filed Sept. 27, 1972, Ser. No. 292,626
Int. Cl. B62d 25/06
U.S. Cl. 296—106 17 Claims



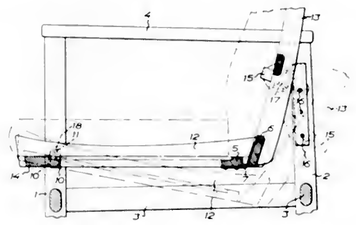
A conventional truck trailer is provided with a sectional door which is rollingly supported in substantially L-shaped tracks mounted on the sidewall of the trailer. The door is movable from a closed vertical position wherein it is disposed in vertical track portions, to an open horizontal position wherein it is supported on horizontal track portions disposed adjacent the top wall of the trailer. The present invention provides a false ceiling extending between the side walls of the trailer and disposed directly below the horizontal track portions, which false ceiling extends to a point adjacent to but spaced from the door when same is in its closed position. A substantially rectangular deflector panel, in the preferred embodiment, has one edge thereof pivotally connected to the top panel of the door, with the other edge thereof being rollingly supported on the guide tracks. The deflector panel is disposed at an angle relative to the door when same is in its closed position, whereby said other edge is positioned adjacent the end of said false ceiling. The deflector panel and false ceiling prevent the cargo from entering into the space between the tracks when the door is closed.

3,810,673
HORIZONTALLY ADJUSTABLE CHAIR IN COMBINATION WITH A SHAMPOO BOWL UNIT
Nagayoshi Shoji, Osaka, Japan, assignor to Takara Belmont Kabushiki Kaisha, Osaka, Japan
Filed Mar. 31, 1972, Ser. No. 240,088
Claims priority, application Japan, Apr. 3, 1971, 46-20437; Apr. 14, 1971, 46-23033
Int. Cl. A47c 7/62, 7/50
U.S. Cl. 297—217 10 Claims



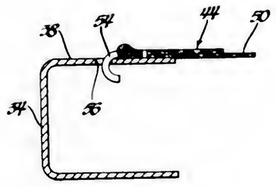
A horizontally adjustable chair in combination with a shampoo bowl unit to be installed in barbershops, beauty parlors, etc. comprising a shampoo bowl unit which is either fixed in place or mounted for concealment in a cabinet and a chair having a seat capable of horizontal and longitudinal travel by means of a glide mechanism. The seat can be locked at a desired position by operation of a lock lever and relating locking members. In such a chair and a shampoo bowl combination, the relative distance between the user's head and the shampoo bowl can be easily adjusted. The chair is also rotatable, vertically adjustable and tiltable.

3,810,674
CHAIR AGGREGATES
Sven Hugo Svensson, Vinslov, Sweden, assignor to Skandi-Form AB, Vinslov, Sweden
Filed July 20, 1972, Ser. No. 273,499
Int. Cl. A47c 1/02, 1/06, 1/12
U.S. Cl. 297—326 3 Claims



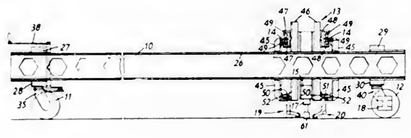
A chair aggregate comprises seat and back rest members adjustably mounted in a chair frame having front and rear leg pairs rested on a supporting frame which is provided with wheels for supporting the chair aggregate on a floor.

3,810,675
VEHICLE SEAT CUSHION WITH RESILIENT BACK BAR
Rudolph A. Ferrara, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 12, 1972, Ser. No. 296,886
Int. Cl. A47c 7/20; B60n 1/06
U.S. Cl. 297—460 3 Claims



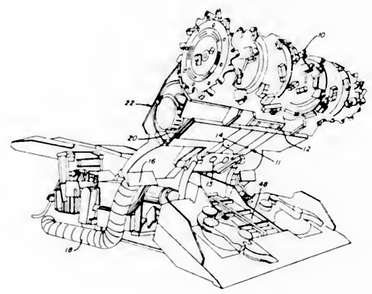
A seat cushion frame assembly includes a stamped seat pan having rearwardly extending upwardly curving side members. A resilient diaphragm is die-cut to provide a back bar and seat suspension members which are connected by uncut portions. Wire clips sewn to the diaphragm attach the ends of the back bar and seat suspension members in varying degrees of tension between the side members. The resilient back bar is positioned forwardly of the conventional rigid back bar to increase foot room for the rear seat occupant and by virtue of flexure assures the comfort of the front seat occupant.

3,810,676
ROAD LEVELLING MACHINE
Ronald Albert William Clarke, Redhill, England, assignor to Klarcrete Limited, Surrey, England
Filed Sept. 20, 1972, Ser. No. 290,468
Claims priority, application Great Britain, Sept. 22, 1971, 44181/71
Int. Cl. E01c 23/09
U.S. Cl. 299—1 9 Claims



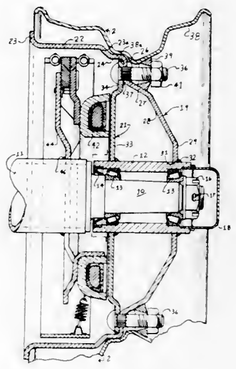
A machine for levelling a concrete road has a motor driven chassis fitted with a pneumatic hammer unit arranged to cut away any part of the road surface passing below the hammer unit which exceeds a predetermined level relative to the chassis. Operation of the hammer unit is controlled by a device which measures the height of the road surface immediately ahead of the hammer unit during travel of the machine along a road and energises the hammer unit whenever this height exceeds a predetermined value. A second device measures the height of the cut road surface relative to the chassis and increases or decreases the speed of travel whenever the height of the cut road surface is below or above fixed limits. The distance between the hammer unit and front wheels is approximately three times the distance between the hammer unit and the rear wheels which run on the cut road surface. The hammer unit is of the kind having a cutting head connected to a piston which reciprocates in a cylinder automatically on supply of compressed air, but the valve means is arranged so that air is directed to the top of the cylinder in the event of the piston dropping to its lowermost position, thereby holding the piston in this position. The hammer unit thus stops whenever the cutting head passes over a depression in the road.

3,810,677
MINING MACHINE DUST COLLECTOR
Joseph S. David, 320 Pinavak Dr., Franklin, Pa.
Filed Sept. 18, 1972, Ser. No. 289,833
Int. Cl. E21c 35/22
U.S. Cl. 299—64 10 Claims



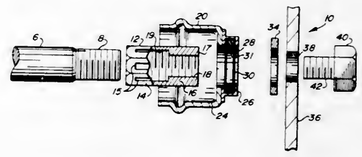
A mining machine having a boom enclosed dust collector assembly for use in a coal mining operation wherein the dusty air from a mining operation is gathered directly from said operation, collected in the mining machine boom, selectively wetted and separated by centrifugal processing into a coal slurry for disposal and clean air for exhaust.

3,810,678
FABRICATED BRAKE DRUM AND HUB ASSEMBLY
Donald T. Studdard, Winfield, and Thomas E. Morrison, Guin, both of Ala., assignors to Continental Conveyor and Equipment Company
Filed Aug. 30, 1972, Ser. No. 285,021
Int. Cl. B60b 23/10, 19/00
U.S. Cl. 301—6 S 1 Claim



A brake drum and hub assembly in which the brake drum and a central portion thereof which is joined to the outer periphery of the hub is made of a single sheet of stamped steel. A second, inwardly disposed steel stamping is joined to the hub inwardly of the central portion of the brake drum and is connected to the brake drum section at a point outwardly of the hub by means of lug bolts which lug bolts, in association with lugs, are adapted removably to mount a rim for a pneumatic tire.

3,810,679
NONROTATABLE HUB AND SEAL MEANS FOR AUTOMOTIVE VEHICLE
Robert C. Myers, P. O. Box 1981, Scottsdale, Ariz.
Filed Aug. 14, 1972, Ser. No. 280,274
Int. Cl. B60b 27/06
U.S. Cl. 301—108 SC 6 Claims

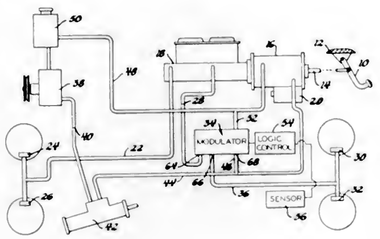


Apparatus is disclosed which includes a nonrotatable hub and means for sealing the nonrotable hub to exclude dust and the like.

3,810,680
PRESSURE SUPPORTED MODULATOR
Donald E. Schenk, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 29, 1972, Ser. No. 310,352
Int. Cl. B60t 8/06
U.S. Cl. 303—6 C 2 Claims

A hydraulic brake pressure modulator having hydraulic pressure support for a displacement piston. The pressure sup-

port section of the modulator contains a solenoid valve which delivers a pilot pressure to a slave valve piston when brake

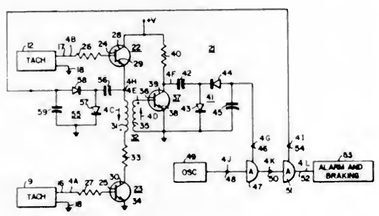


pressure modulation is required. A piston is moved to open a release valve to reduce the modulator support pressure acting on the modulator displacement piston.

3,810,681
METHOD OF AND APPARATUS FOR PRODUCING A VEHICLE MOVEMENT BRAKING SIGNAL IN RESPONSE TO SENSING THE DIRECTION OF TRAVEL OF A VEHICLE

Thomas C. Matty, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 220,829, Jan. 26, 1972. This application May 1, 1973, Ser. No. 356,236
Int. Cl. B60t *7/12*
U.S. Cl. 303—20 **7 Claims**

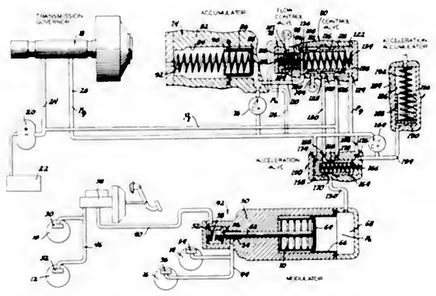


A pair of tachometers are operatively engaged with the drive mechanism of a vehicle. The tachometers are aligned relative to one another such that if the vehicle is traveling in a forward direction the signal provided at the output of the first tachometer leads the signal provided at the output of the second tachometer by a first predetermined phase angle, and if the vehicle is traveling in the reverse direction, the signal output of the second tachometer leads the signal output of the first tachometer by a second predetermined phase angle. Apparatus is included for sensing the relative phase of the respective signals provided at the outputs of the tachometers. In response to sensing that the output signal of the first tachometer leads the output signal of the second tachometer by the first predetermined phase angle, a vehicle movement control signal is provided which informs the vehicle drive mechanism that it is safe for the vehicle to continue its movement. In the event the apparatus senses that the output signal of the second tachometer leads the output signal of the first tachometer by the second predetermined phase angle, the provision of the vehicle movement control signal is inhibited, and the vehicle is braked.

3,810,682
ANTI-LOCK BRAKE SYSTEM

Theodore E. Demers, Ann Arbor, and Erkki A. Koivunen, Livonia, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 12, 1973, Ser. No. 339,619
Int. Cl. B60t *8/06*
U.S. Cl. 303—21 F **3 Claims**



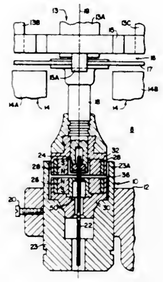
An anti-lock brake system utilizes automatic transmission governor pressure as the average rear wheel speed input signal. A check valve communicates fluid from the governor to an accumulator where it is stored. A flow control valve discharges fluid from the accumulator at a constant rate providing a pressure rate or change in the accumulator somewhat exceeding the pressure rate or change or the governor pressure during vehicle deceleration at the maximum achievable rate. The pressure differential resulting between the accumulator pressure and the wheel speed pressure from the governor during periods of excessive wheel deceleration operates a control valve which exhausts the support pressure from a conventional brake pressure modulator to release the brakes. A period of wheel acceleration follows the brake release and during the resulting wheel speed recovery, the accumulator is recharged and the control valve is shifted to reapply support pressure to the modulator. An acceleration sensing circuit is provided which senses the rapid wheel speed recovery subsequent to brake release on a high coefficient surface and reapplies support pressure to the modulator even before the control valve is restored to its normal position so as to hasten the application of the brakes and thereby compensate for the inherent time delay in cycling of the control valve and modulator.

3,810,683
TEMPERATURE COMPENSATED MAGNETIC BEARING ASSEMBLY FOR AN INDUCTION METER

Joseph M. Keever, Raleigh, and William J. Zisa, Cary, both of N.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 21, 1972, Ser. No. 317,331
Int. Cl. F16c *39/06*
U.S. Cl. 308—10 **5 Claims**

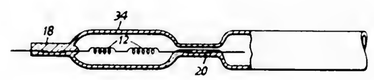
A temperature compensated magnetic bearing assembly for an induction meter includes upper and lower permanent magnets including both series and shunt temperature compensating magnetic flux paths. The magnetic fluxes in the shunt and series paths produce opposing compensating effects with temperature variations to maintain a constant support gap between the permanent magnets throughout an extended temperature range.



3,810,684
LAMPS

Kenneth Buckley Robinson, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Dec. 23, 1971, Ser. No. 211,490
Claims priority, application Great Britain, Apr. 14, 1971, 9400/71; May 26, 1971, 17290/71
Int. Cl. H01j *9/38*
U.S. Cl. 316—4 **5 Claims**



A method of making a lamp comprises inserting a filament assembly into a lamp envelope, and forming a pinch seal in the envelope around the lead-in conductors to the filament with a relatively small passage remaining through the seal. The atmosphere in the lamp can be dosed and pumped through the passage, and by applying pressure to the inside of the envelope during pinching through the passage the envelope can be forced against the inside of a mould. Subsequently the passage is closed.

3,810,685
MANUFACTURE OF TUNGSTEN HALOGEN LAMPS

George Eric Coxon, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Oct. 6, 1971, Ser. No. 187,130
Claims priority, application Great Britain, Oct. 15, 1970, 49133/70
Int. Cl. H01j *9/38*
U.S. Cl. 316—20 **4 Claims**

The present invention relates to a technique for introducing iodine into a tungsten halogen lamp in the form of a compound which is an involatile solid at room temperature. In accordance with this invention the iodine is introduced in the form of a complex metal or complex ammonium iodide which is dissociated or decomposed by heat. These complexes contain iodine in coordinated complex anions.

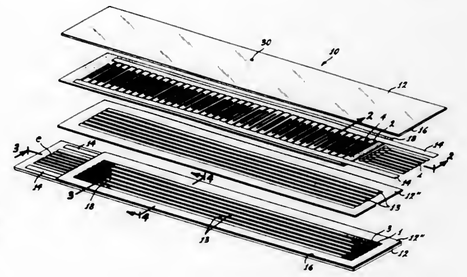
ERRATUM

For Class 316—5 see:
Patent No. 3,811,002

3,810,686
METHOD OF FABRICATING A PLASMA CHARGE TRANSFER DEVICE

William Earl Coleman, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed July 7, 1972, Ser. No. 269,802
Int. Cl. H01j *9/38*
U.S. Cl. 316—20 **4 Claims**

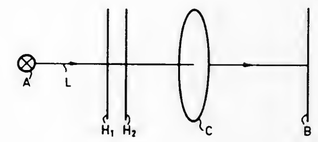


The method of fabricating a plasma charge transfer device comprising forming electrodes on a pair of substrates and coating certain electrodes with a coating of dielectric material which forms the wall on which a charge is formed during the operation of the device, forming cavity material on the pairs of substrates to hold an ionizable medium to be activated by an electric pulse applied to the electrodes, and positioning and sealing the two pairs of substrates to enclose the cavity, and filling the cavity with the ionizable medium to form a complete plasma charge transfer device.

3,810,687
APPARATUS FOR RECONSTRUCTING AN IMAGE OF AN OBJECT WHICH IMAGE HAS BEEN RECORDED IN HOLOGRAPHIC FORM

Hendrik De Lang, and Christiaan Hendrik Frans Velzel, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 30, 1972, Ser. No. 285,023
Claims priority, application Netherlands, Sept. 9, 1971, 7112393
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 **4 Claims**

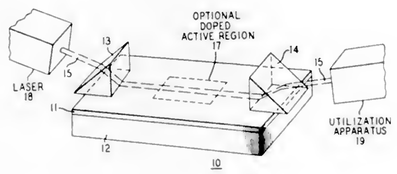


An apparatus for reconstructing an image of an object, which image has been recorded in holographic form, is described which comprises a source of radiation capable of emitting a reconstructing beam of radiation, and two holograms the corresponding points of which have a phase difference of 90°. It is shown that by preparing one of the holograms as a phase holograms and the other as an amplitude hologram the conjugate image can be suppressed in a simple optical arrangement.

3,810,688
OPTICAL WAVEGUIDING DEVICES USING MONOCRYSTALLINE MATERIALS OF THE SILLENITE FAMILY OF BISMUTH OXIDES

Albert Anthony Ballman, 627 Lincoln Ave., Woodbridge, N.J., and Ping King Tien, 19 Lisa Dr., Chatham, N.J.

Filed May 21, 1973, Ser. No. 362,255
Int. Cl. G02b 5/14
U.S. Cl. 350—96 WG 10 Claims

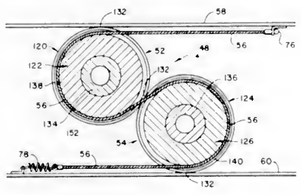


Monocrystalline materials of the sillenite family of bismuth oxides are used in the fabrication of optical thin-film devices. The sillenite materials are cubic in crystalline structure, transparent in the visible and near-infrared portions of the spectrum, electro-optic, piezoelectric, optically active, have useful acoustic surface wave coefficients and can be grown into high quality optical thin films by heteroepitaxial growth techniques. This wide range of properties in the light-guiding monocrystalline film should prove useful in the fabrication of a variety of thin-film devices suitable for integrated optical circuit arrangements. One such device is disclosed employing a thin light-guiding sillenite film upon which is deposited a pair of interdigital electrodes. The device serves as a thin-film electro-optical switch and modulator for a guided light beam.

3,810,689
DEVICE FOR VARYING LIGHT TRANSMISSION EMPLOYING ROLLER-CABLE MECHANISM

Donald E. Moodie, Marblehead, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 173,838, Aug. 23, 1971, Pat. No. 3,743,381. This application Oct. 16, 1972, Ser. No. 297,623
Int. Cl. G02f 1/16
U.S. Cl. 350—159 26 Claims

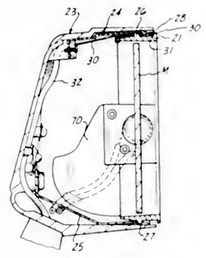


A control device comprising a roller-cable and guiding assembly which minimizes friction. The device includes a pair of rollers mounted in a roller cluster, displaceable along a cable within a guideway. Carried on each roller of the cluster is a free wheeling sleeve roller which is configured for guiding the cable. Actuation and working output structure for such control device are set forth, as for example, a working output structure suitable for operating an arcuately mounted aircraft window.

3,810,690
REMOTELY CONTROLLED DAY-NIGHT REAR VIEW MIRROR

Donald R. Klein, Union City, Ind., and Fredrick C. Read, Greenville, Ohio, assignors to Sheller-Globe Corporation, Toledo, Ohio

Filed May 17, 1972, Ser. No. 254,265
Int. Cl. B60r 1/06; G02b 7/18
U.S. Cl. 350—282 24 Claims

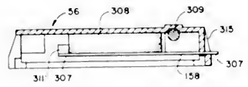


A remotely controlled day-night rear view mirror wherein the mirror can be reversed for day-night use and adjusted for varying driver positions comprising a housing or shell, a bezel pivotally mounted about a first axis in the shell and a reversible mirror mounted in the bezel about a second axis. A single externally mounted and manually operated lever manipulates the mirror through cables.

3,810,691
PHOTOGRAPHIC APPARATUS INCLUDING RESILIENT MIRROR MOUNT

Myron A. Seiden, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 78,032, Oct. 5, 1970, Pat. No. 3,641,886. This application Aug. 12, 1971, Ser. No. 171,353
Int. Cl. G02b 5/08
U.S. Cl. 350—288 1 Claim

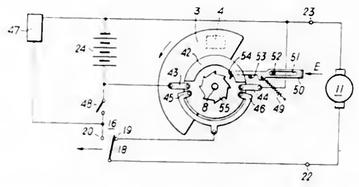


In an optical system, for example, in a camera, a light reflective unit and associated system. In terms of completing one light path or being moved out of the way to facilitate the completion of another light path, a light reflective element precisely repeatably locatable in the one light path. Associated structure for so moving the light reflective element by moving the light reflective unit. Light baffle means movable with the reflective unit to prevent reflection from the reflective element in the out of the way situation of the reflective unit. Resilient mounting of the reflective element in the reflective unit. Precisely located stop means operative with respect to the reflective element to precisely locate the reflective element for completion of the one light path. The reflective unit as a box-like structure with fold down opposite ends providing reflective element leg receiving openings when folded up. Provides inexpensive structure for precise location of reflective element in repeatably precise completion of an optical path. Reflective unit in a system for sequentially recording images of two scenes on mutually exclusive areas of a sheet of photographic material.

3,810,692
PHOTOGRAPHIC FILM-HANDLING APPLIANCE

Josef Drasch; Robert Scheiber, and Harald Wessner, all of Vienna, Austria, assignors to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria

Filed July 6, 1971, Ser. No. 159,698
Claims priority, application Austria, July 6, 1970, 6112/70
Int. Cl. G03b 1/00
U.S. Cl. 352—174 10 Claims

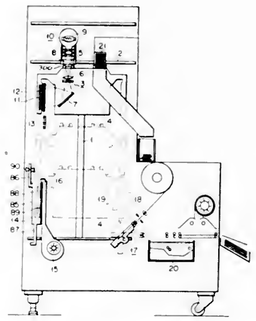


An electric motor is energizable to rotate a rotary shutter. A release switch is movable between an operative position and an inoperative position. A power supply circuit is adapted to energize the motor when the release switch is in the operative position. Electric braking means are energizable to stop the shutter. Fully electric brake control means are operatively connected to the shutter and arranged to de-energize the braking means when the release switch is in its operative position and to energize the braking means at least temporarily so as to stop the shutter in a predetermined position when the release switch has moved from its operative position to its inoperative position.

3,810,693
COLOR ELECTROSTATIC COPYING APPARATUS

Yushi Matsumoto, Tokyo, and Tsuneo Tashiro, Kanagawa-ken, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Aug. 15, 1972, Ser. No. 280,845
Claims priority, application Japan, Aug. 18, 1971, 46-62711
Int. Cl. G03g 15/00
U.S. Cl. 355—4 5 Claims

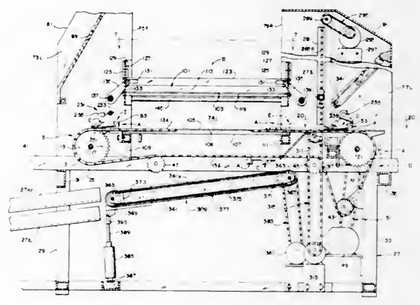


A color electrostatic copying apparatus comprising a rotatable and vertically movable optical device including a plurality of film carriers, a plurality of optical units and a plurality of copying paper holding units, these three groups of members being arranged in optically facing relationship; a light projector including a plurality of filters so arranged as to face said optical units and a plurality of light sources; developing and washing devices disposed at the lower part of the apparatus so as to face said copying paper holding units; and means for feeding a plurality of sheets of copying paper to said copying paper holding units and drawing out said sheets therefrom.

3,810,694
PHOTOGRAPHIC PRINTING APPARATUS

Robert E. Harrell, Manchester, and Richard E. Hadley, Creve Coeur, both of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Continuation-in-part of Ser. No. 71,162, Sept. 10, 1970, abandoned. This application Apr. 17, 1972, Ser. No. 244,364
Int. Cl. G03b 27/00, 27/42
U.S. Cl. 355—18 35 Claims



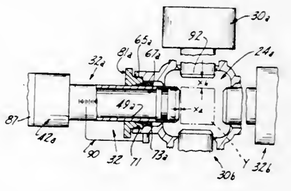
A photographic printing apparatus, particularly for exposing lithographic plates to light through films, having a table on which a film may be assembled with a plate in registration therewith, the plate/film assembly then being fed to and gripped by a conveyor, which conveys it to a position within a vacuum frame unit at an exposure station, after which the vacuum frame unit is closed and evacuated for pressurizing the assembly. The plate is then exposed, the vacuum unit is opened, and the conveyor actuated to feed the exposed plate with the film thereon to an output station, at which the grip is released, and a vacuum lift picks up the film from the plate and drops it into a chute for return to the entrance end of the apparatus, the plate being fed forward out of the apparatus by a plate feed roll arrangement.

Also, adaptations of this apparatus for contact exposure of lithographic plates to light through film from a roll, and for exposure of lithographic plates via projection of enlarged images from microfilm or other film.

3,810,695
FLUID ANALYZER WITH VARIABLE LIGHT PATH

James J. Shea, Dearborn Heights, Mich., assignor to Gam Rad Incorporated, Detroit, Mich.

Filed Dec. 14, 1972, Ser. No. 315,093
Int. Cl. G01n 21/00, 1/10
U.S. Cl. 356—73 15 Claims

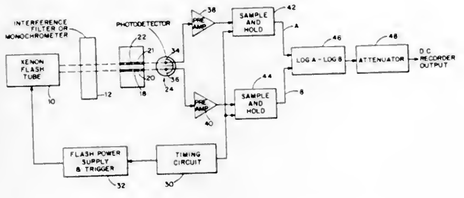


A turbidimeter or fluid analyzer having the length of the light path selectively variable whereby different ranges of turbidity, contamination or the like can be detected.

3,810,696
IMPROVED ANALYTICAL APPARATUS FOR MEASURING LIGHT ABSORBANCE OF FLUIDS

Burleigh M. Hutchins, Jr., North Attleboro, Mass., assignor to Waters Associates, Inc., Framingham, Mass.

Filed Feb. 20, 1973, Ser. No. 334,135
Int. Cl. G01j 3/42
U.S. Cl. 356—93 31 Claims

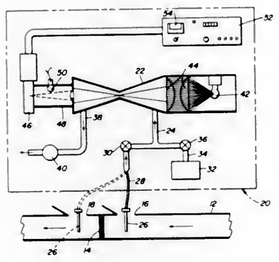


A spectrophotometer having a highly advantageous combination of sensitivity and usefulness over a broad spectrum of wavelength. The primary feature of the apparatus is a rapidly pulsed flash tube, say a xenon flash tube, used in conjunction with a dual photodetector and appropriate timing circuits. The device not only achieves the aforementioned advantages but also provides a more constant light source than those presently available, and, allows construction of a more compact and versatile instrument.

3,810,697
PORTABLE FILTER EVALUATION APPARATUS

Samuel B. Steinberg, Baltimore, Md., assignor to Air Techniques, Inc., Baltimore, Md.

Filed Aug. 10, 1972, Ser. No. 279,443
Int. Cl. G01n 21/00
U.S. Cl. 356—103 10 Claims

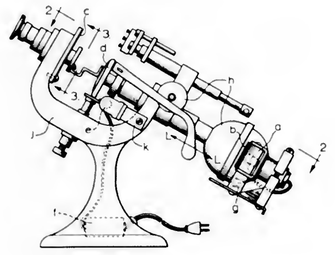


Portable apparatus is provided for determining the efficiency of an air filter. The apparatus includes a particle scattering chamber through which a sample of air is passed. Light rays are directed through the chamber and reflected prticles, such as solid particles, within the air sample are sensed by a photo cell. The photo cell generates an electrical signal which is used by a pentrating meter to indicate the level of particles in the air sample. Various calibration techniques establish zero and 100% limit points and also control the intensity of the light rays during operation of the apparatus.

3,810,698
ANALYZER FOR SIMULTANEOUSLY DETERMINING THE RX, PHOTOCHROMIC, AND HARDENING CHARACTERISTICS OF LENSES

St. Barth Alaska, 1530 Chickasaw Dr. Indian Hills, Maperville, Ill.

Filed June 16, 1972, Ser. No. 254,951
Int. Cl. G01b 9/00
U.S. Cl. 356—124 2 Claims

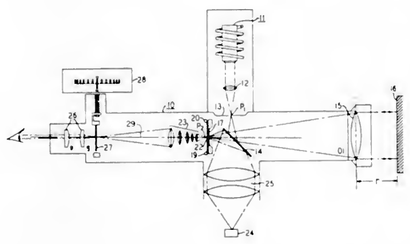


Instruments have been known which will determine the prism, cylinder power, and spherical power of an ophtholmic lens. My invention improves the existing optical instruments, in that my optical instrument has the additional advantages of analyzing the ionic properties of a chemically treated lens by the use of a prism, which disperses light into its spectral colors, and simultaneously polarizes light. The polarized light determines if lenses have a maltese pattern as shown for heat treated and air cooled hardened lenses. Another advantage of my instrument is it can determine by the use of Black lite, the chemical features of a lens to activate silver halide crystals and thus differentiate this type of lens photochromic lenses composition, from the conventional lenses which are made of ordinary ophtholmic glass or plastic. In chemically treated lenses to make them hard, the spectral polarized images will change hue and saturation when the chemically treated lens is moved before the face of the polarized prism.

3,810,699
MEASURING SMALL DISPLACEMENTS

Jeofry Stuart Courtney-Pratt, Locust, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1971, Ser. No. 214,243
Int. Cl. G01b 11/26
U.S. Cl. 356—153 3 Claims

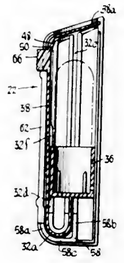


A modified autocollimator is disclosed which uses the position of a hole placed in a thin opaque film by a reflected laser pulse as a measure of angular displacement of a surface of interest. The hole has a hard, definite edge which can be targeted with greater measurement accuracy than conventional diffraction limited Rayleigh spots.

3,810,700
SLIDE CLOSURE COSMETIC STICK DISPENSER CASING

James W. Bryan, 15 Madison Springs Dr., Madison, Conn.

Filed Jan. 12, 1972, Ser. No. 217,086
Int. Cl. A45d 40/06
U.S. Cl. 401—59 5 Claims



A cosmetic stick dispenser casing comprising a two-piece, tubular plastic body having left and right halves divided along a median, diametric (longitudinal) plane, and a one-piece plastic cup and manually-operable push-pull strap, the latter riding in a groove having a direction-reversing bend whereby the operable portion of the strap and the cup move in opposite directions. The casing halves have cooperable, keying projection-and-socket means at the direction-reversing portion of the groove whereby assembly of the parts can be easily effected by laying the cup and strap in that casing half which has the projection, with the strap curved and additionally confined by the projection, and thereafter applying the other casing half having the socket, over the assemblage that includes the cup and strap. The assemblage being thus completed, securement can be effected by a sonic seal or other process.

3,810,701
AUTOMATIC TWO-PART CONTROL DEVICE FOR BALL POINT PENS AND SIMILAR WRITING INSTRUMENTS

Renato Freccero, Alpignano, and Silvano Dolei, Settimo Torinese, both of Italy, assignors to Major S.p.A., Settimo, Turen, Italy

Continuation of Ser. No. 108,938, Jan. 22, 1971, abandoned.
This application Jan. 30, 1973, Ser. No. 328,026
Claims priority, application Italy, Jan. 22, 1970, 67177/70
Int. Cl. B43k 24/08
U.S. Cl. 401—110 1 Claim

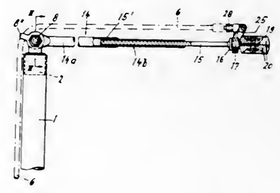


This invention relates to an automatic control device for ball point pens and similar writing instruments, wherein a knob provided with offstanding operating elements is arranged to cooperate with members positioned in an encompassing shell whereby upon downward movement of the knob from an initial position within the shell, the knob is rotated and either projects or retracts the writing implement from the shell.

3,810,702
DEVICE FOR CLEANING VERTICAL OR SLOPING SURFACES

August Benz, Algierstrasse 70, 5620 Zufikon (Kt. Aargau), Switzerland

Filed Sept. 5, 1972, Ser. No. 285,737
Claims priority, application Switzerland, Sept. 3, 1971, 13008/71
Int. Cl. A47l 13/22
U.S. Cl. 401—139 6 Claims

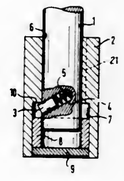


A device for cleaning surfaces consists of a cleaning body and a rinsing tube mounted on one end of an arm which is secured at its other end to an operating rod. The end of the arm connected to the cleaning body is formed of a torsion rod while its other end is fixed to the operating rod in a friction-fit joint. The cleaning body and rinsing tube extend transversely of the longitudinal axis of the arm and are angularly revoluble about the longitudinal axis of the arm due to its torsion rod.

3,810,703
RELEASABLE JOINTS WITH MALE AND FEMALE ELEMENTS

Max Pasbrig, Casa Luce-Via all'Eco, Orselina, Switzerland

Filed June 15, 1970, Ser. No. 46,203
Claims priority, application Germany, June 20, 1969, 1931492; Oct. 24, 1969, 2002193; Jan. 19, 1970, 6941516
Int. Cl. F16b 7/00
U.S. Cl. 403—324 16 Claims



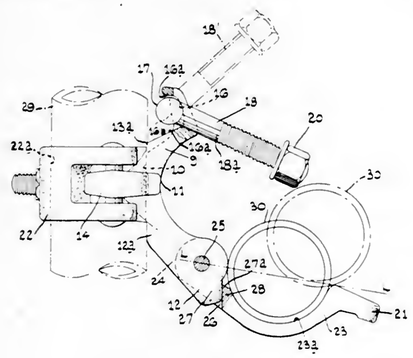
The invention relates to a releasable male and female joint in which the male and female parts can be slid one into the other and held in connected condition by means of locking means. The locking means are arranged in the male or the female element and comprise at least one sprag or locking body which is arranged in a recess in the element so as to be able to move axially. A compression spring, also arranged in the recess serves to urge the sprag partially out of the recess. The projecting part of the sprag is arranged to engage an abutment provided on the other of the two elements. For undoing

the joint releasing means are provided by means of which the sprag can be pressed back into the hole against the action of the associated compression spring and brought out of engagement with the abutment.

3,810,704
SCAFFOLD TUBE COUPLER

Jack Graham Lowe, Belbroughton, England, assignor to Burton Delingpole & Company Limited, Warley, Worcester, England

Filed July 28, 1972, Ser. No. 276,011
Claims priority, application Great Britain, July 30, 1971, 35850/71
Int. Cl. F16b *1/00*
U.S. Cl. 403—385 **3 Claims**

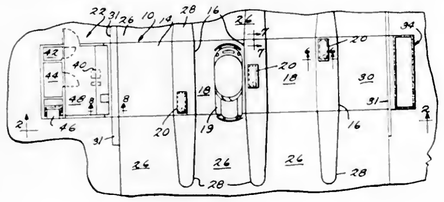


A coupler for connecting a pair of round scaffold tubes, embodying hinged tube clamping jaws having limited opening movement but exceeding 90° such as to allow lateral initial positioning of the scaffold tube passed the clamping bolt.

3,810,705
PORTABLE DRIVE-IN PLATFORM

Gerald E. Warriner, The First National Bank Bld., Suite 707, Miami, Fla.

Filed Mar. 10, 1972, Ser. No. 233,504
Int. Cl. E01c *1/00*
U.S. Cl. 404—1 **2 Claims**

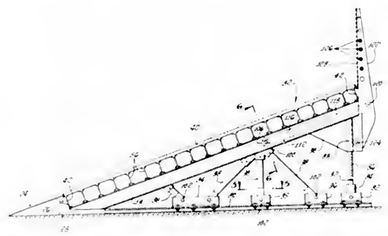


A method of constructing an automobile drive-in facility comprising making a shallow excavation in the earth and installing a below-grade foundation within the excavation, positioning on the foundation a prefabricated unitary metal platform having upwardly projecting islands which divide the upper surface of the platform into a plurality of automobile stalls, said upper surface being close to grade level when the platform is supported on the foundation, and backfilling earth around the edges of the platform. The platform is a horizontally elongated box-like body constructed of interconnected metal members.

3,810,706
PORTABLE SECTIONAL RACETRACK FOR AUTOMOBILES OR MOTORCYCLES

Henry B. Grimm, 711 W. California Blvd., South Pasadena, Calif.; Chickau Matsuo, 1205 E. Sixth St., Los Angeles, Calif., and Donald C. Wilborn, P. O. Box 2011, South Padre Island, Tex.

Filed Nov. 13, 1972, Ser. No. 305,837
Int. Cl. E01b *23/00*
U.S. Cl. 404—1 **7 Claims**

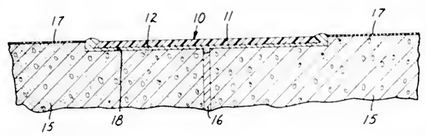


A portable racetrack is made up of a plurality of types of sections provided with intercoupling means at each end. The types of sections provided include flat straightaway sections; curved sections which are adjustable to any desired degree of bank; and straight sections which are likewise adjustable to provide any desired degree of bank. Access ramps are provided. The adjustable bankable sections are capable of being skewed into configurations adapting them to be joined either to a flat straightaway section or a banked section at one end and to another differently banked section at the other end. A yieldable safety wall is provided at the high side of each banked section.

3,810,707
JOINT STRUCTURE AND METHOD

Barry F. Tungseth, and James A. Lindlof, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 852,256, Aug. 22, 1969. This application Aug. 9, 1971, Ser. No. 170,193
Int. Cl. E01c *11/02*
U.S. Cl. 404—67 **14 Claims**

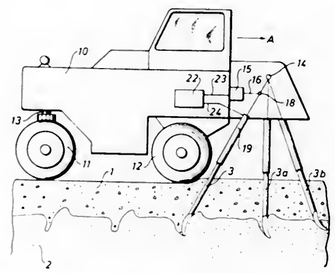


A semi-rigid flat cover strip, having permanently bonded over one of its major surfaces a tacky, self-sealing, and shock-resistant adhesive composition, is applied with its adhesive covered surface over the adjoined edges of adjacent structural members to provide a permanent joint structure which is useful, for example, as a highway construction joint.

3,810,708
METHOD AND APPARATUS FOR ANCHORING A CEMENT CONCRETE BODY SUCH AS A ROADWAY ONTO A BASE OF SAND, GRAVEL, SOIL OR SIMILAR MATERIAL

Gunnar Otto Hugo Olsson, Vibblabyvagen 16, Jakobsberg, Sweden

Filed Mar. 2, 1972, Ser. No. 231,297
Claims priority, application Sweden, Mar. 4, 1971, 2804/71
Int. Cl. E01c *21/00*
U.S. Cl. 404—72 **8 Claims**



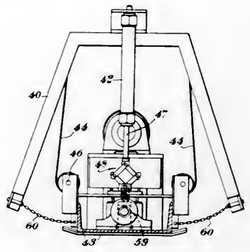
The invention relates to an improved method of anchoring and bonding a layer of cement concrete, primarily a roadway, onto a base of such resilient material as sand, gravel, stony soil and similar material by forming anchoring elements extending from the cement concrete layer into holes formed in the base and filled with cement concrete flowing down from the cement concrete layer before the hardening thereof. The method operates with elongated hole forming members which are forced downwards in axial direction through the not yet hardened cement concrete layer at an inclined angle to the surface of said layer and into the base to a predetermined depth and thereupon turned about their lower ends to at least vertical and preferably an opposite inclined angular position and thereupon retracted in their axial direction to be swung back to the primary angular position for beginning a new cycle of operations. A preferably travelling apparatus for carrying out the novel method is equipped with at least one hole forming member which is swingably mounted on a horizontal axis and in an articulated manner connected with power means for causing the member to perform its sequence of axial advance, turning, axial retraction, and swinging return movements with adjustable speed and pressure of advance, preferably together with a plurality of cooperating hole forming members mounted on the same horizontal axis and individually controllable as to their speed and pressure by a common program work. The travelling apparatus is equipped with means to exercise a pressure on the cement concrete layer adjacent the hole forming members to force cement concrete into the holes when formed by the members.

3,810,709
APPARATUS FOR MAKING A RIGID ROAD WHICH HAS A TEXTURED SURFACE

John Weaver, Beaconsfield, Buckinghamshire, and David Payne Maynard, Slough, Buckinghamshire, both of England, assignors to The Cement & Concrete Association, London, England

Continuation-in-part of Ser. No. 63,867, Aug. 14, 1970, Pat. No. 3,683,762. This application Nov. 2, 1971, Ser. No. 194,859
Claims priority, application Great Britain, Nov. 7, 1970, 53082/70The portion of the term of this patent subsequent to Aug. 15, 1989, has been disclaimed.
Int. Cl. E01c *19/22*
U.S. Cl. 404—93 **5 Claims**

A profile beam having a working surface constituted by alternate ridges and grooves and also having a rotatable shaft carrying radially outwardly displaceable weights is drawn across the surface of newly laid plastic concrete which has been laid to form a road, airplane runway or the like, whereby parallel grooves are formed in said concrete by the ridges. The

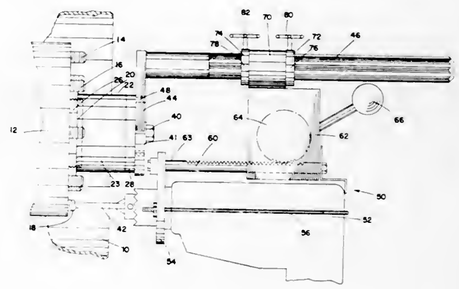


shaft is rotated and the weights move radially outwardly against spring influence to an extend which is a function of the speed of rotation of the shaft and of the rate of the springs. The intensity of vibration applied to the beam is continuously variable from zero to a maximum.

3,810,710
VEHICLE WHEEL STUD DRILL

Joseph O. Ennemoser, 226 Prince of Wales Dr., Gahanna, Ohio

Filed Aug. 10, 1972, Ser. No. 279,450
Int. Cl. B23b *45/14*
U.S. Cl. 408—111 **7 Claims**



A drilling tool for boring holes in broken studs of truck wheels. The tool has an internally threaded base which rotatably engages the threaded outer end of an axle housing. A drill press mechanism is adjustably mounted to the base for alignment of the drill bit with a broken stud. The entire tool is subsequently rotated at its threaded base to align the drill bit with other broken studs.

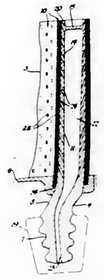
3,810,711
COOLED TURBINE BLADE AND ITS MANUFACTURE

Calvin W. Emmerson; George B. Meginnis, both of Indianapolis, and Jay O. Steinbarger, Camby, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 22, 1972, Ser. No. 291,212
Int. Cl. F01d *5/08, 5/18*; **F04d** *29/58*
U.S. Cl. 416—97 **1 Claim**

A turbine blade includes a hollow strut covered with a porous laminated material to provide a cooled blade portion and includes a supporting strut portion terminating in one or

two bases for attachment to a turbine wheel. It also includes a blade platform bicast to the strut at the junction of the blade and supporting portions. The strut may be fabricated by casting or forging two parts, each defining one face of the strut, bonding these together at the leading edge of the airfoil,



machining the leading edge portion, fitting the facing to the blade portion of the strut and bonding these together, then forming the blade portion to the desired airfoil contour and thereafter bicasting the platform onto the strut so as to cover the platform end of the blade facing.

3,810,712

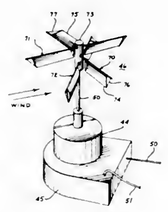
WIND POWERED MOTIVE APPARATUS

Edwin K. Hillman, 907 W. Desert Cove, Phoenix, Ariz.

Filed Nov. 2, 1972, Ser. No. 303,232

Int. Cl. F04d *29/36*

U.S. Cl. 416—117 **8 Claims**



A wind powered apparatus having a plurality of reciprocally pivotable centrally mounted members is disclosed. The extremities of each of these members support a vane. The two vanes of each member are set at right angles with respect to one another. In operation, the wind will engage, in turn, one vane of each of the members. As the vane is engaged, the force of the wind will tend to rotate the member. Rotation of the member will cause the engaged vane to pivot downwardly until it is normal to the force of the wind. The downward rotation of one vane will rotate the other vane upwardly whereby the other vane is parallel with the force of the wind. The disparate wind force on each of the opposed vanes on any given member will tend to cause the member to rotate about its mounting point. The rotation of the member about its mounting point will cause the mount itself to rotate.

3,810,713

HELICOPTER ROTOR SYSTEMS

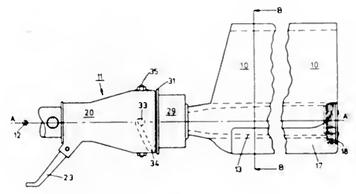
Walter Charles Joiner, East Coker near Yeovil, England, assignor to Westland Aircraft Limited, Yeovil, Somerset, England

Filed Oct. 30, 1972, Ser. No. 301,714

Claims priority, application Great Britain, Dec. 1, 1971, 57793/71

Int. Cl. B64c *27/48*

U.S. Cl. 416—205 **15 Claims**



A helicopter rotor system is disclosed in which each rotor blade is secured to a radial hub extension by mating cylindrical members, one of which carries a plurality of protrusions adapted for engagement in slots formed in the remaining members.

3,810,714

DISPOSAL OF LIQUID SPILLAGE AND THE LIKE

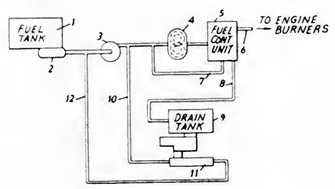
Horace George Turner, Chandler's Ford, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland

Filed Oct. 19, 1972, Ser. No. 298,970

Claims priority, application Great Britain, Oct. 28, 1971, 50292/71

Int. Cl. F04b *23/08*; **F04f** *5/48*

U.S. Cl. 417—80 **9 Claims**



The fuel dumped into a drain tank of an aircraft on shut-down of a gas turbine engine is re-introduced into the fuel system after re-starting of the engine by means of a jet pump fed by fuel from the delivery side of the backing pump via a non-return valve, which, during shut-down of the engine, prevents flow of fuel from the jet pump into the drain tank under backing-pump inlet pressure; aspiration of air after emptying of the drain tank is prevented by a float valve.

3,810,715

HYDROSTATIC MACHINE VALVE BIASING SYSTEM

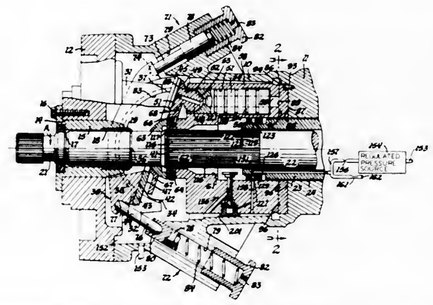
Nils P. Week, Allen Park; Carl E. Shellman, and Erkki A. Koivunen, both of Livonia, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 7, 1972, Ser. No. 278,443

Int. Cl. F04b *49/00*

U.S. Cl. 417—213 **30 Claims**

A hydrostatic pump or motor unit having a rotating cylinder biased into contact with a valve surface in proportion to separating forces to maintain sealing contact without excessive pressure. In an axial piston type hydrostatic unit, the rotating cylinder block engaging a fixed annular valve plate and the swash plate reciprocate the pistons in the cylinders to deliver fluid from the cylinders through the valve plate. A biasing motor between the cylinder block and a member axially fixed relative to the valve plate and a control system to provide a biasing control pressure provides a biasing force varying as a function of the separating force between the valve plate and cylinder block. In one arrangement the biasing motor has an internal cylindrical surface on the cylinder block and an external cylindrical surface on a fixed portion of the



housing with a pair of annular pistons therebetween, one engaging in abutment on the cylinder block and the other engaging in abutment on the fixed housing portion to form a motor chamber supplied with biasing control pressure fluid to provide an auxiliary bias proportional to this pressure. In another arrangement the inner cylindrical surface is formed on the shaft rotating with the cylinder block. The biasing control system in one modification provides a biasing pressure proportional to speed and in another modification proportional to speed, power system pressure and displacement. A one or two step speed governor is mounted in the cylinder block.

3,810,716

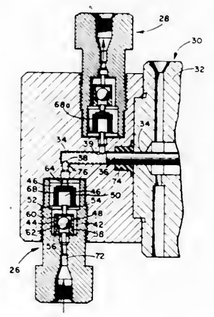
CHECK VALVE AND SYSTEM CONTAINING SAME

Louis Abrahams, Worcester, and Burleigh M. Hutchins, Jr., North Attleboro, both of Mass., assignors to Waters Associates Inc., Framingham, Mass.

Filed Oct. 27, 1972, Ser. No. 301,358

Int. Cl. F04b *21/02, 39/10*

U.S. Cl. 417—313 **11 Claims**



Novel check valves for use in precision pumping systems and particularly in a novel liquid chromatography pumping system incorporating the valves. The novel check valve comprises a filter compartment and a quick-responding ball check member which is protected by a filter element. The ball check member is constrained to have a minimal movement between its open and closed positions. A chromatography system is

described which comprises a positive displacement pump incorporating such a valve on each of the inlet and outlet sides of the pump. On each side of the pump, a filter is used to avoid contamination of the ball seal chamber by pump seal debris.

3,810,717

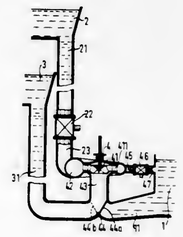
STARTING ARRANGEMENT FOR REVERSIBLE PUMP-TURBINES

Savo Rakcevic, Ljubljana, Yugoslavia, assignor to Titovi Zavodi Litostroj, Ljubljana, Yugoslavia

Filed July 19, 1972, Ser. No. 273,033

Int. Cl. F03b *3/10*

U.S. Cl. 417—323 **4 Claims**



A pumped-storage system using a reversible turbo pump for generating electricity and for displacing water into an upper reservoir. A reservoir of water at a head sufficient to drive the turbo-pump to a speed enabling it to be motor driven effectively is connected to the turbo pump and drives the latter for starting in the pump mode, the water passing into a tail-water reservoir.

3,810,718

SUBMERSIBLE PUMP

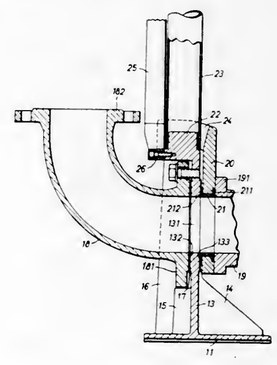
Albert Blum, Scheiderhoehe, Lohmar, Germany

Filed Nov. 30, 1971, Ser. No. 203,305

Claims priority, application Germany, Nov. 30, 1970, 2058737

Int. Cl. F04b *39/12*

U.S. Cl. 417—360 **3 Claims**

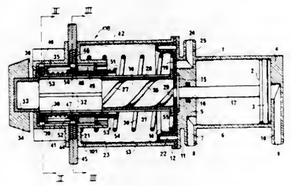


A submersible electric motor-pump assembly having a connection pedestal disposed between the pump outlet and the discharge pipe. The connection pedestal serving as a foot for a guide element and as an abuttment for the delivery outlet of the pump. The inlet opening of the discharge pipe is connected on the side of the connection pedestal opposite to the side the delivery outlet of the pump abuts against.

3,810,719
PUMP FOR DISCHARGING A PREDETERMINED QUANTITY OF FLUID

Adolf Johan Wolthers, Kaarst, Germany, assignor to Papillon Establissement, Vaduz, Liechtenstein

Filed Nov. 11, 1971, Ser. No. 197,840
Claims priority, application Switzerland, Nov. 23, 1970, 17307/70
Int. Cl. F04b *17/04*
U.S. Cl. 417—416 13 Claims

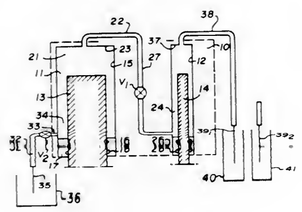


A pump for discharging a predetermined quantity of fluid. The pump housing contains a reciprocating pumping member, which is preferably driven in a forward stroke by mechanical, hydraulic or pneumatic means under the control of a solenoid which, when energized, causes the pumping member to take the forward stroke, the length of which corresponds to the predetermined quantity of fluid to be delivered by the pump. The solenoid remains energized until the forward stroke is completed, at which time it is de-energized. The stroke length of the pumping member, and hence the amount of fluid delivered by the pump, is adjustable. The driving force for the return stroke of the pumping member is preferably accomplished by means of a spring which is loaded during the forward stroke, the force of the loaded spring being overcome by the solenoid as long as the solenoid is energized, or by hydraulic or pneumatic means controlled by a conventional distribution member under the influence of the solenoid.

3,810,720
APPARATUS FOR TRANSFERRING LIQUIDS

Gerard Lartigue, Fontenay-aux-Roses, and Andre Rousselet, Eaubonne, both of France, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed May 12, 1972, Ser. No. 252,640
Claims priority, application France, May 18, 1971, 71.17955
Int. Cl. F04b *23/06, 7/00*; B67d *5/18*
U.S. Cl. 417—429 5 Claims

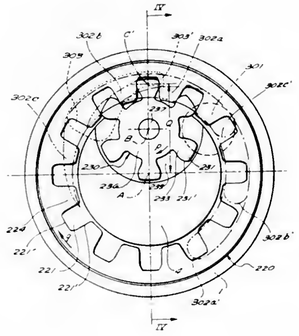


The present invention relates to a device for transferring predetermined quantities of different liquid medium contained in separate containers which device comprises pump means for selectively withdrawing predetermined amounts of different liquid media from different containers and then transferring the withdrawn liquid media to the same receptacle.

3,810,721
ROTARY PISTON MACHINE WITH BYPASS REGULATION

Charles Eyer, Soultz-sous-Forets, France, assignor to Consulta-Treuhand GmbH, Stuttgart, Germany

Filed Aug. 10, 1972, Ser. No. 279,671
Claims priority, application Germany, Aug. 16, 1971, 2140970; Apr. 28, 1972, 2220943
Int. Cl. F04b *23/00, 41/00*; F01c *1/10*
U.S. Cl. 417—440 9 Claims



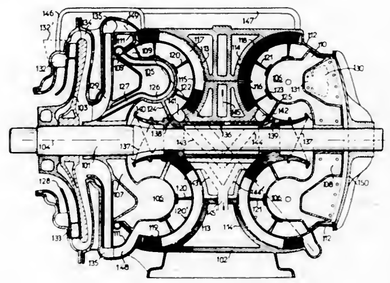
A housing accommodates a system of chambers which are angularly spaced about an axis about which they also rotate. Each of the chambers has a first center line intersecting the axis of rotation and side walls which extend in parallelism with its center line. A system of pistons is also rotatable in the housing about a second axis and has a plurality of angularly spaced piston members each of which has a portion located on an imaginary circle concentric with the axis of rotation of the piston system and intersecting the axis of rotation of the chamber system. Ths piston members each have a longitudinal second center line which intersects the circle and the axis of rotation of the respective pistons enter into and exit from the respective chambers in longitudinal direction of the first center lines of the chambers.

3,810,722
ENGINES AND COMPRESSORS OF THE KIND IN WHICH A VALVE DEVICE ENGAGES WITH A HELICOIDAL ROTOR

Ferdinand Jeandel, 39 rue Roussin-75, XVI Paris, France

Filed Dec. 22, 1971, Ser. No. 210,710
Claims priority, application France, Dec. 16, 1970, 70.45340; Nov. 29, 1971, 71.42621
Int. Cl. F01c *3/02*; F02c *7/00*
U.S. Cl. 418—195 10 Claims

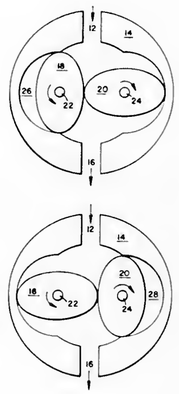
The invention relates to a rotary machine which can be used as a motor, a compressor or a motor-compressor or the like. The machine comprises a first and a second body of revolution, one of which is stationary, the other rotating, and at least one helicoidal-spiral groove in the surface of the first body, and at least one valve device with peripheral vanes. The valve device rotates in a longitudinal plane of symmetry of the first body, the vanes engaging in the groove in the first body, the wall of the second body co-operating with the vanes to limit successive chambers of variable volume which change the pressure in a fluid. One of the bodies has at least one part in the form of a projection, also in the form of a body of revolution, the other body having at least one wall part, situated opposite the projection and having a shape complementary to the projection, there being very little clearance between these parts. The shapes of these projecting parts are adapted to modify the flow of fluid through the machine so as to make it agree with the method of functioning of the machine.



3,810,723
FLUID PRESSURE DEVICE

Robert Johnson, 215-A San Juan Rd., Watsonville, Calif.

Filed Sept. 21, 1972, Ser. No. 291,131
Int. Cl. F04b *17/10*
U.S. Cl. 418—205 1 Claim

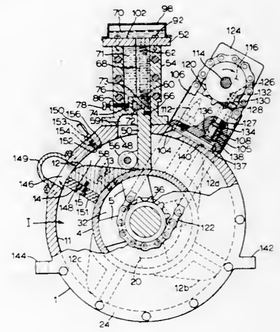


A device for pumping fluid or for converting the power in a flow of water into constant rotary motion. A Roots-type pump or motor utilizing two centrally-mounted oval rotors is coupled to a transmission designed to convert the non-constant speed characteristic of the Roots-type device into constant rotary motion. The rotors are synchronized through the transmission, thus eliminating the need for gear teeth on the rotors and allowing leakproof seals of a resilient material to be used to surface the rotors. Two embodiments of the transmission are disclosed, one involving angled Hooke joints and the other utilizing a gear train including focus-mounted elliptical gears.

3,810,724
ROTARY ENGINE WITH CUSHIONING DEVICE FOR THE PARTITION

Paavo O. Luukkonen, 66 Abitibi Ave., Willowdale, Ontario, Canada

Filed Apr. 2, 1973, Ser. No. 347,055
Int. Cl. F01c *1/00*; F03c *3/00*; F04c *1/00*
U.S. Cl. 418—248 5 Claims

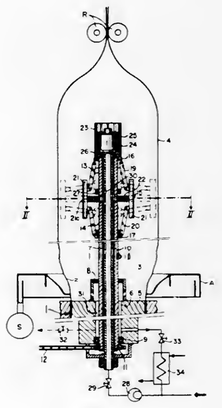


A rotary engine is provided with a device for cushioning the blows of a radially movable chamber partition against the rotor of the engine. The device includes a piston that enters a fluid filled compartment as the partition moves radially inwardly, the compartment having a restricted exit for the fluid.

3,810,725
APPARATUS FOR USE IN THE MANUFACTURE OF A TUBULAR FILM FROM PLASTIC MATERIAL

Jean Trub, Grand-Lancy, Geneve; Klaus Kneller, Nurensdorf, and Jean-Francois Gregoire, Aire, Geneve, all of Switzerland, assignors to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

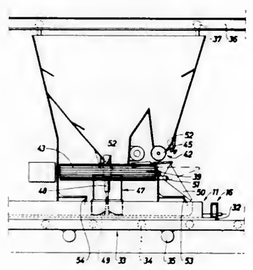
Filed Sept. 26, 1972, Ser. No. 292,317
Claims priority, application Switzerland, Sept. 28, 1971, 14149/71
Int. Cl. B29d *23/04*
U.S. Cl. 425—72 14 Claims



An apparatus for simultaneously inflating and cooling a melt extruded tube passing between a die orifice and a pair of rolls for flattening the thus radially distended tube. At least

one nozzle for supply of air is mounted on a tubular conduit which projects forwardly of the die and coaxially with the extrusion axis thereof and one end of which is connected to a source of air under pressure. The nozzle is secured to the tubular conduit in such a manner that it can be located in a first withdrawn position permitting the unhindered passage thereover of the tube as it leaves the die, and in a second position adjacent the inner surface of the tube as expanded. The nozzle will be in the first position at the commencement of operation before the extruded tube is taken up by the flattening rolls to form a closed chamber the walls of which can be inflated by the air under pressure. When the air under pressure has inflated the tube to the desired diameter, the nozzle is moved to the second position in which it is retained during further operation of the installation when it serves to cool the wall of the expanded tube. A nozzle is disclosed which is provided with an air-pervious diaphragm which adapts itself to the shape of the wall of the expanded tube and allows the best possible aerodynamic conditions for the creation of a film of air between the diaphragm and the expanded tube to be obtained.

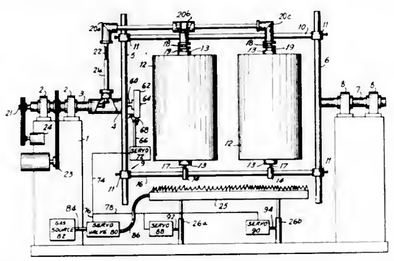
3,810,726
PLANT FOR MANUFACTURING REINFORCED CONCRETE ELEMENTS, PREFERABLY IN THE SHAPE OF A CASE
Georg Bjorhaag, Karlbergsuagen 21, 662 00 Amal, Sweden
Filed May 5, 1972, Ser. No. 250,790
Int. Cl. B29d *3/00*
U.S. Cl. 425—111 **2 Claims**



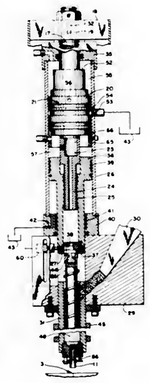
A plant for manufacturing reinforced concrete elements in the shape of a case, having working stations connected by conveyors and which working stations mold an open top box, form a lid strip for said box and include concrete pouring stations, concrete vibrating stations, mould moving and lifting station, lid strip smoothing station and a station for cutting said lid strip into individual strips.

3,810,727
THERMALLY CONTROLLED APPARATUS FOR MOLDING HOLLOW PASTIC ARTICLES AND THE LIKE
Stewart Pivar, Muttontown, N.Y., assignor to Ratotron Corporation, Farmingdale, N.Y.
Continuation-in-part of Ser. No. 256,695, May 25, 1972, and a continuation of Ser. No. 103,893, Jan. 4, 1971, Pat. No. 3,676,037, and a continuation of Ser. No. 724,803, April 29, 1968, abandoned. This application Nov. 15, 1972, Ser. No. 306,608
Int. Cl. B29c *5/04*
U.S. Cl. 425—144 **7 Claims**

Apparatus for molding hollow plastic articles in which a mold is simultaneously rotated about two mutually perpendicular axes, a source of heat being located at a position generally radially displaced relative to a circle described by the mold. The mold is supported in a frame which is of adjustable size, there being provided a telescopic drive for rotating the mold and which is extensible to accommodate adjustments in the frame. In the above-indicated apparatus as well as apparatus of the same type, the mold will generally have a profile such that the relative spacing beween the mold and source of heat will vary during relative movement therebetween. To provide thermal compensation for the tendency of the relative spacing to change, there is provided a cam rotatable with the mold and having a profile corresponding with the profile of the mold which controls either the flame of the burner constituting the source of heat or the physical location of the burner relative to the mold or both. The control is effected through a series of servo mechanisms controlled by a cam follower.



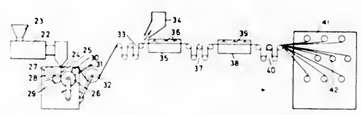
3,810,728
INJECTION MOLDING MACHINE
Arthur W. Jacobs, 5994 Columbia Rd., North Olmsted, Ohio
Filed Sept. 15, 1972, Ser. No. 289,436
Int. Cl. B29f *1/04*
U.S. Cl. 425—244 **9 Claims**



A reciprocating screw type injection molding machine having an injection assembly in which the feed screw is rotated and reciprocated in a heating cylinder by means of coaxially disposed linear and rotary hydraulic actuators respectively comprising an actuating cylinder having its piston in axial thrust and rotary driving engagement with the feed screw, and a fixed rotary actuator housing having its rotor axially slidably splined to said piston. The injection assembly has limited axial travel with respect to the rotary actuator housing to move the spring-closed nozzle of the heating cylinder into and out of engagement with the mold, said nozzle being opened when engaged with the mold upon admission of fluid pressure into the actuator cylinder between one side of said housing and said piston, and being closed when disengaged from the mold upon admission of fluid pressure into the actuating cylinder on the other side of said housing to initiate rotation of said rotor and feed screw. The limited axial travel aforesaid is provided by interengageable positive stops on the actuator cylinder and rotary actuator housing to determine the extent of movement of the heating cylinder and nozzle away from and toward the mold respectively to permit closing of the spring biased nozzle and to prevent jamming of the nozzle against the mold except by the spring bias acting thereon and by the pressure drop across the nozzle as the plasticized material is flowing therethrough into the mold.

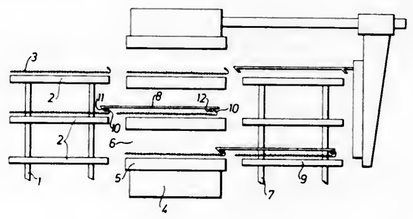
The machine herein is yet further characterized in that the injection assembly optionally may be mounted in a vertical position or in a horizontal position or if desired both horizontal and vertical injection assemblies may be provided for sequential injection of plasticized material of different colors or compositions into the mold.

3,810,729
APPARATUS FOR IMPROVING THE REGULARITY OF EMBOSSMENTS ON THIN POLYMER FILM
Albert George Patchell, Welwyn Garden City, England, assignor to Smith & Nephew Research Limited, Harlow, Essex, England
Filed May 5, 1972, Ser. No. 250,623
Claims priority, application Great Britain, May 7, 1971, 13818/71
Int. Cl. B29d *7/22*
U.S. Cl. 425—308 **8 Claims**



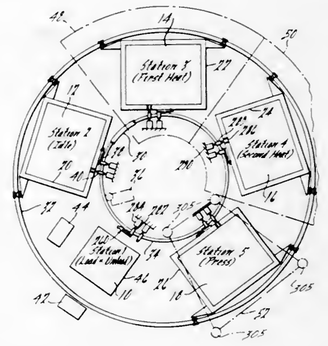
A hot melt film of plastic is embossed and cooled in the nip between a rotatable embossing surface and a rotatable cooperating surface at least one of which surfaces is generally resilient but resistant to purely local deformation, and is preferably a smooth hollow metal cylinder with a thin enough wall to flex and thereby accommodate small thermal or pressure distortions in the other surfaces.

3,810,730
SYSTEM FOR FEEDING PARTICLE SLABS RESTING ON A FLEXIBLE SUPPORT SURFACE TO AND FROM MULTI-LAYER PRESSES
Bengt Johan Carlsson, Motala, Sweden, assignor to AB Motala, Verkstad, Motala, Sweden
Filed June 9, 1972, Ser. No. 261,318
Claims priority, application Sweden, June 11, 1971, 7621/71
Int. Cl. B29c *3/00*; **B29h** *5/20*; **B29j** *5/04*
U.S. Cl. 425—338 **4 Claims**



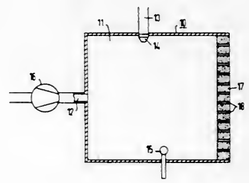
A system for feeding particle slabs or the like resting on flexible carriers into and out of a multi-layer press comprises infeed and outfeed strands located at respective ends of the press and with shelves for receiving particle slab carrying means. Shuttle members are reciprocably movable through the press and connecting means are mounted on said shuttle members and cooperate with corresponding means mounted on the particle slab carrying means in such a manner that said slab carrying means is coupled to the shuttle members for movement therewith in at least one direction through the press. Means are provided for uncoupling the particle slab carrying means from the shuttle members.

3,810,731
APPARATUS FOR FORMING PLASTIC SHEETS
David P. Anderson, Lathrop Village, Mich., assignor to Woodall Industries, Inc., Detroit, Mich.
Filed Aug. 1, 1972, Ser. No. 277,137
Int. Cl. B29c *17/04*
U.S. Cl. 425—388 **22 Claims**



There is herein disclosed a vacuum forming machine having a plurality of processing stations connected by an endless track on which forming frames carry plastic sheet material from station to station.

3,810,732
METHOD AND APPARATUS FOR FLAMELESS COMBUSTION OF GASEOUS OR VAPOROUS FUEL-AIR MIXTURES
Christian Koch, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed June 23, 1972, Ser. No. 265,689
Claims priority, application Germany, July 1, 1971, 2132819
Int. Cl. F23d *13/16*
U.S. Cl. 431—7 **17 Claims**



Flameless combustion of gaseous or vaporous fuel-air mixtures is accomplished without a catalyst in a perforated sintered block which forms one wall of a mixing chamber. The

fuel air mixture is first passed through the perforated sintered block at a relatively low flow rate and burned at the entrance surface of the block until the latter has reached a temperature of approximately 950° C. At that point, the flow rate of the fuel-air mixture is increased by approximately 10 to 50 times to cause the combustion to take place within the perforated sintered block and the temperature of the latter to be increased to approximately 1,000° to 2,000 °C.

3,810,733

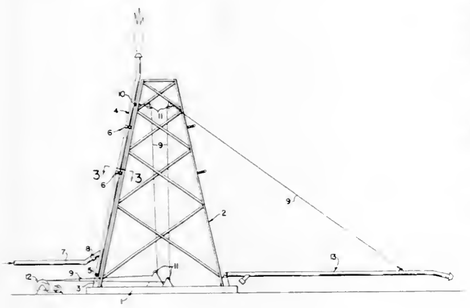
MULTIPLE FLARE STACK SUPPORT SYSTEM

John J. Reagan, Parma, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

Filed Mar. 20, 1972, Ser. No. 236,089

Int. Cl. F23d

U.S. Cl. 431—202 **3 Claims**



The invention is a multiple flare stack support system consisting of a base vertically extended from a horizontal surface, said base having an outer surface and an inner surface. On the outer surface of said base, two or more flare stacks are pivotably mounted in such manner that the top of the flare stack can be conveniently lowered away from the base for maintenance.

3,810,734

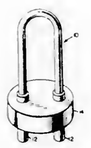
REFRACTORY RESISTANCE AND METHOD OF MANUFACTURE

James R. Willson, 94 Golden Hill Rd., Trumbull, Conn.

Continuation-in-part of Ser. No. 803,334, Feb. 28, 1969, abandoned. This application Sept. 10, 1971, Ser. No. 179,371

Int. Cl. F23q *7/22*

U.S. Cl. 431—258 **2 Claims**



An electric igniter for gas burners and the like having a self-resistant wire coated with an insulating material encased in a conductive coating of material having a high melting point, optimum coefficient of thermal resistivity and resistivity to oxidation at high temperature.

3,810,735

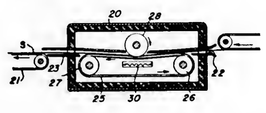
HEAT FIXING APPARATUS FOR FUSIBLE MATERIAL

Rabin Moser, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 318,570, Jan. 17, 1972, abandoned, which is a continuation of Ser. No. 859,327, Sept. 19, 1969, abandoned. This application Apr. 18, 1973, Ser. No. 352,860

Int. Cl. G03g *13/20, 15/20*

U.S. Cl. 432—59 **9 Claims**



A fixing system for fixing fusible material such as electroscopic particles upon support material. The system includes at least one fuser member in the form of an endless belt in pressure contact with another fuser member and between which the support material is transported. The fusing belt member is provided with a heat barrier blanket and is coated a release agent that will prevent "offset" of the particles being fused.

3,810,736

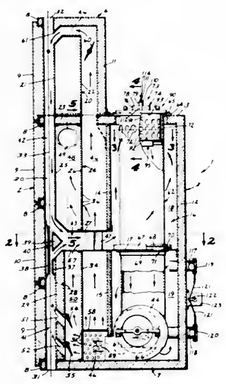
CURING OVEN FOR ENAMELED WIRE

Floyd A. Dumas, Hamel, Minn., assignor to Acrometal Products, Inc., Minneapolis, Minn.

Filed Aug. 31, 1973, Ser. No. 393,616

Int. Cl. F27b *9/28*

U.S. Cl. 432—59 **11 Claims**



An elongated casing includes partitions dividing the interior of the casing into an elongated work chamber, combustor inlet and outlet chambers, and gas passageways. The work chamber has opposite open inlet and outlet ends for passage of coated wire through the work chamber, and an elongated combustor tube has opposite gas inlet and outlet ends in the combustor inlet and outlet chamber respectively. A blower in the combustor outlet chamber receives air and other gases from the combustor outlet chamber and moves the same through some of the passageways to the inlet and outlet ends of the work chamber, some of the partitions directing flow of the gases inwardly from the inlet and outlet ends of the work chamber to an inlet passageway leading from the intermediate portion of the work chamber to the combustor inlet chamber. The casing defines air inlet opening to the combustor outlet chamber and a discharge opening to the exterior of the casing from one of the passageways between the blower and the work chamber. The burner is mounted at the inlet end of the combustor tube and receives combustion supporting air only from the work chamber, such air being laden with fumes evaporating from the enamel or similar coating on wire moving through the work chamber.

CHEMICAL

3,810,737

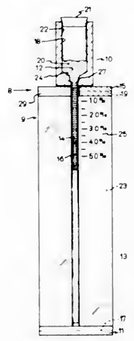
METHOD FOR MEASURING ALCOHOLIC CONTENT OF A LIQUID

Kenneth R. Geist and James E. Walsh, Milwaukee, Wis., assignor of a fractional part interest to John J. Brust, Slinger, Wis.

Filed Dec. 29, 1971, Ser. No. 213,524

Int. Cl. G01n *31/00*

U.S. Cl. 23—230 R **2 Claims**



Apparatus for measuring the alcoholic content of a liquid sample by means of a liquid reagent comprises a stoppered flask having a liquid-receiving recess which is divided into a lower section for receiving the liquid sample and an upper section of greater diameter than the lower section for receiving the liquid reagent. Scale means are provided for the flask and indicate alcoholic content of the sample. The scale means are disposed so that the zero point thereof indicative of no alcoholic content is aligned with the interface between the upper and lower sections of the flask.

The method comprises the steps of adding a predetermined amount of sample liquid to fill the lower section, adding approximately four times that amount of reagent in the form of water saturated with butynal or pentynol, mixing the sample and reagent by shaking the stoppered flask, letting the mixture settle, and reading the scale to determine where an interface between two different colored liquids is located.

3,810,738

BOD MEASURING APPARATUS

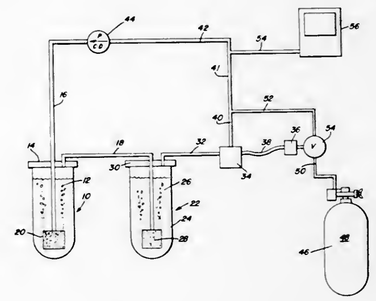
Lewis W. Fleischmann, 8502 Allenwood Road, Randallstown, Md. 21133

Filed Aug. 14, 1972, Ser. No. 280,086

Int. Cl. G01n *7/00, 7/02*

U.S. Cl. 23—230 R **15 Claims**

The BOD of a wastewater sample is measured by continuously recirculating an oxygen-containing gas through a closed loop gas passageway adapted to pass the gas in series through the wastewater sample, a carbon dioxide absorber and an oxygen partial pressure sensor. A make-up gas containing oxygen in a predetermined proportion is admitted to the closed loop passageway in an amount so that the oxygen partial pressure in the circulating gas remains constant. As the system is operated, sufficient makeup gas is admitted to the system to keep the oxygen



partial pressure constant. Consequently, the inert gas in the makeup gas admitted along with the oxygen causes the pressure of the system to build as more and more oxygen is consumed. Measurement of the gas pressure in the closed loop gas passageway after a predetermined amount of time therefore indicates the BOD of the sample.

3,810,739

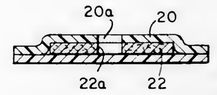
REAGENT-IMPREGNATED SUBSTRATE FOR THE PERFORMANCE OF BACTERIAL AND CHEMICAL TESTS

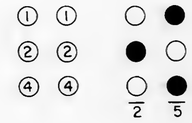
William J. Nussbaum, 84—25 Smedley St., Jamaica, N.Y. 11435

Filed Apr. 11, 1972, Ser. No. 243,021

Int. Cl. C12k *1/10;* **G01n** *31/14, 33/16*

U.S. Cl. 23—253 TP **27 Claims**





There is disclosed a reagent-impregnated substrate for the performance of bacterial and chemical tests. The sub-

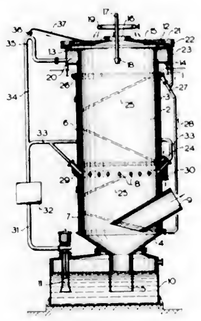
strate includes a hole into which the test sample, for example, a suspension of a test organism, is placed. The substrate is enclosed in a plastic pouch except for a small opening on top of the substrate hole through which the test sample is applied to the substrate. Evaporation of the sample is kept to a minimum because no part of the substrate is under the pouch opening. To simplify the identification of particular bacteria, a set of substrates, each for performing a different test, is packaged as a unit with the substrates being arranged in rows and columns. Preferably, each column has three substrates and a different one of the numbers 1, 2 and 4 is associated with each. The numbers associated with the positive test results in each column are added. The resulting number sequence (e.g., 724) uniquely identifies a particular bacterium or class of bacteria which can readily be determined from a chart furnished with the packaged set.

3,810,740

APPARATUS FOR THE PRODUCTION OF PHOSPHORIC ACID

Leo Berg, Hurth-Alstadten, Gunther Breil, Oberhausen-Konigshardt, Waldemar Bielenberg, Hurth-Hermulheim, and Josef Koch, Hurth-Knapsack, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

Filed Dec. 7, 1971, Ser. No. 205,562
Claims priority, application Germany, Dec. 11, 1970, P 20 61 048.4
Int. Cl. B01j *1/00;* **C01b** *25/20*
U.S. Cl. 23—277 R **6 Claims**



The apparatus comprises a double-walled combustion tower provided with a cover and bounded by an inside wall and an outside wall spaced apart from one another. The inside wall has a bottom section shaped as and terminating in a truncated cone and a combustion nozzle opening into the combustion tower is passed through the cover. An acid collecting tank is disposed downstream of the combustion tower; and an immersion tube which is open at its lower end is arranged so as to open into the truncated cone section of the combustion tower.

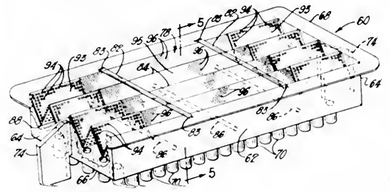
3,810,741

METHOD AND APPARATUS FOR PROCESSING GLASS AND CONTROLLING THE THERMAL PATTERN IN A STREAM FEEDER

Charles J. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation

Filed May 21, 1971, Ser. No. 145,683
Int. Cl. C03b *37/02*
U.S. Cl. 65—2 **7 Claims**

The disclosure embraces a method of and means for controlling a thermal or heat pattern and a distribution pattern of heat-softened material, such as glass, in an electrically-heated feeder having an orificed region for flowing streams of the heat-softened material wherein a current-conducting instrumentality in the feeder is configurated with groups of glass flow openings or perforations of different sizes in areas of the instrumentality to provide a more uniform heat pattern in the glass in the feeder and promote flow of substantially uniform streams of glass from the orifices of the feeder.

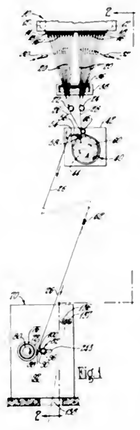


3,810,742

APPARATUS FOR WINDING THERMO PLASTIC STRANDS

Jerome P. Klink and Phra D. Lyle, Granville, and Norman R. Shape, Columbus, and Alex P. Symborski, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Sept. 6, 1972, Ser. No. 286,626
Int. Cl. C03b *37/02*
U.S. Cl. 65—11 W **24 Claims**



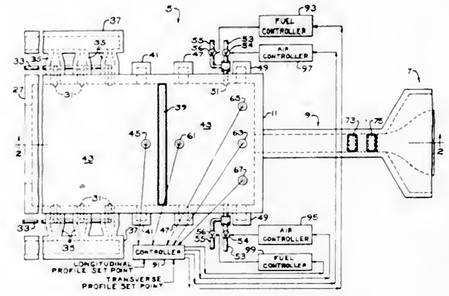
Apparatus for processing linear material such as glass strand that includes means for linearly feeding the material and means for receiving the fed material, means for sensing the differences between the rate of linear feed and collection of the material during a change in linear speed of the material, first control means responsive to the sensed differences to modify the speed of the feed means to bring the rate of feed of the material into conformity with the rate of collection, second control means for matching the linear rate of feed and collection of the material during time the first control means is not in operation, and means for switching between the two controls.

3,810,743

THERMAL CONDITIONING OF MOLTEN GLASS

Frank J. Rau, Pittsburgh, and Joseph R. Staahl, Jr., Conneaut Lakes, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 9, 1973, Ser. No. 330,904
U.S. Cl. 65—29 **9 Claims**



The refiner portion of a tank for melting glass is provided with a plurality of front-end-firing burners and means for sensing the temperature of the glass at suitable locations in the refiner portion of the tank. Control means responsive to the temperature-sensing means are used to make relatively small adjustments in the rate of firing the front-end-firing burners. This makes it possible to control, as desired, the temperature of the glass in the canal and the regime of temperatures in the refiner product of the tank. The other benefits of using front-end-firing burners (control of silica defects) are substantially maintained, while the establishment of particular thermal patterns and closer control of glass temperature improves the quality and throughput of the product flat glass.

3,810,744

METHOD FOR MAKING FUSED SILICA GLASS COMPOSITES

William H. Dumbaugh, Jr., 6 E. Chatfield Place, and Joseph W. Malmendier, 5 Morningside Drive, both of Painted Post, N.Y. 14870

No Drawing. Filed Aug. 31, 1972, Ser. No. 285,484
Int. Cl. C03c *25/02;* **B29b** *3/00*
U.S. Cl. 65—42 **3 Claims**

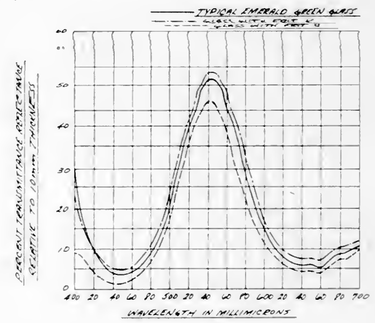
This invention relates to a method for applying a fused silica-based glass cladding or layer to the surface of glasses, glass-ceramics, ceramics, and organic plastic bodies wherein said silica-based glass is first applied through flame hydrolysis to a temporary foil carrier.

3,810,745

METHOD OF ADDING GLASS COLORANT COMPOSITION

Erwin C. Hagedorn, Oregon, and Dallas P. Hall, Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Continuation-in-part of abandoned application Ser. No. 21,375, Mar. 20, 1970, which is a division of application Ser. No. 579,971, Sept. 16, 1966, now Patent No. 3,561,985, dated Feb. 9, 1971, which in turn is a continuation-in-part of abandoned application Ser. No. 285,088, June 3, 1963. This application May 8, 1972, Ser. No. 251,421
Int. Cl. C03b *5/16*
U.S. Cl. 65—134 **9 Claims**



Colorant-enriched frit glass compositions of the following ingredients are disclosed together with methods of producing colored glasses using same:

	Percent by weight		
	Composition 1	Composition 2	Composition 3
Ingredients:			
SiO_2	15–50		
Cr_2O_3	2–10	2–10	
R_2O	23–46		
Na_2O	X	21–30	10–40
K_2O	(1)	0–7	
B_2O_3	10.5–47	49–70	35–70
R_2O plus B_2O_3	44–74		
Fe_2O_3		0–10	
CoO		0–8	0–48 }
MnO		0–18	0–23 }
PbO, BaO and ZnO		0–15	
NiO			0–18 }
Fe_2O_3			0–18 } At least 2%.
CuO			0–28 }

[1] Less than 25% X.

3,810,746

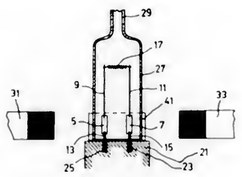
DEVICE FOR SEALING ELECTRIC FILAMENT LAMPS OR DISCHARGE TUBES

Franciscus Josephus van den Broek, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

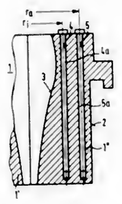
Continuation of abandoned application Ser. No. 840,223, July 9, 1969. This application Sept. 16, 1971, Ser. No. 181,194
Claims priority, application Netherlands, July 6, 1968, 6809597
Int. Cl. C03b *23/14*
U.S. Cl. 65—140 **2 Claims**

A burner device for use in sealing pinch-type lamps, the burner having a plurality of nozzle orifices directed toward a lamp's sealing region with the lower nozzles

preferably of square cross-section conveying only gas, and the upper nozzles preferably of circular cross-section conveying oxygen, with additional gas conveyed between said oxygen nozzles.



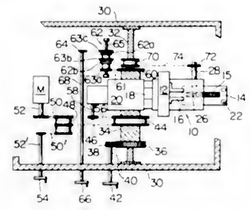
3,810,747
GLASS MOLDING APPARATUS
Peter Bork, Karlsruhe, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Filed Sept. 15, 1972, Ser. No. 289,621
Claims priority, application Germany, Sept. 17, 1971, P 21 46 569.0
Int. Cl. C03b *9/38*
U.S. Cl. 65—158 **2 Claims**



A glass molding apparatus includes the feature of at least one hole formed axially in the wall of a blow mold, for example, the hole extending parallel to the cylindrical outside surface of the mold for substantially the length of the mold cavity. The hole contains a device of the same length producing a signal responsive to temperatures along the length of the device, such as an electric resistance temperature measuring device of the tubular type having a temperature responsive resistance wire extending throughout its length. The signal produced represents an average of the temperatures within the mold wall throughout the length of the hole. By using two such holes and devices which are radially aligned and interspaced, two signals are obtained which by interpolation may be used to determine the average heat flow rate through the mold's wall and the average surface temperature of the mold cavity.

3,810,748
GLASS PROCESSING LATHE
Kunihiro Matuzawa, Mito, Kikuo Kimura and Ryo Sato, Ibaragi-ken, and Shigeji Nakajima and Yuichi Ikeda, Hitachi, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, and Nakajima Industry Company Limited, Ibaragi-ken, Japan
Filed Oct. 12, 1972, Ser. No. 296,896
Claims priority, application Japan, Dec. 17, 1971, 46/101,868; Dec. 29, 1971, 47/4,677
Int. Cl. C03b *23/00*
U.S. Cl. 65—271 **8 Claims**

A lathe for mechanical processing of massive glass articles including a lathe spindle and a base for supporting a burner means are mounted on an oscillating block rotatable about a substantially horizontal axis whereby the spindle may be rotated about a substantial angular range, and a power transmission means disposed concentrically with the horizontal axis.



3,810,749
FOAM CROP MATURANT
Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Filed Nov. 26, 1969, Ser. No. 880,417
Int. Cl. A01n *5/00, 9/00*
U.S. Cl. 71—70 **12 Claims**

It is disclosed that the maturity of crop-bearing plants can be hastened by treatment of the plant with an aqueous foam having a discontinuous gas phase comprising carbon monoxide or an unsaturated hydrocarbon having from 2 to about 4 carbons at a dosage adequate to provide from about 1 to 300 pounds of the gaseous agent per acre. Typically, the foam composition contains up to 10 volumes of the gaseous agent per volume of liquid and the stability of the foam is sufficient to maintain the agent in contact with the plant for a period from about 5 to about 300 minutes, adequate to permit thorough assimilation of the gaseous agent by the plant and effect the hastening of the maturity of the treated plant.

3,810,750
PLANT GROWTH REGULATING COMPOSITION AND PROCESS
Alan John Davidson, Wokingham, and Edwin Francis George, Eversley, near Basingstoke, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed May 1, 1970, Ser. No. 33,939
Claims priority, application Great Britain, May 16, 1969, 25,114/69
Int. Cl. A01n
U.S. Cl. 71—78 **5 Claims**

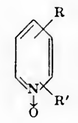
This invention relates to a method of regulating the growth of plants, and to compositions useful therefor.

3,810,751
HERBICIDAL COMPOSITION OF A PYRIDAZONE DERIVATIVE AND CARBAMOYL-OXY PHENYL METHYL CARBAMATE
Adolf Fischer, Mutterstadt, and Karl-Heinz Koenig and Franz Reicheneder, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 695,328, Jan. 3, 1968. This application May 18, 1970, Ser. No. 38,589
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **1 Claim**

A composition comprising 1-phenyl-4-amino-5-halopyridazone-(6) and 3-(3'-methylphenylcarbamoyl)-oxyphenyl methyl carbamate. The composition has a strong herbicidal action on weeds but does not injure crop plants.

3,810,752
PYRIDINE-N-OXIDES AS CITRUS ABSCISSION AGENTS
Merrill Wilcox, 2911 NW. 30th Terrace, Gainesville, Fla. 32601
No Drawing. Filed Aug. 18, 1972, Ser. No. 281,901
Int. Cl. A01n *9/22*
U.S. Cl. 71—94 **5 Claims**

A method of aiding in harvesting fruit wherein abscission is induced by application to the fruit bearing plant an effective amount of a compound of the formula:



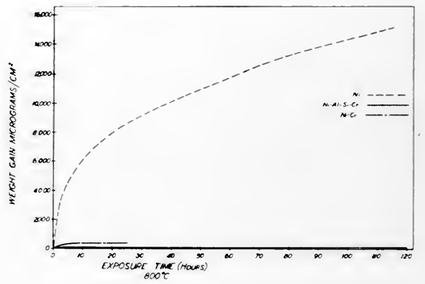
wherein R and R' are independently SH, SNa, CN, H, CH_3, $—SO_3H$, halogen, lower alkyl, lower alkoxy, OH, or NO_2, carboxyalkylenes and its amides or esters.

3,810,753
PROCESS FOR CASTING MOLTEN ALUMINUM KILLED STEEL CONTINUOUSLY AND THE SOLIDIFIED STEEL SHAPES THUS PRODUCED
Robert S. Miltenberger, Weirton, W. Va., assignor to National Steel Corporation
No Drawing. Filed July 31, 1969, Ser. No. 846,573
Int. Cl. B22d *27/20;* **C21c** *7/10*
U.S. Cl. 75—49 **19 Claims**

A molten aluminum killed steel containing 0.005–0.30% of carbon, 0.10–1.50% of manganese, 0.01–0.03% of silicon, 0.04–10% of aluminum, and the remainder iron and incidental impurities is introduced into a mold for continuously casting steel and cast therein to produce a solidified steel shape continuously. The molten steel is introduced into the mold through a tundish nozzle having an internal diameter sufficiently large to prevent plugging. In a preferred variant, an aluminum addition is made in the ladle in an amount to largely but not completely deoxidize the steel, the molten steel is agitated with R-H or D-H vacuum degassing apparatus, and the deoxidization is completed by making an aluminum addition in the vacuum vessel of the degassing apparatus. The solidified steel shapes may be cast in the form of slabs, and the slabs rolled to produce flat rolled products such as steel strip or plate. The quality of the solidified steel shapes is improved by preventing oxidation of the aluminum content of the molten killed steel prior to casting, and/or by providing a fluid slag over the molten steel in the mold to aid in separating nonmetallic inclusions therefrom prior to solidification.

3,810,754
OXIDATION RESISTANT NICKEL BASE ALLOYS
James A. Ford, North Haven, Conn., and Sheldon H. Butt, Godfrey, Ill., assignors to Olin Corporation
Filed Mar. 16, 1973, Ser. No. 342,271
Int. Cl. C22c *19/00*
U.S. Cl. 75—171 **4 Claims**

Nickel base alloys containing alloying additions of aluminum, chromium and silicon are described which exhibit a unique and advantageous combination of high temperature mechanical properties and resistance to oxidation at high temperautres. In particular, the oxidation resistance of the alloys described is superior to that of pure nickel and other high nickel alloys such as Monel and Nichrome which are often used where oxidation is a problem. The oxidation resistance of these alloys is a result of the formation of a tenaceous oxide film consisting essentially of the added alloying elements.



3,810,755
GOLD ALLOY FOR JEWELRY
David R. Jordan, Bolton, Ontario, Canada, assignor to Johnson Matthey & Mallory Limited, Toronto, Ontario, Canada
Filed Aug. 18, 1972, Ser. No. 281,719
Int. Cl. C22c *5/00*
U.S. Cl. 75—165 **4 Claims**

Traces of aluminum are added to gold alloys of a predetermined carat designation to provide a clean and brighter investment casting for jewelry.

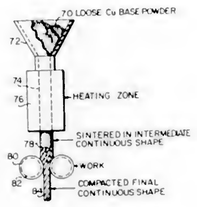
3,810,756
METHOD OF MAKING VALVE SEAT RINGS FROM A MIXTURE OF C, Pb AND A PRE-ALLOY OF Fe-Co-Ni-Mo BY POWDER METALLURGY
Max Koehler, deceased, by Michael Koehler, Osterfeldstrasse 51, 5802 Wetter (Ruhr) 4-Wengern, Federal Republic of Germany
No Drawing. Filed Mar. 23, 1972, Ser. No. 237,504
Claims priority, application Germany, Mar. 24, 1971, P 21 14 160.6
Int. Cl. B22f *3/16, 5/00*
U.S. Cl. 75—214 **5 Claims**

A powder metallurgical method of making valve seat rings having a high heat resistance, while employing a metal powder which in addition to iron contains from 0.5 to 1% of carbon, from 0.7 to 1.5% of lead, from 1 to 2% of nickel, from 1.0 to 2.0% of molybdenum, and cobalt. As starting mixture is employed a pulverized pre-alloy which contains from 1 to 2% of nickel, 1.0 to 2% of molybdenum, from 6.0 to 7.0% of cobalt, and the remainder iron. To the thus pre-alloyed steel powder there is added carbon in quantities of from 0.5 to 1.0%, and lead at a quantity of from 0.7 to 1.5%. Subsequently, the mixture is briquetted, sintered, cold or hot post-compressed, and if desired, is annealed.

3,810,757
PRODUCTION OF ELONGATED METALLURGICAL MILL PRODUCT FROM LOOSE METAL POWDER
Henry L. Andrews, Framingham, and Donald A. Hay, Medfield, Mass., assignors to Copper Range Company, White Pine, Mich.
Filed July 14, 1972, Ser. No. 271,699
Int. Cl. B22f *7/02*
U.S. Cl. 75—208 CS **4 Claims**

A copper base continuous mill shape is produced by the steps of advancing a copper base powder having an initial

density on a support through a heating zone in a reducing atmosphere in order to sinter successive increments of the powder for a sufficiently long period to produce a self-supporting intermediate shape having a higher density,



and advancing the intermediate shape in a single pass through a working zone that reduces one or two dimensions to produce an elongated shape having at least 90% theoretical density.

3,810,758
PHOTOGRAPHIC MASKING SYSTEM

Vsevolod Tulagin, Rochester, and Leonard M. Carreira, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Original application Mar. 31, 1970, Ser. No. 24,152, now Patent No. 3,649,515. Divided and this application Oct. 8, 1971, Ser. No. 187,842
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.2 **10 Claims**

A rapid masking system in image producing apparatus and method by forming color selected first images for immediate use in exposing a photosensitive material especially of the photoelectrophoretic type for use as masks for image correction or formation.

3,810,759
MATTE PHOTOCONDUCTIVE LAYERS FOR USE IN ELECTROPHOTOGRAPHY

Richard W. Stahr and Theodore H. Morse, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 110,339, Jan. 27, 1971. This application Nov. 10, 1971, Ser. No. 197,488
Int. Cl. G03g *5/06*
U.S. Cl. 96—1.5 **8 Claims**

Polymeric beads of poly(methyl methacrylate) or polyethylene incorporated in the photoconductive layer of an electrophotographic element provide a matte photoconductive surface with good writing characteristics and one which resists image offset or smearing during development.

3,810,760
PHOTOGRAPHIC DRY COPYING PROCESS WITH ACYLACETONITRILE

Helmut Kampfer and Hans Ohlschlager, Cologne, Anita von Konig, Leverkusen, and Johannes Gotze, Bergisch Neukirchen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 10, 1972, Ser. No. 225,314
Claims priority, application Germany, Feb. 11, 1971, P 21 06 577.0
Int. Cl. G03c *1/40, 1/52, 5/54*
U.S. Cl. 96—29 D **10 Claims**

Photographic images are produced by (1) imagewise exposing a light-sensitive layer containing at least one sensitizing dye from the class of the neutrostyryl dyes, the merocyanines or a cyanine dye containing a halogen substituted benzene ring or a heterocyclic ring derived from selenazol, a compound of the guanidine or biguanide series and an image-producing reducing acylacetonitrile derivative which is transferable at temperatures between 80 and 200° C., whereby, at the exposed areas the image-producing reducing compound is converted to a non-transferable compound, (2) bringing the exposed layer into contact with an image-receiving layer which contains compounds capable of reacting with the image-producing compound transferred from the unexposed areas of the light-sensitive layer to form colored products and (3) heating the layers while in contact with each other to a temperature of between 80 and 200° C. to produce a visible image.

3,810,761
DYES FOR PHOTOGRAPHY

Joseph Bailey, Harrow Middlesex, and Edward B. Knott, Bushey Heath, England, and Peter A. Marr, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Application Jan. 15, 1971, Ser. No. 106,893, now Patent No. 3,758,309, which is a continuation-in-part of abandoned application Ser. No. 778,333, Nov. 22, 1968. Divided and this application Dec. 7, 1972, Ser. No. 313,078
Claims priority, application Australia, Oct. 16, 1968, 44,870, 44,871; Belgium, Nov. 25, 1968, 66,581; Canada, Nov. 25, 1968, 35,997, 35,998; France, Nov. 25, 1968, 175,097; Germany, Nov. 25, 1968, 10,462
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 R **19 Claims**

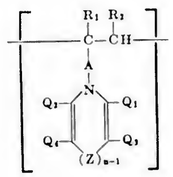
Dyes derived from 1H-pyrazolo[3,2-c]-s-triazoles are advantageously used in photographic silver halide elements as light-absorbing dyes for filter layers.

3,810,762
PHOTOCHROMIC COMPOSITION CONTAINING POLYHALOGENATED HYDROCARBON, SPIROPYRAN COMPOUND AND POLY-N-VINYLCARBAZOLE AND THE USE THEREOF

Urbain Leopold Laridon, Wilrijk, and Josef Willy van den Houte, Grimbergen, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,119
Claims priority, application Great Britain, Sept. 1, 1970, 41,749/70
Int. Cl. G03c *1/52, 5/24*
U.S. Cl. 96—48 R **24 Claims**

A photographic process wherein a visible image is formed by print-out or optical development in a recording material comprising in intimate admixture a spiropyran compound, an ultraviolet light-sensitive compound capable of producing on exposure with ultraviolet light with the spiropyran a dye salt and as sensitizing agent a polymeric compound containing recurring units of the following general structure:



wherein:

Z represents a sulphur atom or a single bond,
A represents a single bond or a $—CH_2—$ group,
R_1 represents hydrogen or a lower alkyl radical,
R_2 represents hydrogen or a lower alkyl radical,
Q_1 and Q_2 each represent a hydrogen atom or together the necessary atoms to close an adjacent carbocyclic ring or ring system including such ring or ring system in substituted form,
Q_3 and Q_4 each represent a hydrogen atom or together the necessary atoms to close an adjacent carbocyclic nucleus or ring system including such a ring or ring system in substituted form,
n represents 1 or 2.

Preferred recording materials contain a spirodinaphthopyran compound, carbon tetrabromide and/or iodoform and as sensitizing agent poly-N-vinylcarbazole acting as a binder and a triaryl stibine as antifogging agent.

3,810,763
PHOTOCHROMIC COMPOSITION CONTAINING POLYHALOGENATED HYDROCARBON, SPIROPYRAN COMPOUND AND ZnO OR Pb(II) OXIDE AND THE USE THEREOF

Urbain Leopold Laridon, Wilrijk, and Jozef Willy van den Houte, Grimbergen, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,122
Claims priority, application Great Britain, Sept. 1, 1970. 41,749/70
Int. Cl. G03c *1/52, 5/24*
U.S. Cl. 96—48 R **21 Claims**

A photographic process wherein a visible image is formed by print-out or optical development in a recording material comprising in intimate admixture a spiropyran compound, an ultraviolet light-sensitive compound capable of producing on exposure with ultraviolet light with the spiropyran a dye salt and as sensitizing agent an inorganic compound producing photoelectrons under the influence of activating electromagnetic radiation and having a basic or amphoteric character.

Preferred recording materials contain a spirodinaphthopyran compound, carbon tetrabromide and/or iodoform and a sensitizing agent photoconductive zinc oxide in conjunction with a triaryl stibine as antifogging agent.

3,810,764
METHOD OF PRODUCING EXPANDED, TEXTURED PROTEIN PRODUCTS

Doyle H. Waggle, Webster Groves, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed May 25, 1970, Ser. No. 40,382
Int. Cl. A23j *1/14*
U.S. Cl. 426—241 **22 Claims**

A method for producing expanded, textured protein products wherein a mixture of oleaginous seed materials and an aqueous liquid having a specified pH is formed and then mechanically tempering to impart surface orientation characteristics to the material and later isobarically heating to produce a bland, expanded, functional protein product.

3,810,765
PROCESS FOR PREPARING A COLD-WATER SOLUBLE FAT-CONTAINING POWDERED MILK PRODUCT

Taro Nagasawa, Taizo Ryoki, Takashi Shinozaki, Tadashi Watanabe, and Mitsuru Kanayama, Tokyo, Japan, assignors to Morinaga Milk Industry Co., Ltd.

No Drawing. Filed May 12, 1971, Ser. No. 142,738
Claims priority, application Japan, May 18, 1970, 45/41,672
Int. Cl. A23j *1/20*
U.S. Cl. 426—92 **6 Claims**

A fat-containing powdered milk product which is readily soluble in cold water can be obtained by mixing a powdered milk with a kneaded, powdered lecithin-sugar mixture prepared by making 0.2 to 1.5%, based on the weight of final product, of lecithin to be adsorbed in a water soluble saccharide.

ERRATUM

For Class 99—60 see:
Patent No. 3,810,415

3,810,766
METHOD OF EXTRACTING ROASTED COFFEE

Irving Holzberg, Spring Valley, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,776
Int. Cl. A23f *1/08*
U.S. Cl. 426—386 **7 Claims**

In a split-extraction percolation process a technique has been discovered to significantly increase the solids concentration of the secondary extract stream. A portion of the secondary extract stream is used as a feed stream to the most spent stage, followed by a heated water feed stream. In this manner, the solids content in the secondary extract stream can be increased more than 50% as compared to standard split extraction techniques.

3,810,767
FUNGICIDE

Paul Raff, Ludwigshafen, Wolfgang Reuther, Heidelberg, Harro Petersen, Frankenthal, and Ernest-Heinrich Pommer, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

No Drawing. Original application Dec. 9, 1969, Ser. No. 883,639. Divided and this application Oct. 10, 1972, Ser. No. 295,943
Claims priority, application Germany, Dec. 31, 1968, P 18 17 579.6
Int. Cl. A01n *11/00;* **C09d** *5/14*
U.S. Cl. 106—15 AF **4 Claims**

A fungicide for protecting wood comprising an aqueous solution of an alkali metal hydroxide, a metal hydroxide forming hydroxo anions, and an alkali metal salt or ammonium salt of N-nitroso - N - cyclohexylhydroxylamine, and a process for protecting wood against fungus attack by treatment with this fungicide.

3,810,768
REFRACTORY COMPOSITION COMPRISING COARSE PARTICLES OF CLAY OR BAUXITE AND CARBON

Joseph R. Parsons, Park Forest, and Harold L. Rechter, Chicago, Ill., assignors to Chicago Fire Brick Company, Chicago, Ill.

Filed Apr. 6, 1972, Ser. No. 241,785
Int. Cl. C04b *35/52*
U.S. Cl. 106—56 **1 Claim**

A refractory composition suitable for ramming monolithic refractory linings such as for cupolas and blast furnaces comprises coarse particles of calcined clay or calcined bauxite and coarse particles of amorphous carbon or graphite with plastic clay; and may also include particles of silicon or ferrosilicon, pitch and green binders. The particle size of the calcined clay, bauxite and carbon is such that at least 30 percent of said material has a grain size from 30 mesh to 1½ inches diameter, and preferably at least 60 percent from 30 mesh to ¼ inch diameter. In such compositions the carbon is protected at elevated temperatures such as 1600° F.–2600° F.

3,810,769
COMPOSITIONS OF COMPLEX PHOSPHATES OF ALUMINIUM

John Geoffrey Blacker, Harrogate, and James Derek Birchall and John Edward Cassidy, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 29, 1971, Ser. No. 203,032
Int. Cl. C08f *29/30;* **C08h** *7/00, 11/00*
U.S. Cl. 106—135 **9 Claims**

Compositions comprising complex phosphates of aluminium containing a halogen and chemically-bound molecules of a hydroxy compound, which may be water or

an organic hydroxy compound, certain organic polymers and a solvent system. A typical composition comprises aluminium chlorophosphate ethanolate and polyvinyl butyral dissolved in a mixture of methanol and chloroform. The compositions are especially useful as coatings for substrates as they decompose on heating at low temperatures to form films of aluminium phosphate and an organic polymer.

3,810,770
TITANIUM OR TANTALUM BASE ELECTRODES WITH APPLIED TITANIUM OR TANTALUM OXIDE FACE ACTIVATED WITH NOBLE METALS OR NOBLE METAL OXIDES

Giuseppe Bianchi, Piazzale Libia 1, Milan, Italy; Vittorio De Nora, Sandringan House, Nassau, Bahama Islands; and Patrizio Gallone, Via Previati 10; and Antonio Nidola, Via MacMahon 83, both of Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 690,407, Dec. 14, 1967, now Patent No. 3,616,445. This application June 22, 1971, Ser. No. 155,644

Int. Cl. C08h *17/24*

U.S. Cl. 106—286 **6 Claims**

Describes a valve metal, preferably titanium or tantalum, base electrode having a protective and electrocatalytic layer applied to the faces exposed to the electrolyte, said protective and electrocatalytic layer consisting of mixtures of solid solutions of valve metal oxides and platinum group and noble metals as such or in the form of oxides and/or oxyhalogenides and to novel coating compositions.

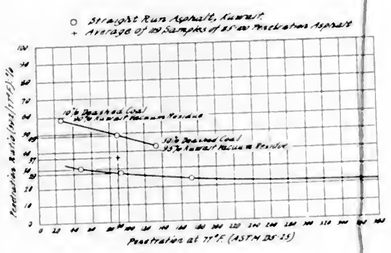
3,810,771
ASPHALT COMPOSITIONS

Harold Beuther, Gibsonia, and Alfred M. Henke, Springdale, Pa., assignors to Gulf Research & Development, Pittsburgh, Pa.

Continuation of abandoned application Ser. No. 597,792, Nov. 29, 1966. This application June 15, 1970, Ser. No. 48,885

Int. Cl. C10c *3/08;* **C08h** *13/00, 17/22*

U.S. Cl. 106—278 **7 Claims**



An improved asphalt paving composition is obtained by adding to a petroleum asphalt coal which has been solvent treated in the presence of hydrogen.

3,810,772
FLUOROCHEMICAL COMPOSITIONS FOR ORGANOPHOBIC SIZING OF PAPER PRODUCTS

Melville Willard Uffner, Media, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

No Drawing. Continuation-in-part of application Ser. No. 163,417, July 16, 1971, now Patent No. 3,736,164. This application July 21, 1972, Ser. No. 273,980

Int. Cl. C09k *3/00, 3/18*

U.S. Cl. 106—287 R **22 Claims**

Improved fluorine-containing phosphate compositions provide enhanced oil and grease resistant properties to cellulosic substrates. Fluorochemicals like polyfluorocycloalkyl phosphates when applied in combination with solvents, surfactants, chelating agents and/or alkali produce a complexing of metallic ions and a wetting effect of cellulosic fibrous bodies thereby enhancing their oleophobic properties. Such compositions are particularly adaptable for economical application to cellulosic stocks which have been previously sized.

3,810,773
STRONG LIGHT WEIGHT, BONDED, POROUS AGGREGATE

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation

No Drawing. Filed Dec. 2, 1971, Ser. No. 204,352

Int. Cl. C08h *17/04*

U.S. Cl. 106—288 B **17 Claims**

A method of bonding light weight porous particles of an aggregate bonded together by a binder that has been made into the form of a gel. The gelatinous binder is mixed with the porous particles so that the gel coats the surface of the particles without appreciably penetrating the pores of the aggregate. Upon curing of the gel coated porous particles, the porous particles are bonded together by surface bonds without any appreciable filling of the pores of the aggregate. The resulting bonded aggregate is strong and light weight, and can be used as a thermal insulation.

ERRATUM

For Class 117—161 see:
Patent No. 3,810,276

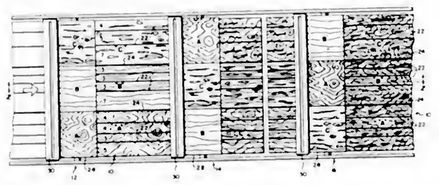
3,810,774
MULTI-COLOR, MULTI-PATTERNED PANELS

Raymond H. Pittman, Batavia, Ill., assignor to Masonite Corporation, Chicago, Ill.

Filed Apr. 17, 1972, Ser. No. 244,623

Int. Cl. B41c *1/20;* **B44d** *1/12, 1/46*

U.S. Cl. 117—12 **6 Claims**



Wall panel and method of making the same of thin sheet material having a decorative outer surface resembling actual wood planks laid side by side comprising the steps of printing segments of said surface with first, second and third patterns in a first color; printing different segments of said surface with different portions of said first, second and third patterns in a second different color; and printing different segments of said surface with again different portions of said first, second and third patterns in a third different color whereby planks of the whole pattern of said decorative outer surface are printed in successive layers with different patterns of different colors.

3,810,775
PROCESS FOR MAKING FIBROUS MATERIAL WATER-REPELLENT

Klaus Uhl, Hofheim, Taunus, and Klaus Fischer, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt, Germany

No Drawing. Filed Jan. 12, 1972, Ser. No. 217,272

Claims priority, application Germany, Jan. 15, 1971, P 21 01 816.6

Int. Cl. B44d *1/094, 1/44;* **D06m** *15/66*

U.S. Cl. 117—21 **9 Claims**

Copolymers of ethylene and vinylsilanes containing halogen atoms or lower alkoxy groups are useful as water-repellent agents. A preferred application of said copolymers is the impregnation of fibrous materials with solutions in organic solvents, followed by a heat treatment and a fixing process with water or steam.

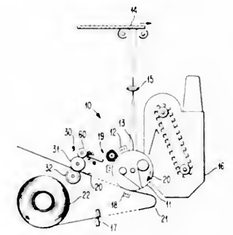
3,810,776
METHOD FOR PROVIDING A HEATER ROLL FUSER WITH IMPROVED RELEASE MATERIAL

Bobby R. Banks and Arthur E. Graham, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,774

Int. Cl. G03g *13/20, 15/20*

U.S. Cl. 117—21 **8 Claims**



Offset of toner to a heated fusing roll is prevented by coating the fusing roll with an adhesion preventing layer of an immiscible dispersion of a high viscosity, low surface tension component such as zinc or aluminum stearate or behenate and low viscosity, low surface tension component such as 50 cs. silicone oil.

3,810,777
COATINGS HAVING HIGH SOLAR ABSORPTANCE TO INFRARED EMITTANCE RATIOS

Carl P. Boebel, Akron, and Gary E. Stevenson, Xenia, Ohio, assignors to the United States of America as represented by the Secretary of the United States Air Force

No Drawing. Continuation-in-part of abandoned application Ser. No. 28,138, Apr. 13, 1970. This application Mar. 23, 1972, Ser. No. 237,494

The portion of the term of the patent subsequent to Apr. 4, 1989, has been disclaimed

Int. Cl. B44d *5/06;* **G02b** *5/20*

U.S. Cl. 117—33.3 **3 Claims**

A formulation providing coatings having high solar absorptance to infrared emittance ratios comprises oxidized copper flakes, a polymeric binder and a solvent for the binder. The oxidized copper flakes may be prepared by heating in an oxygen containing atmosphere prior to the inclusion in the coating formulation. Optionally, copper flakes may be dispersed in the coating formulation followed by applying the formulation to the substrate to be coated followed by curing of the polymeric binder. Then the copper flakes embedded in the binder may be oxidized by heating the coated substrate in an oxygen containing atmosphere. The formulation is particularly useful for coating surfaces of missile and spacecraft structures where thermal balance is of prime importance. In general, the coated surfaces have a solar absorptance to infrared emittance ratio ranging from 1.80 to 2.60.

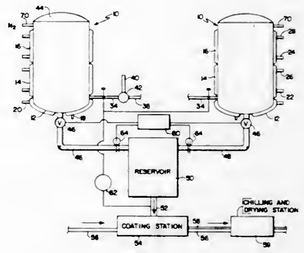
3,810,778
METHOD FOR PRODUCTION OF A PHOTOGRAPHIC FILM

David Wang, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 3, 1971, Ser. No. 139,598

Int. Cl. G03c *1/74*

U.S. Cl. 117—34 **5 Claims**



Consistent sensitometry of a batch of photographic film comprising a photosensitive emulsion coated onto a substrate is maintained by substantially continuously melting a mass of a gelled photosensitive emulsion at a rate equivalent to its deposition rate upon the substrate.

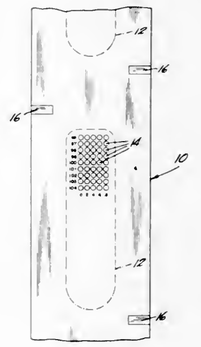
3,810,779
METHOD AND APPARATUS FOR DEPOSITING PRECISELY METERED QUANTITIES OF LIQUID ON A SURFACE

Charles G. Pickett, Andover, and James V. Molnar, Hopatcong, N.J., assignors to Bio-Medical Sciences Inc., Fairfield, N.J.

Filed June 7, 1971, Ser. No. 150,309

Int. Cl. B44d *1/02*

U.S. Cl. 117—37 **14 Claims**



A method and apparatus are disclosed for depositing precisely metered quantities of a liquid on a plate or like surface. A tubular needle is positioned vertically in a non-deposition position above the surface on which deposition is to be effected, and a pool of the liquid is main-

tained a distance above the plate, the surface level of the pool being spaced at or slightly below the level of the lower tip end of the needle with the liquid in the pool being communicated to the needle through a suitable conduit. Due to the relative location or points of elevation of the lower tip end of the needle in such non-deposition position and the pool surface, no head pressure is exerted in the liquid at the needle lower tip end which would tend to cause outflow of liquid from the needle. Further, backflow of liquid from the needle and conduit to the pool is resisted by capillary action in the liquid due to the size of the needle and conduit in relation to the viscosity of the liquid so that the needle and conduit are filled with liquid at all times. The tubular needle is then stroked downwardly from its non-deposition position toward the plate at a certain speed creating a head pressure in the liquid at the needle lower tip end by reason of the increasing differential between the pool level and that of the needle lower tip end, and causing, due to head pressure and kinetic action, creation of a ball of liquid of certain size at the lower tip end during downward movement of the needle with the ball being retained at the lower tip end due to capillary action. The downward displacement of the needle is terminated in a second or deposit position thereof when the ball of liquid contacts the plate on which deposition is to take place, and the adhesive attraction of the plate draws the ball of liquid from the needle tip whereupon the needle is retracted upwardly to its first position leaving deposited on the plate a precisely metered quantity of liquid. Apparatus for depositing the liquid on the plate in a plurality of separate deposits in a suitable matrix arrangement also is disclosed.

3,810,780

CARBONACEOUS COATING FOR CARBON FOAM

Zane L. Ardary, Kingston, and Virgil B. Campbell and Carl D. Reynolds, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Feb. 8, 1972, Ser. No. 224,601

Int. Cl. B44d *1/44;* **C01b** *31/02*

U.S. Cl. 117—46 CB **2 Claims**

An improved carbonaceous coating for carbon foam articles is provided to enhance the structural integrity of the foam and to protect the foam during handling. The coating is provided by applying to exposed surfaces of the carbon foam article a mixture of colloidal graphite and a dissolved thermosetting alkyd resin, drying the coating mixture, and thereafter carbonizing the resin.

3,810,781

METHOD OF STABILIZING HEPARINIZED NON-THROMBOGENIC PLASTIC SURFACES

Jan Christer Eriksson, Vastra Frolunda, and Hans Ragnar Lagergren, Stockholm, Sweden, assignors to Aminkemi Aktiebolag, Bromma, Sweden

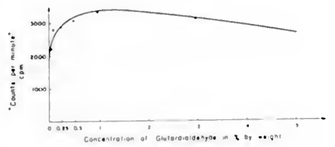
Filed Oct. 4, 1971, Ser. No. 185,954

Claims priority, application Sweden, Oct. 5, 1970, 13,458/70; Apr. 7, 1971, 4,506/71

Int. Cl. A61f *1/00;* **A61k** *17/18;* **B44d** *1/44*

U.S. Cl. 117—47 A **17 Claims**

A method for stabilizing heparinized plastic surfaces which previously have been made non-thrombogenic by bonding or heparin to surface-bonded cationic groups, by treating such heparinized surfaces with a dilute aqueous



solution of a dialdehyde having 0–4 and preferably 3 CH_2 groups between the two aldehyde groups, thereby to cross-link the bonded heparin molecules to each other.

3,810,782

PROCESS OF FORMING DIFFUSION ALLOYS ON METALLIC REFRACTORY MATERIALS

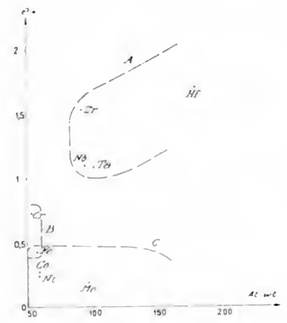
Philippe Galmiche, Clamart, France, assignor to Office National d'Etudes et de Recherches Aerospatiales (par Abreviation: O.N.E.R.A.), Bagneux, France

Continuation-in-part of abandoned application Ser. No. 709,791, Mar. 1, 1968. This application Mar. 1, 1972, Ser. No. 230,922

Claims priority, application France, Sept. 19, 1967, 121,522

Int. Cl. C23c *9/02*

U.S. Cl. 117—107.2 P **8 Claims**



This invention is directed to a process of forming a diffusion alloy of a selected addiiton metal, such as tantalum, on any one or more different metallic refractory materials. The process is effected through the use of a reactive mass containing an inert powdered diluent, an alloy powder and a halogen or halogen-containing constituent. The same reactive mass may be used to treat any or all of the group of different metallic refractory materials. The alloy powder contains the desired addition metal a, moderator metal such as nickel or cobalt and a regulator metal such as chromium.

3,810,783

REMOISTENABLE, PREPASTED WALL COVERING AND METHOD OF MAKING

William A. Bomball, Decatur, Ill., assignor to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed May 5, 1972, Ser. No. 250,772

Int. Cl. C09j *7/02*

U.S. Cl. 117—122 S **9 Claims**

A starch-based remoistenable prepasted wallcovering adhesive comprising starch, methyl ether of cellulose, coating clay, hydrolyzed polyvinyl alcohol, monobasic sodium phosphate, wax, small amounts of a suitable fungicide, and a crosslinking agent such as glyoxal. Optionally, polyvinyl acetate can be added to increase adhesive strength when needed. This adhesive compound is easily adapted to rapid aqueous coating procedures for application to the reverse side of wallcoverings, such as cloth-backed vinyl material, and the adhesive coating so obtained has excellent resistance to adhesive loss during the long soaking of the coated wallcovering stock in either high or low hardness water. In addition, the wallcovering remains slippable while wet for an adequate length of time to allow positioning on the wall, and it can easily be stripped from the wall without the application of steam, or the need for other time consuming stripping methods. Traditional wallcoverings such as wallpapers, and many more recently developed wallcoverings can be used in combination with the remoistenable adhesive of this invention to take full advantage of the convenient application technique made possible. "Wall" as used here includes any substrate surface which is to be covered, including billboards, ceilings, cabinets, and chests.

3,810,784

REVERSIBLE SHEAR THINNING GEL COATED GLASS FIBER STRAND

Robert Wong, Granville, and Homer G. Hill, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation

Application Oct. 9, 1969, Ser. No. 871,098, which is a division of application Ser. No. 762,435, Sept. 25, 1968, now Patent No. 3,533,768. Divided and this application Nov. 1, 1971, Ser. No. 194,463

Int. Cl. C03c *25/02;* **D02g** *3/18*

U.S. Cl. 117—126 GE **19 Claims**

A strand of fibers, and particularly glass fibers, comprising a bundle of the fibers arranged in generally side-by-side engagement with the individual fibers of the bundle being surrounded by a shear thinning gel which protects the fibers from mutual abrasion. The gel can be of any film former and preferred materials comprise a gel of a curable resin that is compatible with a later applied matrix resin.

3,810,785

CARBON FIBER COMPOSITE STRUCTURES

Christopher John Dominic and Edward William Garnish, Saffron Walden, England, assignors to Ciba (A.R.L.) Limited, Duxford, Cambridge, England

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,219

Claims priority, application Great Britain, Sept. 9, 1969, 44,579/69

Int. Cl. B32b *27/04, 27/12*

U.S. Cl. 117—161 ZB **19 Claims**

Process for making composite structures which comprises impregnating carbon fibres with a solution in an organic solvent of:

(a) a mixture of triglycidyl isocyanurate and an epoxide-containing adduct, prepared by heating together in the liquid state triglycidyl isocyanurate with a stoichiometric deficit, calculated on the basis of one amino hydrogen atom per epoxide group, of an aromatic primary amine containing not more than two hydrogen atoms directly attached to nitrogen, and

(b) a curing agent in a quantity sufficient to cure the mixture of triglycidyl isocyanurate and epoxide-containing adduct,

and then drying the impregnated fibres.

3,810,786

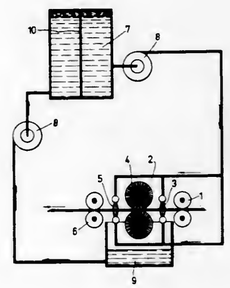
METHOD FOR CLEANING (DEGREASING) WEB MATERIAL

Boris Lindgren, Eskilstuna, Sweden, assignor to Nyby Bruks Aktiebolag, Nybybruk, Sweden

Filed Apr. 16, 1971, Ser. No. 134,742

Int. Cl. B08b *7/04*

U.S. Cl. 134—9 **8 Claims**



In degreasing steel articles an improvement in overall cost and in convenience is realized by displacing oily substances from the steel by the use of detergents having a hydrophobic balance of 10 and above, resulting in the formation of a labile emulsion.

3,810,787

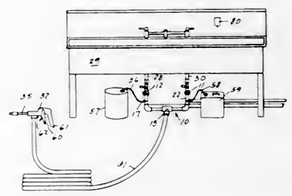
METHOD FOR CLEANING AND SANITIZING FOOD HANDLING EQUIPMENT

Oded Yoeli, Atlanta, and Gerald W. Gibbs, Lawrenceville, Ga., assignors to Consolidated Foods Corporation, Atlanta, Ga.

Filed Apr. 13, 1972, Ser. No. 243,778

Int. Cl. B08b *3/02, 3/08*

U.S. Cl. 134—29 **3 Claims**



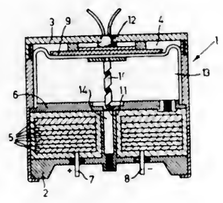
A method and apparatus for cleaning and sanitizing food preparation equipment by cleaning the equipment by means of spraying a mixture of hot water and cleaning agent and then sanitizing the equipment by spraying a mixture of cold water and sanitizing agent. The apparatus comprises a pair of branch conduits for connection to a source of hot water and source of cold water to a single outlet which is connected by a flexible hose or

conduit to a spray nozzle. Each of the branch conduits has a valve for controlling flow in the conduit and an injector for injecting the agent into the water flowing through the branch conduits to the spray nozzle which has a central valve for shutting off the spray.

3,810,788
METHOD FOR DECONTAMINATING CHEMICAL WARFARE AGENTS
Paul R. Steyermark, 10801 Cavalier Drive, Silver Spring, Md. 20901
No Drawing. Original application Feb. 15, 1966, Ser. No. 529,174. Divided and this application June 3, 1968, Ser. No. 763,994
Int. Cl. B08b *7/00*
U.S. Cl. 134—42 **7 Claims**

This invention is directed to a process for decontaminating a surface or material contaminated with mustard gas, nitrogen mustard gases, nerve gases, and organic phosphorus insecticides, comprising applying an excess of a composition consisting essentially of about 0.05–5 moles of a strong base, about 3–100 parts of dimethyl sulfoxide and 0–70 parts of a co-solvent selected from the group consisting of water, alkanols having 1–5 carbon atoms, glycols having 2–5 carbon atoms and triols having 3–5 carbon atoms to such surface or material.

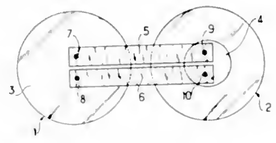
3,810,789
ELECTROCHEMICAL CELL HAVING CATHODE MASS COMPRISING HOLLOW CARBON BODIES
Cornelis Geerhard Vermeulen and Joris Jan Cornelis Oomen, Emmansingel, Eindhoven, Netherlands
Filed June 30, 1972, Ser. No. 268,210
Claims priority, application Netherlands, July 3, 1971, 7109225
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 LN **5 Claims**



An electrochemical cell comprising ammonia as a solvent for the electrolyte whose cathode mass comprises hollow carbon bodies closed on all sides. The cell may be loaded for long periods at a low temperature without the E.M.F. decreasing considerably.

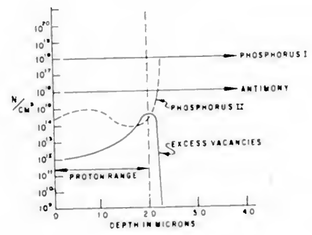
3,810,790
METHOD OF EFFECTING ELECTRIC CONNECTION
Henri Denis, Saint-Brice-sous-Foret, France, assignor to Saft-Societe des Accumulateurs, Fixes et de Traction
Filed Feb. 17, 1972, Ser. No. 227,071
Claims priority, application France, Feb. 19, 1971, 7105770
Int. Cl. H01m *5/00*
U.S. Cl. 136—134 P **2 Claims**

Method for effecting electrical connection by electrical welding, according to which at least the portion of the connection to be welded to a part is in the form of two substantially paralled strips which are preferably close to each other and wherein each of the two electrodes of the



welding apparatus is applied, during welding, respectively to one of said strips.

3,810,791
PROCESS FOR THE FABRICATION OF SEMICONDUCTOR MATERIALS
Don Leslie Kendall, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 3, 1970, Ser. No. 60,483
Int. Cl. H01l *7/54*
U.S. Cl. 148—1.5 **8 Claims**



A semiconductor wafer having a simulated epitaxial layer is produced by proton-enhanced out-diffusion. For example, a silicon wafer uniformly doped with 10^{16} atoms per cm.^{3} antimony and 10^{18} atoms per cm.^{3} of phosphorus is subjected to proton bombardment whereby a substantial portion of the phosphorous dopant is selectively removed from a surface layer. This produces a simulated epitaxial layer wherein the resistivity is determined by the initial concentration of antimony, while the resistivity of the substrate is determined by the initial concentration of phosphorus.

3,810,792
PROCESS FOR THE APPLICATION OF PHOSPHATE COATINGS ON STEEL, IRON AND ZINC SURFACES
Christian Ries, Cologne-Kalk, and Margot Prymak, Cologne, Germany, assignors to Gerhard Callarden GmbH
No Drawing. Filed Dec. 21, 1971, Ser. No. 210,539
Claims priority, application Germany, Jan. 2, 1971, P 21 00 021.5
Int. Cl. C23f *7/10*
U.S. Cl. 148—6.15 Z **4 Claims**

An improvement in the process for the application of phosphate coatings on steel, iron and zinc surfaces comprising contacting steel, iron and zinc surfaces with an acidic solution containing layer-forming cations, phosphate

ions, fluoride ions and oxidizing agents for a time sufficient to effect phosphatizing and recovering said phosphatized surfaces. The improvement resides in utilizing from 59 to 100 mol percent of nickel cations as said layer-forming cations in combinations with from 0 to 41 mol percent of other known divalent layer-forming cations. The invention also resides in the acidic phosphatizing solutions.

3,810,793
PROCESS OF MANUFACTURING A REINFORCING BAR STEEL FOR PRESTRESSED CONCRETE
Wilhelm Heller, Rheinhausen, Germany, assignor to Firma Fried. Krupp Huttenwerke A.G., Bochum, Germany
No Drawing. Filed June 20, 1972, Ser. No. 264,669
Claims priority, application Germany, June 24, 1971, P 21 31 318.8
Int. Cl. C21d *7/02, 7/14*
U.S. Cl. 148—12 **13 Claims**

A process for manufacturing an unannealed reinforcing bar steel for prestressed concrete which comprises subjecting a steel having a composition of:

0.20–0.35 weight percent carbon
0.20–2.50 weight percent silicon
0.50–3.50 weight percent manganese
1.25–4.50 weight percent chromium
(Mn+Cr)=2.75–5.00 weight percent,

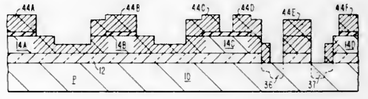
the balance consisting essentially of iron by cooling it in quiet air from the hot-rolled state with the formation of bainite structure and, thereafter, either cold deforming it plastically without essential increase of tensile strength and tempering the same at a temperature in the range of 100 to 400° C. or tempering it in the temperature range between 150 and 550° C.

3,810,794
PREPARATION OF GaP-Si HETEROJUNCTION BY LIQUID PHASE EPITAXY
George A. Antypas, Mountain View, Ferenc E. Rosztoczy, Las Altos, William W. Stein, Palo Alto, and Sigmund von Szeremy, San Carlos, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Sept. 24, 1970, Ser. No. 75,001
Int. Cl. H01l *7/38*
U.S. Cl. 148—172 **9 Claims**

A saturated molten solution of GaP and Si in a suitable solvent (Pb, Sn) was prepared. The molten, saturated solution was brought into contact with a Si single crystal substrate and cooled, causing the GaP to form an epitaxial layer on the Si surface. The crystal lattice structure and dimensions of Si and GaP crystals are very similar. The preferred physical properties of the solvent are: a relatively high solubility for GaP; a relatively low solubility for Si; and a relatively low solubility of the selected solvent in the epitaxially grown GaP.

3,810,795
METHOD FOR MAKING SELF-ALIGNING STRUCTURE FOR CHARGE-COUPLED AND BUCKET BRIGADE DEVICES
Ronald Roy Troutman, Essex Junction, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 30, 1972, Ser. No. 267,860
Int. Cl. H01l *7/34*
U.S. Cl. 148—187 **12 Claims**

Interconnected, but self-isolating conductive lines on different levels are achieved on monolithic integrated semiconductor devices. Layers of insulating semiconductor material are separated in selected areas by deposits of a dielectric diffusion barrier material and dopants to render the layers conductive are diffused therein. The deposits of the buried barrier material act as a diffusion mask as to prevent the diffused dopants from penetrating into selected areas of the underlying semiconductor body to leave in the underlying semiconductive layer a non-conductive region. This causes portions of the layers of insulating material to be rendered conductive, while still maintaining their insulating characteristics in selected regions, thereby electrically separating the layers one from



another in selected areas. Critical alignments between masks and subsequent diffusions are avoided. The method of the invention may be used to create all types of semiconductor devices, especially Field Effect Transistors and charge-coupled devices either separately or simultaneously on the same body.

3,810,796
METHOD OF FORMING DIELECTRICALLY ISOLATED SILICON DIODE ARRAY VIDICON TARGET
Frank L. Skaggs and Victor Harrap, Dallas, and Kenneth E. Bean, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 31, 1972, Ser. No. 285,156
Int. Cl. H01l *7/50*
U.S. Cl. 156—8 **12 Claims**



The disclosure relates to a dielectrically isolated silicon diode array vidicon target which substantially eliminates the lateral diffusion spread of photo carriers, thereby providing a non-blooming camera pickup tube.

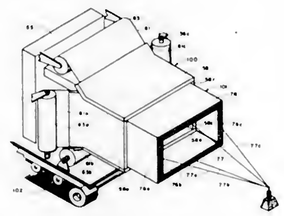
3,810,797
ALUMINUM ETCH BATH ADDITIVE
Eugene Schaffstall, Chamblee, and Ira J. Duncan, Atlanta, Ga., assignors to Consolidated Foods Corporation, Chicago, Ill.
No Drawing. Filed Apr. 10, 1972, Ser. No. 242,752
Int. Cl. C23f *1/00*
U.S. Cl. 156—22 **16 Claims**

The process for etching aluminum using a caustic soda bath utilizing peroxide compound as an additive to reduce the adverse appearance on the surface after viscosity of the bath associated with dissolved aluminum has reached a certain level. The peroxide compound additives are water-soluble and include hydrogen peroxide, hydrates of hydrogen peroxide, and alkali metal and ammonium salts of perborate, percarbonate and persulfate.

3,810,798
RANDOM HONEYCOMB STRUCTURE
Wallace W. McCoy, Glendale, Calif. (% John H. Wagner, Attorney at Law, 1041 E. Green St., Suite 202, Pasadena, Calif. 91101)
Original application Mar. 2, 1970, Ser. No. 15,364, now Patent No. 3,664,076. Divided and this application Apr. 7, 1972, Ser. No. 241,936
Int. Cl. B29j *1/02;* **B32b** *5/16, 31/06*
U.S. Cl. 156—62.2 **4 Claims**

This disclosure involves a form of prefabricated structure such as commercial or industrial buildings, houses or enclosures employing an external skin bonded to an intermediate structural and insulating filler with an inner surface skin similarly bonded to the filler material. The ex-

ternal skins are preferably resin bonded glass fiber and the intermediate filler composes a random honeycomb structure made of cellulosic material, such as individual pieces of paper of random size each rigidified and bonded to adjacent pieces by a resinous binder which is compatible with the binder of the skins. The structure is shown in continuous panels and actually three dimensional structure configurations as well as discrete structural elements which may be used to replace comparable structural elements normally made of wood. Disclosed also are processes for continuous manufacture of structures employing the concept of this invention either in the factory or on site.



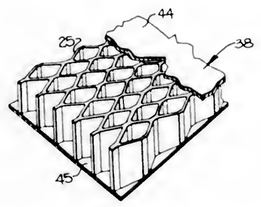
The same basic structure is shown in various configurations. Illustrated are a number of panel sections employing the same structure arrangement but different filler density whereby the load bearing strength of the panel may be controlled and its insulating properties varied as well. Structural strength can also be varied by changing the dimensions and concentrations of resin/figerglass of either or both external skin surfaces. Disclosed also are individual structural elements produced from waste paper material and resin bonded skins.

3,810,799
METHOD OF PREPARING POLYETHYLENE PARTS FOR ULTRASONIC WELDING
Horst Rager, Nuremberg, Herbert Rohrig, Schwarzenbruck-Gsteinach, and Armin Hirschel, Fischbach, Germany, assignors to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany
Filed Apr. 5, 1972, Ser. No. 241,348
Claims priority, application Germany, Apr. 6, 1971, P 21 16 656.3
Int. Cl. B32b *31/30*
U.S. Cl. 156—73 **2 Claims**

Method of making plastic components, extruding a mixture of 100 parts PE and of 20 to 70 parts chalk and joining the extruded parts by means of ultrasonic energy.

3,810,800
METHOD OF PRODUCING LAMINATED STOCK MATERIALS AND PRODUCTS
Martin Doll, Patterson, N.C., assignor to Cellu Products Company, Patterson, N.C.
Original application Sept. 30, 1969, Ser. No. 862,252, now Patent No. 3,642,550, dated Feb. 15, 1972. Divided and this application Jan. 11, 1972, Ser. No. 216,939
Int. Cl. B32b *5/18*
U.S. Cl. 156—78 **6 Claims**

Liquid resistant shipping cartons and the like, and liquid resistant materials particularly adapted for construction of such cartons, are produced in accordance with a method wherein sheet thermoplastic material is formed into a foraminous web having openings therethrough perpendicular to opposing faces thereof and webs of paper



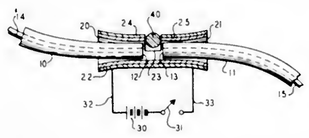
are adhered to the opposing faces of the thermoplastic material web.

3,810,801
METHOD FOR PATCHING MATERIALS SUCH AS PLASTIC
Lawrence Speer, Barbertown, N.J., assignor to Vinyltron Corp., Amsterdam, N.Y.
Filed Dec. 27, 1972, Ser. No. 319,029
Int. Cl. B32b *3/20*
U.S. Cl. 156—94 **6 Claims**



A method for patching a damage in plastic and leather-like fabrics employs a special backing material for the damaged area. The special backing material causes the patching compound to gel in the presence of an embossing vinyl release paper covering the patch without the use of heat.

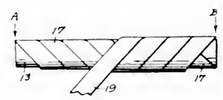
3,810,802
OPTICAL FIBER SPLICING DEVICE AND TECHNIQUE
Paul Harold Buhite, Millington, and Douglas Arthur Pinnow, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 31, 1972, Ser. No. 240,204
Int. Cl. B65h *69/02*
U.S. Cl. 156—158 **6 Claims**



A method and an apparatus are described for joining together single optical fibers under adverse environmental

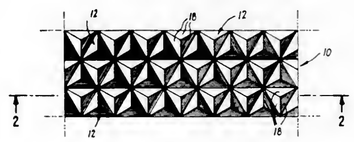
conditions. The fibers are aligned collinearly in a hollow sleeve, a quantity of low melting point transparent thermoplastic is inserted in the sleeve at the junction of the two fibers and heat is applied to melt the thermoplastic causing it to flow around the aligned ends thereby producing an optically efficient bond when the heat source is removed.

3,810,803
CONTINUOUS FIBER REINFORCEMENT, CROSS-PLY TEST SPECIMEN
Bernard L. Karp, Hampton, and Irving E. Figge, Newport News, Va., and Ernest B. Paxson, Jr., Provo, Utah, assignors to the United States of America as represented by the Secretary of the Army
Filed Nov. 5, 1971, Ser. No. 195,956
Int. Cl. B31c *1/00*
U.S. Cl. 156—190 **6 Claims**



A continuous fiber reinforcement cross-poly test specimen and method of fabrication, comprising the positioning of alternate plies of a unidirectional preimpregnated fiberglass tape on a mandrel at angles of ±45° orientation in relation to the axis of the specimen, and curing to obtain a continuous fiber specimen.

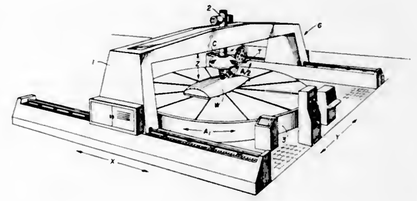
3,810,804
METHOD OF MAKING RETROREFLECTIVE MATERIAL
William P. Rowland, Southington, Conn., assignor to Rowland Development Corporation, Kensington, Conn.
Original application Sept. 29, 1970, Ser. No. 76,551, now Patent No. 3,684,348. Divided and this application Feb. 25, 1972, Ser. No. 229,378
Int. Cl. B29b *3/00*
U.S. Cl. 156—245 **13 Claims**



A composite retroreflective material is prepared by depositing on a molding surface having cube corner recesses a fluid molding material in an amount sufficient to fill those recesses. A preformed body member is applied thereto and the molding material is hardened and bonded to the body member. As a result, retroreflective material is provided with a body portion having one smooth surface and another surface from which project a multiplicity of separately formed, minute cube corner formations having a side edge dimension of less than 0.025 inch.

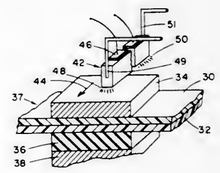
The cube corner formations may then have applied thereto a retroreflective coating, and an adhesive layer and release paper may be superposed thereon to permit facile mounting on a support surface.

3,810,805
GEODESIC PATH LENGTH COMPENSATOR FOR COMPOSITE-TAPE PLACEMENT HEAD
William B. Goldsworthy, Palos Verdes Estates, Harald E. Karlson, Santa Monica, and Ethridge E. Hardesty, Pine Valley, Calif., assignors to Goldsworthy Engineering, Inc., Los Angeles, Calif.
Filed Apr. 14, 1972, Ser. No. 244,187
Int. Cl. B32b *31/18*
U.S. Cl. 156—361 **14 Claims**



An integrally complete composite-tape placement head for direct attachment to a host gantry type of machine, which tape placement head is designed to precisely apply preimpregnated fiber reinforced tape to a work piece. The tape is initially supplied having a release paper forming a backing for the same. The tape is automatically peeled from the backing by a separator mechanism and thereafter applied to the work piece. A combination strand separation device and geodesic path length compensator is provided for applying the tape to curved surfaces without creating any buckling effects.

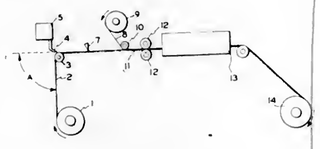
3,810,806
THERMOPLASTIC HEAT SEALING APPARATUS
Henry D. Swartz, 19 Mayflower Road, Chestnut Hill, Mass. 02167
Continuation-in-part of application Ser. No. 156,865, June 25, 1971, now Patent No. 3,729,357. This application Apr. 13, 1972, Ser. No. 243,799
Int. Cl. B29c *19/02*
U.S. Cl. 156—380 **28 Claims**



A weld or seal joining two or more heat susceptible thermoplastic sheets is produced by interposing the thermoplastic sheets in superposition between a flexible release member and a resilient backing member to form a surface-contacting assembly, and sliding a horizontally moving elongated heater mass along its axis in contact with the flexible release member of the assembly to apply heat to the thermoplastic sheets while countered by the resilient backing member. The result is a weld which is essentially uniform in thickness across its width and which may have a thickness which approximates the sum of the

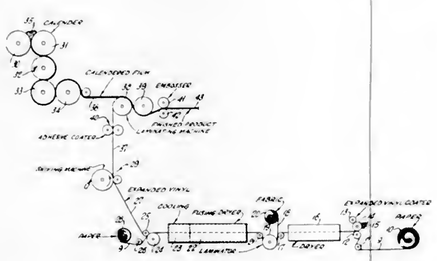
thicknesses of the sheets being welded. The weld may be broken periodically if desired. Apparatus for effecting this process and producing this product are disclosed.

3,810,807
APPARATUS FOR BACKING TUFTED CARPET
Obie R. Jackson, Dalton, Ga., George R. Olson, Minnetonka, Minn., and Robert B. Putney, Kensington, Ga., assignors to Ashland Oil, Inc., Columbus, Ohio, and E. T. Barwick Mills, Inc., Chamble, and B & J Machinery Company, Inc., Dalton, Ga.
Original application Jan. 5, 1970, Ser. No. 600, now abandoned. Divided and this application Feb. 14, 1972, Ser. No. 225,759
Int. Cl. B29c *13/00*
U.S. Cl. 156—381 **10 Claims**



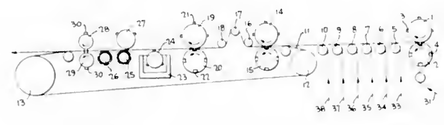
Tufted carpets are backed by applying adhesive to the back of the carpet while the carpet back is in a convex configuration and applying the backing material. Tufted carpets are also backed by applying the adhesive while the carpet back is straight or in a convex configuration, then applying the action of a doctor blade at a point where the adhesive-bearing carpet back is in a convex configuration and applying the backing material. Tufted carpets are further backed by applying the adhesive by extruding the adhesive into the carpet back and applying the backing material. This adhesive extrusion may be combined with either or both of the above methods. Apparatus is disclosed for each method.

3,810,808
APPARATUS FOR MAKING PLASTIC SHEET MATERIAL
Albert E. Anderson, Norwich, Conn., assignor to Pervel Industries, Inc., Plainfield, Conn.
Original application Apr. 12, 1968, Ser. No. 721,002, now Patent No. 3,607,493. Divided and this application Sept. 16, 1971, Ser. No. 181,114
Int. Cl. B32b *3/00*
U.S. Cl. 156—389 **3 Claims**



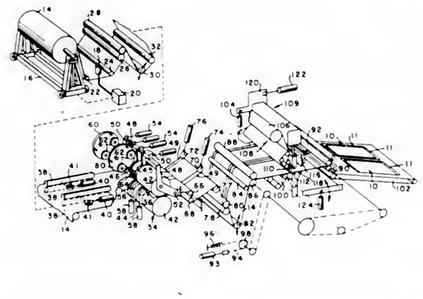
The invention contemplates apparatus for manufacture of expanded-plastic sheet material, wherein an outer skin is removed by heat-skiving, to present a velvety texture. The apparatus uses a heated drum to impart a temperature gradient in the region of skin to be removed. The apparatus produces a product which is directly usable, or the product may be further processed to add a special outer skin. In the latter case, the heat-skiving function of the apparatus is found to impart richness to the "feel" of the product.

3,810,809
ARRANGEMENT FOR THE PRODUCTION OF CONNECTING POINTS BETWEEN SUPERIMPOSED WEBS, ESPECIALLY CONTINUOUS FORMS
Josef Herd, Muenster, near Dieburg, and Hans Jakob, Darmstadt-Eberstadt, Germany, assignors to Maschinenfabrik Goebel GmbH, Darmstadt, Germany
Filed Mar. 15, 1972, Ser. No. 234,931
Claims priority, application Germany, Mar. 15, 1971, P 21 12 350.2
Int. Cl. B31f *5/02;* **B32b** *31/00*
U.S. Cl. 156—468 **5 Claims**



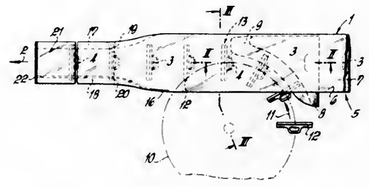
An arrangement for producing connection points between superimposed continuous webs wherein tongues are formed in the topmost web by a punching mechanism, aligned notches are provided in all the webs by another punching mechanism, the top web is shifted relative to the remaining webs by a deflector means in a manner to cause the tongues to overlie the notches, the tongues are pushed through the notches by a tongue pushing means, glue spots are applied to the lowermost web, and the pushed-through tongues are bent against the lowermost web against the glue spots by a bending means.

3,810,810
APPARATUS TO CONTINUOUSLY PROVIDE FABRIC WITH A HEAT SEALED SELVAGE
Don M. Bylund and Victor W. Kimble, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.
Original application June 20, 1969, Ser. No. 834,969. Divided and this application Oct. 20, 1970, Ser. No. 82,309
Int. Cl. B31f *5/00;* **B32b** *31/00*
U.S. Cl. 156—499 **3 Claims**



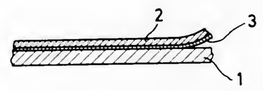
Machine and process to continously heat seal a strip of thermoplastic film material to a roll of textile material in the longitudinal direction thereof and sever said strip of thermoplastic film and said material to provide at least two widths of material with sealed edges to prevent unraveling.

3,810,811
APPARATUS FOR MAKING CARRIER BAGS HAVING PLASTIC HANDLES ATTACHED TO THE MOUTHS THEREOF
Frank Bosse, Ibbenburen-Dorenthe, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany
Filed June 17, 1971, Ser. No. 154,071
Claims priority, application Germany, June 24, 1970, P 20 31 305.7
Int. Cl. B32b *31/00*
U.S. Cl. 156—516 **10 Claims**



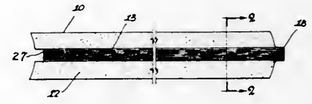
Apparatus for making carrier bags having plastic handles attached to the mouths thereof before bag lengths are severed from a tube of plastic bag material. The tube of bag material is flattened, open along one edge and fed lengthwise continuously as pairs of handles are successively inserted by rotary handle carriers between the plies of the tube through the open edge thereof to extend across the tube at intervals. Welding tools secure each pair of handles in position from outside the tube, whereafter the open tube edge is welded shut and the bag lengths are successively severed from the leading tube end along preformed scorelines passing through the positions of the attached handles. The bases of the bags are closed by welding after the severing operation. The pairs of handles are withdrawn from a magazine and inserted in the tube by carriers pivoted to a turntable. The welding tools move at the same speed as the tube during the welding operation and are supported by chains driven by a drive containing variable speed gearing.

3,810,812
COVERING MASK
Claus Koenig, 114 Paul-Gossen-Str., 852 Erlangen, Germany
Continuation-in-part of abandoned application Ser. No. 755,154, Aug. 26, 1968. This application July 12, 1971, Ser. No. 161,862
Int. Cl. B44f *1/06;* **G03c** *7/20*
U.S. Cl. 161—1 **15 Claims**



A mask for covering, for example images to be reproduced, comprises a transparent substrate, coated with a dimensionally stable thin sheet or film, for example, of synthetic material comprising light filtering tinting means and adapted for inscribing therein image countour outlining cuts, said coating being accomplished by slightly adhesive means which stick to the sheet or film rather than to the substrate upon removing cut surrounding portions of the sheet or film from the substrate. Especially for screen printing processes the sheet or film may be provided on one surface with said adhesive means and on the opposite surface thereof with a holding layer which is more adhesive than said slightly adhesive means.

3,810,813
CLOSURE-FORMING STRIP WITH AN ATTACHED TEAR STRIP STRUCTURE
Glenn Ellis, Montreal, Quebec, Canada, assignor to Sesame Industries Limited, Montreal, Quebec, Canada
Filed July 20, 1972, Ser. No. 273,659
Int. Cl. B32b *3/02;* **B65d** *17/20, 65/34*
U.S. Cl. 161—145 **1 Claim**

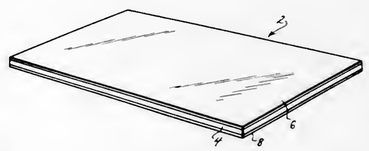


The invention resides in a tear strip structure wherein a conventional closure-forming strip gummed on one side has a tear tape adhesively bonded to the gummed side of the strip. The tear tape occupies a minor medial longitudinal section of the strip and is not adhesive at room temperature or when moistened.

3,810,814
ASYMMETRIC POLYMER MEMBRANES OF REDUCED ELASTIC MODULUS
Carlyle S. Herrick, Alplaus, and Allan R. Shultz, Scotia, N.Y., assignors to General Electric Company
Filed Dec. 18, 1972, Ser. No. 315,801
Int. Cl. B32b *5/18*
U.S. Cl. 161—159 **5 Claims**

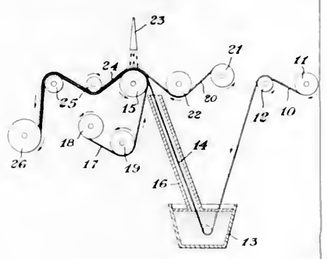
An improved method is disclosed for the manufacture of dry asymmetric membranes, which comprise a porous layer of interconnected crystals of polymer material and, integral therewith, a dense less crystalline surface layer forming one face of the membrane. Finely divided grafted elastomeric material compatible with the system is included in the casting solution and the completed membrane embodies the tiny elastomeric particles apparently uniformly distributed therethrough. The use of elastomeric particles having polystyrene chains grafted thereto is specifically described as being added for preparing asymmetric polyxylylene oxide membranes.

3,810,815
TRANSPARENT LAMINATE
Erwin K. Welhart, Florissant, David L. Voss, Chesterfield, and John F. Harrell, Florissant, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed July 10, 1969, Ser. No. 840,687
Int. Cl. B32b *27/18, 27/30, 31/20*
U.S. Cl. 161—183 **4 Claims**



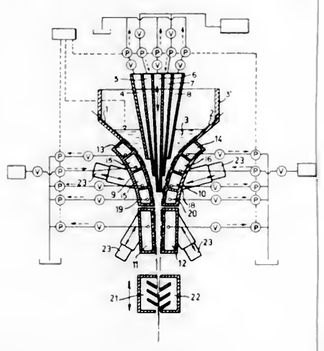
A transparent laminate is formed by diffusion bonding at least one layer of acrylic resin sheet to a layer of polycarbonate resin in the presence of heat and pressure so as to form a clad polycarbonate. The bonding may or may not be effected in an evacuated atmosphere.

3,810,816
PROCESS FOR MAKING REINFORCED RESIN LAMINATES OF UNIFORM THICKNESS
George Zachariades, Alvin, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed Apr. 6, 1972, Ser. No. 241,698
Int. Cl. B32b *31/28*
U.S. Cl. 161—214 **26 Claims**



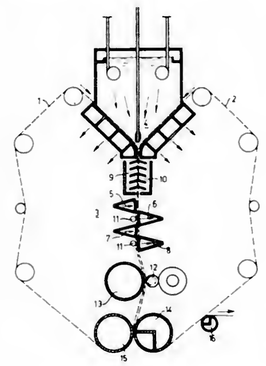
A fast, continuous process especially useful for making thin, flexible, electrical grade laminates is disclosed which comprises the steps of impregnating a fibrous substrate with certain polymerizable resin/monomer mixtures, applying sufficient pressure across the lateral width of the impregnated substrate to express entrapped air bubbles therefrom and to uniformly distribute the resin/monomer impregnant, and exposing the substrate in an inert atmosphere to a sufficient amount of ionizing radiation to polymerize the resin monomer mixtures. The laminates may be metal foil clad laminates or unclad.

3,810,817
TWIN-WIRE PAPERMAKING MACHINE WITH VIBRATORS CONNECTED TO SUCTION AND LIQUID DELIVERY BOXES LOCATED BENEATH THE CONVERGING WIRES
Hanns F. Arledter, 122 Andritzer Reichsstrasse, 8046 Graz St. Veit, Austria
Filed Oct. 26, 1971, Ser. No. 192,079
Claims priority, application Austria, Oct. 30, 1970, A 9,764/70
Int. Cl. B21f *1/00, 1/18*
U.S. Cl. 162—301 **6 Claims**



A twin-wire papermaking machine wherein separate foraminous wires converge towards one another while passing over separately controlled, convex domed suction boxes and thereafter join together to form the fibrous web therebetween as the wires pass over opposing foils. Between some of the separately controlled suction boxes are located liquid discharge boxes for injecting liquid into the fibrous suspension contained between the converging wires. Vibrators are connected to the suction and liquid discharge boxes for oscillation at an angle of between about 20 and 50 degrees to the plane of the wire passing thereover. Slurry passages (which may be oscillated also) are located beneath the slurry contained between the converging wires and function to deliver as well as remove slurry.

3,810,818
TWIN-WIRE PAPERMAKING MACHINE WITH SUCTION BOXES WITHIN THE LOOP OF ONE WIRE AND BLAST BOXES WITHIN THE OTHER
Hanns F. Arledter, 122 Andritzer Reichsstrasse, 8046 Graz St. Veit, Austria
Filed Oct. 26, 1971, Ser. No. 192,276
Claims priority, application Austria, Oct. 30, 1970, 9,763/70
Int. Cl. D21f *1/00, 1/52*
U.S. Cl. 162—301 **13 Claims**



A twin-wire papermaking machine which includes a dewatering and press section, the dewatering section employing suction boxes within the loop of one of the forming wires, and blast boxes within the loop of the other forming wire. The boxes have convex domes which cause the two wires to move in a serpentine configuration and are positioned to provide continuous support thereto. The dewatering section may also employ opposed foils, press cylinders, and suction cylinders located opposite to grooved cylinders.

3,810,819
ANTI-TUMOR SUBSTANCE FROM HEMOLYTIC STREPTOCOCCI AND PROCESS FOR PRODUCING THE SAME USING AMMONIUM SULFATE
Hajime Okamoto, Susumu Shoin, and Saburo Koshimura, Kanazawa, Japan, assignors to Hajime Okamoto, Kanazawa-shi, Japan
Filed Sept. 4, 1970, Ser. No. 69,774
Claims priority, application Japan, Sept. 6, 1969, 44/70,283
Int. Cl. C07g *7/00*
U.S. Cl. 195—4 **22 Claims**

Living cells of hemolytic streptococci are ground by a mechanical means or subjected to an enzyme treatment,

and are then centrifuged, whereby a supernatant solution is obtained. The thus obtained supernatant solution is subjected to salting out with ammonium sulfate, whereby a fraction, which will precipitate at 50–80% saturated ammonium sulfate concentration is obtained. If necessary, the thus obtained fraction is purified by making it contact with an ion exchanger, a gel filtering agent or calcium phosphate gel.

3,810,820
URATE OXIDASE AND PROCESS FOR THE PRODUCTION THEREOF
Pierre Laboureur, Neuilly-sur-Seine, Marcel Daniel Plerre Brunaud, Paris, and Claude Langlois, Montrouge, France, assignors to Societe d'Etudes et d'Applications Biochimiques, Yvelines, Etablissements Clin-Byla and Ugine-Kuhlmann, both of Paris, France
No Drawing. Continuation-in-part of application Ser. No. 715,623, Mar. 25, 1968, now Patent No. 3,620,923. This application Sept. 13, 1971, Ser. No. 180,220
Claims priority, application France, Mar. 29, 1967, 100,672, 100,673
Int. Cl. C07g *7/02;* **C12d** *13/10*
U.S. Cl. 195—62 **1 Claim**

The invention relates to a new enzyme or urate oxidase which is very active in promoting oxidation of uric acid to allantoin. The urate oxidase is produced by fermentation under aerobic conditions of nutrient media containing sources of assimilable carbon, assimilable nitrogen and uric acid which have been seeded with suitable cultures of bacteria, fungi or yeasts. Isolation and purification of the urate oxidase is described.

3,810,821
ENZYMES ATTACHED TO CELLULOSE CARBONATE
Sidney Alan Barker, John Frederick Kennedy, and Charles John Gray, Birmingham, England, assignors to Ranks Hovis McDougall Limited, London, England
No Drawing. Continuation-in-part of applications Ser. No. 95,414, Dec. 4, 1970, now abandoned, and Ser. No. 98,214, Dec. 14, 1970, now Patent No. 3,705,890. This application Dec. 7, 1972, Ser. No. 312,928
Claims priority, application Great Britain, Dec. 18, 1969, 61,701/69, 61,702/69
Int. Cl. C07g *7/02*
U.S. Cl. 195—63 **12 Claims**

Cellulose carbonate is prepared by reacting cellulose or a 6-substituted cellulose, e.g. methyl cellulose, hydroxyethyl cellulose, carboxymethyl cellulose and diethylaminoethyl with an alkyl or aryl chloroformate. Water-insoluble enzyme preparations are produced by reacting the enzyme, e.g. mouse kidney extract, β-glucosidase, trypsin, α-amylase, glucoamylase or mouse liver extract, dissolved or suspended in aqueous solution with the cellulose carbonate.

3,810,822
PROCESS FOR OBTAINING A PHOSPHODIESTERASE FROM DICTYOSTELIUM DISCOIDEUM
Günther Gerisch, Tubingen, Germany, assignor to Max-Planck-Geselischaft zur Forderung der Wissenschaften e.V., Gottingen, Germany
No Drawing. Filed July 10, 1972, Ser. No. 269,960
Claims priority, application Germany, July 8, 1971, P 21 34 141.3
Int. Cl. C12d *13/10*
U.S. Cl. 195—65 **8 Claims**

New process for obtaining a highly active phosphodiesterase from the culture fluid of the mutant mold *Dictyostelium discoidèum* aggr 75 by separating the protein therefrom.

3,810,823
METHOD FOR ISOLATION OF ENZYMES
Katsumi Fujii, Suita, Isamu Takagahara, Takatsuki, Yasuo Suzuki, Suita, and Takekazu Horio, Takatsuki, Japan, assignors to Oriental Yeast Co., Ltd., Tokyo, Japan
No Drawing. Filed Dec. 20, 1971, Ser. No. 210,048
Claims priority, application Japan, Dec. 18, 1970, 45/113,028
Int. Cl. C07g *7/02*
U.S. Cl. 195—66 R **4 Claims**

The present invention relates to a method for isolation of enzymes, particularly a method for isolation of inorganic phosphate-dependent enzymes. The invention is based on the fact that inorganic phosphate-dependent enzymes are adsorbed on a water-insoluble carrier containing phosphoric acid group according to enzymatic affinity and they are eluted from the carrier if a substrate competitive with the inorganic phosphate is added. The method for isolation of inorganic phosphate-dependent enzymes of the present invention utilizes quantitative difference in enzymatic properties among various enzymes (i.e. specificities of enzymes). According to the method of the present invention, enzymes which have been difficultly purified according to conventional purification methods can be obtained in extremely high yields.

3,810,824
AQUEOUS ACID TIN-PLATING BATH
Donald Kearey Howard, Manchester, Brian Martin Thomas, Stockport, Cheshire, and Francis Popplewell, Manchester, England, and Dario Matossi, Pamplona, Spain, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Original application Feb. 24, 1970, Ser. No. 13,766, now Patent No. 3,691,033. Divided and this application Aug. 10, 1972, Ser. No. 279,570
Claims priority, application Great Britain, Mar. 11, 1969, 12,804/69
Int. Cl. C23b *5/14, 5/46*
U.S. Cl. 204—54 R **9 Claims**

An aqueous acid tin-plating bath comprising a source of tin available for electro-plating, a source of hydrogen ions and an additive comprising from 0.0125% to 98.7% of 4,4'-di-(dimethylamino)-diphenylmethane and one or more tin-plating additives functionally active in an acidic tin-plating bath.

3,810,825
RESIN AND PROCESS FOR CURING BY EXPOSING TO IONIZING RADIATION A MIXTURE OF A VINYL ESTER RESIN, AN ALKENYL AROMATIC MONOMER AND A 2-OXAZOLINE OR GUANIDINE
Inder Mani, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed May 13, 1971, Ser. No. 143,266
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.15 **12 Claims**

The addition of at least about 0.3 weight percent of a 2-oxazoline, a guanidine or certain amines to a thermosettable mixture of an alkenyl aromatic monomer and a polymerizable vinyl ester resin reduces the dosage level of ionizing radiation required to cure the mixture.

3,810,826
RADIATION POLYMERIZABLE VINYL ESTER RESINS CONTAINING 2 - OXAZOLINE AND GUANIDINE ADDITIVES
Inder Mani, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed May 13, 1971, Ser. No. 143,268
Int. Cl. C08d *1/00;* **C08f** *1/00*
U.S. Cl. 204—159.15 **11 Claims**

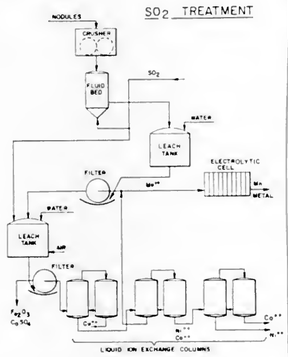
The addition of at least about 0.3 weight percent of a 2-oxazoline, a guanidine or certain amines to a thermo-

settable mixture of a nonvolatile vinyl monomer and a polymerizable vinyl ester resin reduces the dosage level of ionizing radiation required to cure the mixture.

3,810,827
METHOD FOR SEPARATING METAL VALUES FROM OCEAN FLOOR NODULE ORE

William S. Kane, Wicomic, and Paul H. Cardwell, Zanoni, Va., assignors to Deepsea Ventures, Inc.

Continuation-in-part of abandoned application Ser. No. 251,089, May 8, 1972, which is a continuation of application Ser. No. 40,586, May 26, 1970. This application Nov. 27, 1972, Ser. No. 309,713
Int. Cl. C22d *1/24, 1/14, 1/16*
U.S. Cl. 204—105 M **14 Claims**

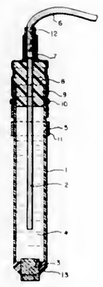


This invention provides a process for obtaining the metal values from ocean floor nodule ore. The ore comprises primarily oxides of iron and manganese plus nickel, copper and cobalt compounds. The ore is treated with an acidic reagent, e.g., SO_2, in the absence of oxygen, to form the water-soluble salt, e.g., the sulfate, of manganese, only. The ore is then leached with water to obtain a solution of the manganese salt, which may be further treated to obtain manganese metal. The ore residue can be further treated to extract the other metal values.

3,810,828
REFERENCE ELECTRODE

Alfons Seth Mikael Lindholm, Nol, Sweden, assignor to Aktiebolaget Tudor, Stockholm, Sweden

Filed Dec. 20, 1971, Ser. No. 210,082
Int. Cl. G01n *27/30*
U.S. Cl. 204—195 F **1 Claim**

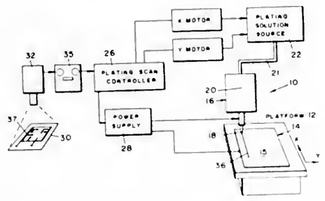


A reference electrode using cadmium metal for measuring the electrode potential in a lead-acid cell. The electrode is mounted in a cylindrical casing which has a porous plug at its lower end. Electrolyte in the cylindrical casing rapidly contacts the measurement solution (battery electrolyte) when the electrode housing is inserted through a fill cap opening in the cell housing.

3,810,829
SCANNING NOZZLE PLATING SYSTEM

James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Gerald D. Oliver, Altadena, Calif.

Filed June 28, 1972, Ser. No. 266,913
Int. Cl. B01k *3/00;* **B23p** *1/00*
U.S. Cl. 204—222 **9 Claims**

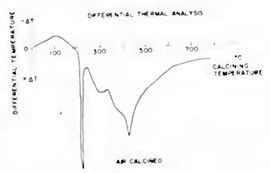


A plating system is disclosed wherein a substrate to be plated is supported on a stationary platform. A nozzle assembly with a small nozzle is supplied with a plating solution under high pressure, so that a constant-flow stream of solution is directed to the substrate. The nozzle assembly is moved relative to the substrate at a selected rate and movement pattern. A potential difference (voltage) is provided between the substrate and the solution in the assembly. The voltage amplitude is modulated so that only when the amplitude is above a minimum known value plating takes place.

3,810,830
HYDOCRACKING AND HYDRODESULFURIZATION PROCESSES UTILIZING A SALT-CONTAINING NEUTRALIZED SILICA-ALUMINA SUPPORT CALCINED AT DIFFERENT TEMPERATURE RANGES

Jakob van Klinken, Herman Wouter Kouwenhoven, and Pieter Aldert van Weeren, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Original application Oct. 8, 1969, Ser. No. 864,707, now Patent No. 3,697,444, dated Oct. 10, 1972. Divided and this application June 2, 1972, Ser. No. 259,110
Int. Cl. C10g *13/02, 13/06, 23/02*
U.S. Cl. 208—111 **14 Claims**

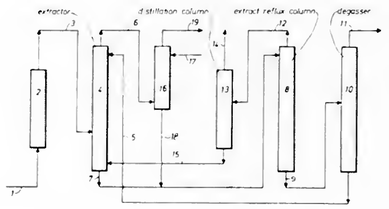


Residual oils containing asphaltenes, large amounts of sulfur and/or heavy metals are hydrodesulfurized and/or hydrocracked in a process which utilizes a catalyst prepared by first neutralizing a calcined silica-alumina support with a nitrogen base, depositing a hydrogenation metal component on the support by contacting it with an alkaline salt solution of catalytically active metals, then calcining the salt-containing support in an oxygen-containing gas at a temperature in the range of about 185–400° C., and finally calcining in an oxygen-containing gas at a temperature in the range of about 475–650° C. for at least about 1 hour. The oxygen content of the calcining gas and the first calcining time are regulated to avoid sintering the hydrogenation metal component.

3,810,831
PROCESS FOR RECOVERING CYCLOPENTENE AND CONJUGATED C_5-DIOLEFINS

Bernhard Schleppinghoff and Helmut Scherb, Dormagen, and Hans Puxbaumer, Cologne, Germany, assignors to Erdolchemie Gesellschaft mit beschrankter Haftung, Cologne, Germany

Filed July 12, 1972, Ser. No. 271,323
Claims priority, application Germany, July 21, 1971, P 21 36 495.4
Int. Cl. C07c *7/10;* **C10g** *21/20*
U.S. Cl. 208—321 **4 Claims**



Conjugated C_5-diolefins and cyclopentene are recovered from a mixture of C_5-hydrocarbons containing unsaturated C_4-hydrocarbons by a process which includes the following steps:

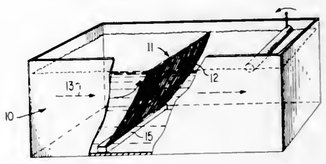
(a) subjecting said mixture to liquid-liquid extraction;
(b) removing paraffins and mono-olefins as theraffinate of the liquid-liquid extraction;
(c) feeding the extract solution to an extract reflux column;
(d) subjecting the head product from the extract reflux column to distillation and removing C_4-hydrocarbons as the head fraction and returning the sump product to the liquid-liquid extraction step; and
(e) feeding the sump product from the extract reflux column to a degasser wherein C_5-diolefinic hydrocarbons and/or cyclopentene are removed as the head product and the sump product is returned to the liquid-liquid extraction step.

3,810,832
OIL/WATER SEPARATION ACCELERATION MEDIA

Herbert M. Rhodes, New Orleans, La., assignor to Oil Mop, Inc., New Orleans, La.

Filed June 1, 1972, Ser. No. 258,506
Int. Cl. B01d *17/02;* **E02b** *15/04*
U.S. Cl. 210—23 **6 Claims**

The present disclosure is directed to an apparatus for accelerating the separation of oil from an oil/water mixture to bring the oil to the surface over as short a linear distance as possible in a linear flow of a mixture of oil and water by directing the oil/water mixture through a barrier of filaments of polypropylene arranged across the path of mixture flow which barrier is anchored at its base at the bottom of the fluid confining means such as an API oil separator or a ditch or canal with the free ends of the strips of polypropylene directed upwardly forming an inclined plane up which the oil droplets amalgamate assisted by the buoyancy of the oil and the force flow vector of the mixture passing through the fluid confining means.



3,810,833
PURIFICATION PROCESSES

Thomas Nicklin, Rochdale, England, assignor to North Western Gas Board, Altrincham, Cheshire, England

No Drawing. Filed Aug. 24, 1972, Ser. No. 283,469
Claims priority, application Great Britain, Sept. 2, 1971, 40,875/71
Int. Cl. C02b *1/46, 1/60*
U.S. Cl. 210—32 **13 Claims**

An effluent purification process for removing vanadium salts, sodium anthraquinone disulphonates and di-hydroxyanthraquinones from effluent liquors which have been used in processes for removing hydrogen sulphide from fuel gases or liquid hydrocarbons comprises the slips of passing the liquor through an adsorbent bed to remove the anthraquinone compounds and through an ion exchange material to remove the vanadium compounds.

3,810,834
TREATMENT OF WATER OR AQUEOUS SYSTEMS

Thomas Ivor Jones, Poynton, Norman Richardson, Middleton, Manchester, and Arthur Harris, Poynton, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 26, 1971, Ser. No. 202,628
Claims priority, application Great Britain, Nov. 30, 1970, 56,760/70
Int. Cl. C02b *5/06*
U.S. Cl. 210—58 **4 Claims**

Hydrolysed polymaleic anhydride is used for the treatment of water or aqueous systems containing dissolved salts of metals in order to cut down the rate at which insoluble salts are formed and to modify their nature.

3,810,835
PROCESS FOR TREATING OIL SLICKS USING CHEMICAL AGENTS

Richard L. Ferm, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Feb. 25, 1971, Ser. No. 119,036
Int. Cl. C02b *9/02*
U.S. Cl. 210—59 **8 Claims**

A process for treating an oil slick to contain it and prevent its uncontrolled spreading comprising applying to open water areas in the vicinity of the oil spill a chemical agent which repulses the oil spill. By judicious application of the chemical agent, the oil slick can be gathered into a limited area which facilitates cleanup. The chemical agent is selected from the group consisting of (1) N,N-dialkyl amides; (2) n-alkyl and n-alkylene monoethers of (a) ethylene glycol and (b) polyethylene glycol, (3) polyethylene glycol monoesters of n-alkyl acids; and (4) n-alkyl and n-alkylene monoesters of propylene glycol.

3,810,836
NON-STAINING DRILL LUBRICANTS
James H. Norton, Lambton, Ontario, Canada, assignor to Esso Research and Engineering Company
No Drawing. Filed June 1, 1972, Ser. No. 258,826
Int. Cl. C10m *3/08, 3/32*
U.S. Cl. 252—8.5 C 6 Claims

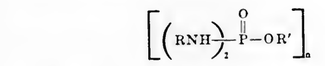
A mineral-oil-based lubricant for use in drilling of mineral ore deposits, which is non-staining towards sample cores withdrawn during the drilling, can be prepared by combining a paraffinic oil, with minor amounts of a nonionic emulsifier package and a sulfur-containing extreme pressure agent. The nonionic emulsifier package can be a combination of an alkoxylated fatty acid ester and an alkoxylated alkyl phenol or a combination of fatty acid sorbitan polyesters which have been alkoxylated to varying extents.

3,810,837
OVERBASED SULFURIZED CALCIUM ALKYLPHENOLATE MANUFACTURE
Harry Chafetz, Poughkeepsie, William H. Channing, Wappingers Falls, and Bertrand G. Morissette, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed June 27, 1972, Ser. No. 266,836
Int. Cl. C10m *1/54*
U.S. Cl. 252—42 F 5 Claims

A method of preparing overbased sulfurized alkylphenolate of antioxidant properties in hydrocarbon lubricating oil comprising first heating a mixture of sulfurized normal calcium alkylphenolate, calcium oxide, alkanoic acid of from 2 to 3 carbons, alkoxyethanol of the formula $ROCH_2CH_2OH$ where R is alkyl of from 1 to 4 carbons, and lubricating oil and subsequently contacting the heated mixture with carbon dioxide.

3,810,838
OLIGOMERIC PHOSPHORODIAMIDATE
Haakon Haugen, Beacon, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 20, 1971, Ser. No. 210,238
Int. Cl. C10m *1/48*
U.S. Cl. 252—46.7 2 Claims

The manufacture of oligomeric phosphorodiamidate characterized by the formula:



where R is alkaryl of from 12 to 24 carbons, R' is lower alkyl of from 2 to 6 carbons and *n* is an average integer of from 1 to 4 and sulfurized derivatives thereof comprising contacting a primary amine of the formula:

$$R—NH_2$$

where R is as heretofore defined with an alkyldihalophosphate characterized by the formula:



where R' is as heretofore defined and X is a halogen selected from chlorine or bromine utilizing a mole ratio of amine to said phosphate of between about 1.7:1 and 2.3:1 in the absence of solvent and catalyst at a temperature between about 170 and 200° C. while continuously blowing the reaction mixture with an inert gas, recovering the oligomeric phosphorodiamidate product and optionally contacting said product with phosphorus pentasulfide utilizing a mole ratio of pentasulfide to product of between about 0.05:1 and 0.5:1 at a temperature between about 80 and 150° C. in the presence of an inert solvent while continuously blowing the reaction mixture with an inert gas and recovering the sulfurized phosphorodiamidate reaction product. Both the phosphorodiamidate product and sulfurized phosphorodiamidate reaction product when incorporated in a hydrocarbon lubricating oil in an amount of between about 1.0 and 10 wt. percent function as a combination corrosion, oxidation and wear inhibitor (load carrying and extreme pressure additive).

3,810,839
FLEXIBLE INSULANTS FOR CONTAINERS AND CONDUITS
Leonard F. Creaser, Wirral, England, assignor to Shell Oil Company, New York, N.Y.
Original application May 13, 1970, Ser. No. 36,828, now Patent No. 3,682,824. Divided and this application Dec. 2, 1971, Ser. No. 204,380
Claims priority, application Great Britain, Nov. 11, 1969, 55,096/69
Int. Cl. C04b *43/00*
U.S. Cl. 252—62 5 Claims

An improved thermal insulating material for systems containing liquefied gases at low temperatures, said insulant being a hydrocarbon-based foam having a freezing temperature lower or slightly higher than the liquefied gases.

3,810,840
METHOD OF MANUFACTURING A MAGNETIC TAPE LACQUER, AND A MAGNETIC TAPE MANUFACTURED WITH SAID LACQUER
Johannes van Ruler and Pieter Cornelis Scholten, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Filed May 11, 1972, Ser. No. 252,188
Claims priority, application Netherlands, May 15, 1971, 7106701
Int. Cl. H01f *1/28*
U.S. Cl. 252—62.54 3 Claims

A method of manufacturing a magnetic tape lacquer in which a polymer is used as a dispersing agent for the magnetizable particles. When using nitrocellulose, suitable solvents are acetic acid esters or propyl alcohol, butyl alcohol, isobutyl alcohol, amyl alcohol and isoamyl alcohol and methyl-ethyl ketone, methyl-n-butyl ketone, methyl-isobutyl ketone, methyl-n-amyl ketone and methyl-isoalkyl ketone and mixtures thereof.

3,810,841
SOAP IMPREGNATED RESILIENT POLYURETHANE FOAMS
Ferdinand Joseph Richter, Danbury, Conn., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 879,564, Nov. 24, 1969. This application Mar. 31, 1972, Ser. No. 240,227
Int. Cl. B08b *1/00;* C11d *17/04*
U.S. Cl. 252—91 1 Claim

Flexible polyurethane sponges, having a dry bland soap integrally incorporated therein, are provided by forming and foaming a mixture comprising a polyester with a hydroxyl number of 40 to 80, a molecular weight of 2,000 to 6,000 and a carboxy number of less than 1.5; an aromatic diisocyanate; water; a basic catalyst; and finely divided and intimately mixed bland soap with or without an effective amount of a germicide in an amount equal to 25 to 110% of the combined weight of the polyester and the diisocyanate to thereby form a sponge having from 60 to 100 pores per inch and the soap evenly distributed therethrough, in a finely subdivided state.

3,810,842
COMPOSITION FOR DECONTAMINATING CHEMICAL WARFARE AGENTS
Paul R. Steyermark, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Feb. 15, 1966, Ser. No. 529,174
Int. Cl. C11d *1/18*
U.S. Cl. 252—153 10 Claims

1. A composition consisting essentially of about 0.05–5 moles of at least one strong base selected from the group consisting of alkali metal hydroxides, alkali metal alkoxides, alkali metal phenoxides, and quaternary ammonium hydroxides per liter in a solvent consisting of about 30–100 parts of dimethyl sulfoxide and about 0–70 parts of at least one cosolvent selected from the group consisting of water and alcohols selected from the group consisting of alkanols having 1–5 carbon atoms per molecule, glycols having 2–5 carbon atoms per molecule, and triols having 3–5 carbon atoms per molecule.

3,810,843
SILICONE-SILICA COMPOSITIONS
George M. J. Slusarczuk and John F. Brown, Jr., Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed May 28, 1971, Ser. No. 148,182
Int. Cl. B01j *13/00;* C02b *1/14*
U.S. Cl. 252—313 S 6 Claims

Water-dispersed compositions resulting from contacting soluble silica (e.g., silicic acid sol) and at least 1 organo-functional silane coupling agent that has been hydrolyzed in an aqueous system, said organo-functional silane having the general formula R'_nSiR_{4-n} wherein R' is a saturated, unsaturated or aromatic hydrocarbon residue that has been functionalized by a member selected from the group consisting of amino, azo, thia, dithia, oxa, and multiples and combinations thereof; R is a hydrolyzable group compatible with R' selected from the group consisting of alkoxy, phenoxy, halo, amino, dialkylamino, and tertiary peroxyalkyl, and *n* is an integer having a value of 1–3. Some of these products have been shown to be very effective flocculants, particularly for the removal of biocolloids from waste water. Water dispersions of clay have been successfully employed instead of the silicic acid sol in the flocculation of biocolloids.

3,810,844
PHOSPHORUS-TIN OXIDE OXIDATIVE DEHYDROGENATION CATALYST
Emory W. Pitzer, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation of abandoned application Ser. No. 39,544, May 21, 1970. This application June 9, 1972, Ser. No. 261,474
Int. Cl. B01j *11/82*
U.S. Cl. 252—435 9 Claims

The activity of a catalyst useful for the oxidative dehydrogenation of olefins comprising oxides of phosphorus and tin is improved by treating the catalyst with superheated steam to produce a catalyst having a surface area of which at least 2 $m.^2/g.$ is comprised of pores having diameters of at least 700° A.

3,810,845
CATALYST AND PROCESS OF PREPARING
David G. Braithwaite, Carl E. Johnson, and Virgil L. Seale, Brookhaven, Miss., assignors to Nalco Chemical Company, Chicago, Ill.
No Drawing. Filed Sept. 28, 1972, Ser. No. 292,895
Int. Cl. B01j *11/40*
U.S. Cl. 252—455 Z 17 Claims

A method of bonding new active catalytic surfaces on to a catalyst support in order to produce a catalyst for petroleum or petrochemical processing is described.

3,810,846
HARD-SURFACE TREATING COMPOSITIONS
Ronald Edward Atkinson, Northumberland, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Apr. 11, 1972, Ser. No. 243,088
Claims priority, application Great Britain, Apr. 14, 1971, 9,375/71
Int. Cl. C11d *1/40*
U.S. Cl. 252—529 4 Claims

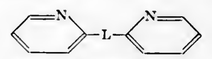
Surface-treating compositions containing surface-active agents able to exist in substantive cationic or non-substantive and non-cationic form are disclosed. The compositions contain a buffering agent to control pH and the cationic or non-cationic character of the surface-active agents and are effective in the treatment of hard surfaces. Methods of treating hard surfaces to provide soil-release properties are also disclosed.

3,810,847
PROCESS FOR PREPARING FREE-FLOWING α-OLEFIN SULFONATE POWDERS WHILE HYDROLYZING SULTONES
Aage Kristiansen, Stenungsund, Sweden, assignor to Mo Och Domsjo Aktiebolag, Ornskoldsvik, Sweden
No Drawing. Filed Jan. 22, 1971, Ser. No. 108,997
Claims priority, application Sweden, Jan. 23, 1970, 825/70
Int. Cl. C11d *3/065, 1/14, 11/04, 11/02*
U.S. Cl. 252—536 12 Claims

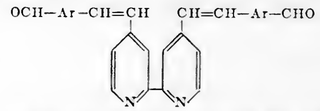
A process is provided for preparing free-flowing α-olefin sulfonate powders which comprises drying the α-olefin sulfonate under sultone-hydrolyzing conditions in the presence of sufficient alkali to neutralize any free sulfonic acids present as well as free alkene sulfonic acids formed by hydrolysis of sultones present in the α-olefin sulfonate, and recovering a free-flowing α-sulfonate powder substantially free from sultones.

3,810,848
COMPLEX FORMING POLYMERS FROM DIMETHYL DIPYRIDYL COMPOUNDS
Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Original application July 28, 1970, Ser. No. 59,024, now abandoned. Divided and this application Jan. 9, 1973, Ser. No. 322,163
Claims priority, application France, July 28, 1969, 6925747; Aug. 26, 1969, 6929196
Int. Cl. C08g *33/02*
U.S. Cl. 260—2 R 3 Claims

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR_1 or NR_1 link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates



where Ar is aryl are prepared from the aryl dialdehyde and 4,4'-dimethyl-2,2'-dipyridyl.

3,810,849

MOLYBDENUM OXALATE-ANION EXCHANGE RESIN CATALYST

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 28, 1972, Ser. No. 293,247

Int. Cl. C07c *29/02;* **C08f** *19/20, 27/04*

U.S. Cl. 260—2.1 E **2 Claims**

Macromolecular catalysts as exemplified by molybdenum (VI) oxalate chemically bonded to an anion exchange resin is an active catalyst for the reaction of water with olefins to form alcohols.

3,810,850

PIPERAZINE PHOSPHATES AS FIRE RETARDANTS FOR ORGANIC POLYMERS

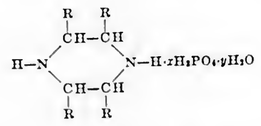
Richard Lee Rowton, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Jan. 8, 1973, Ser. No. 321,794

Int. Cl. C08g *51/60*

U.S. Cl. 260—2.5 AJ **26 Claims**

Piperazine phosphates of the formula



wherein x is 1 or 2, y is 0 or 1 and each R, taken individually, is hydrogen or lower alkyl, and piperazine pyrophosphate act as fire retardants for organic polymers.

3,810,851

FLAME RETARDANT FLEXIBLE POLYURETHANE FOAMS

Arthur J. Norman, Tallmadge, and David S. Cobbledick, Kent, Ohio, assignors to The General Tire & Rubber Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 248,502, Apr. 28, 1972. This application Apr. 13, 1973, Ser. No. 350,852

Int. Cl. C08g *22/44*

U.S. Cl. 260—2.5 AJ **14 Claims**

Low density, flexible and semiflexible polyetherurethane foams containing halogen-containing polymers such as polyvinyl chloride are rendered resistant to flame to the point of being self-extinguishing by the use of minor amounts of alumina trihydrate and antimony trioxide. Part of the halogen-containing polymer may be replaced with a chlorinated paraffin.

3,810,852

THIXOTROPIC AQUEOUS DISPERSIONS OF POLYMERS AND COPOLYMERS DERIVED FROM ETHYLENICALLY UNSATURATED MONOMERS

Ian McAlpine, Manchester, and David John Clough, Bolton, England, assignors to Magnesium Elektron Limited, Manchester, England

No Drawing. Continuation of abandoned application Ser. No. 112,036, Feb. 2, 1971. This application Mar. 29, 1973, Ser. No. 345,839

Claims priority, application Great Britain, Feb. 2, 1970, 4,887/70

Int. Cl. C09d *3/74, 5/04*

U.S. Cl. 260—17 R **9 Claims**

This invention is concerned with thixotropic, aqueous dispersions of polymers and copolymers, such dispersions find many applications in industry and the present invention is particularly, but not exclusively, directed to the application of the dispersions in the manufacture of paint, for example, emulsion paint. The dispersions of the invention contain a zirconium carbonate complex which imparts to the dispersive properties not obtainable with previously used zirconium derivations.

3,810,853

ACID-CURING THERMOSETTING COATING COMPOSITION

Frank James, Houston, Tex., and Richard A. Jones, Terre Haute, Ind., assignors to Commercial Solvents Corporation, New York, N.Y.

No Drawing. Original application Sept. 15, 1969, Ser. No. 858,102. Divided and this application July 24, 1972, Ser. No. 274,355

Int. Cl. C09d *3/52, 3/56, 3/66*

U.S. Cl. 260—21 **17 Claims**

A catalyzed thermosetting composition, useful for coatings and inks, consisting of one or more acid-curable resins and as a latent catalyst composition therefor an amino alkanediol hydrochloride and an alkanolamine dissolved in a lower alkanol or etheralkanol. The composition has good shelf life and is non-corrosive to containers. Preferred catalyst compositions consist of 2-amino-2-ethyl-1, 3-propanediol hydrochloride and 2-amino-2-methyl-1-propanol dissolved in isobutyl alcohol or in dipropylene glycol monomethyl ether.

3,810,854

PROCESS FOR MANUFACTURING INITIAL AMINOPLAST CONDENSATES

Kazuo Doi, Osaka, and Yoshihiro Kitsuda, Higashi Osaka, Japan, assignors to British Industrial Plastics Limited, Manchester, England

No Drawing. Filed Aug. 4, 1972, Ser. No. 278,022

Claims priority, application Japan, Aug. 5, 1971, 46/59,169

Int. Cl. C08g *9/10*

U.S. Cl. 260—21 **9 Claims**

A thermosetting aminoplast resin material is manufactured by effecting thermal mixing of urea or thiourea, paraformaldehyde and hexamethylene tetramine in a molar ratio within the range from 1:1.0:0.01 to 1:25:0.2 respectively, in the absence of a solvent, to produce a condensate which, when solid, is amorphous and has a softening point of less than 100° C. This material can be compounded with a filler and hardener and optionally with other moulding material components and the resulting compound granulated in a granular extrusion kneader to form a thermosetting aminoplast moulding composition.

3,810,855

POLYMER DISPERSIONS AND PROCESS FOR PREPARATION OF THE SAME

Hideyoshi Tugukuni, Sakai, and Mitsuhiro Matsuda, Tondabayashi, Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka-shi, Japan

No Drawing. Filed Oct. 5, 1972, Ser. No. 295,198

Claims priority, application Japan, July 7, 1972, 47/68,038

Int. Cl. C09d *3/58, 3/64, 5/02*

U.S. Cl. 260—22 CB **16 Claims**

This invention relates to a polymer dispersion useful especially as a coating composition, which comprises an organic liquid as a dispersion medium and an oil-modified epoxyester resin, oil-modified epoxy-modified alkyd resin, urethanated oil resin, maleic oil resin or oil-modified alkyd resin, said resin being solvated with the organic liquid and being block- or graft-polymerized with copolymerizable monomers, and to a process for the preparation of such polymer dispersion. This invention relates also to a polymer dispersion of the above type, in which an organic liquid having an aniline point below 60° C. and an aromatic hydrocarbon content of less than 12% by weight is used as the dispersion medium.

3,810,856

CHLOROPRENE POLYMER PROCESSING

Albert J. Dalhuisen, Sunnyvale, and William H. Deis, Belmont, Calif., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 87,318, Nov. 5, 1970. This application Nov. 9, 1972, Ser. No. 305,043

Int. Cl. C08d *9/14*

U.S. Cl. 260—23.7 M **42 Claims**

Improved compounding and processing of chloroprene polymers employing a dispersible form of MgO and pentaerythritol and esters thereof.

3,810,857

BITUMINOUS COMPOSITIONS CONTAINING PLASTIC OR ELASTOMER POLYSULPHIDE POLYMERS

Claude Garrigues, Noisy-le-Grand, Albert Nicolau, Pau, and Jean-Baptiste Signouret, Billere, France, assignors to Societe Nationale des Petroles d'Aquitaine Tour Aquitaine, Courbevoie, France

No Drawing. Filed Nov. 15, 1971, Ser. No. 199,039

Claims priority, application France, Nov. 20, 1970, 7041788; Oct. 20, 1971, 7137690

Int. Cl. C08g *51/52;* **C08h** *13/08;* **C10c** *3/02*

U.S. Cl. 260—28 **22 Claims**

A process for preparing bituminous compositions for standard applications of bitumen, characterized by the fact that variable amounts of one or more plastic or elastomer polysulphide polymers, free from non-combined elemental sulphur, and which will mix with a fluxing oil, bitumen, bitumen cuts or fractions of such cuts, are added to the bitumen.

New bituminous compositions obtained by means of the process in question. These compositions have many applications, particularly in road-building, as a waterproofing material, for the coating of paper, for the preparation of seaproof paints, in soundproofing, in hydraulic engineering and metal coverings.

3,810,858

METHOD FOR RECOVERING POLYAMIDE ACID VALUES FROM DETERIORATED DISPERSIONS OF POLYAMIDE ACID

Edith M. Boldebuck, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,519

Int. Cl. C08g *20/32*

U.S. Cl. 260—29.2 N **5 Claims**

A method is provided for recovering polyamide acid values from deteriorated polyamide acid dispersions useful for electrocoating conducting substrates. Solids which have been mechanically separated by conventional means from such deteriorated aqueous polyamide acid dispersions can be employed to make useful polyamide acid mixtures.

3,810,859

THICKENABLE ALKYL ACRYLATE LATICES

Bela K. Mikofalvy, Sheffield Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 57,301, July 22, 1970. This application May 22, 1972, Ser. No. 255,539

Int. Cl. C08f *15/40, 37/00*

U.S. Cl. 260—29.6 RW **9 Claims**

Alkyl acrylate polymer latices capable of developing high viscosities are prepared by intially polymerizing lower alkyl acrylates and a glycidyl ester to form a base polymer and then overpolymerizing an olefinically unsaturated carboxylic acid monomer. The resulting latices may be conveniently thickened by the addition of base without adding natural or synthetic thickeners to the latex.

3,810,860

POLYMERIZATION OF CRUDE PETROLEUM HYDROCARBON

Earl N. Doyle, Houston, Tex., assignor to Petro-Form Industries (Trinidad) Ltd., San Fernando, Trinidad and Tobago, West Indies

No Drawing. Filed Apr. 12, 1972, Ser. No. 243,439

Int. Cl. C08g *22/08, 51/26, 51/36*

U.S. Cl. 260—33.6 UB **49 Claims**

A two-component system adapted to react to form a highly cross-linked thermosetting polymer is disclosed. The first component comprises a crude petroleum hydrocarbon and an arylene diisocyanate which is miscible with the crude petroleum hydrocarbon. The second component comprises a crude petroleum hydrocarbon, hydrogen donor and an organic acid. The hydrogen donor may be either a tertiary amine having at least one hydroxyl group or a mixture of a tertiary amine with a polyol. Both the hydrogen donor and the organic acid are miscible with the crude petroleum hydrocarbon.

Thermosetting crude petroleum polymers, such as may be prepared from the two-component system are also disclosed. Such polymers contain from 40 percent to 80 percent by weight crude petroleum hydrocarbon.

3,810,861

SELF-EXTINGUISHING REINFORCED POLYAMIDE MOULDING COMPOSITIONS

Peter Tacke, Krefeld-Bockum, and Karl-Heinz Hermann, Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 17, 1972, Ser. No. 281,299

Claims priority, application Germany, Aug. 17, 1971, P 21 41 036.6

Int. Cl. C08g *51/10, 51/58*

U.S. Cl. 260—37 N **4 Claims**

Self-extinguishing polyamide moulding compositions which contain from 1 to 25% by weight, based on the whole composition, of at least one organic halogen compound having a halogen-content from 20 to 86% by weight, and from 1 to 25% by weight, based on the whole composition, of a mixture of an oxide selected from the group consisting of zinc oxide and iron oxide and at least one salt of a metal in Groups 1*a*, 2*a* or 2*b* of the Periodic System of Elements and a weak acid selected from the group consisting of an aliphatic carbon acid having 1 to 4 carbon atoms, an oxygen acid from an element in Groups 3*a*, 4*a*, 5*a*, or 6*a* of the Periodic System of Elements and H_2S.

3,810,862

CHAR-FORMING, FLAME RETARDANT POLYOLEFIN COMPOSITION

Ronald D. Mathis, Taylors, and James S. Dix, Greenville, S.C., assignors to Phillips Petroleum Company

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,277

Int. Cl. C09k *3/28*

U.S. Cl. 260—42.45 **5 Claims**

Normally solid propylene homopolymer or a propylene copolymer with a minor amount of another 1-olefin containing two to eight carbon atoms per molecule and mixtures thereof are formed into a char-forming, flame retardant composition by incorporating ammonium poly-

phosphate, dipentaerythritol, melamine, and for best results an inorganic filler. Included among fillers are titanium dioxide and kaolin.

3,810,863

POLYMERIZABLE UNSATURATED POLYESTER RESIN COMPOSITIONS AND ARTICLES MADE THEREFROM

John A. Hatton, Jr., Verona, and John S. McNally, Lower Burrell, Pa., assignors to Koppers Company, Inc.

No Drawing. Original application Oct. 22, 1969, Ser. No. 868,603, now Patent No. 3,665,055. Divided and this application May 18, 1972, Ser. No. 254,798

Int. Cl. C08f *43/08*

U.S. Cl. 260—40 R **27 Claims**

Styrene-maleic anhydride copolymer is added to a polymerizable composition containing an unsaturated polyester resin and a vinyl monomeric material which is capable of reacting with the polyester resin to form a thermoset polymer. The composition can be molded into articles as it is polymerized. The articles have improved properties, including improved surface properties, due to the use of the styrene-maleic anhydride copolymer. Glass fibers, as well as other materials generally included in polymerizable polyester compositions can be used also. The composition can be used to prepare chemically thickened resin mats or prepregs which can be molded and cured into articles having improved properties, including improved surface and dimensional stability properties.

3,810,864

TRANSLUCENT POLYVINYLCHLORIDE PLASTIC COMPOSITION AND METHOD FOR PREPARING SAME

Edward L. White, R.D. N-3, Freehold, N.J. 07728; Joseph Schwarcz, 1204 Grant Ave., Plainfield, N.J. 07060; and William D. Lang, 523 Lower Alden Drive, Rahway, N.J. 07065

No Drawing. Original application June 1, 1971, Ser. No. 149,021, now Patent No. 3,740,245. Divided and this application Dec. 27, 1972, Ser. No. 318,773

Int. Cl. C08f *45/04;* **C09d** *5/18*

U.S. Cl. 260—45.75 R **2 Claims**

This invention relates to an improved substantially translucent plastic composition having enhanced flame retardancy prepared by adding to a plastic composition a new composition of matter prepared by reacting antimony trioxide or an antimony trioxide generating compound with a substrate comprising hydrous silica or a hydrous alkali or alkaline earth metal silicate in a weight ratio in the range of from 1:4 to 1:1 on an antimony trioxide:substrate basis, the reaction being carried out by calcining an admixture of said compounds at a temperature within the range of from 400° C. to 550° C. in an oxygen containing atmosphere.

3,810,865

DIALLYL PHTHALATE COMPOSITIONS CONTAINING DIACETONE ACRYLAMIDE

James L. Thomas, Baltimore, Md., assignor to FMC Corporation, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 33,927, May 1, 1970. This application Feb. 23, 1973, Ser. No. 335,254

Int. Cl. C08f *21/00*

U.S. Cl. 260—42.18 **3 Claims**

Diallyl phthalate prepolymer compositions having melt viscosites low enough to be used for encapsulating pressure-sensitive devices, whch are blends of diallyl phthalate prepolymer and diacetone acrylamide.

3,810,866

POLYACRYLATES CONTAINING FLAME RETARDANT

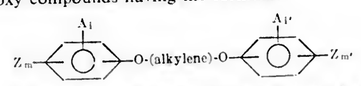
Arnold L. Anderson, 130 Carolina St., Alma, Mich. 48801

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,777

Int. Cl. C08f *45/58, 45/60*

U.S. Cl. 260—45.9 R **17 Claims**

Plastic compositions containing polyacrylates and bisphenoxy compounds having the formula:



wherein Z is bromine, *m* and *m'* are integers having a value of 1–4, *i* and *i'* are integers having a value of 1 or 2, alkylene is a straight or branched chain alkylene group having from 1 to 6 carbon atoms and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl or halo-benzyl.

3,810,867

POLYACRYLATE PLASTIC COMPOSITIONS CONTAINING PHENOLIC ETHER FLAME RETARDANTS

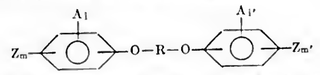
Arnold L. Anderson, 130 Carolina St., Alma, Mich. 48801

No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,775

Int. Cl. C08f *45/58, 45/60*

U.S. Cl. 260—45.9 R **14 Claims**

Plastic compositions containing polyacrylates and bisphenoxy compounds having the formula:



wherein Z is bromine or chlorine, *m* and *m'* are integers having a value of 1–5, *i* and *i'* are integers having a value of 0–2, R is herein defined and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl or halo-benzyl.

3,810,868

DIMETHYLTIN MERCAPTO ESTER STABILIZERS FOR HALOGENATED RESINS

Lewis B. Weisfeld, Princeton, N.J., and Robert C. Witman, Cincinnati, Ohio, assignors to Cincinnati Milacron Chemicals, Inc., Reading, Ohio

No Drawing. Continuation-in-part of application Ser. No. 177,516, Sept. 2, 1971. This application Dec. 21, 1972, Ser. No. 317,228

Int. Cl. C08f *45/62*

U.S. Cl. 260—45.75 K **18 Claims**

Dimethyltin derivatives of lower toxicity are prepared by reducing the amount of trimethyltin impurity.

3,810,869

OXIDATIVELY STABILIZED POLYMER COMPOSITIONS

Edward F. Zaweski, Pleasant Ridge, Mich., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Original application Aug. 22, 1967, Ser. No. 662,277. Divided and this application May 6, 1970, Ser. No. 35,283

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.85 B **7 Claims**

Organic material is stabilized by small amounts of esters of [(dihydrocarbyl-4-hydroxybenzyl)thio- or oxy-]

alkanoic acids. For example, polypropylene is stabilized by pentaerythritol tetrakis[2-[(3,5-di-tert-butyl-4 - hydroxybenzyl)thio]acetate]. Dialkylthio-dialkanoates and phosphites act as synergists.

3,810,870

AROMATIC POLYETHERS

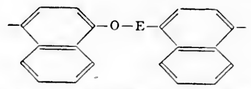
Ronald George Feasey, Knebworth, and John Leslie Freeman, St. Neots, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 12, 1972, Ser. No. 252,555

Int. Cl. C08g *23/00*

U.S. Cl. 260—47 R **13 Claims**

A polymer is provided having recurring units of the formula



where E is preferably a direct link or may be a group having the formula —X—O— where X is divalent non-polar residue.

3,810,871

POLYURETHANE COATING COMPOSITION SUITABLE FOR USE IN LOW TEMPERATURE ENVIRONMENTS

Alfred E. Borchert, Cherry Hill, N.J., Frank M. Goff, Springfield, Pa., and Jerry Miron, Livingston, N.J., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Nov. 3, 1972, Ser. No. 303,432

Int. Cl. C08g *22/14*

U.S. Cl. 260—47 CB **15 Claims**

A polyurethane coating composition suitable for coating metals exposed to low temperature environments having high adhesion, flexibility, impact strength, abrasion resistance, tensile strength and tear resistance, together with corrosion prevention properties comprising the reaction product of a polyaryl polyisocyanate with a mixture of polyhydroxyl polydiene, allyl ethers of methylol-substituted phenols and N,N-di(hydroxyisopropyl)aniline having incorporated therein a suspending agent for the allyl ethers of the methylol-substituted phenols. The preferred suspending agent is carbon black since it also acts as a reinforcing agent.

3,810,872

COMPLEX FORMING POLYMERS PREPARED FROM DIALDEHYDE DIPYRIDYL COMPOUNDS

Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

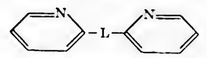
No Drawing. Continuation of application Ser. No. 59,024, July 28, 1970. This application Jan. 9, 1973, Ser. No. 322,165

Claims priority, application France, July 28, 1969, 6925747; Aug. 26, 1969, 6929196

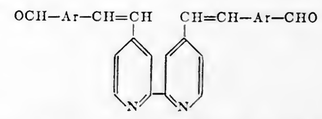
Int. Cl. C08g *3/00*

U.S. Cl. 260—64 **7 Claims**

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR, or NR, link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates.



where Ar is aryl are prepared from the aryl dialdehyde and 4,4'-dimethyl-2,2'-dipyridyl.

3,810,873

COMPLEX FORMING POLYMERS PREPARED FROM A DIALDEHYDE DIPYRIDYL COMPOUND AND POLYVINYL ALCOHOL

Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

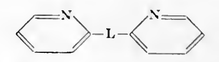
No Drawing. Original application July 28, 1970, Ser. No. 59,024. Divided and this application Jan. 9, 1973, Ser. No. 322,164

Claims priority, application France, July 28, 1969, 6925747; Aug. 26, 1969, 6929196

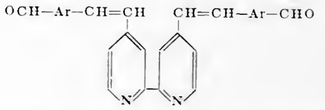
Int. Cl. C08g *11/00*

U.S. Cl. 260—67 R **3 Claims**

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR, or NR, link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates.



where Ar is aryl are prepared from the aryl dialdehyde and 4,4'-dimethyl-2,2'-dipyridyl.

3,810,874

POLYMERS PREPARED FROM POLY(PERFLUOROALKYLENE OXIDE) COMPOUNDS

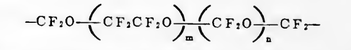
Ronald A. Mitsch, Little Canada, and Joseph La Mar Zollinger, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 805,885, Mar. 10, 1969. This application Sept. 8, 1970, Ser. No. 70,540

Int. Cl. C08g *17/04, 22/02, 22/16*

U.S. Cl. 260—75 H **5 Claims**

Polymeric materials having a backbone comprising segments containing poly(perfluoroalkylene oxide) having the structure



Possessing unusual low temperature flexibility as well as generally good high temperature stability and resistance to solvents. Monomeric precursors and methods of preparation of said precursors and polymeric materials are de-

scribed. The polymers are useful as films, sealants, binders and as molded and extruded articles such as gaskets, O-rings, and hose-linings for cryogenic applications.

3,810,875

FLUORINE-CONTAINING BLOCK COPOLYMERS

David E. Rice, Woodbury, and Robert L. Hansen, Roseville, Minn. (both 3M Center, St. Paul, Minn. 55101)

No Drawing. Continuation-in-part of abandoned application Ser. No. 70,541, Sept. 8, 1970. This application Aug. 2, 1971, Ser. No. 168,373

Int. Cl. C08f *29/14, 29/16*

U.S. Cl. 260—899 **18 Claims**

Poly(perfluoroalkylene oxide) polyperoxides, such as the diacyl peroxide of poly(perfluoroalkylene oxide), are used to initiate the free radical polymerization of ethylenically-unsaturated monomers to produce block copolymers comprising alternating poly(perfluoroalkylene oxide) blocks and polyalkylene blocks. These block copolymers, as such or as cross-linked, have very good low temperature flexibility, i.e., low glass transition temperatures, which makes them very useful for gaskets, O-rings, sealants, and other shaped articles which can be used even in cryogenic environs.

3,810,876

PROCESS OF INCREASING THE MOLECULAR WEIGHT OF MOLTEN POLYAMIDES WITH DIARYL ESTERS

Clifton Douglas Cowell and John Richardson Wright, Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of abandoned application Ser. No. 868,057, Oct. 21, 1969. This application Feb. 4, 1972, Ser. No. 223,742

Int. Cl. C08g *20/38*

U.S. Cl. 260—78 SC **11 Claims**

A process for increasing the chain length and hence the viscosity of synthetic linear polyamides, whilst preserving the linearity by means of addition of a defined class of diaryl esters. Also included in the invention are the polymers with increased viscosity and shaped products made therefrom.

3,810,877

POLYACID HALIDE MODIFIED COPOLYMERS OF VINYLPYRIDINES AND ACRYLAMIDE OR METHACRYLAMIDE

Richard C. Doss, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Feb. 18, 1972, Ser. No. 227,657

Int. Cl. C08f *15/02*

U.S. Cl. 260—78.4 D **10 Claims**

Sewage and water are chemically conditioned with polyacid halide modified copolymers of vinylpyridine with acrylamide or methacrylamide. Coagulation, flocculation, and filtration in sewage and water treatment processes are significantly improved by the use of the aforesaid modified copolymers.

3,810,878

PROCESS FOR PREPARING POLYMERS

Hideo Sato and Kunitoshi Shimizu, Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Sept. 9, 1971, Ser. No. 179,227

Claims priority, application Japan, Sept. 22, 1970, 45/82,503

Int. Cl. C08f *1/62*

U.S. Cl. 260—78.5 B **10 Claims**

Process for preparing a polymeric material which comprises polymerizing acrylonitrile or acrylonitrile admixed with a minor amount of at least one ethylenically unsaturated compound copolymerizable therewith in the presence of a catalyst system consisting of redox type catalyst and at least one oxime in an aqueous medium. Thus produced polymers or copolymers may be used as starting materials for acrylic synthetic fibers superior in both whiteness and heat stability of whiteness.

3,810,879

METHOD FOR MAKING AROMATIC HYDROCARBON POLYMERS AND PRODUCTS PRODUCED THEREBY

Allan S. Hay, Schenectady, and Howard M. Relles, Rexford, N.Y., assignors to General Electric Company

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,786

Int. Cl. C08f *5/00, 7/02*

U.S. Cl. 260—93.5 R **2 Claims**

An organometallic condensation polymerization method is provided for making certain aromatic hydrocarbon polymers involving the lithiation of particular aromatic diolefins, such as compounds having two isolated 1-aryl-1,2-dialkylethylene groups in a single molecule, for example, 2,2-bis-(4-phenylcyclohex-3-enyl) propane. The resulting polymers are film forming and can be employed as dielectrics for making capacitors.

3,810,880

PROCESS FOR THE PREPARATION OF HUMAN ACTH AND PROTECTED HUMAN ACTH

Kalman Medzihradszky, Sandor Bajusz, Lajos Kisfaludy, Miklos Low, Zoltan Paulay, Laszlo Szporny, and Zsuzsanna Lang, Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

No Drawing. Continuation of abandoned application Ser. No. 666,510, Sept. 8, 1967. This application Dec. 9, 1969, Ser. No. 883,660

Claims priority, application Hungary, Sept. 10, 1966, RI 306; Mar. 28, 1967, RI 317

Int. Cl. C07c *103/52*

U.S. Cl. 260—112.5 **2 Claims**

This invention relates to the synthetic preparation of human corticotropine and analogous biologically active polypeptides having an amino acid sequences corresponding to that of natural corticotropine.

3,810,881

PEPTIDES HAVING D-α-PHENYLGLYCINE, L-LYSINE AND L-ORNITHINE IN POSITIONS 1, 17 AND 18, RESPECTIVELY

Werner Rittel, Basel, and Max Brugger, Birsfelden, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 7, 1972, Ser. No. 260,554

Claims priority, application Switzerland, June 18, 1971, 8,932/71

Int. Cl. C07c *103/52;* **C07g** *7/00*

U.S. Cl. 260—112.5 **5 Claims**

Peptides and peptide amides containing 18–39 aminoacids of the N-terminus of natural corticotropins, but in which the first aminoacid is replaced by D-α-phenylglycine and the aminoacids in the positions 17 and 18 are replaced by L-lysine or L-ornithine, and analogues of these compounds.

3,810,882

COMPOSITION AND PROCESS FOR CROSS-LINKING MACROMOLECULAR POLYSACCHARIDE SOLUTIONS

William C. Browning and Billy G. Chesser, Houston, Tex., assignors to Milchem Incorporated, Houston, Tex.

Original application June 18, 1970, Ser. No. 47,325, now Patent No. 3,697,498. Divided and this application Aug. 21, 1972, Ser. No. 282,376

Int. Cl. C07c *3/00*

U.S. Cl. 260—209 R **4 Claims**

A cross-linking agent for macromolecular polysaccharide materials consisting essentially of a chelating composition formed from (1) an organic polyelectrolyte ligand component, and (2) a component of a metal of

the first series of the transition elements of the Periodic Table. This cross-linking agent has been found to provide enhanced rheological properties without obtaining metal ion overtreatment characteristics. In a preferred form, said cross-linking agent also includes a compound containing a metal from Group II of the Periodic Table. The cross-linked materials may be utilized in textile sizing agents, paints, drilling fluids, and the like.

3,810,883

ADENOSINE 3,5-CYCLIC MONOPHOSPHATE PALMITATES

Charles Giles Smith, Princeton, N.J., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed June 1, 1972, Ser. No. 258,677

Int. Cl. C07d *51/54*

U.S. Cl. 260—211.5 R **2 Claims**

The two new compounds 2'-O-palmitoyladenosine 3'-5'-cyclic monophosphate and N^6,2'-O-dipalmitoyladenosine-3'-5'-cyclic monophosphate are potent inhibitors of adenylate cyclase and are useful for the suppression of hyperhormonal states such as hyperthyroidism and hyperadrenalism.

3,810,884

1-ADAMANTYL-2-CARBOXY-AZACYCLIC COMPOUNDS

Elijah H. Gold, West Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed Nov. 17, 1970, Ser. No. 90,474

Int. Cl. C07d *25/00, 27/04, 29/24*

U.S. Cl. 260—239 A **6 Claims**

Disclosed herein are substituted 1-(1-adamantyl)-2-carboxy-azacyclic compounds and certain derivatives thereof. Their compositions are particularly useful in the treatment of parkinsonism.

3,810,885

NOVEL STEROIDS AND PROCESSES

Robert Bucourt, Paris, Andre Pierdet, Noisy-le-Sec, Jean-Claude Gasc, Bondy, and Lucien Nedelec, Clichy-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France

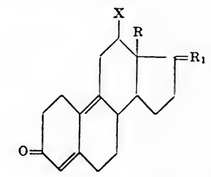
No Drawing. Continuation-in-part of application Ser. No. 782,425, Dec. 9, 1968. This application Oct. 4, 1971, Ser. No. 186,483

Claims priority, application France, Dec. 12, 1967, 131,869

Int. Cl. C07c *173/00*

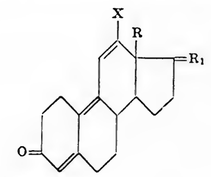
U.S. Cl. 260—239.55 C **32 Claims**

Novel 12β-alkyl-$\Delta^{4,9}$-gonadienes of the formula



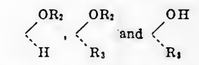
Ia

and 12-alkyl-$\Delta^{4,9,11}$-gonatrienes of the formula



Ib

wherein R is alkyl of 1 to 3 carbon atoms, X is alkyl of 1 to 3 carbon atoms and R_1 is selected from the group consisting of



wherein R_2 is selected from the group consisting of hydrocarbyl of 1 to 10 carbon atoms and acyl of an organic carboxylic acid of 1 to 18 carbon atoms and R_3 is selected from the group consisting of saturated hydrocarbon of 1 to 6 carbon atoms and unsaturated hydrocarbon of 2 to 6 carbon atoms which compounds possess hormonal properties and to two novel processes for their preparation and novel intermediates therefor.

3,810,886

DERIVATIVES OF DIGITOXIGENIN

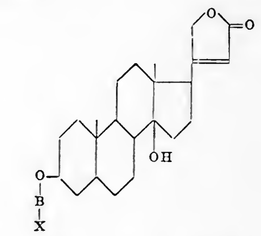
Herman Rutner, Hackensack, N.J., and Raul Rapun, Suffern, and Nathan Lewin, New York, N.Y., assignors to Becton, Dickinson and Company, East Rutherford, N.J.

No Drawing. Filed May 24, 1971, Ser. No. 146,542

Int. Cl. C07c *173/02*

U.S. Cl. 260—239.57 **29 Claims**

Derivatives of digitoxigenin having the following structural formula:



wherein B is succinyl, maleyl, o-phthaloyl or fumaryl and X is an unlabeled or radioiodinated amino acid radical.

A preferred compound is radioiodinated 3-succinyl digitoxigenin-L-tyrosine and the compounds, which are water soluble, are useful for the radioimmunological assay of digitoxin.

3,810,887

NOVEL 11β-ALKOXY STEROIDS

Robert Bucourt, Paris, André Pierdet, Noisy-le-Sec., and Jean Salmon, Paris, France, assignors to Roussel-UCLAF, Paris, France

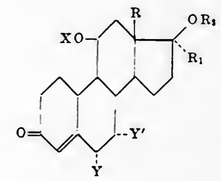
No Drawing. Filed Nov. 23, 1971, Ser. No. 201,564

Claims priority, application France, Nov. 24, 1970, 7042158

Int. Cl. C07c *169/08, 173/00*

U.S. Cl. 260—239.55 C **11 Claims**

11β-alkoxy-Δ^4-gonenes of the formula



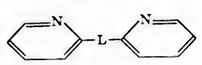
I

wherein R and X are alkyl of 1 to 4 carbon atoms, R_1 is a saturated or unsaturated hydrocarbon of 1 to 6 carbon atoms, R_2 is selected from the group consisting of hydrogen and acyl of an organic carboxylic acid of 1

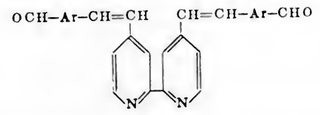
to 18 carbon atoms and Y and Y' are selected from the group consisting of hydrogen and methyl and the enolic esters thereof with an organic carboxylic acid of 1 to 18 carbon atoms which possess anti-androgenic and anti-estrogenic activity, their preparation and novel intermediates.

3,810,888
COMPLEX FORMING POLYMERS
Robert Chapurlat, Ecully, and Emile Kuntz, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Original application July 28, 1970, Ser. No. 59,024, now abandoned. Divided and this application June 19, 1972, Ser. No. 266,527
Int. Cl. C07d *31/42*
U.S. Cl. 260—240 D **3 Claims**

Complex forming polymers, having repeat units



joined to each other by polyvalent linking groups, where L is a direct bond or an O, S, CO, CHR_1 or NR_1 link (R_1 being hydrogen or alkyl) and the pyridyl rings may be substituted by alkyl or linked to each other at positions ortho to the L link by a $—CR_1=CR_1$ group, are useful for complexing non-alkaline metal atoms. They will form complexes in an acidic medium and when the metal is itself already part of a complex ion. The complexed polymers are useful as catalysts and, as are the complex forming polymers, as varnishes for coating metal. The polymers are prepared by a variety of vinyl-type polymerizations and polycondensations. Particularly useful intermediates

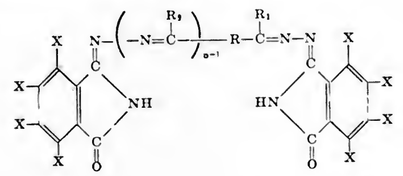


where Ar is aryl are prepared from the aryl dialdehyde and 4,4'-dimethyl-2,2'-dipyridyl.

3,810,889
IMINOISOINDOLINONE DYESTUFFS AND PROCESS FOR THEIR MANUFACTURE
Ernst Model, Basel, and Jost von der Crone and Andre Pugin, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed May 5, 1972, Ser. No. 250,538
Claims priority, application Switzerland, May 28, 1971, 7,846/71
Int. Cl. C07d *27/50*
U.S. Cl. 260—240 G **8 Claims**

Iminoisoindolinone dyestuffs of the formula

(I)



wherein R represents a direct bond, a carbocyclic or heterocyclic aromatic radical, R_1 and R_2 represent hydrogen atoms, alkyl or aryl radicals, the symbols X represent halogen atoms and *n* represents 1 or 2, are valuable pigments coloring plastics and lacquers in yellow shades of outstanding fastness properties.

3,810,890
AMINECARBOTRITHIOATES AND PREPARATION
Joseph E. Dunbar and Joan H. Rogers, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of abandoned application Ser. No. 682,511, Nov. 13, 1967. This application July 26, 1971, Ser. No. 166,258
Int. Cl. C07d *87/46*
U.S. Cl. 260—246 B **2 Claims**

A thiolsulfonate is reacted with an aminecarbodithioate salt to give an aminecarbotrithioate product. The products of this invention have biological activity, particularly in controlling microorganisms and other pests.

3,810,891
PRODUCTION OF CYANURIC ACID
John M. Lee, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Apr. 7, 1972, Ser. No. 242,201
Int. Cl. C07d *55/36*
U.S. Cl. 260—248 A **8 Claims**

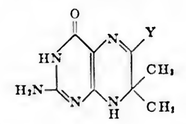
This invention relates to cyanuric acid and more particularly, to an improved process for preparing cyanuric acid by the pyrolysis of urea or a urea pyrolyzate in an inert capped- or cyclic-polyether solvent at temperatures from about 160 to about 220° C. while sparging with an inert gas.

3,810,892
TRICHLOROISOCYANURIC ACID MANUFACTURE
Raymond N. Mesiah, Somerset, N.J., Harold R. Chancey, Charleston, W. Va., and Milton Cohen, Old Bridge, N.J., assignors to FMC Corporation, New York, N.Y.
Filed Sept. 14, 1971, Ser. No. 180,437
Int. Cl. C07d *55/42*
U.S. Cl. 260—248 C **6 Claims**

A process is provided for producing trichloroisocyanuric acid by chlorinating a salt of dichloroisocyanuric acid in an aqueous mixture to a pH of between 2.5 and 3.5, at a temperature of at least 0° C. and preferably about 15° C. to 20° C. The aqueous mixture containing a salt of dichloroisocyanuric acid can be an effluent from the production of the salt. Furthermore, a process for producing dichloroisocyanuric acid, a salt of dichloroisocyanuric acid and trichloroisocyanuric acid in any desired proportions is provided.

3,810,893
AMINO PYRIMIDINES
Hamish Christopher Swan Wood, 26 Albert Drive, Bearsden, Glasgow, Scotland; Alexander Stuart, 256 Southborough Lane, Bromley, Kent, England; Adrian Charles Ward Curran, 30 The Terrace, Harrow, Middlesex, England; and Saieba Al-Hassan, P.O. Box 195, Baghdad, Iraq
No Drawing. Filed July 13, 1971, Ser. No. 162,297
Claims priority, application Great Britain, July 27, 1970, 36,289/70
Int. Cl. C07d *51/38*
U.S. Cl. 260—256.4 C **3 Claims**

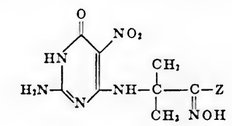
A pharmaceutical formulation of a compound of Formula II'



(II')

wherein Y is a lower alkyl group, in association with a pharmaceutically acceptable carrier, as an antibacterial

product, and methods involving the preparation and reductive cyclization of a compound of Formula IV



(IV)

wherein Z is a lower alkyl group or a hydroxymethyl group.

3,810,894
DERIVATIVES OF PYRAZOLO[1,5-c]PYRIMIDINES AND PROCESS FOR THEIR PREPARATION
Eckart Kranz, Wuppertal-Elberfeld, and Marianne Bock, deceased, late of Wuppertal-Elberfeld, by Hermann Bock, executor, Bielefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Nov. 24, 1971, Ser. No. 201,987
Claims priority, application Germany, Nov. 27, 1970, P 20 58 501.7
Int. Cl. C07d *51/46*
U.S. Cl. 260—256.4 F **24 Claims**

Derivations of pyrazolo[1,5-c]pyrimidines, which is a new heterocyclic nucleus, possess antimicrobial activity, particularly trichomonacidal and amoebicidal action. They are prepared from a β-triketone and a semicarbazide, thiosemicarbazide or aminoguanidine. A typical embodiment is 6H - 7 - thiono - 2,5-dimethyl pyrazolo[1,5-c] pyrimidine.

ERRATUM

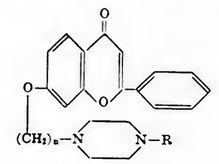
For Class 260—268 see:
Patent No. 3,811,026

3,810,895
SYNTHESIS OF PIPERAZINES
Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Sept. 30, 1971, Ser. No. 185,452
Int. Cl. C07d *51/70, 51/72*
U.S. Cl. 260—268 SY **6 Claims**

Piperazines are prepared by reacting a glycol, and particularly a glycol containing hydroxy substituents on adjacent carbon atoms, with an amide at elevated temperatures and a pressure in the range of from atmospheric to about 300 atmospheres.

3,810,896
FLAVONYLOXYALKYL-PIPERAZINE COMPOUNDS
Ernst-Christian Witte, Mannheim, Kurt Stach, Mannheim-Waldhof, Max Thiel, Mannheim, and Androniki Roesch and Egon Roesch, Lampertheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Germany
No Drawing. Filed Apr. 7, 1972, Ser. No. 242,134
Claims priority, application Germany, May 14, 1971, P 21 23 923.6
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 BC **11 Claims**

Certain novel 4-[w-(flavon-7-yloxy)-alkyl] - piperazine compounds of the formula



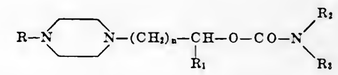
(I)

wherein R is an unsubstituted or substituted phenyl or benzyl radical, the substituents being halogen atoms or lower alkyl or alkoxy radicals, e.g., of from 1 to 6 carbon atoms, and *n* is 1, 2 or 3; and the pharmacologically compatible salts thereof

have outstanding anti-edematous activity and reduce increased capillary permeability.

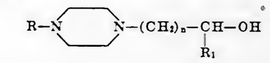
3,810,897
N-SUBSTITUTED - N-ALKANOL PIPERAZINE CARBAMATES AND ACID ADDITION SALTS THEREOF
Jean B. Philippe, Clermont-Ferrand, France, assignor to Ferlux, Clermont-Ferrand, France
No Drawing. Filed Oct. 12, 1971, Ser. No. 188,583
Claims priority, application France, Oct. 16, 1970, 7037396
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 FT **2 Claims**

N-substituted-N'-alkanol piperazine carbamates of the General Formula I



(I)

wherein R, R_1, R_2, R_3 and *n* are as defined in the specification, the acid addition salts of these carbamates, a method of manufacturing same from an alcohol of the General Formula II

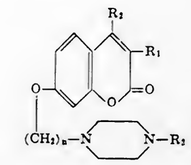


(II)

and therapeutic compositions containing the carbamates and salts thereof, having neuroleptic, tranquilizing and central analgesic properties.

3,810,898
COUMARIN-7-YLOXY-ALKYL PIPERAZINE COMPOUNDS
Ernst-Christian Witte, Mannheim, Kurt Stach, Mannheim-Waldhof, Max Thiel, Mannheim, and Androniki Roesch and Egon Roesch, Lampertheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany
No Drawing. Filed Apr. 19, 1972, Ser. No. 245,607
Claims priority, application Germany, May 14, 1971, P 21 23 924.7
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 BC **16 Claims**

Certain novel 4-[ω-(coumarin-7-yloxy)-alkyl]-piperazine compounds of the formula:



wherein R_1 is hydrogen atom or a lower alkyl; R_2 is lower alkyl; R_3 is an unsubstituted or substituted phenyl or benzyl radical, the substituents, when present, being halogen or lower alkyl or alkoxy groups, and *n* is 1, 2 or 3; and the pharmacologically compatible salts thereof,

have outstanding anti-oedematous activity and reduce increased capillary permeability.

3,810,899
2-HYDROXY-N-SUBSTITUTED-MORPHINAN DERIVATIVES

Ernest Mohacsi, Nutley, and Willy Leimgruber, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 233,715, Mar. 10, 1972. This application Oct. 20, 1972, Ser. No. 299,478

Int. Cl. C07d *43/28*

U.S. Cl. 260—285 **12 Claims**

Novel 2- and 4-hydroxymorphinan derivatives, which may bear a variety of N-substituents, are disclosed. These morphinans are useful as analgesic agents and are also useful as antagonists of certain strong analgesics such as morphine.

3,810,900
PYRIDINE BIS(DITHIOCARBAMATE) DERIVATIVES AND PREPARATION THEREOF

Ikuo Matsumoto, Kanji Nakagawa, Meiki Matsuzaki, and Kenji Horiuchi, Tokyo, Japan, assignors to Banyu Pharmaceutical Co., Ltd., and Hiroyoshi Hidaka, Tokyo, Japan

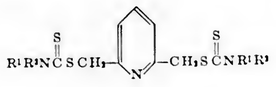
No Drawing. Filed May 19, 1972, Ser. No. 254,943

Claims priority, application Japan, May 25, 1971, 46/35,133

Int. Cl. C07d *29/10, 31/50*

U.S. Cl. 260—293.69 **2 Claims**

Pyridine bis(dithiocarbamate) derivatives having the formula:



wherein R^1 represents a lower alkyl group or a lower alkene group or a phenyl group and R^2 represents a hydrogen atom or a lower alkyl group, or R^1 and R^2 taken together may form a heterocyclic ring with the nitrogen atom, has been prepared by reacting 2,6-bis(halomethyl) pyridine with a metal salt or amine salt or dithiocarbamic acid having the formula:



or with carbon bisulfide and an amine having the formula:

R^1R^2NH

or by reacting 2,6-bis(mercaptomethyl) pyridine with an isothiocyanate of the formula:

R^1NCS

These pyridine bis(dithiocarbamate) derivatives exhibit physiological effects on the circulatory system and demonstrate anti-hypertensive and anti-inflammatory properties.

3,810,901
3-(COUMARIN-3-YLPHENYL)-1,2,4-OXADIAZOL-5-YL AMMONIUM SALTS

Hugh Davidson, Castleford, and Brian Ernest Leggetter, Wakefield, England, assignors to Hickson & Welch Limited, Castleford, England

No Drawing. Filed Feb. 10, 1972, Ser. No. 225,336

Claims priority, application Great Britain, Feb. 11, 1971, 4,465/71

Int. Cl. C07d *85/52*

U.S. Cl. 260—293.58 **13 Claims**

3-(coumarin - 3 - ylphenyl)-1,2,4-oxadiazol-5-yl ammonium salts which may have an alkyl substituent at the 7 and/or 4 position of the coumarin ring and/or a non-chromophoric group (e.g. halogen, alkyl or alkoxy) at another position of the coumarin ring.

The compounds are useful in the whitening, brightening and/or bleaching of synthetic and semi-synthetic fibres.

3,810,902
O,O-DIETHYL O-(6-FLUORO-2-PYRIDYL) PHOSPHOROTHIOATE

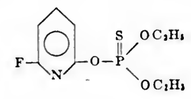
Raymond H. Rigterink, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of abandoned application Ser. No. 214,371, Dec. 30, 1971. This application Feb. 28, 1973, Ser. No. 336,608

Int. Cl. C07d *31/50*

U.S. Cl. 260—294.8 K **1 Claim**

O,O - diethyl O - (6-fluoro-2-pyridyl) phosphorothioate corresponding to the formula



is prepared and is useful as a nematicide.

3,810,903
PROCESS FOR THE PRODUCTION OF NITRILES

Juergen Luecke, Tubingen, Germany, assignor to Sandoz Ltd., Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 3,217, Jan. 15, 1970, now Patent No. 3,646,103, which is a continuation-in-part of application Ser. No. 807,914, Mar. 17, 1969, now Patent No. 3,663,589. This application Dec. 13, 1971, Ser. No. 207,600

Claims priority, application Great Britain, Mar. 18, 1969, 14,136/69; Germany, Mar. 22, 1969, P 19 14 688.4; Japan, Mar. 26, 1969, 44/22,457; France, Mar. 27, 1969, 69909116; Italy, Mar. 27, 1969, 14,710/69

Int. Cl. C07d *31/46*

U.S. Cl. 260—294.9 **8 Claims**

Improvement in the production of nitriles by heating carboxylic acids or their functional derivatives with urea, which improvement consists in the additional use of amidosulphonic acid in the reaction mixture.

3,810,904
HYDRAZIDES OF PYRAZOLOPYRIDINE CARBOXYLIC ACIDS AND ESTERS

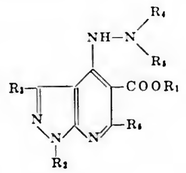
Hans Hoehn, Tegernheim, Germany, and Mark Chasin, Englishtown, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of application Ser. No. 42,415, June 1, 1970, which is a continuation-in-part of application Ser. No. 833,672, June 16, 1969, both now abandoned. This application Sept. 22, 1972, Ser. No. 291,445

Int. Cl. C07d *31/36*

U.S. Cl. 260—295.5 B **6 Claims**

New hydrazides of pyrazolopyridine carboxylic acids and esters having the general formula



wherein R_1 is hydrogen, lower alkyl or phenyl-lower alkyl, R_2 is hydrogen, lower alkyl, phenyl, phenyl-lower alkyl, R_7, R_8-phenyl-lower alkyl or cycloalkyl-lower alkyl, R_3 is hydrogen lower alkyl, phenyl or R_7, R_8-phenyl, R_4 is hydrogen or lower alkanoyl, R_5 is lower alkanoyl, R_6 is hydrogen or lower alkyl and R_7 and R_8 each is halogen, lower alkyl or lower alkoxy, and acid addition salts thereof, which are antimicrobial agents and central depressants are the subject of this invention.

3,810,905
PYRAZOLO[3,4-b]PYRIDINE-5-CARBOXAMIDES

Hans Hoehn, Tegernheim, Germany, and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of application Ser. No. 195,808, Nov. 4, 1971, now Patent No. 3,733,328, dated May 15, 1973, which is a continuation-in-part of application Ser. No. 62,674, Aug. 10, 1970, now Patent No. 3,720,675, dated Mar. 13, 1973. This application Sept. 22, 1972, Ser. No. 291,504

Int. Cl. C07d *31/44*

U.S. Cl. 260—295.5 B **10 Claims**

New 5-carboxamides of pyrazolo[3,4-b]pyridines and salts thereof are useful as ataractic, analgesic and anti-inflammatory agents.

3,810,906
N^1-HETEROACYLATED PHENYLHYDRAZINES

Hisao Yamamoto, Nishinomiya, and Masaru Nakao, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Application June 23, 1969, Ser. No. 838,037, now Patent No. 3,629,284, which is a continuation of abandoned application Ser. No. 541,967, Apr. 12, 1966. Divided and this application July 29, 1970, Ser. No. 64,843

Int. Cl. C07d *63/16*

U.S. Cl. 260—295 H **4 Claims**

The present invention relates to a novel process for producing N-substituted indole derivatives having high anti-inflammatory, anti-pyretic and analgesic activities. More particularly the present invention relates to a novel process for producing N-acyl 3-indolyl-aliphatic acid compounds comprising reacting an N^1-acylated phenylhydrazine compounds with an aliphatic acid compound.

3,810,907
FULL PYRIDINE PHOSPHONIC ACIDS

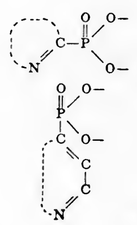
Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 801,856, Feb. 24, 1969, now Patent No. 3,673,196, dated June 27, 1972. This application Aug. 25, 1971, Ser. No. 175,001

Int. Cl. C07d *31/28*

U.S. Cl. 260—297 P **3 Claims**

Nitrogen-heterocyclic phosphonates wherein the phosphonate group is ortho- or para- to the nitrogen heterocyclic group, where the compounds are characterized as follows':

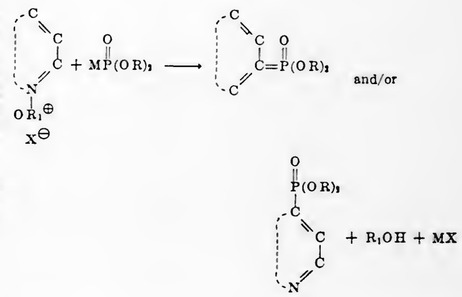


(ortho substituted) and

(para substituted)

wherein the dotted line represents a cyclic structure which cyclic structure may be the sole cyclic structure, or may be attached to other cyclic groups.

These nitrogen heterocyclic phosphonates are prepared by reacting an aromatic nitrogen-heterocyclic compound, wherein the nitrogen atom is in the form of a quaternary alkoxy derivative (N—OR hereinafter defined) with a phosphite salt, preferably in the form of an ester of the phosphite, as exemplified by the following equation:



These compounds which may be characterized as phosphonates of nitrogen-heterocyclics have many uses including their use as biocides, such as bacteriocides, herbicides, corrosion inhibitors, chelating agents, etc.

3,810,908
1-(5-NITROTHIAZOL-2-YL)-IMIDAZOLIDINE-2-THIONE

Serge Tchelitcheff, Thiais, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Mar. 21, 1972, Ser. No. 236,579

Claims priority, application France, Mar. 23, 1971, 7110150

Int. Cl. C07d *99/10*

U.S. Cl. 260—306.8 R **1 Claim**

1-(5-nitrothiazol-2-yl)-imidazolidine-2-thione, which is a new compound having anti-parasitic and anti-microbial properties, is prepared by reacting a 2-alkylthio-(or 2-benzylthio)-1-(5-nitrothiazol-2-yl)-Δ^2-imidazoline with sodium hydrogen sulphide.

3,810,909
SUBSTITUTED 1 - (3,5 - SUBSTITUTED - 4 - ISOXAZOLYL)-7-HYDROXY - NON-8-EN-3-ONES AND TAUTOMERS

Gabriel Saucy, Essex Fells, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Jan. 19, 1970, Ser. No. 4,026, now Patent No. 3,671,539. Divided and this application Mar. 29, 1972, Ser. No. 239,370

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H **3 Claims**

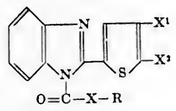
Substituted 1-(3,5-substituted-4-isoxazolyl)-7-hydroxy-non-8-en-3-ones and tautomers thereof are intermediates useful in the preparation of pharmaceutically valuable steroidal compounds. Preparation of such compounds from 2-(2'-substituted aminoethyl)-2-hydroxy - 6 - vinyl-tetrahydropyrans and their alkyl substituted analogs is described.

3,810,910
1-ALKOXY- OR 1-ALKYLTHIO-CARBONYL-2-THIENYL-(2')-BENZIMIDAZOLES

Friedrich J. Meyer, deceased, late of Wuppertal, Germany, by Ilse Frieda Anna Meyer, heiress, Wuppertal, and Helmut Kaspers and Hans Scheinpflug, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 27, 1972, Ser. No. 318,964
Claims priority, application Germany, Jan. 11, 1972, P 22 01 062.4
Int. Cl. C07d *49/38*
U.S. Cl. 260—309.2 **9 Claims**

1-alkoxy- or 1 - alkylthio-carbonyl-2-thienyl-(2')-benzimidazoles of the formula



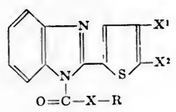
(I)

in which

X^1 and X^2 each independently is hydrogen, halogen or methyl,
X is oxygen or sulfur, and
R is alkyl,

which possess fungicidal properties.

1-alkoxy- or 1 - alkylthio-carbonyl-2-thienyl-(2')-benzimidazoles of the formula



(I)

in which

X^1 and X^2 each independently is hydrogen, halogen or methyl,
X is oxygen or sulfur, and
R is alkyl,

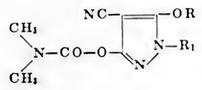
which possess fungicidal properties.

3,810,911
N,N-DIMETHYL-O-[1-ALKYL - 4 - CYANO-5-ALKOXYPYRAZOL(3)YL]-CARBAMIC ACID ESTERS

Hellmut Hoffmann, Wuppertal-Elberfeld, and Ingeborg Hammann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,289
Claims priority, application Germany, Feb. 10, 1971, P 21 06 303.6
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 R **5 Claims**

N,N-dimethyl-O-[1-alkyl - 4 - cyano - 5 - alkoxypyrazol-(3)yl]-carbamic acid esters of the general formula



(I)

in which

R and R_1 are each lower alkyl radicals,

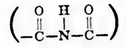
which possess acaricidal and insecticidal properties.

3,810,912
ALKYLHYDROXYPHENYLCARBOALKOXY-SUBSTITUTED PHTHALIMIDE

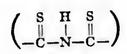
George Kletecka, Lakewood, and Peter D. Smith, Cleveland, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application Apr. 27, 1970, Ser. No. 32,435, now Patent No. 3,678,047. Divided and this application Feb. 10, 1972, Ser. No. 225,294
Int. Cl. C07d *27/52*
U.S. Cl. 260—326 A **4 Claims**

Compounds containing one or more alkylhydroxyphenyl groups bonded through carboalkoxy linkages to a nitrogen atom of a heterocyclic nucleus containing an imidodicarbonyl



group or an imidodithiocarbonyl



group have been prepared and are extremely effective stabilizers against the deleterious effects of oxygen, heat and light for organic materials. The stability of polymeric compositions such as α-olefin polymers and copolymers, acetal polymers, polyamides, polyesters and polyurethanes is markedly increased by the addition of small amounts of the present compounds thereto.

3,810,913
METHOD OF CHLORINATING MALEIC ANHYDRIDE, MALEIMIDES AND BISMALEIMIDES

Howard M. Relles, Rexford, N.Y., assignor to General Electric Company, Schenectady, N.Y.

No Drawing. Filed Feb. 16, 1972, Ser. No. 226,974
Int. Cl. C07d *27/18*
U.S. Cl. 260—326.26 **8 Claims**

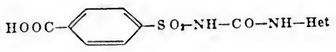
A method is provided for converting maleic anhydride or aliphatically unsaturated imides derived therefrom, such as N-phenylmaleimide, to the corresponding chlorinated derivatives, based on the replacement of α-carbon hydrogen atoms with chlorine atoms. Chlorination can be achieved by the addition of pyridine to a thionyl chloride solution of the aliphatically unsaturated anhydride or imides. The resulting chlorinated compound can be employed as intermediates for making polymers with dihydric phenols.

3,810,914
BENZENESULFONYL SEMICARBAZIDES

Laszlo Beregi, Boulogne-sur-Seine, Pierre Hugon, Rueil-Malmaison, Pierre Desnoyers, Fontenay-aux-Roses, and Jacques Duhault, Chatou, France, assignors to Societe en nom Collectif Science Union et Cie, Societe Francaise de Recherche Medical, Suresnes, France

No Drawing. Filed Jan. 27, 1972, Ser. No. 221,377
Claims priority, application Great Britain, Feb. 15, 1971, 4,638/71
Int. Cl. C07d *27/48*
U.S. Cl. 260—326.1 **7 Claims**

Benzenesulfonyl semicarbazides of the formula:



wherein Het is a bicyclic nitrogen containing heterocyclic radical bonded to NH by its nitrogen atom.

These compounds possess microcirculation-improving, fibrinolytic and platelet adhesiveness and aggregation decreasing properties.

3,810,915
PROCESSES AND INTERMEDIATES FOR BENZINDENES

Andor Furst, Basel, Paul Buchschacher, Arlesheim, Dieter Kagi, Allschwil, Marcel Muller, Frenkendorf, Werner Meier, Bottmingen, and Erich Widmer, Arlesheim, Switzerland, assignors to Hoffmann-La Roche, Inc., Nutley, N.J.

No Drawing. Original application Nov. 19, 1969, Ser. No. 878,180, now abandoned. Divided and this application May 24, 1972, Ser. No. 256,555
Claims priority, application Switzerland, Nov. 19, 1968, 17,224/68
Int. Cl. C07d *13/04*
U.S. Cl. 260—340.9 **1 Claim**

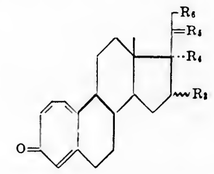
Benz[e]indene derivatives and intermediates therefor have been prepared by various processes starting from hexahydroindane derivatives. The benz[e]indene end products belong to a known class of compounds and are useful as intermediates in the synthesis of steroidal compounds.

3,810,916
PROCESS FOR THE MANUFACTURE OF STEROID TROPONES

Georg Anner, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed July 8, 1969, Ser. No. 840,026
Claims priority, application Switzerland, July 19, 1968, 10,816/68
Int. Cl. C07c *171/02;* **C07d** *13/00*
U.S. Cl. 260—340.9 **12 Claims**

The invention concerns the new process for the manufacture of known or new steroid tropones by dehydrogenating a 4-oxo-19-nor-A-homo-steroid-1,5(10)-diene with periodic acid or a salt thereof or with a heavy metal acylate and the new compounds of the formula



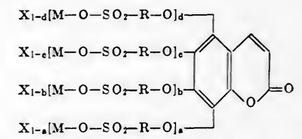
wherein R_3 is hydrogen or methyl, R_4 stands for hydrogen or a free or esterified hydroxyl group, R_5 represents a free or ketalized oxo group and R_6 is hydrogen, a free, esterified or etherified hydroxy group having a gestagenic, ovulation inhibiting, antiandrogenic or diuretic effect.

3,810,917
OXYOMEGASULFOHYDROCARBON-DI-YL-COUMARINS

Frank Passal, Detroit, Mich., assignor to M & T Chemicals Inc., Greenwich, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 683,035, July 31, 1967, which is a division of application Ser. No. 420,172, Dec. 21, 1964, now Patent No. 3,367,854. This application Dec. 2, 1970, Ser. No. 94,633
Int. Cl. C07d *7/26*
U.S. Cl. 260—343.2 R **21 Claims**

This invention relates to novel processes and to novel oxyomegasulfohydrocarbon-di-yl coumarins wherein the hydrocarbon moiety contains at least 2 carbon atoms and the oxyomegasulfohydrocarbon-di-yl group is substituted on the carbocyclic nucleus of the coumarin group, typically having the formula



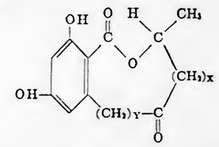
wherein X is an inert substituent, M is a cation, R is a hydrocarbon-di-yl group containing at least 2 carbon atoms, and *a*, *b*, *c*, and *d* are each integers less than 2, the sum of *a*, *b*, *c*, and *d* being at least 1. The novel compositions are useful in nickel plating processes.

3,810,918
SYNTHESIS OF ZEARALANONE

Wilbert Herbert Urry, Chicago, Ill., and Guy Towns Mullenbach, Berkeley, Calif., assignors to Commercial Solvent Corporation, Terre Haute, Ind.

No Drawing. Filed Apr. 25, 1972, Ser. No. 247,344
Int. Cl. C07d *9/00*
U.S. Cl. 260—343.2 F **1 Claim**

This invention provides a new synthesis for zearalanone and for related compounds having more or fewer carbon atoms in the non-aromatic ring than does zearalanone, which related compounds and zearalanone are represented by the formula



wherein X is an integer having a value from 2 to 6 inclusive and Y is an integer having a value from 2 to 8 inclusive. It also provides for new methods for making compounds useful in the synthesis of zearalanone and related compounds.

The new compounds useful as intermediates are

2,7-octadienoic acid;
methyl 2,7-octadienoate;
sodium ethyl 6-(4-pentenyl)-β-dihydroresorcylate;
ethyl 6-(4-pentenyl)-β-dihydroresorcylate;
sodium methyl 6-(4-pentenyl)-β-dihydroresorcylate;
methyl 6-(4-pentenyl)-β-dihydroresorcylate;
methyl 3-bromo-6-(4-pentenyl)-β-dihydroresorcylate;
methyl 6-(4-pentenyl)-β-resorcylate;
ethyl 6-(4-pentenyl)-β-resorcylate;
ethyl 6-(4-pentenyl)-β-resorcylate dibenzyl ether;
tetrahydropyran-2-yl 4-penten-2-yl ether;
ethyl 6-(6-oxo-10-tetrahydropyran-2-xyloxyundecyl)-β-resorcylate dibenzyl ether; and
6-(10-hydroxy-6-oxoundecyl)-β-resorcylic acid dibenzyl ether.

Methods for preparing these intermediates are also disclosed.

3,810,919
CYCLOBUTENE PHOSPHORIC ACID ESTERS

Beat Böhner and Kurt Rüfenacht, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Nov. 17, 1967, Ser. No. 683,784, now Patent No. 3,600,474. Divided and this application Apr. 28, 1971, Ser. No. 50,007
Int. Cl. C07d *7/24*
U.S. Cl. 260—345.2 **3 Claims**

New phosphoric acid esters which contain as esterifying radical a cyclobutenol radical which is fused to a ring

system are produced from novel intermediates which are α-halogeno-cyclobutanones fused to a ring system. The new esters are useful as pesticides; a method of controlling pests with the aid of the new compounds as well as pesticidal compositions containing them as active ingredients are also described.

3,810,920

2 - SUBSITUTED TETRAHYDROPYRAN AND 2-SUBSTITUTED TETRAHYDROFURAN-2-PEROXY COMPOUNDS

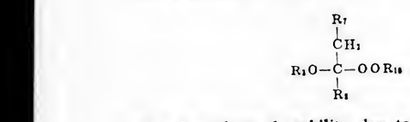
Richard Anthony Bafford, Tonawanda, and Leonard Ernest Korczykowski and Orville Leonard Magelic, Buffalo, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Original application Oct. 10, 1966, Ser. No. 585,295, now Patent No. 3,576,826, dated Apr. 27, 1971. Divided and this application Apr. 6, 1970, Ser. No. 31,059

Int. Cl. C07d *5/04, 7/04*

U.S. Cl. 260—345.8 **7 Claims**

Ether peroxides of the formula



having low thermal stability due to the presence of an alkoxy group (R_3O—) on the same carbon atom to which the peroxy (—OO—) group is attached, such as bis-2,2'-(2-methyl-tetrahydrofuryl) peroxide, which are useful as polymerization initiators.

3,810,921

CATALYTIC PROCESS FOR THE OXIDATION OF ORTHOXYLENE TO PHTHALIC ANHYDRIDE

James Michael Maselli, Ellicott City, and Gwan Kim, Columbia, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed June 17, 1970, Ser. No. 47,136

Int. Cl. C07c *63/02*

U.S. Cl. 260—346.4 **5 Claims**

Oxidation of orthoxylene to phthalic anhydride with a catalyst composed of vanadium oxide, potassium pyrosulfate, and antimony oxide on a titania carrier promoted with promotional amounts of chromia. The catalyst can be used either in fluid or fixed bed systems.

3,810,922

SULFUR-CONTAINING 4-HYDROXYCOUMARINS AND THEIR SALTS

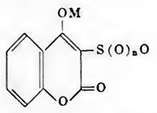
Joseph E. Dunbar, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 18, 1972, Ser. No. 316,419

Int. Cl. C07d *7/30*

U.S. Cl. 260—343.2 R **19 Claims**

Invention concerns sulfur-containing 4-hydroxy-coumarins and their alkali metal salts of the formula



wherein M is hydrogen or alkali metal, R is alkyl, ω-(cyclohexyl)-n-lower alkyl, benzyl, halobenzyl, lower alkylbenzyl, (trifluoromethyl)benzyl, nitrobenzyl, allyl, haloallyl, phenyl-lower alkyl or naphthyl-lower alkyl, and *n* is 0, 1 or 2. The compounds are prepared by reacting 4-hydroxycoumarin with a thiolsulfonate in an organic medium and recovering the product. The compounds are useful as plant growth stunters and as antimicrobial agents.

3,810,923

MONOESTER DERIVATIVES OF OXALOCITROLACTONE

Richard H. Wiley, New York, N.Y., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Mar. 2, 1972, Ser. No. 231,380

Int. Cl. C07d *5/10*

U.S. Cl. 260—343.6 **1 Claim**

The monoester derivatives of oxalocitrolactone are useful as raw materials for the production of citric acid and are prepared by heating triester derivatives of the lactone in the presence of concentrated mineral acid and evaporating the solution until the desired product crystals are formed.

3,810,924

5-DIHYDROCORIOLIN C

Hamao Umezawa, Tomio Takeuchi, and Nobuyoshi Shimada, Tokyo, Yuya Nakayama, Yono, and Mamoru Kunishima, Tokyo, Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed Dec. 19, 1972, Ser. No. 316,583

Claims priority, application Japan, Dec. 20, 1971, 46/103,509

Int. Cl. C07d *1/18*

U.S. Cl. 260—348 C **1 Claim**

5-dihydrocoriolin C is obtained by cultivating microorganisms belonging to basidiomycetes and being capable of producing 5-dihydrocoriolin C in a medium appropriate for the production of 5-dihydrocoriolin C under aerobic conditions thereby to produce 5-dihydrocoriolin C in the medium and recovering it from the medium. 5-dihydrocoriolin C is a novel substance, but has no antibacterial or antitumor effect by itself, but coriolin C and 2'-dehydrocoriolin C obtained by oxidation of 5-dihydrocoriolin C have an antibacterial effect upon *Staphylococcus aureus, Bacillus subtilis,* etc., and also has a life-prolonging effect upon Ehrlich ascites tumor on mouse or mouse leukemia L-1210.

3,810,925

STABILIZED HEAT CURABLE SILICONE ELASTOMERS

George Juris Viksne, Adrian, Mich., assignor to Stauffer Chemical Company, Westport, Conn.

No Drawing. Filed Jan. 2, 1973, Ser. No. 319,952

Int. Cl. C08g *51/04*

U.S. Cl. 260—37 SB **12 Claims**

Silicone elastomers having improved heat stability, compression set and resistance to reversion may be obtained by incorporating metal stannates in heat curable organopolysiloxane compositions.

3,810,926

21-DIALKYLAMINO-20-METHYLPREGNA-4,17(20)-DIEN-3-ONES AND CONGENERS

George R. Lenz, Glenview, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed July 30, 1973, Ser. No. 383,527

Int. Cl. C07c *169/36*

U.S. Cl. 260—397.1 **9 Claims**

Preparation of 21-dialkylamino-20-methylpregna-4,17(20)-dien-3-ones and congeners, and the valuable antibiotic and antiulcerogenic properties of said amines are disclosed.

3,810,927

3-OXYGENATED - 30 - METHYLOLEAN-12-EN-30-ONES AND 11-OXO DERIVATIVES THEREOF

John S. Baran, Morton Grove, and Chi-Dean Liang, Glenview, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Feb. 10, 1972, Ser. No. 225,275

Int. Cl. A61k *27/00;* **C07c** *49/54, 49/56*

U.S. Cl. 260—410 **10 Claims**

3β-acetoxy-18β-olean-12-en-30-oic acid and its 11-oxo derivatives are converted to the acid chloride and methyl-

ated to afford the 3β-acetoxy-30-methyl-18β-olean-12-en-30-one and 3β-acetoxy-30-methyl-18β-olean-12-ene-11,30-dione compounds, respectively. Those intermediates then are treated with base to produce the 3β-hydroxy derivatives, which are oxidized to the 3-oxo derivatives. The 3β-hydroxy and 3-oxo compounds exhibit valuable pharmacological, e.g. anti-inflammatory and anti-hypertensive, activity.

3,810,928

N-ARYLTHIO S-HYDROCARBYL THIOCARBAMATES

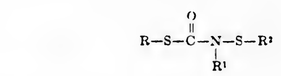
Melancthon S. Brown, deceased, late of Berkeley, Calif., by Gustave K. Kohn, administrator, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed June 1, 1971, Ser. No. 150,860

Int. Cl. C07c *155/08*

U.S. Cl. 260—455 A **5 Claims**

Compounds of the formula



wherein R is alkyl, alkenyl, alkynyl or phenyl optionally substituted with halogen or alkyl groups; R^1 is hydrogen or alkyl; R^2 is phenyl optionally substituted with halogen or alkyl groups, find use as nematocides.

3,810,929

POLYCARBOXYLIC ACID-BRIDGED THIOMETHYLENEPHENOL ANTIOXIDANTS

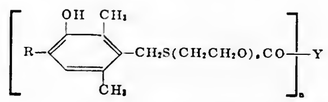
John Song, Bound Brook, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 5,089, Jan. 22, 1970. This application Aug. 24, 1972, Ser. No. 283,601

Int. Cl. C07g *1/00*

U.S. Cl. 260—455 R **7 Claims**

Thiomethylenephenol compounds are provided wherein from two to four hindered phenol radicals having thiomethyl substituents meta to their hydroxy groups are joined, either directly or through interposed ethoxy groups, to the carbonyl radicals of an organic polycarboxylic acid. These compounds have the formula:



wherein R is a branched chain alkyl group containing three to about twelve carbon atoms, z is zero or one, *n* is 2, 3, or 4, and Y is the residue of the organic carboxylic acid $Y(COOH)_n$. They are antioxidants for oxygen-sensitive organic materials, particularly polyolefins of 2–6 carbon atoms such as polypropylene plastics. They are prepared by condensing from 2 to 4 moles of a 3-mercaptomethyl-2,4-dimethyl-6 branched-chain alkylphenol with the chloride or bromide of an organic dicarboxylic, tricarboxylic or tetracarboxylic acid, preferably in the presence of an acid acceptor, or by first condensing the corresponding 3-chloromethylphenol with 2-mercapto ethanol and esterifying the resulting condensate with the polycarboxylic acid halide.

3,810,930

BIS-(BETA-AMINO ACRYLYL THIOCARBOXYLATE) OF CYCLIC HYDROCARBON ALCOHOLS

Richard G. Parker, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application Oct. 29, 1971, Ser. No. 193,998. Divided and this application May 7, 1973, Ser. No. 357,866

Int. Cl. C07c *153/07*

U.S. Cl. 260—455 R **3 Claims**

Bis-(β-aminoacrylyl) compounds are prepared in a process comprising first reacting a cyclic hydrocarbon with a cyanoacetylating agent to form an intermediate, and then reacting the intermediate with an alcohol and a hydrogen halide followed by the addition of sodium bicarbonate. The compounds are particularly useful as heat stabilizers for chlorine-containing polymers, especially polyvinyl chloride.

3,810,931

CITRIC ACID DERIVATIVES

Robert William Guthrie, Fairfield, James Guthrie Hamilton, Nutley, Richard Wightman Kierstead, North Caldwell, and O. Neal Miller, Montclair, N.J., and Ann Clare Sullivan, New York, N.Y., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 2, 1971, Ser. No. 204,334

Int. Cl. C07c *143/68;* **C07d** *1/20, 1/22*

U.S. Cl. 260—456 R **7 Claims**

Epoxyaconitic acid and esters thereof are useful for the control of lipogenesis.

3,810,932

STYRYL DYESTUFFS

Nalin Binduprasad Desai and Ponnusami Jayaraman, Goregaon-Bombay, India, and Visvanathan Ramanathan, Basel, and Klaus Artz, Muttenz, Switzerland, Navnitral Nagarji Naik, Goregaon-Bombay, India, and Walter Jenny, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 806,291, Mar. 11, 1969, now Patent No. 3,679,657, dated July 25, 1972. This application Dec. 15, 1971, Ser. No. 208,417

Claims priority, application Switzerland, Mar. 18, 1968, 3,958/68

Int. Cl. C07c *121/70*

U.S. Cl. 260—465 D **3 Claims**

Styryl dyestuffs containing at least one group of formula —X—CO—NR—SO_2—alkyl, wherein R is hydrogen alkyl or cycloalkyl and X is an oxygen or sulphur atom or a group of formula —NR_1—, wherein R_1 is a hydrogen alkyl or cycloalkyl. The dyestuff dye polyester fibers in fast shades.

3,810,933

BIS(3-CHLORO-4-HYDROXYPHENYL) MALONONITRILE

Eugene G. Banucci, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

No Drawing. Filed May 30, 1972, Ser. No. 257,637

Int. Cl. C07c *121/74*

U.S. Cl. 260—465 F **1 Claim**

The compound bis(3-chloro-4-hydroxyphenyl) malononitrile and a method for making the same based on the reaction of 2-chlorophenol and pyruvonitrile are described. This compound can be reacted with diacyl halides or with diphenyl carbonate or phosgene to form polyester resins useful in molding and film-forming applications.

3,810,934
PROCESS FOR THE PRODUCTION OF CYANOACETYLCARBAMATES

Colm O'Murchu, Visp, Switzerland, assignor to Lonza Ltd., Gampel, Valais, Switzerland

No Drawing. Filed Aug. 31, 1972, Ser. No. 285,357
Claims priority, application Switzerland, Sept. 24, 1971, 13,973/71
Int. Cl. C07c *121/02, 121/42, 121/52*
U.S. Cl. 260—465 D 12 Claims

This invention involves a process of producing a R_1 substituted - N - cyanoacetyl-N-R_2 substituted-carbamate, which has the formula:

$$CNCH_2CONR_2COOR_1$$

wherein R_1 is a lower alkyl group having 1 to 10 carbon atoms, an aryl group, an aralkyl group or an alkaryl group, and wherein R_2 is a hydrogen atom, a lower alkyl group having 1 to 10 carbon atoms, an aryl group, an aralkyl group or an alkaryl group. The process includes reacting cyanoacetic acid with a R_1 substituted-N-R_2 substituted-carbamate which has the formula:

$$NHR_2COOR_1$$

wherein R_1 and and R_2 are defined as above. The reaction is conducted in the presence of phosphorus oxychloride, which is a condensation agent, and in the presence of at least one aprotic solvent and dimethylformamide. Examples of aprotic solvents are benzene, chloroform, toluene, ethyl acetate and acetonitrile. The cyanoacetyl carbamate is isolated from the reaction mass.

3,810,935
PROCESS FOR PRODUCING MALONONITRILE

Willy Leimgruber, Montclair, and Manfred Weigele, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application June 1, 1970, Ser. No. 42,545, now Patent No. 3,709,922, dated Jan. 9, 1973. Divided and this application June 14, 1972, Ser. No. 262,880
Int. Cl. C07c *121/02, 121/22*
U.S. Cl. 260—465.8 R 5 Claims

This invention is directed to a process for the preparation of malononitrile and cyanoacetamide from the reaction product of a dialkyl acetal of a dialkyl formamide and acetonitrile including intermediates therein.

3,810,936
2-FORMYL 3-OXYGENATED 5-OXYCYCLOPENTANEHEPTANOIC ACIDS, ESTERS CORRESPONDING AND DERIVATIVES

Masateru Miyano, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 799,965, Feb. 17, 1969. This application Oct. 8, 1971, Ser. No. 187,853
Int. Cl. C07c *61/36*
U.S. Cl. 260—468 K 7 Claims

The condensation of dimethyl 3-oxoundecane-1,11-dioate with styrylglyoxal affords 14-phenyl-9,12-dioxo-11-hydroxytetradec-13-enoic acid, which is cyclized to afford 3-hydroxy-5-oxo-2-styrylcyclopent - 1 - eneheptanoic acid. Hydroxylation of the styryl double bond affords the corresponding 2-(α,β-dihydroxyphenethyl) derivative, which is cleaved to afford the instant 2-formyl compounds. The racemic 2-styryl-3-hydroxy compounds are resolved and subsequently hydroxylated and cleaved to form the optically active 2-formyl derivatives. The instant compounds are useful as anti-microbial agents and also as intermediates to prostanoic acid derivatives and their optically active isomers which exhibit anti-microbial, pepsin-inhibitory, hypotensive and smooth muscle-contracting properties.

3,810,937
PURIFICATION OF CARBOXYLIC ACIDS

Vincent P. Kuceski, Chicago Heights, Ill., assignor to The C. P. Hall Company, Stow, Ohio

Filed Sept. 15, 1970, Ser. No. 72,488
Int. Cl. C07c *55/02, 69/34*
U.S. Cl. 260—485 R 23 Claims

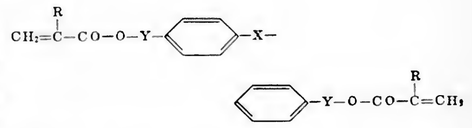
Dicarboxylic acids in water solutions are purified and recovered by water-immiscible solvents. The solvent solutions of dicarboxylic acids are treated in various ways to recover, separate, and purify dicarboxylic acids. The aqueous phase remaining by extraction of dicarboxylic acids may be re-used by cycling back to the process in order to recover economic values of reactants and catalysts and to avoid buildup of polluting bleedstreams. Solvents and alcohols are recovered from aqueous and/or non-aqueous phases and are recycled in the process.

3,810,938
NOVEL DIACRYLIC AND DIMETHACRYLIC ACID ESTERS

Werner Schmitt and Robert Purrmann, Starnberg, and Peter Jochum and Wolf Dieter Zahler, Hechendorf, Germany, assignors to ESPE Fabrik Pharmazeutischer Praparate G.m.b.H., Oberbayeen, Germany

No Drawing. Original application May 14, 1969, Ser. No. 824,701, now abandoned. Divided and this application Feb. 11, 1972, Ser. No. 225,671
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 R 3 Claims

New compounds of formula





in which R is H or $-CH_3$, X is an alkylidene or the $-SO_2-$ group, Y is an oxyalkylene group having between 2 and 5 carbon atoms, or an alkylidene group having between 1 and 5 carbon atoms are prepared. The compounds are intermediates for the preparation of polymers with a high degree of hardness and chemical stability and may be used for the preparation of a variety of articles, such as shaped articles coatings, cements, artificial teeth, dental fillings and other prosthetic articles.

3,810,939
FLUOROCARBON SULFONIC ACID WATER AND OIL REPELLENCY AGENTS

Dilip K. Ray-Chaudhuri, Somerville, and Carmine P. Iovine, Somerset, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 18,720, Mar. 11, 1970, which is a continuation-in-part of application Ser. No. 755,814, Aug. 28, 1968, now abandoned. This application Aug. 9, 1972, Ser. No. 278,957
Int. Cl. C07c *143/16*
U.S. Cl. 260—513 R 7 Claims

Segmented fluorocarbon sulfonic acids comprising the reaction product of a perfluoroalkyl-alkyl halide and a sulfonation reagent as well as the acid anhydrides, metal salts, sulfonyl halides and sulfonamides thereof. The resulting compositions possess unique surface active properties and thus are applicable as effective emulsifying agents. They may also be used as intermediates in the preparation of water and oil repellency agents.

3,810,940
PROCESS FOR PRODUCING ACID CHLORIDES

Charles Frank Hauser, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Apr. 7, 1972, Ser. No. 242,176
Int. Cl. C07c *51/58, 63/22, 63/30*
U.S. Cl. 260—544 M 5 Claims

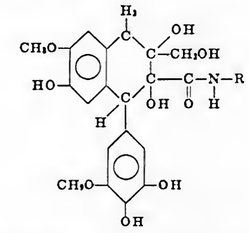
Acid chlorides are produced by the reaction of intramolecular anhydrides of carboxylic acids with phosgene using a carboxamide compound as the catalyst in the presence of an inert organic aromatic solvent.

3,810,941
PLICATAMIDES

Richard Frank Buchholz and Marten Reintjes, Shelton, Wash., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

No Drawing. Filed Dec. 18, 1972, Ser. No. 316,056
Int. Cl. C07c *103/26*
U.S. Cl. 260—559 R 3 Claims

A plicatamide of the structural formula



wherein R is selected from the group consisting of ethyl and n-propyl. The compounds are prepared by reacting methyl plicatate with a primary amine in aqueous solution, acidifying and recovering the plicatamide. The compounds exhibit excellent antioxidant activity for edible fats and oils and good lipid solubility.

3,810,942
ACETAMIDO NAPHTHYL OR ACETOPHENONE COMPOUNDS AND DERIVATIVES THEREOF

Henry E. Meunier, Grenoble, Isere, and Pierre L. Eymard, Fontaine, Isere, France, assignors to Laboratoires J. Berthier, Grenoble, France

No Drawing. Filed May 24, 1968, Ser. No. 786,509
Claims priority, application France, May 24, 1967, 107,590
Int. Cl. C07c *103/32, 103/34*
U.S. Cl. 260—562 B 8 Claims

Dipropylacetoxy and dipropylacetamido naphthyl or acetophenone compounds including the halogenated derivatives of the naphthyl compounds are disclosed as tranquilizing agents.

3,810,943
CYCLOPENTANE DIALDEHYDES

Geraint Jones, Macclesfield, England, and Ralph Alexander Raphael, Glasgow, Scotland, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,531
Claims priority, application Great Britain, Jan. 6, 1971, 662/71
Int. Cl. C07c *47/52*
U.S. Cl. 260—600 3 Claims

The invention relates to a novel process for the manufacture of a prostaglandin or a prostaglandin-like compound which comprises the oxidative cleavage of a bicyclo-[2,2,1]heptene derivative to a cyclopentane dialdehyde, which is converted to a prostaglandin or a prostaglandin-like compound by conventional means, and also relates to the novel bicyclo[2,2,1]heptene derivatives and cyclopentane dialdehydes used in the above process.

3,810,944
ETHYNYLINDENYL COMPOUNDS AND DERIVATIVES THEREOF

Julius Diamond, Lafayette Hill, and George H. Douglas, Paoli, Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Filed Nov. 15, 1972, Ser. No. 306,702
Int. Cl. C07c *43/20*
U.S. Cl. 260—612 R 5 Claims

Novel ethynylindenyl compounds and derivatives are described. Their use in the treatment of inflammation is also disclosed.

3,810,945
PROCESS FOR PREPARING A METHANO-POLYCYCLIC HYDROQUINONE

Arthur W. Carlson, Crystal Lake, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Original application Mar. 18, 1969, Ser. No. 714,023. Divided and this application Feb. 15, 1972, Ser. No. 226,507
Int. Cl. C07c *39/24*
U.S. Cl. 260—619 F 10 Claims

A process for preparing a methano-polycyclic hydroquinone which comprises rearranging a corresponding methano-polycyclic quinone under isomerization conditions in the presence of an inert solvent and water and thereafter recovering the desired hydroquinone product.

3,810,946
PURIFICATION OF PHENOL

Chuen Y. Yeh, Succasunna, and Harry E. Ulmer, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Nov. 3, 1972, Ser. No. 303,558
Int. Cl. C07c *37/38*
U.S. Cl. 260—621 A 12 Claims

Phenol produced by decomposition of cumene hydroperoxide is purified by heating it with hydrobromic or hydroiodic acid, or their water-soluble salts, followed by distillation. This treatment not only reduces carbonyl-bearing impurities, but also reduces methylbenzofuran impurities.

3,810,947
ALKYLATION OF AROMATIC COMPOUNDS

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Mar. 31, 1972, Ser. No. 240,278
Int. Cl. C07c *25/14*
U.S. Cl. 260—651 R 9 Claims

Aromatic compounds may be alkylated with certain polychloro-substituted alkenes containing one tertiary carbon atom and at least one chlorine atom on a doubly-bonded carbon atom in the presence of a Friedel-Crafts catalyst to produce an alkylated aromatic compound in which the product contains a chlorinated substituent containing only primary and secondary carbon atoms in the chain.

3,810,948
CATALYTIC PRODUCTION OF 1,1-DIFLUOROETHANE

Johann Nikolaus Meussdoerffer, Blecher, and Hans Niederprum, Monheim, Rhineland, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 20, 1972, Ser. No. 273,654
Claims priority, application Germany, Aug. 10, 1971, P 21 39 993.9
Int. Cl. C07c *17/08, 19/08*
U.S. Cl. 260—653.6 10 Claims

In the production of 1,1-difluoroethane wherein acetylene is reacted in liquid or gas phase with hydrogen fluo-

ride, the improvement which comprises effecting the reaction in the presence of

a sulfonic acid of the formula XSO_3H
in which X is a fluorine atom or a perfluorinated alkyl radical of up to about 12 carbon atoms, and

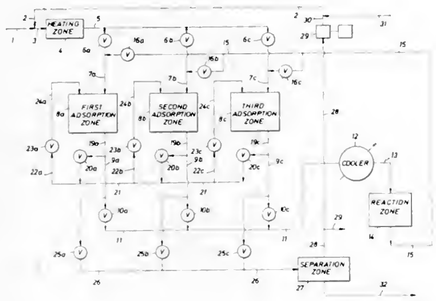
a complex fluoride of the formula A_nZF_m
in which A is a metal or an optionally substituted ammonium radical, Z is an element of the group III to VIII of the periodic system of elements, *n* is 1, 2 or 3 and *m* is 4 or 6.

Preferably A_nZF_m is an alkali metal or alkaline earth metal tetrafluoroborate and is present in about 0.01 to 5% of the weight of the sulfonic acid employed.

3,810,949
INTERMOLECULAR ADDITION
Lawrence H. Shepherd, Jr., Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.
No Drawing. Continuation-in-part of abandoned application Ser. No. 888,071, Dec. 24, 1969. This application Sept. 25, 1972, Ser. No. 291,647
Int. Cl. C07j *3/02*
U.S. Cl. 260—665 G **51 Claims**

Hydrocarbyl magnesium compounds (RMgX; R_2Mg) react with polycyclic compounds containing one or more etheno bridges (e.g., bicyclo[2.2.1]hept-2-ene; bicyclo-[2.2.1]hepta-2,5-diene) to produce various novel polycyclic organomagnesium compounds. These in turn can be subjected to various reactions to produce other products.

3,810,950
PROCESS FOR CONVERTING REACTANT INTO PRODUCT INCLUDING ADSORPTION-DESORPTION CYCLE FOR RECYCLE OF UNREACTED REACTANT
Robert A. Woodle, Nederland, Tex., assignor to Texaco Inc., New York, N.Y.
Filed Dec. 13, 1971, Ser. No. 207,278
Int. Cl. C07c *5/10*
U.S. Cl. 260—667 **14 Claims**



A process for increasing the conversion of a reactant hydrocarbon into a desired product wherein reactant contained in a reaction mixture is partially converted into desired product. Such process comprises adsorbing, at a relatively low temperature, reactant hydrocarbon from the reaction effluent stream into a solid adsorbent selective for such reactant and subsequently desorbing reactant from the solid adsorbent employing reaction charge at an elevated temperature. The desorbed reactant is returned to the reaction for conversion into additional amounts of desired product. Such a process has particular applicability for such reactions as isomerization where an equilibrium exists between reactant and product.

3,810,951
EXTRACTION PROCESS
Michael D. Riordan, Beacon, and David G. Weetman, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed May 11, 1970, Ser. No. 36,388
Int. Cl. C07c *11/00*
U.S. Cl. 260—677 A **2 Claims**

Objectionable impurities are removed from a paraffin dehydrogenate by extracting with a polar solvent such as N,N-dimethylformamide with the result that an acceptably colored sulfonate product can be prepared from the extracted material.

3,810,952
LIQUID COPOLYMERS OF 1,3-BUTADIENE AND 1-MONOOLEFINS, THEIR PREPARATION AND USES
Jean-Pierre Durand, Chatou, and Francois Dawans, Bougival, France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants
No Drawing. Filed Sept. 19, 1972, Ser. No. 290,405
Claims priority, application France, Sept. 23, 1971, 7134350
Int. Cl. C07c *11/00*
U.S. Cl. 260—677 R **9 Claims**

Liquid copolymers of 1,3-butadiene with one or more 1-monoolefin(s) are disclosed. They are constituted of olefinic and butadiene units, among which at least 80% cis-1,4 butadiene units. Their intrinsic viscosity at 30° C. in toluene is from 0.02 to 1.0 dl./g. Their preparation involves the use as catalyst of a nickel fluorocarboxylate halide, particularly nickel trifluoroacetate chloride. They are useful for many industrial applications.

3,810,953
DEHYDROGENATION OF ORGANIC COMPOUNDS
Robert S. Cichowski, San Luis Obispo, Calif., assignor to Phillips Petroleum Company
No Drawing. Filed Jan. 3, 1972, Ser. No. 215,147
Int. Cl. C07c *5/18*
U.S. Cl. 260—680 E **3 Claims**

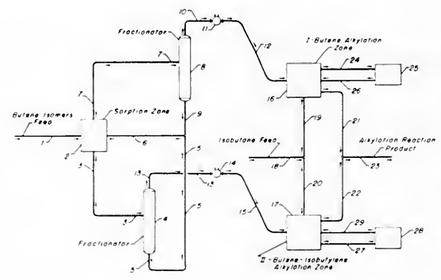
Organic compounds are oxidatively dehydrogenated in the presence of a solid catalyst comprising cobalt, phosphorus, combined oxygen and at least one metal from the group indium, magnesium, aluminum, thorium, yttrium, cadmium, lead, beryllium, zinc, manganese, silver, cerium, zirconium, boron and calcium.

3,810,954
OXIDATIVE DEHYDROGENATION PROCESSES
Brent J. Bertus, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Apr. 10, 1972, Ser. No. 242,373
Int. Cl. C07c *5/18*
U.S. Cl. 260—680 E **4 Claims**

Organic compounds, particularly hydrocarbons, are oxidatively dehydrogenated to more unsaturated compounds by contact, under reaction conditions, with air, steam and a calcined solid catalyst composition comprising tungsten, tin and at least one metal of the iron subgroup of Group VIII. In one embodiment, isopentene is converted to isoprene over a nickel/tungsten/tin/oxygen catalyst at a conversion of 36 percent and with a modivity (modified selectivity) of 72 percent.

3,810,955
BUTENE SEPARATION AND ALKYLATION
Jay E. Sobel, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 1, 1971, Ser. No. 203,800
The portion of the term of the patent subsequent to Oct. 2, 1990, has been disclaimed
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.49 **6 Claims**

A process for producing an alkylation reaction product from an isoparaffin and an olefinic reactant containing 1-butene, 2-butene and isobutylene by separating the reactant, using a crystalline aluminosilicate, to provide a 1-butene stream and a 1-butene-free stream and alkylating the 1-butene-free stream at 2-butene-isobutylene alkylation conditions. The 1-butene stream is separately alkylated at 1-butene alkylation conditions.



3,810,956
ANTI-ELECTROSTATIC POLYAMIDES CONTAINING A URETHANE DERIVATIVE OF A POLYETHER
Isao Kimura and Fumimaro Ogata, Osaka, and Koichiro Ohtomo, Settsu, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Apr. 20, 1970, Ser. No. 30,284
Claims priority, application Japan, Apr. 24, 1969, 44/32,207, 44/32,208; July 12, 1969, 44/55,318
Int. Cl. C08g *20/20*
U.S. Cl. 260—857 R **23 Claims**

A synthetic thermoplastic fiber-forming polymer having durable anti-electrostatic and hydrophilic properties to withstand repeated launderings, which comprises polyamide, and which uniformly contains 0.1–30% by weight based on said polyamide of at least one urethane derivative of polyether which is a reaction product of a diisocyanate and a mono- or di-ol type polyalkylene-ether or its derivative. Processes for its manufacture and fibers comprising the polymer have been also proposed.

3,810,957
SELECTIVELY HYDROGENATED BLOCK COPOLYMER-POLYSTYRENE BLENDS
Hans E. Lunk, Menlo Park, Calif., assignor to Shell Oil Company, Houston, Tex.
No Drawing. Continuation-in-part of application Ser. No. 62,698, Aug. 10, 1970, which is a continuation of application Ser. No. 463,892, June 14, 1965, both now abandoned. This application Feb. 7, 1972, Ser. No. 224,316
Int. Cl. C08f *41/12*
U.S. Cl. 260—876 B **10 Claims**

Molding compositions having high impact strength and improved oxidative stability are prepared by physically blending a polymer of at least one monovinyl aromatic compound with a block copolymer prepared by selectively hydrogenating to substantially complete saturation the diene portion of a block copolymer having at least two polymer blocks of a monovinyl arene separated by at least one polymer block predominately of a conjugated diene.

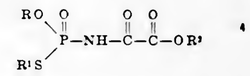
This invention relates to high impact thermoplastic compositions of polymers of monovinyl aromatic hydrocarbons and to a process for preparing them. More particularly, the invention provides a process for preparing high impact thermoplastic molding compositions, especially polystyrene, having improved oxidative stability.

3,810,958
METHOD OF OBTAINING SMALL PARTICLE SIZE POLYMERS AND COPOLYMERS OF VINYL CHLORIDE BY BULK POLYMERIZATION
Akio Takahashi, Amherst, and Anthony L. Lemper, Tonawanda, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Filed May 8, 1972, Ser. No. 251,098
Int. Cl. C08f *3/30, 15/00*
U.S. Cl. 260—880 R **6 Claims**

In a process of bulk polymerization involving two-stage polymerization wherein high speed agitation is used during the first stage and slow speed agitation is used in the second stage, the polymerization in the first stage is conducted in contact with a styrene-butadiene rubber polymer. By the novel polymerization methods, small particle size polyvinyl chloride homopolymers or copolymers are produced which are useful as extender resins in plastisols.

3,810,959
N-(ALKOXYALYL)-o-ALKYL-S-ALKYLTHIO-PHOSPHORS-AMIDES
Edmund Jeremiah Gaughan, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Feb. 12, 1973, Ser. No. 331,453
Int. Cl. A01n *9/36;* **C07f** *9/24*
U.S. Cl. 260—941 **4 Claims**

The compounds of this invention are those having the formula



in which R, R^1 and R^2 are lower alkyl and their use as insecticides.

3,810,960
PHOSPHORUS-CONTAINING MONOESTERS OF UNSATURATED DICARBOXYLIC ACIDS
William T. Gormley and Muchere C. Russ, Pittsburgh, Pa., assignors to Koppers Company, Inc.
No Drawing. Filed Nov. 9, 1972, Ser. No. 305,189
Int. Cl. C07f *9/40*
U.S. Cl. 260—952 **7 Claims**

Benzenephosphonic acid monoesters of glycol monoesters of ethylenically unsaturated dicarboxylic acids have been prepared by esterifying benzenephosphonic acid with the alcohol portion of an alkyleneglycol monoester with an unsaturated dicarboxylic acid. The novel esters are useful as flame retardant additives for thermoplastic and thermosetting resins.

3,810,961
PROCESS FOR PREPARING TRIS(2-HALOALKYL) PHOSPHITES
Philip M. Pivawer, Hamden, Conn., assignor to Olin Corporation
No Drawing. Filed Aug. 25, 1972, Ser. No. 283,974
Int. Cl. C07f *9/08*
U.S. Cl. 260—977 **15 Claims**

Tris(2-haloalkyl)phosphites are prepared by reacting a phosphorus trihalide with an alkylene oxide in the presence of a tertiary amine hydrohalide, a tetra-alkyl quaternary ammonium halide, or a mixture thereof. These tris (2-haloalkyl)phosphites are useful intermediates in the preparation of flame retardant phosphate esters.

ERRATUM

For Class 264—250 see:
Patent No. 3,811,045

3,810,962

METHOD OF MAKING A CARBIDE-GRAPHITE COMPOSITE NUCLEAR FUEL

William W. Martin, Donald H. Schell, and James M. Taub, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 25, 1972, Ser. No. 282,745

Int. Cl. G21c *21/00*

U.S. Cl. 264—.5 **3 Claims**

Composite nuclear fuel materials of the formula (U,Zr) C—C in which the ratio of U to Zr can be varied over rather wide ranges without significantly altering physical characteristics, as long as the overall carbide content is held constant. Optimum characteristics for fuel elements useful in nuclear propulsion reactors are exhibited by the composites containing 30 to 35 vol. percent carbide. Fuel elements of these composites are readily made by blending ZrC powder, UO_2 powder, graphite flour, carbon black, and a thermosetting resin in the appropriate ratios to provide the desired final product, extruding in a desired shape, curing, and subjecting the cured extrusion to a high-temperature heat treatment.

3,810,963

METHOD OF PREPARING A SYNTACTIC CARBON FOAM

Samuel T. Benton, Knoxville, and Charles R. Schmitt, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Oct. 29, 1971, Ser. No. 194,057

Int. Cl. B44d *5/12;* **C01b** *31/02*

U.S. Cl. 264—29 **1 Claim**

Syntactic carbon foam comprising hollow carbon microspheres in a carbon matrix is prepared by employing the steps of mixing hollow phenolic resin microspheres with a carbonizable resin binder, compacting the mixture, curing the binder while maintaining the mixture under a load corresponding to a pressure greater than ambient pressure, and then heating the mixture to convert the mixture of spheres and binder to carbon.

3,810,964

PROCESS FOR EXTRUDING A FOAMED CLOSED-CELL POLYOLEFIN EXTRUDATE SUBSTANTIALLY FREE FROM CELL COLLAPSE BY USE OF A BARRIER MATERIAL

Herbert A. Ehrenfreund, Madison, Conn., assignor to Polytech Systems, Inc., Madison, Conn.

No Drawing. Continuation-in-part of application Ser. No. 39,158, May 20, 1970. This application Sept. 20, 1971, Ser. No. 182,268

Int. Cl. B29d *27/00;* **C08f** *29/12*

U.S. Cl. 264—53 **4 Claims**

Preparation of a polyolefin foam by extruding a combination of materials including a chemically inert, particulate nucleation system, an expanding agent together with petroleum naptha which promotes foaming in a low pressure ambient, an ionomer, and a barrier material of high melt strength which improves the properties of the polymer and also serves during foaming as a blocking mechanism against post-extrusion cell collapse.

3,810,965

PROCESS OF PRODUCING A FOAMED RESIN SHEET

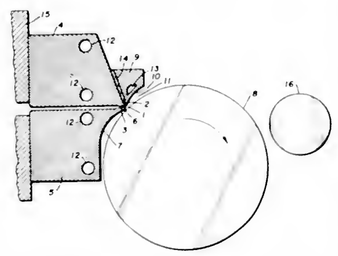
Durgacharan Sen, Cwmbran, Stanley J. Skinner, Newport, and William R. Foster, Wrexham, Wales, assignors to Monsanto Chemicals Limited, London, England

Filed Oct. 26, 1971, Ser. No. 192,465

Claims priority, application Great Britain, Nov. 3, 1970, 52,268/70; Feb. 18, 1971, 4,900/71; Sept. 20, 1971, 52,268/71

Int. Cl. B29d *27/00*

U.S. Cl. 264—53 **11 Claims**



The present invention is directed to a process for producing a sheet of foamed thermoplastic synthetic resin, which comprises extruding a foamable thermoplastic synthetic resin through a slit die orifice into an extention zone defined by a pair of opposing curved surfaces maintained at a temperature below the extrusion temperature, one of the surfaces being a convex surface that moves in the direction of extrusion and the other surface being concave, such that foaming of the resin occurs as it moves through the expansion zone and the curvatures and relative spacing of the surfaces being such that they compact the expanding and foaming resin and there is produced a foamed resin sheet.

3,810,966

METHOD OF CONTINUOUSLY SEALING AN INTERFACE BETWEEN TWO RELATIVELY MOVABLE MEMBERS

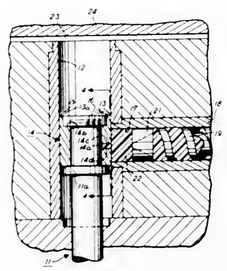
Edward Paul Tober, Richardson, Tex., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed July 10, 1972, Ser. No. 270,555

Int. Cl. B29g *2/00*

U.S. Cl. 264—262 **10 Claims**

The interface between two relatively movable members, such as a mold injection ram assembly and a cylinder in which the ram assembly is reciprocably mounted, is continuously sealed by forming a narrow, diagonal slot between the edges of a circular bushing and assembling the slotted bushing on the ram in the cylinder. On a first cycle of operation, molding material is forced into the slot to expand the bushing radially outward into tight-fitting sealing engagement with the cylinder. This may be accomplished as the assembled ram and bushing are being utilized to block the exit end of a material perform compacting chamber, or as the assembled ram and bushing are being advanced to inject a first material perform into a molding die. On subsequent cycles of operation, additional minute amounts of material are forced into the slot in the bushing to expand the bushing radially outward as the bushing wears and to maintain the bushing in tight-fitting sealing engagement in the cylinder.



3,810,967

PROCESS FOR RECOVERING COBALT FROM OXO REACTION PRODUCTS

Itaru Takasu, Arai, and Masaru Higuchi, Yoshito Hijioka, and Kyozo Arimoto, Ohimachi, Japan, assignors to Daicel Ltd., Osaka, Japan

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,192

Claims priority, application Japan, Sept. 14, 1970, 45/80,806, 45/80,808

Int. Cl. C01g *51/02*

U.S. Cl. 423—139 **7 Claims**

A process for recovering cobalt from an oxo reaction product, in which the oxo reaction product is contacted with (a) an iron material selected from the group consisting of iron, oxides, hydroxides and salts of iron or (b) an iron-containing mixture prepared by mixing an aqueous solution of a ferrous salt of a strong acid with an aqueous solution of an alkali metal or alkaline earth metal hydroxide, in which a double decomposition has been caused so as to produce ferrous hydroxide, in the presence of water, carbon monoxide and hydrogen. The cobalt present in said oxo reaction product is converted to a water-soluble iron salt of carbonyl cobaltate which is extracted to the aqueous phase. The aqueous is separated from said oxo reaction product. The soluble iron salt of carbonyl cobaltate in said aqueous phase is decomposed with a mineral acid or organic acid to convert it to cobalt carbonyl.

3,810,968

PROCESS FOR MANUFACTURING SULFUR DIOXIDE FROM AMMONIUM SULFATE

Philippe Renault, Noisy-le-Roi, Andre Deschamps, Chatou, and Claude Dezael, Maisons-Laffitte, France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants

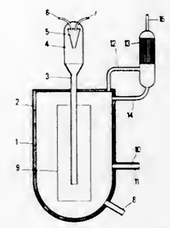
Filed May 23, 1972, Ser. No. 256,078

Claims priority, application France, May 27, 1971, 7119411

Int. Cl. C01b *17/50;* **C01c** *1/02*

U.S. Cl. 423—356 **25 Claims**

Ammonium sulfate is a material of low industrial value which cannot be rejected without risk of water pollution. This material is converted to useful compounds, SO_2 and NH_3, by the present process which comprises reacting at least stoichiometrical proportions of a reducing agent and ammonium sulfate at 150–400° C. The reducing agent may be sulfur, hydrogen sulfide, ammonium thiosulfate or carbon monoxide.



3,810,969

PROCESS FOR THE PRODUCTION OF CHLORINE DIOXIDE

Allan A. Schlumberger, Williamsville, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed June 22, 1971, Ser. No. 155,659

Int. Cl. C01b *11/02, 11/12*

U.S. Cl. 423—478 **6 Claims**

A process is described for preparing substantially pure chloric acid by reacting a metal chlorate salt with a cation exchange resin. The chloric acid is subsequently reduced to produce chlorine dioxide.

3,810,970

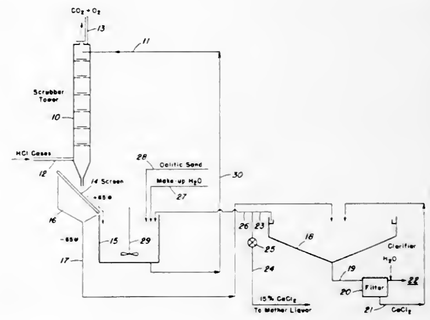
PROCESS FOR SCRUBBING HYDROGEN CHLORIDE FROM WASTE GASES AND SELECTIVE RECOVERY OF ANHYDROUS MAGNESIUM CHLORIDE

Walter R. McCormick, Salt Lake City, Utah, assignor to N L Industries, Inc., New York, N.Y.

Filed Jan. 19, 1972, Ser. No. 219,095

Int. Cl. C01b *7/08;* **C01f** *5/30*

U.S. Cl. 423—498 **7 Claims**



Hot waste gases containing small amounts of hydrogen chloride plus additional combustion products including

carbon dioxide, nitrogen, oxygen and water vapor are scrubbed substantially free of the hydrogen chloride by contacting the hot gases with a fluid scrubbing medium comprising a slurry of oolitic sand and calcium chloride brine at a pH less than 7, whereby the hydrogen chloride in the gases is converted to additional calcium chloride brine which is separated and recovered from the fluid scrubbing medium, the latter being fortified by a minor portion of the recovered brine and recycled to scrub additional hot waste gases.

The system employed comprises a scrub tower in which the fluid scrubbing medium and hot waste gases are brought into intimate contact, preferably by countercurrent flow; and suitable means for separating and recovering the newly formed calcium chloride brine from the fluid scrubbing medium including means for recovering the oolitic sand and mixing it with make-up brine to form fresh fluid scrubbing medium which is recycled to the scrub tower.

3,810,971

METAL RECOVERY FROM SALT MIXTURES OF COPPER AND METALS MORE ELECTROPOSITIVE THAN COPPER

Roald R. Skarbo, Lexington, and Antonio H. Miguel, Cambridge, Mass., assignors to Kennecott Copper Corporation, New York, N.Y.

Filed June 10, 1971, Ser. No. 151,677

Int. Cl. C01g *3/12*

U.S. Cl. 423—565 **9 Claims**

Copper may be efficiently separated from metal salt mixtures, i.e. carbonate, chloride and sulfates by a process that comprises dissolving a portion of the metal salt mixture in hydrochloric acid, reducing the other portion of the metal salt mixture with a reducing gas, combining the hydrochloric acid solution and the reduced portion along with elemental sulfur to precipitate out substantially all of the copper in the metal salt mixture as cuprous sulfide.

3,810,972

REDUCTION OF SULPHUR OXIDES

Robert Walter Humphrey, Didcot, and Gerald Moss, Oxford, England, assignors to Esso Research and Engineering Company

Filed Feb. 24, 1972, Ser. No. 228,829

Int. Cl. C01b *17/04;* **C10g** *9/28*

U.S. Cl. 423—569 **14 Claims**

A substrate is coked by contact with oil at cracking temperature, and the coked substrate is then contacted with sulphur oxides-containing gases to reduce the sulphur oxides to sulphur (which is recovered) and to oxidize coke to carbon oxides. The cracked oil vapors are also recovered. The process is operated either cyclically, intermittently or continuously.

3,810,973

METHOD OF PREPARING FERRITES

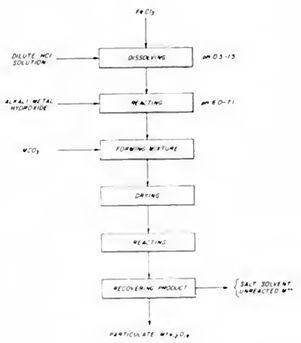
Ronald H. Arendt and Charles E. Vanburen, Schenectady, N.Y., assignors to General Electric Company

Filed Jan. 12, 1973, Ser. No. 323,084

Int. Cl. C01g *49/00*

U.S. Cl. 423—594 **5 Claims**

A method of making a magnetoplumbite ferrite is provided wherein an aqueous solution of ferric chloride is reacted with an alkali metal hydroxide to form ferric oxide hydrate in a salt solution, and then an alkaline earth metal carbonate is added to the mixture. After drying, the



ferric oxide and the alkaline earth metal carbonate are reacted in a molten salt solvent and the particulate ferrite is recovered.

3,810,974

ALUMINUM HYDRIDE PREPARATION

William M. King, Walnut, Calif., assignor to Aerojet-General Corporation, Azusa, Calif.

No Drawing. Filed May 5, 1964, Ser. No. 366,933

Int. Cl. C01b *6/00*

U.S. Cl. 423—645 **5 Claims**

This invention relates to a novel form of aluminum hydride and a method for its preparation.

3,810,975

START-UP PROCEDURE FOR CATALYTIC STEAM REFORMING OF HYDROCARBONS

Chester B. Brooke, East Alton, Ill., assignor to Shell Oil Company, Houston, Tex.

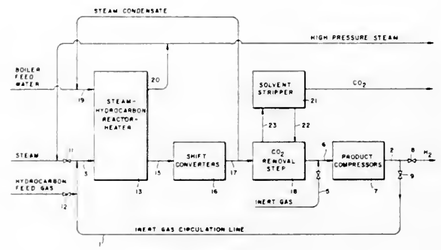
Filed Oct. 15, 1971, Ser. No. 189,577

Int. Cl. C01b *1/18, 1/32*

U.S. Cl. 423—652 **5 Claims**

A process for catalytic steam reforming of hydrocarbons to produce hydrogen, carbon monoxide and carbon dioxide from steam and a gaseous hydrocarbon mixture in a system including an inlet reactor-heater, catalyst-filled tubes, a hydrogen product compressor, and a valved conduit between the discharge side of the hydrogen compressor and the inlet to the reactor-heater is started up by introducing an inert gas into the system, circulating said inert gas through the system with the hydrogen product compressor by passing it back to said reactor-heater, heating the catalyst-filled tubes to a temperature above the dew point of steam while circulating inert gas,

introducing steam and hydrocarbons into the system, stopping the inert gas circulation by closing the valve



in the conduit and removing hydrogen product from the system with the compressor.

3,810,976

LUNG SCANNING 99m TECHNETIUM MACROAGGREGATE AND METHOD OF PREPARATION

Vernon Joe Ficken, Edmond, Okla., Samuel E. Halpern, Los Angeles, Calif., and Leonard R. Miller, Oklahoma City, Okla., assignors to University of Oklahoma Foundation, Inc., Oklahoma City, Okla.

No Drawing. Filed May 20, 1970, Ser. No. 39,857

Int. Cl. A61k *27/04*

U.S. Cl. 424—1 **10 Claims**

A lung scanning agent and method, the agent comprising a 99m technetium **-sulfur** colloid macroaggregate stabilized with a dialdehyde. More specifically, the composition comprises a 99m TcO_4 solution of the desired activity together with gelatin, an acid, and thiosulfates and perrhenates of the metals of Group IA of the Periodic Table of the Elements. The composition is heated to produce the desired macroaggregate particles and a dialdehyde such as glutaraldehyde is added to stabilize the particles. A high percentage of the particles produced upon injection are initially distributed throughout the lungs and upon clearance distribute themselves throughout the reticuloendothelial system.

3,810,977

HAIR FIXING COMPOSITION AND PROCESS CONTAINING A SOLID TERPOLYMER

Ralph M. Levine, Somerset, Lawrence D. Schuler, North Brunswick, and Albert L. Micchelli, Middletown, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 625,328, Mar. 23, 1967. This application Jan. 27, 1971, Ser. No. 110,342

Int. Cl. A61k *7/00*

U.S. Cl. 424—47 **5 Claims**

This application describes hair fixing terpolymer compositions comprising vinyl acetate, crotonic acid and vinyl esters of alpha-branched saturated aliphatic monocarboxylic acids containing from 5 to 10 carbon atoms in the carboxylic acid moiety, and a process for making such compositions. It also describes a method for treating hair with such compositions.

3,810,978

PROCESS FOR PRODUCING ANTILIPEMIC SUBSTANCE

Toshihiro Hamakawa, Motoyoshi Kajihara, Takashi Suzue, and Fumiaki Ogawa, Naruto, Japan, assignors to Taiho Pharmaceutical Company, Limited, Tokyo-to, Japan

No Drawing. Filed Dec. 6, 1971, Ser. No. 205,316

Int. Cl. A61k *17/00*

U.S. Cl. 424—95 **4 Claims**

A process for producing an antilipemic substance comprises grinding an autolytic organ of a mammal in aqueous medium, autolyzing said organ in the aqueous medium to allow the autolyzed substance to be transferred into the aqueous medium, dialyzing the resulting liquid to remove low molecular weight substances dissolved in the aqueous medium, adding a deproteinizing agent to the nondialyzed portion for deproteinization, dialyzing the deproteinized liquid again to remove deproteinizing agent used, concentrating the resulting nondialyzed liquid, adding an organic solvent to the concentrated liquid to precipitate effective substance and recovering the precipitated effective substance.

3,810,979

PHOSPHONIUM COMPOUNDS FOR TREATING GASTROINTESTINAL HYPERACIDITY AND ULCERATION

Julius Diamond, Lafayette Hill, and King Auyang, Philadelphia, Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Original application Dec. 17, 1970, Ser. No. 99,313, now Patent No. 3,742,064. Divided and this application Jan. 31, 1973, Ser. No. 328,176

Int. Cl. A61k *27/00*

U.S. Cl. 424—198 **8 Claims**

Aralkyl phosphonium salts of this invention possess useful gastic anti-secretory, spasmolytic and antiulcerogenic properties. A method of treating gastrointestinal hyperacidity and ulceration has also been disclosed.

3,810,980

INSECTICIDAL AND ACARICIDAL FORMULATION OF INCREASED STABILITY

Heinrich Pohlmann, Leverkusen, and Karl-Julius Schmidt, Wuppertal-Vohwinkel, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation-in-part of application Ser. No. 205,313, Dec. 6, 1971, which is a continuation of application Ser. No. 2,952, Jan. 14, 1970, both now abandoned. This application Aug. 24, 1972, Ser. No. 283,443

Claims priority, application Germany, Jan. 23, 1969, P 19 03 228.1

Int. Cl. A01n *9/36*

U.S. Cl. 424—200 **14 Claims**

Formulation of increased stability containing (1) the normally unstable insecticidally and acaricidally active compound O,O - diethyl-O-quinoxal-2-yl-thionophosphoric ester, e.g. in an amount of about 20–80% by weight, (2) a diluent such as a higher boiling hydrocarbon and/or higher boiling ester, e.g. in an amount of about 15–80% by weight, and (3) a stabilizer such as (a) a tertiary amine, e.g. in an amount of about 0.1–10% by weight, (b) a dipolar aprotic solvent, e.g. in an amount of about 0.01–10% by weight, or a mixture of (a) and (b) in an

amount of about 0.01–20% by weight; optionally including (4) a surfactant such as emulsifying and/or dispersing agent; and methods of improving and increasing the stability, e.g. in storage, of O,O-diethyl-O-quinoxal-2-yl-thionophosphoric acid ester, especially when associated or admixed with diluents, which contemplate the admixing of the above-noted components, (1), (2) and (3), and optionally also (4), e.g. in the stated amounts.

3,810,981

INSECTICIDAL COMPOSITIONS AND METHODS EMPLOYING PHOSPHORYLATED ANILIDES

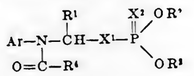
John F. Olin, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Feb. 20, 1970, Ser. No. 13,173, now Patent No. 3,714,299. Divided and this application June 7, 1972, Ser. No. 260,623

Int. Cl. A01n *9/36*

U.S. Cl. 424—204 **30 Claims**

Insecticidal compositions and methods employ as the active ingredient compounds of the formula



wherein Ar, R^1, R^2, R^3, R^4, X^1 and X^2 are as defined hereinafter.

3,810,982

INSECTICIDAL PHOSPHONYL CYANODITHIOIMIDO CARBONATES

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 13,857, Feb. 24, 1970. This application Oct. 2, 1972, Ser. No. 294,138

Int. Cl. A01n *9/36*

U.S. Cl. 424—210 **12 Claims**

Novel phosphoryl cyanodithioimido carbonates are disclosed. The compounds are useful as insecticides, particularly as soil insecticides.

3,810,983

PESTICIDAL COMPOSITIONS AND METHODS OF KILLING PESTS USING O-ALKYL-S-(β-ALKOXYETHYL) - S - (ALKOXY OR PHENOXY-ALKYL) PHOSPHORO DITHIOLATES

Shigeo Kishino, Tokyo, and Akio Kudamatsu and Kozo Shiokawa, Kanagawa, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

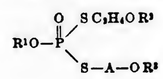
No Drawing. Original application Nov. 8, 1971, Ser. No. 196,748. Divided and this application Nov. 10, 1971, Ser. No. 197,522

Claims priority, application Japan, Nov. 18, 1970, 45/100,996

Int. Cl. A01n *9/36*

U.S. Cl. 424—217 **9 Claims**

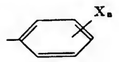
O-alkyl-S-(β-alkoxyethyl)-S-(alkoxy or phenoxyalkyl) phosphoro dithiolates of the general formula



(I)

in which

R^1 is methyl or ethyl, R^2 is lower alkyl,
R^3 is lower alkyl or



wherein

n is 0 to 3 and
X is halogen, lower alkyl or nitro, and
A is lower alkylene,

which possess insecticidal, acaricidal and nematocidal properties.

3,810,984

ANTICESTODE HYDRAZINOQUINOLINES

Philip Paul Actor, Phoenixville, Pa., and Cesare Enrico Giuseppe Pellerano, Sienna, Italy; said Actor assignor to Smithkline Corporation, Philadelphia, Pa.

No Drawing. Original application Sept. 19, 1969, Ser. No. 859,593, now Patent No. 3,646,019. Divided and this application June 2, 1971, Ser. No. 149,340

Claims priority, application Italy, Oct. 26, 1968, 23,025/68

Int. Cl. A61k *27/00*

U.S. Cl. 424—258 **10 Claims**

4 - (pyridylmethylenehydrazino)quinolines, optionally substituted with a 2-alkyl group and otherwise at the 6,7,8, or 9-positions, are prepared by condensation of a hydrazinoquinoline with a pyridinecarboxaldehyde. The compounds are used to combat tapeworm infections in animals.

3,810,985

S-TRIAZINES FOR TREATING GASTROINTESTINAL HYPERACIDITY AND ULCERATION

Julius Diamond, Lafayette Hill, Pa., assignor to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Original application Oct. 14, 1971, Ser. No. 189,405, now Patent No. 3,758,469. Divided and this application Mar. 1, 1973, Ser. No. 337,031

Int. Cl. A61k *27/00*

U.S. Cl. 424—249 **3 Claims**

The 2-amino-4-anilino-6-substituted 1,3,5-triazine compounds of this invention are useful in the treatment of gastrointestinal hyperacidity and ulceration. These compounds also have utility as antihypertensive agents.

3,810,986

NOVEL METHOD AND COMPOSITION

Bo Thuresson af Ekenstam, Bror Arne Thalen, and Axel Karl Gunnar Aberg, Molndal, and Karl Goran Claeson, Goteborg, Sweden, assignors to AB Bofors, Bofors, Sweden

No Drawing. Filed Dec. 6, 1971, Ser. No. 205,307

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 **7 Claims**

This invention relates to a novel process for the production of the D-(—)-hydrochloride salt of mepivacaine. This invention also relates to the discovery that the D-(—)-hydrochloride salt of mepivacaine exhibits unexpectedly superior properties for the treatment of arrhythmic disorders of human and animal hearts. D-(—)-mepivacaine hydrochloride can also be referred to as D(—)-methyl pipecolic acid-2',6'-xylidide hydrochloride.

3,810,987

BLOOD PRESSURE LOWERING METHOD USING AN APORPHINE

Walfred S. Saari, Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

Filed June 12, 1972, Ser. No. 261,826

Int. Cl. A61k *27/00*

U.S. Cl. 424—258 **8 Claims**

Method for lowering mean arterial blood pressure by administering an aporphine derivative. Compounds prepared by conventional procedures.

3,810,988

CONTROL OF PHYTOPATHOGENIC FUNGI WITH N-BENZOTHIAZAE-2-YL N-' PROPYLURE

Stefan Janiak, Basel, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

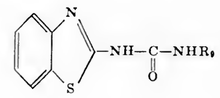
Division of Ser. No. 868,589, Oct. 22, 1969, Pat. No. 3,725,428. This application Feb. 12, 1973, Ser. No. 331,721

Claims priority, application Switzerland, Nov. 1, 1968, 16333/68

Int. Cl. A01n *9/12, 9/22*

U.S. Cl. 424—270 **4 Claims**

Phytopathogenic fungi are controlled by the use of compounds of the formula



in which R_9 is C_3 alkyl.

3,810,989

CONTROL OF CONFUSED FLOUR BEETLES USING GERANYL PHENYL ETHERS

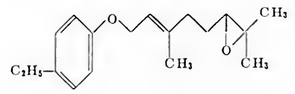
Peter E. Letchworth, Mountain View; Julius J. Menn, Saratoga, and Ferenc M. Pallos, Pleasant Hill, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation-in-part of Ser. No. 90,067, Nov. 16, 1970, abandoned. This application Aug. 10, 1972, Ser. No. 279,589

Int. Cl. A01n *9/28*

U.S. Cl. 424—278 **1 Claim**

A method of controlling stored grain insects is described herein. Specifically, the method comprises adding an effective amount to the habitat of the stored grain insects, specifically, confused flour beetle, an effective amount of the following compound:



3,810,990

INHIBITING GROWTH OF BACTERIA

Leonard Jurd, Berkeley, and Alfred Douglas King, Jr., Martinez, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Feb. 27, 1970, Ser. No. 15,302

Int. Cl. A01n *9/28*

U.S. Cl. 424—283 **1 Claim**

Substances which are subject to microbial spoilage are preserved by addition of certain compounds, e.g., 3-0-methylquercetin; a composition of 5-0-methyl- and 7-0-methylquercetin; 4- or 7-methoxycoumarin; 2-(4-hydroxyphenyl)-benzofuran; or various mixtures of these.

3,810,991

A METHOD OF INDUCING FIBRINOLYSIS

Fernand Binon, Strombeek-Bever, and Henri Inion, Wemmel, both of Belgium, assignors to Labaz, Paris, France

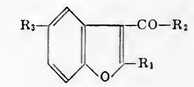
Filed Apr. 17, 1972, Ser. No. 244,495

Claims priority, application Great Britain, Apr. 29, 1971, 12277/71

Int. Cl. A61k *27/00*

U.S. Cl. 424—263 **2 Claims**

Method of treating mammals to induce fibrinolysis or counteract fibrinolytic syndromes by administering a compound of the formula



wherein R_1 represents a straight or branched chain alkyl group containing from 1 to 8 carbon atoms, cyclohexyl, or phenyl, 4-methylphenyl or 4-chlorophenyl; R_2 represents 4-pyridyl or N-oxide derivative thereof; and R_3 represents hydrogen, hydroxyl, methyl, methoxyl, chlorine or bromine or a pharmaceutically acceptable acid solution salt of said benzofuran derivative, and a pharmaceutical carrier therefor.

3,810,992

ANTHELMINTIC BIS-THIOUREIDO BENZENE DERIVATIVE

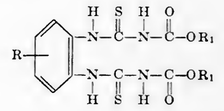
Julius Joel Menn, Saratoga, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

Filed Sept. 2, 1971, Ser. No. 177,471

Int. Cl. A61k *27/00*

U.S. Cl. 424—300 **1 Claim**

This invention relates to the control of internal parasites. More specifically, this invention relates to the use of anthelmintic active compounds defined by the following formula:



wherein R can be hydrogen, nitro, halogen or lower alkyl group and R_1 is a lower alkyl group.

3,810,993

CONTROL OF ACARINAE AND MOLLUSCS WITH PHENYLISOTHIOCYANATE COMPOUNDS

Dieter Duerr, Basel, and Marcus Von Orelli, Muenchenstein, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Continuation of Ser. No. 877,460, Nov. 17, 1969, abandoned, which is a continuation-in-part of Ser. No. 646,184, June 15, 1967, abandoned. This application Mar. 6, 1972, Ser. No. 232,209

Claims priority, application Switzerland, June 22, 1966, 9058/66

Int. Cl. A01n *9/18*

U.S. Cl. 424—302 **16 Claims**

The present invention relates to a preparation and method for combating representatives of the order Acarina and molluscae which comprise as an active ingredient at least one compound of the formula

R — NCS

in which R represents a lower alkyl, lower alkoxy or lower alkenyl radical or an optionally substituted aromatic monocyclic or polycyclic radical.

3,810,994
METHOD AND COMPOSITION FOR TREATING OBESITY

Karl E. Wiegand, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed June 1, 1972, Ser. No. 258,655
Int. Cl. A61k *27/00*
U.S. Cl. 424—316 4 Claims

A method and therapeutic composition for the treatment of obesity by internal administration in unit dosage form of carnitine or a suitably active derivative thereof. For example, carnitine may be administered either alone, or with another weight reducing preparation, or in the course of a restricted caloric dietary program for treatment of obesity.

3,810,995
CENTRAL NERVOUS SYSTEM STIMULATION

Salvatore F. Biscardi, Cornwall, and Benjamin R. Zeitlin, Suffern, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Mar. 31, 1972, Ser. No. 240,270
Int. Cl. A61k *27/00*
U.S. Cl. 424—331 6 Claims

A mixture of l-carvone and cis-carveol has been found to produce central nervous system (CNS) stimulatory effects when ingested. The mixture is effective at low levels and, therefore, may be incorporated into a variety of foodstuffs without imparting any undesirable off-flavors.

3,810,996
COSMETIC PREPARATION

Gloria M. Sutliff, 8105 Kerry Rd., Chevy Chase, Md., and Maria F. Moreno, P.O. Box 5019, Quito, Ecuador

Filed Mar. 14, 1972, Ser. No. 234,641
Int. Cl. A61k *7/00*
U.S. Cl. 424—364 5 Claims

A soothing, cleansing, and beneficial cosmetic facial mask is provided in two parts comprising an oil base, preferably a mixture of almond oil and olive oil, and an aqueous paste of banana flour, dried milk solids. The mask is employed by coating the skin areas to be treated with the oil base and thereafter applying a thick layer of the paste over the oil. The mask is left in place for a period of about thirty to forty minutes and then removed. The oil base will preferably contain a minor amount of Royal Jelly, on the order of about 0.1 to 5.0 weight percent, based on the weight of the oil.

ERRATA

For Classes 426—241 and 426—92 see:
Patents Nos. 3,810,764 and 3,810,765

3,810,997
TREATMENT OF SOYBEANS WITH YEAST

Hwei-Chiu Chien, Northbrook, Ill., assignor to Kraftco Corporation, New York, N.Y.

Filed Oct. 7, 1971, Ser. No. 187,567
Int. Cl. A23l *1/20*
U.S. Cl. 426—205 8 Claims

A method for treating a vegetable material containing protein is provided. In the method, an aqueous dispersion containing protein is prepared. The aqueous dispersion is then treated to provide a substrate that is relatively free from microbiological contamination. A viable culture of a particular yeast or mixture of yeasts is then added to the substrate. The yeast is selected so as to be capable of utilizing the carbohydrate material found in the vegetable protein source. Fermentation of the inoculated substrate is then effected under conditions which minimize production of alcohol.

3,810,998
INHIBITION OF WARMED-OVER FLAVOR IN UNCURED COOKED MEATS

Kunito Sato, Chicago, and Gerald R. Hegarty, Elmhurst, both of Ill., assignors to Armour and Company, Chicago, Ill.

Filed Nov. 3, 1972, Ser. No. 303,526
Int. Cl. A22c *18/00*
U.S. Cl. 426—332 8 Claims

A method for inhibiting the development of warmed-over flavor in uncured meat where the meat is cooked, cooled and stored at above freezing temperature in the presence of the compound known as reductic acid, after which the stored meat may be consumed cold or reheated without the development of objectionable warmed-over flavor.

3,810,999
MODIFICATION OF AQUEOUS COFFEE AROMA

T. Thomas Balling, Danbury, Conn., and James P. Mahlmann, Wayne, N.J., assignors to General Foods Corporation, White Plains, N.Y.

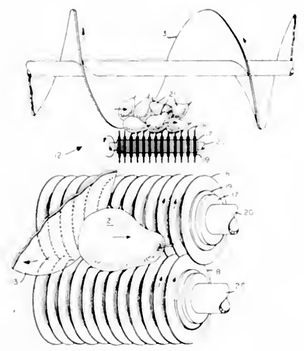
Filed May 12, 1972, Ser. No. 252,777
Int. Cl. A23f *1/08*
U.S. Cl. 426—362 3 Claims

Aqueous aromas are obtained from roasted coffee such as by contacting roasted and ground coffee with steam. The evolved aqueous aromas are preferably condensed and then partitioned with a glyceride such as a vegetable oil. The separate water and glyceride phases are used to aromatize soluble coffee products such as by adding the water phase to coffee extract and then drying the extract.

3,811,000
PEELING MACHINE AND METHOD

Louis P. Lazzarini, San Jose, Calif., assignor to Genevieve I. Hanscom (formerly Genevieve I. Magnuson); Genevieve I. Hanscom; Robert Magnuson and Lois J. Thompson (formerly Lois J. Duggan) Trustees of the estate of Roy M. Magnuson

Filed Oct. 12, 1971, Ser. No. 188,240
Int. Cl. A23n *7/00*; A47j *17/18*; B24b *29/00*
U.S. Cl. 426—483 5 Claims



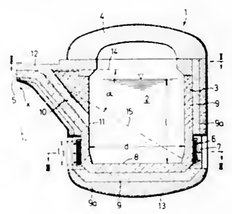
A peeling machine and method for fruits and vegetables includes a rotatable cylinder having its peripheral wall formed of a plurality of parallel horizontally disposed rotatable peeling rolls through which material such as pears, peaches, etc., is conveyed for peeling action. Each roll is provided with a peeling surface composed of a series of annular resilient peeling elements which are effective on treated fruit and vegetables to remove the skin.

ELECTRICAL

3,811,001
TILTABLE INDUCTION FURNACE FOR MOLTEN METALS

Robert Lethen, Lammersdorf, near Aachen, Germany, assignor to Otto Junker GmbH, Lammersdorf, near Aachen, Germany

Filed Sept. 5, 1973, Ser. No. 394,450
Claims priority, application Germany, Sept. 6, 1972, 2243757
Int. Cl. H05b *5/00*
U.S. Cl. 13—27 12 Claims

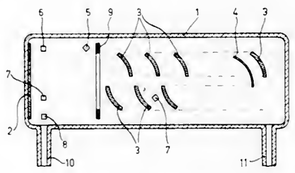


An induction furnace has a bottom wall and a circumferential side wall which extends upwardly from the bottom wall. The side wall surrounds a chamber the inner diameter of which is at least equal to the height of the side wall. Water-cooled induction coil is concentric with the side wall and extends upwardly from the region of the bottom wall by a distance which is at most equal to one quarter of the height of the side wall. Magnetic yokes are provided on the outer circumference of the coil and cover at least two thirds of the outer circumference. Thermally insulating material exteriorly surrounds the side wall upwardly of the induction coil.

3,811,002
METHOD OF MANUFACTURING AN ELECTRIC DISCHARGE TUBE HAVING AN ELECTRON EMITTING ELECTRODE COMPRISING A CESIUM-CONTAINING LAYER ON A SUPPORT

Siegfried A. E. Garbe; Pieter Zalm, and Willem Pastoor, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,082
Claims priority, application Germany, Aug. 17, 1971, 2141089
Int. Cl. H01j *9/22*
U.S. Cl. 316—5 13 Claims

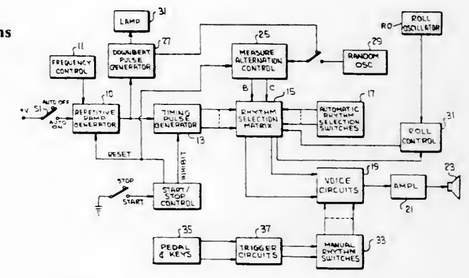


A method of manufacturing an electric discharge tube having an electron-emitting electrode comprising a support with a cesium-containing layer thereon which is activated by reaction of a gaseous compound of an inactive or inert gas and fluorine until a cesium fluoride layer having a composition (CsF, Cs) is formed. The gaseous compound, at the temperatures prevailing in the tube does not react with the surfaces of other parts.

3,811,003
RHYTHM ACCOMPANIMENT SYSTEM

Michael R. Harris, Hayward, Calif., assignor to D. H. Baldwin Company, Cincinnati, Ohio

Filed Dec. 13, 1971, Ser. No. 207,455
Int. Cl. G10h *5/00*
U.S. Cl. 84—1.03 11 Claims

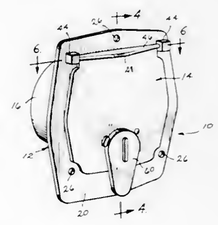


A system is disclosed for developing rhythmic accompaniment sounds from a free running repetitive ramp waveform having a controllable repetitive rate, there being a series of master timing pulses developed by triggering appropriate circuits at different ramp voltage levels during each ramp cycle. Certain of the master timing pulses are selected to form each required rhythmic pattern, the selected pulses being employed to trigger voice circuits to produce desired tones. In one embodiment a pattern selection circuit is employed to permit selective generation of any one of four pattern modes, namely: a first continuously repeated pattern; a second continuously repeated pattern; a pattern in which the first and second patterns are alternated; and a pattern in which the first and second patterns are randomly selected. In the preferred embodiment, 13 master timing pulses are provided during each measure and are separated by one, two, or three timing units in a 24 timing unit measure, an arrangement which permits of obtaining authentic accompaniment rhythms. A novel cowbell voicing circuit and a novel drum roll control circuit permit rhythmic generation of realistic cowbell and drum roll sounds in response to selected master timing pulses.

3,811,004
ELECTRICAL CORD HATCH

Glenn L. Moore, 2900-C Winding Waters Ln., Elkhart, Ind.

Filed June 22, 1973, Ser. No. 372,592
Int. Cl. H02g *3/14*
U.S. Cl. 174—67 6 Claims



An improved hatch mountable to a side wall of a travel trailer or mobile home and used to accommodate an electrical power supply cord which is connected to an exterior power

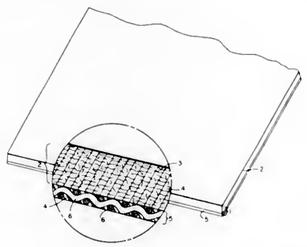
supply outlet. The hatch includes a housing having a cover which is shiftable between a closed position and an open position. The cover includes a slotted lower opening which serves to accommodate the electrical cord when the cover is in its closed position. A pivotally mounted tab is utilized to close the slotted opening in the cover and to secure the cover in its closed position when the electrical cord is disconnected from the power supply outlet.

3,811,005

GLASS-MICA COMPOSITE STRUCTURE CONTAINING DEPHENYL OXIDE B-STAGE RESIN

Floyd F. Trunzo, Monroeville; Gerhard R. Sprengling, Blairsville; Edward J. Traynor, Bedford, and Dow A. Rogers, Jr., Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 23, 1972, Ser. No. 228,586
Int. Cl. H01b *7/28*; **B32b** *17/10, 27/12*
U.S. Cl. 174—121 SR **15 Claims**



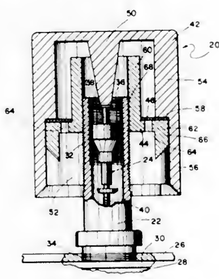
A composite structure is disclosed which comprises a layer of glass cloth and a layer of mica paper impregnated and bonded together with a B-stage dephenyl oxide resin composition. The structure may be in the form of a tape or of a sheet and is used as insulation over electrical conductors. The dephenyl oxide composition preferably comprises a mixture of methoxy methyl diphenyl oxide and chloromethyl diphenyl oxide and a curing catalyst of finely divided silica containing a small amount of iron metal.

3,811,006

BREATHER CAP WITH VALVE DEPRESSOR

Norman Burnell, Allandale, and Robert A. Potruch, North Miami, both of Fla., assignors to Lumidor Products Corp., Hialeah, Fla.

Filed Oct. 30, 1972, Ser. No. 302,338
Int. Cl. H02g *15/00*
U.S. Cl. 174—135 **5 Claims**



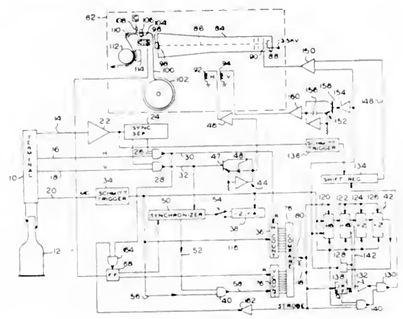
In an electrical cable having an impervious sheath thereabout defining a space therebetween and a normally closed valve, a breather cap is provided. The breather cap is secured to the valve to bias the valve open so that the space within the sheath is at the same pressure as that of the ambient atmosphere surrounding the sheath. A screen is provided in the breather cap to preclude dirt from entering the valve.

3,811,007

FACSIMILE METHOD AND APPARATUS

Peter J. Unger, Beaverton, and Harry L. Ford, Portland, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Nov. 11, 1971, Ser. No. 197,772
Int. Cl. H04n *1/22*
U.S. Cl. 178—6.6 A **13 Claims**



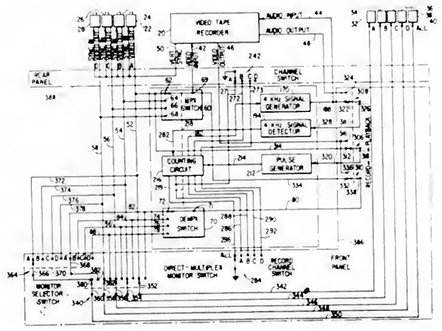
A hard copy of a refreshed computer terminal cathode ray tube display raster is produced on light sensitive paper by scanning the moving paper in the direction of paper movement employing a second cathode ray tube. Scans in the direction of paper movement are short and represent aligned segments of the original raster, this information being received at the scanning rate of a first tube and stored for readout onto the sensitive paper at a slower rate between reception of the aforementioned segments.

3,811,008

VIDEO MULTIPLEX SYSTEM

Saishek Lee, 3322 Beauchamp, Houston, Tex.

Filed Jan. 24, 1972, Ser. No. 220,019
Int. Cl. H04n *5/78*
U.S. Cl. 178—6.6 A **5 Claims**



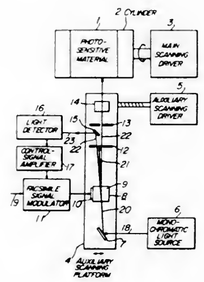
A video multiplex system for recording video signals from a plurality of video channels and reproducing the video signals on a plurality of video monitors is provided. The system includes a video recorder, multiplex circuitry for sequentially coupling a video input of the recorder to the video channels, demultiplex circuitry for sequentially connecting a video output of the recorder to the monitors, and a control circuit responsive to synchronizing signals from at least one of the video channels for operating the multiplex and demultiplex circuitry. The system also includes a signal generator operated by a control circuit for applying a synchronzing signal to an audio input of the recorder during the coupling of a selected video channel to the recorder to indentify video signals recorded from the selected channel. A synchronizing signal detector responsive to an audio output of the recorder is provided to synchronize the operation of the control circuit and demultiplex circuitry with the recorded video signals during play-back of the recorded video signal on the monitors.

3,811,009

FACSIMILE DEVICE

Akira Fukumoto, Kawasaki; Toshihide Hane, Sakai; Hiroyoshi Tsuchiya, Kawasaki, and Heijiro Hayami, Tokyo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 14, 1972, Ser. No. 225,827
Claims priority, application Japan, Feb. 25, 1971, 46-10052
Int. Cl. H04n *1/00*
U.S. Cl. 178—6.7 **4 Claims**



A facsimile device which makes use of a laser system as a light source to make possible high speed recording by modulating the laser beam through an acousto-optic modulator.

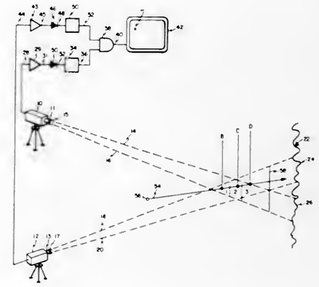
3,811,010

INTRUSION DETECTION APPARATUS

David T. Long, Oviedo, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 16, 1972, Ser. No. 281,080
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 **8 Claims**

Intrusion detection apparatus employing two spaced-apart TV cameras having lines of observation which intersect to form a three dimensional monitored locale of interest and a TV monitor having a display tube and connected to respond to output signals from said TV cameras. The cameras and monitors being synchronized to identify the presence and location of an intruder object in said locale of interest. In another aspect the invention comparator-adder analyzing circuitry is provided between the cameras and monitor such that the monitor is actuated only when the video from both cameras is identical at a given instant. Assuming each camera is directed to observe a different background and that the focus is adjusted to substantially eliminate background signals, then only signals from the intruder object are observed and it is observed only in the monitored locale.

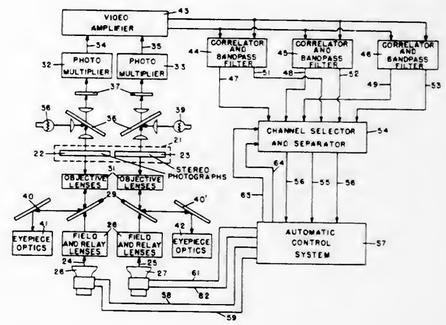


3,811,011

MULTIPLE IMAGE REGISTRATION SYSTEM

John W. Hardy, Lexington; Donald C. Redpath, Winchester, both of Mass., and Gilbert Hobrough, Vancouver, British Columbia, Canada, assignors to Itek Corporation, Lexington, Mass.

Filed July 8, 1969, Ser. No. 839,940
Int. Cl. G01c *11/18*; **G01b** *11/24*; **H04n** *7/18*
U.S. Cl. 178—6.8 **35 Claims**



A multiple image registration system utilizing scanning patterns with orthogonally related scanning paths parallel to the directions of transformation introduced for correcting x and y-parallax. A cross-correlation signal indicative of correlation quality is separated into x and y-components uniquely representing correlation quality in each direction of scan. The separate components are used appropriately to effect relevant control of raster size, model profiling velocity, and both loop gains and operability of x and y-parallax transformation mechanisms.

3,811,012

REMOTE TELEPHONE CALLING SYSTEM

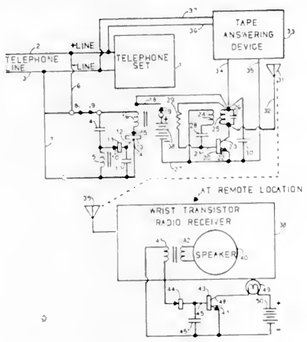
Alfred W. Barber, 32-44 Francis Lewis Blvd., Bayside, N.Y.

Filed Dec. 5, 1969, Ser. No. 882,484
Int. Cl. H04m *11/10*
U.S. Cl. 179—2 A **10 Claims**

A telephone calling system provides in response to received ringing pulses; (1) circuit closure disabling the ringing circuit

and enabling the voice communication circuit; (2) turns on an answering device which transmits "you have reached the phone of Mr. Smith. I am in the back yard. Please hold the line until I can get to the phone"; (3) sends out a signal to activate a remote signaling device, and; (4) a remote wrist radio device provides an audible, visible and/or other signal indicating that a call has come in on the telephone circuit.

The standard telephone provides an audible signal in the form of a bell which is energized by pulsing current over the line to indicate an incoming call. In case it is undesirable to



have an audible signal, a visible signal in the form of a blinking lamp may be substituted. Whenever an individual on the receiving end is within range of these signals, there is no particular problem. However, the ranges of these audible and/or visible signals are definitely limited. There are many and growing situations where the intended recipient is out of range of the signal or signals. Examples are when one is in another part of a large rambling house, outside, in another room with the door closed, in a neighbor's back yard, and any number of other possible situations.

3,811,013

PCM TELECOMMUNICATION SYSTEM HAVING MEANS FOR TEMPORARY EXCLUSION OF VOICE CHANNELS UNDER OVERLOAD CONDITIONS

Gianmario Costa, Cornaredo; Giancarlo Monti, Milan; Isidoro Poretti, Castigilione, and Alvaro Bagnoli, Milan, all of Italy, assignors to Societa Italiana Telecommunicazioni Siemens S.p.A., Milan, Italy

Filed Dec. 18, 1972, Ser. No. 315,897
Claims priority, application Italy, Dec. 17, 1971, 32585/71
Int. Cl. H04j *3/04*
U.S. Cl. 179—15 BA **10 Claims**

A terminal of a pulse-code-modulation (PCM) time-division multiple-access (TDMA) telecommunication system, serving for the exchange of digitized message samples in the form of interleaved multibit pulse codes between a multiplicity of local voice channels and a like number of remote voice channels accessible through another terminal, includes at least one processing station serving several *n*-channel groups whose incoming lines are periodically sampled by respective group coders working into a common multiplexer. A processor inserted between each group coder and the multiplexer comprises a pair of alternately operative shift registers which receive only the coded voice samples from active lines, as determined by a monitoring circuit including a multiplicity of voice detectors, and subsequently discharge them at an accelerated rate in an intermittent code sequence for intercalation in a PCM frame with the similar code sequences from other processors of the station. The voice detectors deliver an activity pattern for all the *n* channels of the corresponding group to an allocation-message generator provided with an *n*-stage input register and an *n*-stage output register; characteristic bits representing active stages are transferred, stage by stage, from the input register to the output register under the control of a cyclic scanner including a ring counter which is continuously stepped by clock pulses unless its advance is blocked by a linear pulse counter, registering the number of characteristic-bit transfers per frame, if that number reaches the maximum number of communication time slots allotted to the group in an assigned subframe of the multiplexer. On the



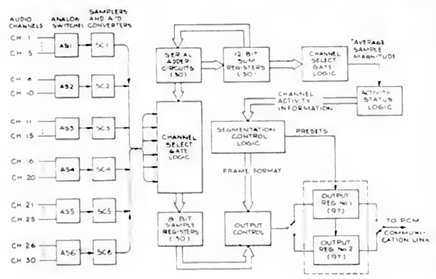
next frame, scanning is restarted from the position in which the ring counter was last stopped, except during certain frames in which the ring counter is reset to zero for synchronization with a similar ring counter in an associated receiving station at the remote terminal where the allocation message, partly transmitted during each frame, is decoded with the aid of another ring counter and linear counter operating in step with those of the transmitting station.

3,811,014

ADAPTIVE PULSE CODE MODULATION SYSTEM

Neal B. Seitz, San Diego, Calif., assignor to Logicon, Inc., Hawthorne, Calif.

Filed Mar. 12, 1973, Ser. No. 340,562
Int. Cl. H04j *3/00*
U.S. Cl. 179—15 BW **14 Claims**



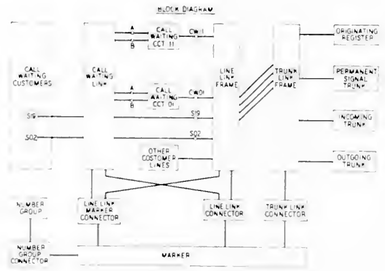
An adaptive pulse code modulation system useful for increasing the channel capacity of a fixed bandwidth communication link by reducing the redundancy characteristic of nonadaptive systems. In the subject system, the transmitter allocates space in a fixed bit length sample field amongst multiple channels on a frame by frame basis. Each channel is assigned space in the sample field only when that channel is active. The activity status of each channel is determined by averaging the sample amplitudes from that channel over a specified number of frames and if that average exceeds a specified threshold, then that channel is defined to be active. The activity status of each channel is monitored at a very high rate so that when a user begins speaking, his voice will be detected and assigned space soon enough to prevent his speech from being noticeably clipped. Each frame includes at least three fields; (1) an active channel sample field, (2) an activity status field and (3) an activity sync field. The activity status field is used to represent the activity status of a different channel each frame. Thus, in a typical 30 channel system, the activity status of each channel will be reported once every 30 frames. The activity sync field is comprised of one bit which enables the receiver to assign each received activity status field to the proper channel. In constructing a frame, the transmitter samples each voice channel and allocates a portion of the adaptive sample field to each active channel leaving vacant space if the complete sample field is not required and "rounding off" the samples to "fit" them in the sample field if an unusually large number of channels are active. To process each incoming frame, the receiver counts the total number of active channels, determines the number of bits per sample, and then rescales the received samples back to full magnitude if they were rounded off.

3,811,015

SWITCHING SYSTEMS WITH SPECIAL CUSTOMER SERVICE

Ronald Valentine Beth, Reynoldsburg, and John Mason Catterall, Columbus, both of Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 27, 1972, Ser. No. 301,370
Int. Cl. H04m *3/42*
U.S. Cl. 179—18 BG **14 Claims**



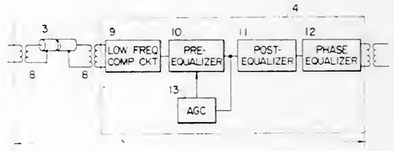
A marker controlled crossbar telephone switching system provides call waiting service to special customer lines by attaching call waiting circuits to the lines through a crossbar switch link. Lines terminate on verticals of the link and call waiting circuits terminate on all levels (horizontals) of the link except level zero. Each line is connected to its usual system line terminal through contacts of the unoperated hold magnet for that link vertical. When the hold magnet is operated, the line is connected either (a) to its line terminal through crosspoints controlled by the select magnet for level zero or (b) to a call waiting circuit through crosspoints controlled by the select magnet for the level corresponding to that call waiting circuit. Also, when a select magnet for a call waiting circuit and a hold magnet for a line are operated, the call waiting circuit is also connected through crosspoints controlled by its corresponding select magnet to the line terminal of the line corresponding to the operated hold magnet. The call waiting circuits also terminate in system terminals assigned thereto. Whenever any line is connected to its line terminal over crosspoints of level zero no call waiting circuit may be attached thereto. Whenever any line is connected to its line terminal over contacts of its unoperated hold magnet a call waiting circuit may be attached thereto by means of crosspoints of the level corresponding to that call waiting circuit.

3,811,016

LOW FREQUENCY CUT-OFF COMPENSATION SYSTEM FOR BASEBAND PULSE TRANSMISSION LINES

Yoshitaka Takasaki, Hachioji, and Kouji Aoki, Tokyo, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 1, 1972, Ser. No. 302,896
Int. Cl. H04b *3/58*
U.S. Cl. 179—170 R **6 Claims**



A low frequency cut-off compensation system for reducing intersymbol interference due to low frequency cut-off in baseband hybrid pulse transmission systems including analog repeaters consists of amplifiers individually provided at the input end of respective analog repeaters.

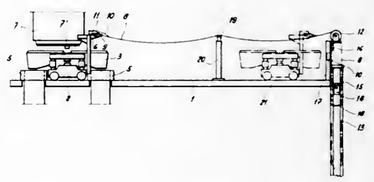
Each of the amplifiers is a low frequency amplifier having such a characteristic as to effect compensation of the attenuation of an associated repeater section of the transmission line including a coaxial cable, an analog repeater and transformers and particularly effect overcompensation of the overall characteristic in the neighborhood of the cut-off frequency.

3,811,017

MOVABLE CABLE- AND CONDUCTOR INFEED ARRANGEMENT FOR TRANSPORT- AND CHANGE WAGONS POSSESSING LIMITED MOBILITY WITH THE HALLS OF STEEL WORKS

Josef Eisen, Osterrath, and Horst Gauger, Wuifrath, both of Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany

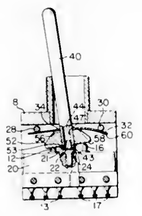
Filed Jan. 22, 1973, Ser. No. 325,750
Claims priority, application Germany, Jan. 28, 1972, 2203953
Int. Cl. H02g *11/02*
U.S. Cl. 191—12 R **7 Claims**



A movable line infeed arrangement, especially cable- and conductor infeed arrangement for transport- and change wagons or carriages which are movable within limited paths of travel in the halls of steel works, and which wagons are especially suitable for the handling of the casting vessels of continuous casting installations, wherein the cable or conductors

are secured to a metallic band anchored at the wagon. This metallic band is guided overhead to a deflecting roller arranged at the end of the path of travel of the carriage or wagon and from such location is guided about a loose tensioning roll and then leads to a stationary connection location which is located approximately in the direction of the deflecting roller.

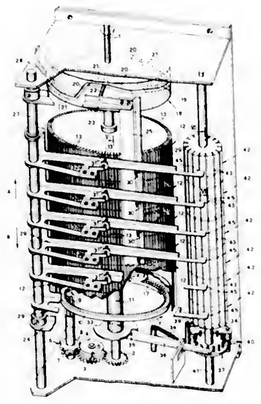
3,811,018
MULTIDIRECTIONAL JOY STICK TYPE LEVER ACTUATED SWITCHES
Joseph Kaplan, Jericho, N.Y., assignor to Machine Components Corporation, Plainview, Long Island, N.Y.
Filed June 25, 1973, Ser. No. 373,500
Int. Cl. H01h *25/04*
U.S. Cl. 200—6 A **12 Claims**



A multidirectional lever actuated self neutralizing switch having a base comprising a tapered pin which extends into a recess provided in one end of the lever, the angular relationship between the tapered surface of the pin and the surface of the recess when the switch is in an off position being predetermined to define the maximum degree to which the lever can be pivoted about the pin to cause the lower surface of an actuator plate affixed to the lever to actuate a self-restoring switch when the lever is so pivoted. The upper surface of the actuator plate is juxtaposed on a leaf spring when the switch is in the "off" position. Subsequent to the actuation of a switch and the termination of the juxtaposition of the spring vis-a-vis the plate by pivoting the lever; that is, when the lever is released, the pressure exerted on the plate by the spring causes the lever to resume its off position and the upper surface of the actuator plate to again be juxtaposed on the spring.

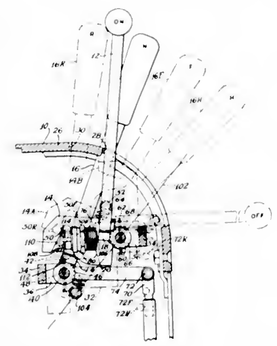
3,811,019
ROTARY-DRUM PROGRAMMING TIMER DEVICE
Fermo Solari, Udine, Italy, assignor to Solari & C/Udine S.p.A., Udine, Italy
Filed Nov. 3, 1972, Ser. No. 303,656
Claims priority, application Italy, Nov. 5, 1971, 30748 A/71
Int. Cl. H01h *43/22*
U.S. Cl. 200—38 CA **8 Claims**

A revolving-drum programming device is disclosed, which essentially comprises a grooved intermittently driven main drum, a comblike member in which a few teeth are left unaltered and others are suppressed, said comblike members being inserted in the drum grooves, a spatial cam rotated so as to make a revolution at every stepwise movement of the drum, said cam cooperating with a first cam follower, a second follower being provided, mechanically connected to the first follower so as to positively or negatively engage the teeth of said comblike members, the second follower being connected to a signal generating device. The apparatus can be supplemented by additional main drums and one or more auxiliary drums, so as to provide a wide range presetting for the cases in which certain points of the programme are to be suppressed or repeated. The advantage is to provide a compact assembly along with an accurate presetting of programmes, which can be set, even minute by minute, for periods as long as an entire week.



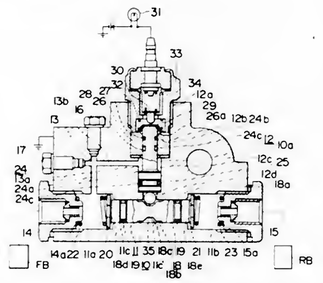
The programming device can be used, for example, for controlling the lighting of luminous signs, for periodically actuating sound signalling devices and for many other like uses.

3,811,020
SAFETY LOCK LEVER AND STARTING SAFETY SWITCH OPERABLE THEREBY
Robert W. Johnson, Winfield; George H. Waue, Arlington Heights; William R. Golden, Bloomingdale, and Hugo O. Mosquera, Wheaton, all of Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Dec. 8, 1972, Ser. No. 313,311
Int. Cl. B60k *27/00*
U.S. Cl. 200—61.88 **1 Claim**



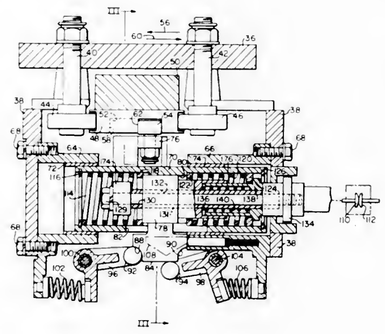
Safety lock lever for vehicles, particularly a lever movable to an on position in which it both electrically prepares the vehicle starter circuit for subsequent energization, and mechanically neutralizes the vehicle drive. In such a neutral-retaining position the lever is out of the way, and the driver can freely move about, both off and onto the vehicle. Equally significantly, the lever also has an off position in the way of the vehicle driver, as visible signal that the vehicle cannot be assumed safe to be dismounted from or entered or cranked.

3,811,021
AUTOMATIC RESET HYDRAULIC SWITCH
Shinya Ito, Tsushima, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi-ken, Japan
Filed Dec. 29, 1972, Ser. No. 319,616
Claims priority, application Japan, Dec. 30, 1971, 46-2115
Int. Cl. H01h *35/38*
U.S. Cl. 200—82 D **3 Claims**



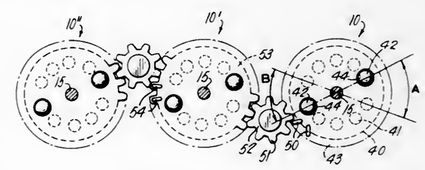
A hydraulically controlled, automatically resetting switch comprising two pressure responsive means, the first one of which is actuated upon there being a pressure difference between two hydraulic brake systems caused by failure in one of the systems and actuates the second pressure responsive means, which actuates a switch controlling an alarm device circuit until the failure is repaired, at which time the second pressure responsive means is moved away from the switch actuating position by hydraulic pressure communicated to it from the first pressure responsive means.

3,811,022
VACUUM SWITCH DRIVE MECHANISM
Edward F. Guidosh, Hubbard, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 9, 1973, Ser. No. 322,236
Int. Cl. H01h *33/66, 3/30*
U.S. Cl. 200—144 B **12 Claims**



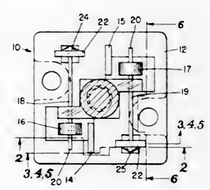
Drive mechanism for opening and closing the contacts of a vacuum switch. The mechanism includes a movable cylinder containing coil springs and a movable piston. The piston is connected to the vacuum switch and includes latching means which may be positioned to prevent movement of the pistons relative to the vacuum switch. A spring is compressed between the piston and the cylinder as the cylinder moves in the closing direction. The latching means is then unlatched and the piston is quickly moved by the force of the compressed spring to close the vacuum switch. Another spring is compressed when the cylinder moves in the opening direction. The latching means is then unlatched and the piston is quickly moved against the end of a shaft which is connected to the vacuum switch to open the vacuum switch.

3,811,023
SWITCH TRANSFER MECHANISM HAVING IDLER GEAR WITH POSITIONING MEANS PERMITTING THE TRANSFER MEANS TO BE CLEAR OF THE IDLER GEAR AFTER ITS TRAVEL THROUGH A PREDETERMINED SWITCH POSITION
Roy Stolweather Andersen, Granby, Quebec, Canada, assignor to General Precision Industries Limited, Montreal, Quebec, Canada
Division of Ser. No. 194,399, Nov. 1, 1971, abandoned. This application Jan. 2, 1973, Ser. No. 320,209
Int. Cl. H01h *3/40, 19/60*
U.S. Cl. 200—153 P **5 Claims**



A switch transfer mechanism comprising two or more rotary switches each having a rotatable shaft and a disc secured transversely to each of the shafts. Transfer means are associated with each of the discs and adapted to engage an idler gear during its travel through a predetermined position. The idler gear is in tooth engagement with a further disc of an adjacent shaft to cause the further disc and adjacent shaft to rotate through one switch position. Each of the discs have positioning means associated therewith to releasably retain the rotor shaft in each switch position and to permit the transfer means to be clear of the idler gear after its travel through the predetermined switch position to thereby permit independent clockwise or counterclockwise rotation of the further shaft.

3,811,024
MOMENTARY CONTACT, NON-BOUNCE SWITCH
Henry J. Sevigny, Salem, N.H., assignor to Alco Electronic Products, Inc., North Andover, Mass.
Filed May 3, 1973, Ser. No. 356,734
Int. Cl. H01h *15/06*
U.S. Cl. 200—160 **13 Claims**



A novel switch, particularly useful for achieving reliable, reproducible, momentary contact, as is desirable in the operation of electronic keyboard actuators. The switch is characterized by a spring means carrying a weighted contact which, on being biased by a cam in a first direction away from a contact, is allowed to snap back, with a predetermined and in-

herent momentum, beyond its normal position to make a momentary electrical connection with a stationary contact and thereby make a temporary circuit through the switch.

3,811,025
TOUCH PANEL SWITCH ASSEMBLY
Richard R. Bach, Downey, Calif., assignor to Lockheed Electronics Company, Inc., Plainfield, N.J.
Filed May 17, 1973, Ser. No. 361,284
Int. Cl. H01h *3/12, 9/16*
U.S. Cl. 200—317 **4 Claims**



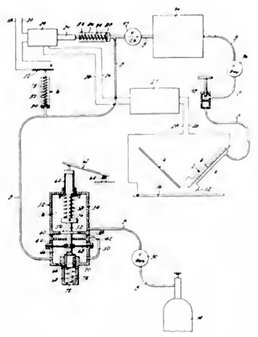
A multi-layer touch panel switch assembly for particular application as a control panel for computers. The front panel is a smooth surface with no exposed switch handles. An operator depresses a selected area causing metallic surfaces to momentarily make contact, lighting a LED indicator located behind transparent areas in the panel. A silicone button having the desired flexibility and having excellent memory characteristics is used to transfer the pressure to close the electrical contacts. The front panel and switches may be inexpensively manufactured using printed circuit techniques and flow soldering operations.

3,811,026
PROCESS FOR BENZOTHIEPINS
Jean-Pierre Kaplan, Allschwil, and Emilio Kyburz, Reinach, both of Switzerland, assignors to Hoffmann-LaRoche Inc., Nutley, N.J.
Filed Apr. 20, 1972, Ser. No. 245,757
Claims priority, application Switzerland, May 4, 1971, 6541/71; Feb. 28, 1972, 2919/72
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 TR **11 Claims**

A process for preparing 10-piperazinyl-10,11-dihydrodibenzo[*b,fd8*]thiepins by reducing the corresponding enamine with an alkali metal borohydride in the presence of a strong acid, is described.

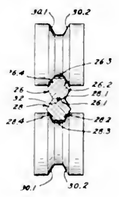
3,811,027
CONTROL SYSTEM FOR GAS-SHIELDED ELECTRIC WELDERS
Ronald R. Strahan, 5408 N.E. Circle Dr., Kansas City, Mo.
Filed Aug. 29, 1973, Ser. No. 392,688
Int. Cl. B23k *9/16*
U.S. Cl. 219—74 **7 Claims**

A control system for electric welders wherein the torch electrode, and the welding site, is protected by a zone of surrounding inert gas supplied thereto, the control system consisting of a pedal operated regulator operable to supply inert gas at a continuously variable pressure through a range extending well above the pressure required to supply the gas shield at the torch, the pressurized gas serving by variations of



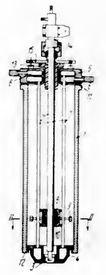
its pressure to actuate and control the electric portion of the welder as desired, and to supply gas to the torch continuously at the desired low pressure and flow rate before, during and after actuation of the electric circuit.

3,811,028
THERMOSTAT METAL AND METHOD OF MAKING
Ty Henry, and Rene A. Dubuc, both of Attleboro, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed June 24, 1969, Ser. No. 836,086
Int. Cl. B23k *11/06*
U.S. Cl. 219—117 R **8 Claims**



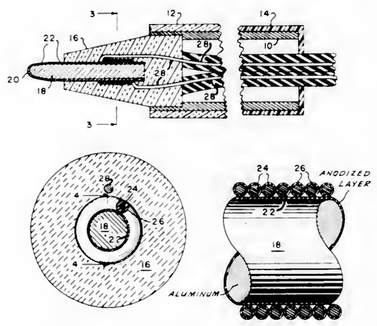
An improved composite edgelay bimetal material useful as a thermostat metal is shown to have two relatively wide and thin strips of metal of different coefficients of thermal expansion interfacially bonded together along corresponding thin lateral edges of the respective strips, the interfacial bond being a metallurgical bond which is substantially complete along the strip edges. The bond formed between the edges of the metal strips does not significantly alter the properties of the strip materials adjacent the bond and therefore avoids a thermostatically inactive portion of the composite material at the location of the interfacial bond. The improved composite edgelay material is formed by disposing two metal rods of hexagonal cross-sectional configuration or the like so that narrow surfaces of the rods are engaged along the length of the rods. The rods are resistance welded together along said engaged surfaces and, preferably after treatment for improvement of the weld bond between the rods, the rods are deformed in a rolling mill or the like to reduce the rods into respective wide and thin metal strips which are secured together along thin lateral edges of the strips by said bond.

3,811,029
PLASMATRONS OF STEEL-MELTING PLASMAARC FURNACES
Viktor Vasilievich Averyanov, Dmitrovskoe shosse, 13, korpus 3, kv. 37; Nikolai Iosifovich Bortnichuk, ulitsa Ermolovoi, 17, kv. 23, both of Moscow; Viktor Nikolaevich Garanov, Moskovskoi oblasti, Luganstkoe, ulitsa Zheleznodorozhnaya, 5, Istra, Moskovskoi oblasti; Mikhail Mironovich Krutyansky, Leninsky prospekt, 91, kv. 412, Moscow; Vladimir Sergeevich Malinovsky, Moskovskoi oblasti, prospekt Mira, 14, kv. 24, Khimki, Moskovskoi oblasti; Grigory Izrailevich Meerson, ulitsa Gastello, 12, kv. 84, Moscow; Lev Alexandrovich Maltsev, Moskovskoi oblasti, ulitsa Basova, 7, kv. 36, Istra, Moskovskoi oblasti, and Lidia Alexandrovna Panycheva, ulitsa Nizhe gorodskaya, 13, kv. 60, Moscow, all of U.S.S.R.
Filed Feb. 17, 1972, Ser. No. 227,523
Int. Cl. B23k *9/00*
U.S. Cl. 219—121 P **3 Claims**



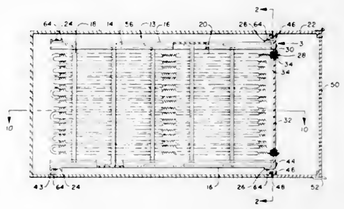
The plasmatron has a device used for supplying coolant to the nozzle, which device is essentially a flange with ducts, secured in the upper portion of the plasmatron, the ducts communicating with an interior space in the nozzle by means of pipes passed inside the housing of the plasmatron and rigidly connected by their end portions to the flange and to the nozzle. The plasmatron is provided with a device for radial adjustment of the cathode relative to the nozzle, the adjustment device being mounted on the pipes inside the housing.

3,811,030
ELECTRICALLY HEATED STYLUS FOR TRANSFERRING A PRINTING MEDIUM
Carlos W. Veach, 8921 Ashcroft Ave., Los Angeles, Calif.
Filed Nov. 15, 1971, Ser. No. 198,516
Int. Cl. H05b *3/00*
U.S. Cl. 219—237 **4 Claims**



A hand manipulated electrically heated stylus tool for transferring insignia to an article from a ribbon or sheet having a coating on one face thereof subject to release and transfer to an article to be printed operates on a 115 volt power supply without use of a voltage reducing transformer or temperature control means. The tool includes an aluminum stylus having a first portion enclosed in a low thermal conductivity support carried at the end of a handle and a second portion projecting from the support to terminate in a work contacting tip. The entire outer surface of the stylus is anodized to form a hard wear resistant electrically insulative layer thereon. A heating element formed from electrically insulated resistance wire is coiled about the first portion of the stylus with the insulation thereon abutting the anodized layer. The arrangement is such that the anodized layer acts as a back-up insulation between the heating element and stylus to prevent short circuiting of the heating element should the insulation on the resistance wire fail. Additionally, in the further event of the breakdown of the anodized layer about the first portion of the stylus, the operator is protected by reason of the electrical insulation afforded by the intact anodized layer covering the exposed second portion of the stylus.

3,811,031
DUCT ELECTRICAL HEATER UNIT
Roby C. McBride, Limestone, and Howard Owens, Jonesboro, both of Tenn., assignors to TPI Corporation, Johnson City, Tenn.
Filed Jan. 29, 1973, Ser. No. 327,581
Int. Cl. H05b *3/06*
U.S. Cl. 219—374 **7 Claims**

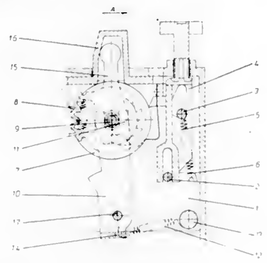


An electrical resistance heater module or unit for insertion into ductwork, said unit having electrical resistance elements supported in a frame the side members of which have locator means in the nature of interfitting shoulders providing lateral and normal stops which allows the individual units to be positioned in side by side relation in a registered manner and easily assembled into a composite heater of the desired heating capacity, or disassembled therefrom for ease of repair or replacement of separate units or the resistance elements thereof.

3,811,032
MECHANICAL COUNTER
Hans Neher, Ma Schinenbautechniker, Hausen am Tann, Germany, assignor to J. Hengstler K. G., Uhlandstrasse, Germany
Filed June 4, 1973, Ser. No. 366,621
Claims priority, application Germany, Sept. 23, 1972, 2246850
Int. Cl. G06c *15/42*
U.S. Cl. 235—1 C **6 Claims**

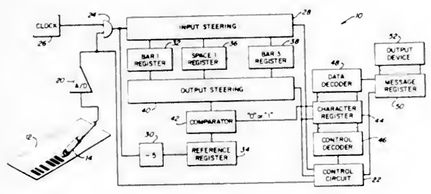
A mechanical counter comprises a plurality of presettable digit wheels, a plurality of counting digit wheels associated with respective ones of said presettable digit wheels, and a lever, which is movable about a pivotal axis. Said presettable digit wheels are carried by said lever for rotation about an axis which is parallel to and spaced from said pivotal axis. The lever is pivotally movable between a counting position, in which said presettable digit wheels are in engagement with said counting digit wheels and adapted to be driven thereby,

and a presetting position, in which said presettable digit wheels are disengaged from said counting digit wheels. A presetting mechanism is provided for presetting each of said presettable digit wheels and has teeth on said presettable digit wheel, first and second stationary cross-bars, which are transversely spaced apart and extend parallel to said pivotal axis, a presetting slider having a stepping nose and a lug, a tension spring connected between said lug and said first cross-bar, and actuating means operable to move said slider against the force of said spring from said first position to a second position. The tension spring tends to return said slider from said second



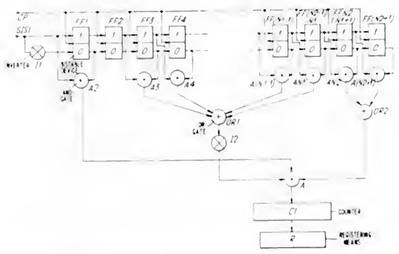
position to said first position. Said first and second cross-bars limit said movement of said slider to said first and second positions, respectively. Constraining means are provided, which constrain said slider to move from said first position to said second position along such a path that said nose engages one of said ratchet teeth and imparts a predetermined angular movement to said presettable digit wheel when said lever is in said presetting position, and which permit said nose to skip said ratchet teeth as said slider returns from said second position to said first position when said lever is in said presetting position.

3,811,033
CODED RECORD INTERPRETING SYSTEM
Carlos B. Herrin, Bellbrook; Ross C. Humbarger, Fairborn, and James L. Vanderpool, Centerville, all of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio
Filed June 29, 1971, Ser. No. 157,869
Int. Cl. G06k *7/08*
U.S. Cl. 235—61.11 E **6 Claims**



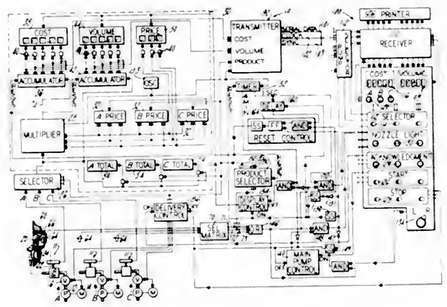
A machine readable, binary coded record or label includes N alternating bars and spaces of different reflectivity in which the widths of the bars and spaces are assigned one of two values representing a binary "1" or a binary "0." Gates controlled by bar and space widths gate clock pulses in sequence into N width registers to determine and store widths of the bars and spaces forming a complete code. The average width of these same bars and spaces is also determined by coupling the total number of clock pulses supplied to the width counters through a divide-by-N counter to a comparison register. The average width stored in the comparison register is then compared in a comparator with the actual widths of the individual bars and spaces stored in the width registers to determine the "1" and "0" significance of the bars and spaces. The determined bits are collected in a character register and transferred to a message register or output device.

3,811,034
SIGNAL RECOGNITION SYSTEM
Raymond Martin Florent Terryn, Borgerhout, Belgium, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Apr. 4, 1972, Ser. No. 241,041
Claims priority, application Netherlands, Apr. 8, 1971, 714722
Int. Cl. G06k *7/00, 7/016, 9/00*
U.S. Cl. 235—61.11 R **6 Claims**



This signal recognition arrangement is disclosed to read, for example, a document stamp comprising five vertical bars, wherein no synchronization is required in taking into consideration document speed variations relative to the counting operation based on generated clock pulses (period of T2). In taking these variations into account the period of the signal to be recognized is allowed to change between two predetermined limits (N1T2 and N2T2), each determined by a whole number of clock pulse periods. Each time two consecutive input signals of a series of input signals of period T_1 (T_1 much greater than clock pulse period T_2) disposed between the predetermined limits are detected, a pulse is recorded in a four-count counter. A count of four in the counter records a recognition signal in a register, which recognition signal means that the five consecutive input signals have been recognized.

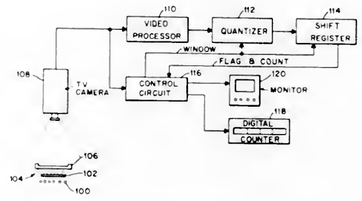
3,811,035
FLUID DELIVERY CONTROL SYSTEM
Peter P. Brunone, Vernon, Conn., assignor to Veeder Industries, Inc., Hartford, Conn.
Filed June 6, 1972, Ser. No. 260,249
Int. Cl. G06m *1/12*
U.S. Cl. 235—92 FL **10 Claims**



A fuel dispensing system adapted for self-service operation as well as conventional operation with a service station atten-

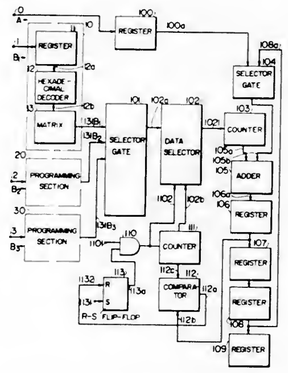
dant. The system comprises a plurality of delivery subsystems, each adapted to selectively deliver a plurality of different grades of gasoline, and a remote control subsystem adapted to be manned for controlling the operation of each of the delivery subsystems. The control subsystem is connected to each delivery subsystem such that the cost, volume and grade of gasoline of each delivery can be selectively displayed at the manned remote control station.

3,811,036
MICRO-BIOLOGICAL COLONY COUNTER
Russell C. Perry, Smithtown, N.Y., assignor to Artek Systems Corp., Farmingdale, N.Y.
Filed Sept. 19, 1972, Ser. No. 290,403
Int. Cl. G06m *1/02*
U.S. Cl. 235—92 PC **18 Claims**



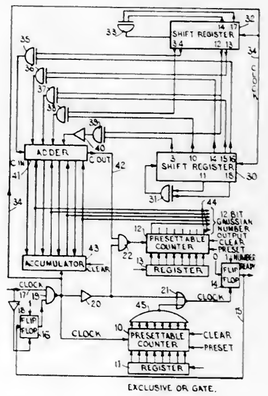
An automatic colony counter which includes a television camera for viewing a sample being scanned. The output from the television camera is sent through control circuitry to a television monitor. The video signal is also processed and quantized to produce a digital count representing the number of colonies counted and also to produce a flag signal which causes an illuminated dot to be superimposed on each colony counted, thereby insuring that all the colonies in the sample have been counted.

3,811,037
DIGITAL DATA CORRECTOR
Akira Kitano, Nagoya, Japan, assignor to Nippondenso Co., Ltd., Aichi-ken, Japan
Filed July 5, 1972, Ser. No. 269,141
Claims priority, application Japan, July 7, 1971, 46-50102
Int. Cl. G06f *1/02, 15/50*
U.S. Cl. 235—152 **2 Claims**



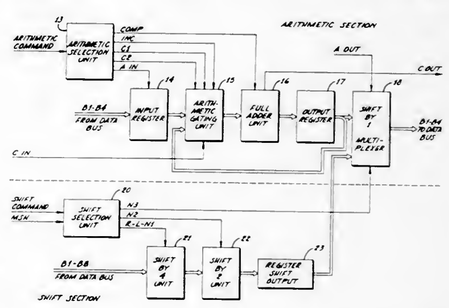
In a system for correcting digital data, a first register for storing a basic digital input and a second register for storing one or a plurality of corrective digital inputs are provided. A program section including said second register samples digital program data according to a predetermined program in response to the corrective digital inputs stored in the second register and a data selector picks up digital program data corresponding to the basic digital input from among the digital program data sampled by the program section, wherein the digital program data picked up by the data selector is added to the basic digital input.

3,811,038
PSEUDO-RANDOM NUMBER GENERATORS
Stewart Fiddian Reddaway, Baldock, England, assignor to International Computers Limited, London, England
Filed Sept. 13, 1972, Ser. No. 288,794
Claims priority, application Great Britain, Sept. 15, 1971, 42902/71
Int. Cl. G06f *7/38*
U.S. Cl. 235—152 **7 Claims**



A pseudo-random number generator produces a substantially Gaussian distribution of output numbers from a succession of uniform random numbers. In each cycle uniform random numbers are produced and applied to an adder operative to form cumulative sums. A counter is responsive to carry signals from the adder and the outputs of the adder and counter are combined to form an output pseudo-random number. The number of permitted adding operations is preset.

3,811,039
BINARY ARITHMETIC, LOGICAL AND SHIFTER UNIT
John P. Stafford, Oklahoma City, Okla., assignor to Honeywell Information Systems, Inc., Waltham, Mass.
Filed Feb. 5, 1973, Ser. No. 329,489
Int. Cl. G06c *7/50*
U.S. Cl. 235—175 **15 Claims**



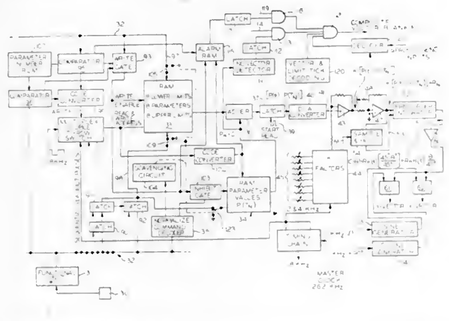
The arithmetic logic unit and position scaler receives information from a data bus, provides arithmetic functions such as

add, logical AND and exclusive OR, and shift manipulations to the information received from the data bus, and then directs the resultant information to the same data bus. The information bit position scaler or shifter includes logic for shifting bit information in a right, left or circular mode. The position scaler provides layers of shifts with the last shift of one being performed in a multiplexer unit which is common to the arithmetic logic unit.

3,811,040
VECTOR CONTOUR PLOT OF PHYSIOLOGICAL PARAMETERS

Phillip T. Weinfurt, Brookfield, and Robert P. Lijewski, Milwaukee, both of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Sept. 27, 1972, Ser. No. 292,605
Int. Cl. A61b *5/04*
U.S. Cl. 235—193 **18 Claims**

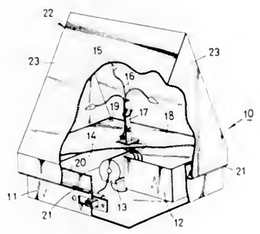


Equiangularly spaced vectors correspond respectively with physiological parameters such as heart rate, blood pressure and others. The ends of the vectors are connected and preferably form a circular contour on an oscilloscope display screen or printed readout. Variation of the vectors from their reference or normalized value causes the contour to change. Converse operation is also explained. Limit markers for each vector parameter are displayed. An algorithm for representing the parameters as a contoured figure is presented. The plot generator may be built with analog or digital devices or both.

3,811,041
NOVELTY TYPE LIGHT DEVICE

Teruko Matsushita, Shizuoka, Japan, assignor to Yoshie Ito, Tokyo, Japan, a part interest

Filed Apr. 5, 1973, Ser. No. 347,425
Int. Cl. F21v *33/00*
U.S. Cl. 240—2 R **3 Claims**

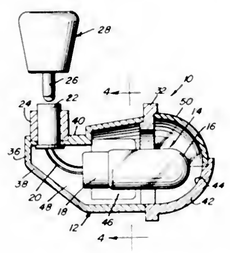


A novelty type light device in combination with a music box for providing a peculiar "infinity" effect. A switching means is provided for alternately illuminating and extinguishing a plurality of miniature incandescent light bulbs, and said means comprises a plurality of contact strips, a particular one of which is disposed for engagement with the path of rotation of a cam wheel mounted on a drive shaft driving a pinned barrel in the music box.

3,811,042
LICENSE PLATE LAMP ASSEMBLY

Charles R. Morrison, Frewsburg, N.Y., assignor to Truck-Lite Company, Inc., Jamestown, N.Y.

Filed Aug. 29, 1972, Ser. No. 284,592
Int. Cl. B60q *1/00, 3/00*
U.S. Cl. 240—7.1 R **4 Claims**

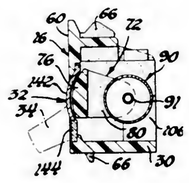


A miniature lamp assembly for illuminating a license plate includes a housing mounted by a flange at its forward end. A lamp bulb positioned within the housing projects from the forward end and is enclosed by an internally reflective hood and a transparent cover from which illumination is directed transverse to the longitudinal axis of the bulb and housing. A terminal connector projecting from the rear end of the housing perpendicular to the longitudinal axis establishes an electrical connection between a power supply and the bulb terminal leads.

3,811,043
MAP AND FLOOD LIGHT ASSEMBLY

Kenneth P. Cope, and Warren Pearce, Jr., both of Warren, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 4, 1972, Ser. No. 312,208
Int. Cl. B60q *3/04*
U.S. Cl. 240—8.16 **3 Claims**

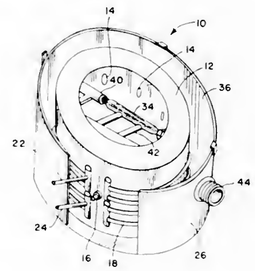


A map and flood light assembly for the passenger compartment of a motor vehicle wherein a switching shutter is manually pivotable with respect to a combination lens and a light bulb between a flood light position exposing a tinted portion of the lens to the light bulb and a map light position exposing a clear portion of the lens to the light bulb. The switching shutter cams a contact arm to connect the light bulb to a variable voltage headlight circuit in the flood light position for illuminating control knobs, switches and other instrument panel components and in the map light position to connect the light bulb to a constant voltage courtesy light circuit for providing courtesy lamp illumination in the passenger compartment.

3,811,044
LIGHT SHIELD AND COOLING APPARATUS

Thomas G. Meador, Jr., Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 10, 1972, Ser. No. 305,638
Int. Cl. F21v *29/00*
U.S. Cl. 240—47 **3 Claims**

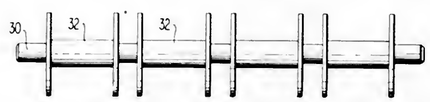


A light shield and cooling apparatus for a high intensity ultraviolet lamp including water and high pressure air for cooling and additional apparatus for shielding the light and suppressing the high pressure air noise.

3,811,045
COIL MANUFACTURING PROCESS

Norman E. Turner, Hallstead, Pa., and James J. McGonigal, Binghamton, N.Y., assignors to Magnetic Laboratories Inc., Hallstead, Pa.

Filed Apr. 19, 1972, Ser. No. 245,353
Int. Cl. B29d *3/00*
U.S. Cl. 264—250 **2 Claims**



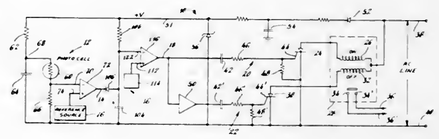
A plurality of bobbins are simultaneously molded directly onto a common arbor. The arbor with the bobbins is then placed in a multiple coil winding machine for the simultaneous winding of a coil on each bobbin. Various finishing and testing operations may then be performed on the coil while still using the arbor as a carrier. The entire assembly is then placed in a molding apparatus whereby each of the coils is simultaneously overmolded while still in place on the common arbor. Subsequent to the overmolding operation, the individual encapsulated coils may be stripped from the arbor.

3,811,046
LIGHT SENSITIVE SECURITY SYSTEM

Herbert Levick, Wilton, Conn., assignor to Le Van Electronics, Inc., Wilton, Conn.

Filed Jan. 22, 1973, Ser. No. 325,874
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **6 Claims**

A light sensitive circuit for protection of an area is described. In a first embodiment, a single photocell is mounted together with a control circuit in a housing which fits in a conventional electrical wall box. The photocell is connected in a capacitor discharge circuit to enable a comparison amplifier to recognize whether the photocell is exposed to a normal ambient light change such as from night to daylight or to the beam from a flashlight. A pulse operated latching relay

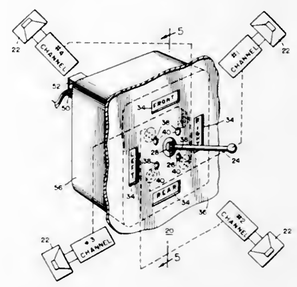


is used to effect a protective response when the photocell is suddenly exposed to a source of light. In an alternate embodiment for a light responsive protection circuit, a pair of photocells are used. One photocell is located to operate to control the enabling of a gate while the other photocell responds to a source of light to effect a desired protective response. A plurality of photocells may be accommodated.

3,811,047
BALANCE CONTROL

Robert Shragal, Bellwood, Ill., assignor to Wells-Gardner Electronics Corporation, Chicago, Ill.

Filed Oct. 18, 1972, Ser. No. 298,575
Int. Cl. H01j *39/12*
U.S. Cl. 250—208 **30 Claims**



A balance control comprising an elongated control stick adapted to be angularly manipulated relative to a longitudinal neutral axis about a pivot point thereon, a plurality of light sensitive, electronic control devices spaced equidistant from said point in opposite directions from said axis, and means forming a light pattern having areas of different intensity and position controlled by manipulation of said stick to simultaneously change the light intensity of said light pattern on said respective electronic control devices.

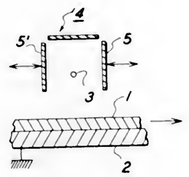
3,811,048
ELECTROPHOTOGRAPHIC CHARGING APPARATUS

Seiji Matsumoto, and Isoji Takahashi, both of Asaka, Japan, assignors to Xerox Corporation, Stamford, England

Filed Sept. 12, 1972, Ser. No. 288,452
Int. Cl. G03g *13/00*
U.S. Cl. 250—326 **7 Claims**

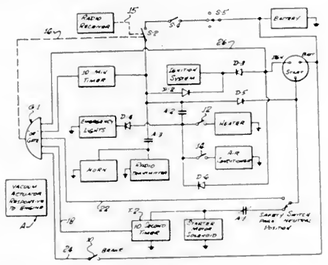
A corona shield is positioned about a corona wire to shield against radiation from the wire in all but the desired direction

(onto a xerographic surface). The shield members are movable in various directions relative to the corona wire so as to



control intensity and direction of the corona discharge, thus to control the density of the electrostatic image on the xerographic surface.

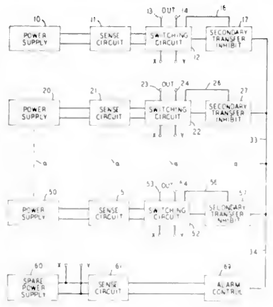
3,811,049
REMOTE CONTROL ENGINE STARTER
Donald M. Hildreth, 117 Ocean Pk. Blvd., Santa Monica, Calif., and Edward P. Tyler, 10644 Tuxford St., Sun Valley, Calif.
Filed June 21, 1972, Ser. No. 264,898
Int. Cl. F02n *11/08*
U.S. Cl. 290—38 **19 Claims**



In addition to the usual electrical circuit for the ignition system and the starter motor, the engine is provided with a parallel auxiliary circuit that is closed by remote control. A first timer opens the auxiliary circuit if the engine does not start in approximately ten seconds. If the engine does start, a second timer opens the auxiliary circuit in approximately ten minutes to stop the engine. When the engine starts, a switch means of a vacuum actuator de-energizes both the starter motor and the ten second timer. At the same time, the throttle advance means of the vacuum actuator, which advanced the throttle prior to engine starting, acts to slowly allow the throttle to move to the normal engine-idle position. After the engine starts, the switch means of the vacuum actuator turns on either the heater or the air conditioner, and in addition creates a signal to indicate the starting of the engine. The signal created may be used to energize one or more of the horn, the vehicle emergency lights, and a radio transmitter.

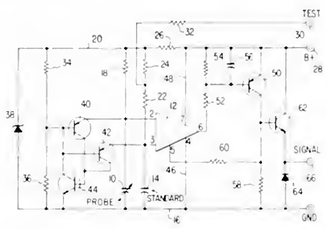
3,811,050
INTERLOCKED POWER SUPPLY TRANSFER CIRCUIT TO INHIBIT SECONDARY TRANSFER AFTER A PRIMARY TRANSFER
Robert Wilson Michelet, Madison, and Edward Jerome Silverman, Rockaway, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.
Filed July 13, 1973, Ser. No. 379,059
Int. Cl. H02h *11/00*
U.S. Cl. 307—64 **5 Claims**

A transfer circuit to substitute a spare power supply for a failed one of a plurality of power supplies includes a logic circuit interlock arrangement to inhibit secondary transfers after the switching circuitry of the transfer circuitry has transferred the load from a first failed power supply to a spare power supply. The logic circuit interlock arrangement includes



NAND gates and diode gates to complete an energy signal path to activate a transfer relay and apply inhibiting signals to disable subsequent energy signal paths and prevent secondary transfers.

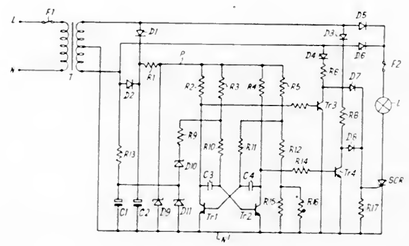
3,811,051
CAPACITANCE RESPONSIVE DETECTOR SYSTEM
Kenneth C. Merrell, Brea, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Nov. 3, 1972, Ser. No. 303,587
Int. Cl. H01h *35/18*
U.S. Cl. 307—118 **26 Claims**



A capacitance responsive detector system having charging circuits for a variable and standard capacitor and including a differential comparator which is responsive to the difference in the charging rates of the variable and standard capacitors for producing an output signal in accordance therewith. The variable capacitor can be any type of sensor or transducer which senses a property and provides a capacitance output accordingly.

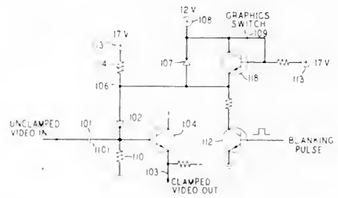
3,811,052
ELECTRICAL FREQUENCY INDICATING MEANS
Peter George Billing, Stamford, England, assignor to N. J. Froment & Co., Stamford, England
Filed Jan. 24, 1973, Ser. No. 326,422
Int. Cl. H03k *5/20*
U.S. Cl. 307—233 **3 Claims**

The invention describes means for monitoring electrical supply frequency suitable for use with an AC generator coupled to a prime motor e.g. through the auxiliary gearbox of an agricultural tractor to the engine thereof, for the purpose of providing emergency AC electrical power for lighting or heating in the event of a cut in normal power supplies. The monitoring means includes a pulse generator operable to produce a series of pulses within a predetermined operating range and a switching device operable when the frequency of pulses of the



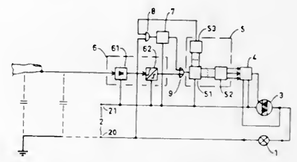
normal AC supply are outside acceptable limits compared with the monitoring means. The use of a tractor makes the invention of particular importance to farmers having milking machinery, chicken feeders and incubators to run.

3,811,053
VIDEO CLAMPING CIRCUIT WITH VARIABLE CLAMPING LEVEL DURING BLANKING
Nissin Habib, Neptune, N.J., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.
Filed Dec. 15, 1972, Ser. No. 315,491
Int. Cl. H03k *5/08*
U.S. Cl. 307—237 **5 Claims**



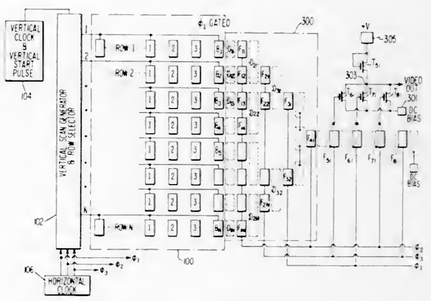
Unclamped video signals are applied to the first plate of a capacitor, the second plate of which is discharged by a resistor to ground, the discharge being limited by a clamping diode. The clamping diode is connected between the capacitor and a resistor, which in turn is connected to a first voltage supply. A second diode, normally forward biased, connects the clamping diode to a second supply, thereby normally applying to the clamping diode the voltage of the second supply plus a forward diode drop. A transistor has its collector-emitter circuit connected across the second diode; a normally closed switching means bridges the collector and base of the transistor. During video blanking intervals, the second diode is reverse biased and the effective diode of the transistor is energized, thereby applying to the clamping diode the voltage of the second supply minus a forward diode drop. During graphics mode transmission, the switching means is opened, thereby applying to the clamping diode, during blanking, the voltage of the second supply minus the collector-emitter drop of the transistor, which is saturated.

3,811,054
MANUALLY OPERATED SWITCH
Carl Rune Wern; George Herman Wern, and Lars Ake Wern, all of Vartavagen 59, 115 38, Stockholm, Sweden
Filed May 15, 1973, Ser. No. 360,410
Claims priority, application Sweden, May 23, 1972, 6712
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 H **3 Claims**



The invention relates to a manually operated switch, suited for connection between a lamp load and a supply circuit in a lighting installation for alternating current and comprising a semiconducting rectifier with a gate electrode.

3,811,055
CHARGE TRANSFER FAN-IN CIRCUITRY
Paul Kessler Weimer, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Dec. 13, 1971, Ser. No. 207,215
Int. Cl. H01l *19/00*
U.S. Cl. 307—304 **14 Claims**

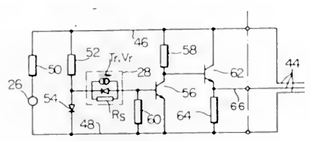


A charge transfer circuit with converging conduction paths between a plurality of signal input points and a single output terminal. Signals, applied to only one input point at a time, are propagated from any one of the input terminals to the output terminal with equal time delay and with little loss of signal level by proper selection of the nodal capacitances along the paths and at the output terminal.

3,811,056
VELOCITY SENSOR
Kosaku Baba, Yokohama, and Kiyoshi Wazawa, Fujisawa, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed Oct. 3, 1972, Ser. No. 294,584
Claims priority, application Japan, Dec. 6, 1971, 46-113945
Int. Cl. H03k *3/42*
U.S. Cl. 307—311 **13 Claims**

A sensor for measuring the revolution speed of a rotary element which may be a wheel axle of a motor vehicle. The sensor has a rotary disc which is positioned between light-emissive and light-sensitive means which are aligned with each other. The rotary disc has a number of apertures at its entire periphery, which apertures are successively brought into

alignment with the flux of the light projected from the light-emissive means to the light-sensitive means as the disc is driven for rotation in synchronism with the rotary element to be measured. The light-sensitive means thus produces a train of pulses having a frequency related to the revolution speed of the rotary disc. The pulses are fed to an electric circuit arrangement for being shaped and amplified and delivered to a system to be controlled on the thus produced output signals. The circuit arrangement includes means which is adapted to compensate for errors which would otherwise be involved in the output signals where the sensor is subject to variation in the ambient temperature.



3,811,057
NONEQUILIBRIUM MAGNETOHYDRODYNAMIC DEVICE

Robert T. Brown, Manchester; Robert H. Bullis, Avon; Thomas L. Churchill, Glastonbury, all of Conn.; Robert J. Hall, Cambridge, England; Edmund C. Lary, Glastonbury, Conn.; William L. Nighan, III, Manchester, Conn., and Elliot R. Schulman, West Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 29, 1971, Ser. No. 213,374
Int. Cl. H02k *45/00*
U.S. Cl. 310—11 **4 Claims**

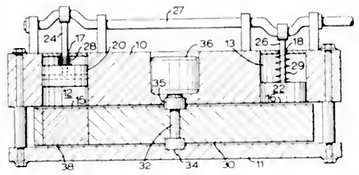
A nonequilibrium magnetohydrodynamic system in which the working fluid is subjected to a magnetic field over the entire distance between the throat of the expansion nozzle and the exit plane of the generator region of the device is disclosed; the system is operable without an external power source otherwise necessary for auxiliary ionization of the working medium. Also disclosed are the flow velocity, magnetic field intensity, pressure and temperature parameters which must be satisfied to produce the operational conditions.

3,811,058
ROTARY-TO-RECIPROCATING DEVICE

Zane Chadrick Kiniski, Toronto, Ontario, Canada, assignor to Unit +1, Toronto, Canada

Filed Apr. 2, 1973, Ser. No. 346,783
Int. Cl. H02k *7/06*
U.S. Cl. 310—80 **9 Claims**

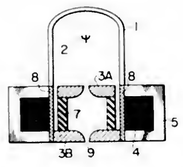
A reciprocating device is disclosed which converts the magnetic force of permanent magnets into reciprocating motion. The reciprocating device comprises at least one cylinder chamber formed in an engine block. The cylinder chamber is open-bottomed. A piston which is made of a magnetic material having a predetermined polarization is slidably disposed in the cylinder chamber. A disc is rotatably mounted to the engine block. The disc has a surface therein movable relative to the open bottom of the cylinder chamber. At least one permanent magnet having a magnetic polarization identical to that of the piston is mounted on the surface of the disc. The disc is rotatable selectively to align the permanent magnet with the piston periodically. The repulsion force between the piston and the permanent magnet causes the piston to reciprocate in the cylinder chamber.



3,811,059
ELECTRON GUN DEVICE OF FIELD EMISSION TYPE

Shinjiro Katagiri, Hachioji, and Akira Tonomura, Tokyo, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 23, 1971, Ser. No. 211,201
Claims priority, application Japan, Dec. 24, 1970, 45-116718
Int. Cl. H01j *31/00*
U.S. Cl. 313—82 **5 Claims**



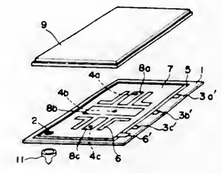
An electron gun device of the field emission type has an enclosure, at least a part of which is of non-magnetic material, an accelerating electrode having a first and second anode each comprising a magnetic material and disposed in said enclosure, and a focusing lens disposed outside the non-magnetic part of said enclosure, wherein gas is evacuated from said enclosure whereby a high intensity electron beam is obtained.

3,811,060
GASEOUS ELECTRODE SEGMENT TYPE DISPLAY DEVICE

Koji Tsujimoto, Yokohama, Japan, assignor to Ushio Electric Inc., Tokyo, Japan

Filed Sept. 6, 1972, Ser. No. 286,543
Claims priority, application Japan, Sept. 11, 1971, 46-70072; Mar. 21, 1972, 47-32362; May 16, 1972, 47-56308; May 16, 1972, 47-56309
Int. Cl. H01j *61/66*
U.S. Cl. 313—109.5 **9 Claims**

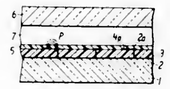
This invention relates to display device. The display device comprises a sealed body comprising a base plate of an electrically insulating material, and at least one indication region formed on said base plate, a first metallic film superposed on the base plate and having an end portion extending outwardly of said sealed body, a first ceramic coat interposed between said electrically conducting metallic film in strip form and said first metallic film, at least one second metallic film representing a predetermined shape superposed on the base plate in such manner that predetermined portions of said first metallic film are disposed adjacent said second metallic film, and a second ceramic coat interposed between said first metallic film and said second metallic film in such a manner that said predetermined portions of said first metallic film are exposed.



3,811,061
PLANE SURFACE DISCHARGE PLASMA DISPLAY PANEL

Norihiko Nakayama, Kobe; Yasunari Shirouchi, Akashi, and Toshinori Urade, Kobe, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 13, 1972, Ser. No. 297,267
Claims priority, application Japan, Oct. 15, 1971, 46-80935; Oct. 15, 1971, 46-81407
Int. Cl. H01j *7/42*; **H01k** *1/60*
U.S. Cl. 313—109.5 **13 Claims**

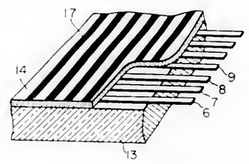


Plasma discharge display apparatus is disclosed, comprising an airtight envelope for receiving discharge electrode pairs formed on a common base plate and a dielectric layer formed overlaying the discharge electrode pairs. The discharge characteristics between the discharge electrodes of the respective pairs are made uniform irrespective of the curvature of the base plate and the shape of the airtight envelope.

3,811,062
GAS DISCHARGE PANEL

Shizuo Andoh; Norihiko Nakayama, both of Kobe, and Yasunari Shirouchi, Akashi, all of Japan, assignors to Fujitsu Limited, Kanagawa-ken, Japan

Filed Apr. 17, 1973, Ser. No. 352,061
Claims priority, application Japan, Apr. 18, 1972, 47-38299; Apr. 18, 1972, 47-38300; Apr. 18, 1972, 47-38301
Int. Cl. H01j *61/30*
U.S. Cl. 313—188 **7 Claims**

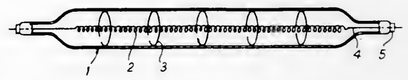


The gas discharge panel disclosed in this application is composed of parallel electrode groups, a dielectric layer for covering the electrodes and a gas discharge space or gap in which a firing spot is produced through the discharge space via the dielectric layer when an electric signal is applied to the electrode pairs. The above-mentioned dielectric layers provide a suppression layer having a predetermined pattern which partially decreases leakage from the discharge field into the gas discharge space, that is, decreases the gas discharge in a position where a gas discharge is not required. In the gas discharge panel having a function of self-shift, this suppression layer has the form of a metallic strip, positioned at a right angle to these electrodes, or of a dielectric strip having a high dielectric constant, and constitutes a shift channel for the gas discharge spot. Further this supression layer is useful for carrying out a read-only memory type gas discharge by providing a predetermined pattern.

3,811,063
ELECTRIC INCANDESCENT LAMPS

John Michael Rees; George Eric Coxon, and Robert Bernard Johnston, all of Thorn House, Upper St. Martin's Ln., London WC2H 9ED, England

Continuation-in-part of Ser. No. 317,813, Dec. 22, 1972, abandoned. This application May 29, 1973, Ser. No. 364,917
Int. Cl. H01k *1/50, 3/00*
U.S. Cl. 313—222 **11 Claims**

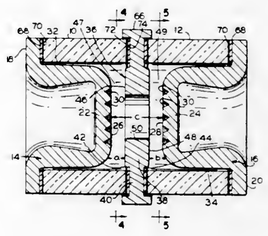


A tungsten-halogen cycle electric incandescent lamp contains a solid aromatic halide in the fill which dissociates when the lamp is heated to provide halogen to support the regenerative cycle. The aromatic halide can be hexabromobenzene or hexachlorobenzene and the fill may also include a halophosphonitrile.

3,811,064
SPARK-GAP DEVICE

Chester J. Kawiecki, Santa Barbara, Calif., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed Dec. 20, 1972, Ser. No. 316,736
Int. Cl. H01j *17/00, 21/00*
U.S. Cl. 313—325 **12 Claims**

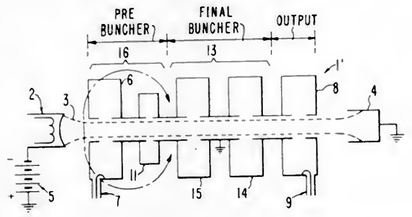


A miniature three-element spark-gap device comprises a ceramic enclosure supporting aligned end electrodes extending therewithin, and a solid disc center electrode establishing first and second gaps with the end electrodes. The solid disc center electrode is apertured so that an arc discharge across one gap will illuminate the other, producing ionization and causing immediate breakdown of the other gap.

3,811,065
VELOCITY MODULATION MICROWAVE TUBE EMPLOYING A HARMONIC PREBUNCHER FOR IMPROVED EFFICIENCY

Erling L. Lien, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Continuation of Ser. No. 767,774, Oct. 15, 1968, abandoned. This application Feb. 14, 1973, Ser. No. 332,447
Int. Cl. H01j 25/10
U.S. Cl. 315—5.43 **10 Claims**

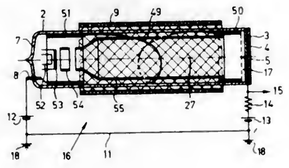


The velocity modulation microwave tube includes an electron gun for projecting a stream of electrons over an elongated beam path to a collector structure. An input circuit and an output circuit are disposed at the upstream and downstream ends, respectively, of the beam for applying microwave energy to be amplified to the tube and for extracting the amplified microwave energy from the beam. A penultimate resonator circuit, tuned for a mode of resonance at a frequency near the passband of the tube, is provided just upstream of the output circuit for bunching the current density of the beam passing into the output circuit. A harmonic floating resonator structure is disclosed along the beam path intermediate the input circuit and the penultimate resonator. The harmonic resonator is tuned for a mode of resonance approximately at a frequency corresponding to a harmonic higher than the first of the center frequency of the passband of the tube. The harmonic resonator serves as a prebuncher to bunching the electrons of the beam prior to their entering the final stage of bunching performed by the penultimate floating resonator. The combined action of the harmonic prebuncher resonator and the penultimate final buncher resonator is to substantially increase the radio frequency conversion efficiency of the tube.

3,811,066
TELEVISION CAMERA COMPRISING AN INTERFERENCE-FREE MESH CONNECTION CONDUCTOR

Benedictus Timotheus Johannes Holman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 320,962
Claims priority, application Netherlands, Jan. 28, 1972, 7201226
Int. Cl. H01j 31/26
U.S. Cl. 315—10 **17 Claims**

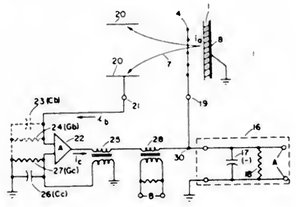


In order to suppress interference signals caused by the line deflection field across the capacitive interruption between the mesh electrode and the target, the mesh connection loop of a television camera having a separated mesh electrode is constructed such that effectively it encloses substantially no magnetic flux of the line deflection field. The return field which is usually concentrated in the wall of a ferromagnetic screening bush mounted about the camera tube is taken into account in this respect. In a preferred embodiment, the mesh connection wire in the camera tube has the shape of a helix having a pitch which corresponds to the axial field length of the line deflection field.

3,811,067
ULTRASONIC IMAGING TUBE

William R. Turner, Silver Spring, Md., assignor to Automation Industries, Inc., New York, N.Y.

Division of Ser. Nos. 79,135, Oct. 8, 1970, abandoned, and Ser. No. , , Division of Ser. No. 756,866, Sept. 3, 1968, Pat. No. 3,577,171. This application June 1, 1972, Ser. No. 258,635
Int. Cl. H01j 31/48
U.S. Cl. 315—11 **4 Claims**

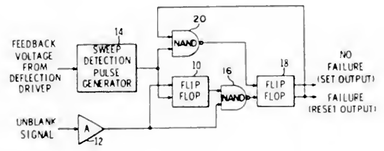


An improved ultrasonic imaging tube having a piezoelectric face plate or conversion plate, a controlling screen adjacent thereto and a collector electrode back of the screen for receiving current generated by the conversion plate. The collector current is utilized to control a video tube synchronized with the ultrasonic tube, and is shunted in feedback fashion to the screen to control terminal admittance thereof and thereby increase the signal to noise ratio of the system as well as to raise the effective signal level.

3,811,068
PROTECTION CIRCUIT FOR CATHODE RAY TUBES

Robert G. Curry, Jr., Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 30, 1971, Ser. No. 214,285
Int. Cl. H01j 29/70
U.S. Cl. 315—20 **12 Claims**

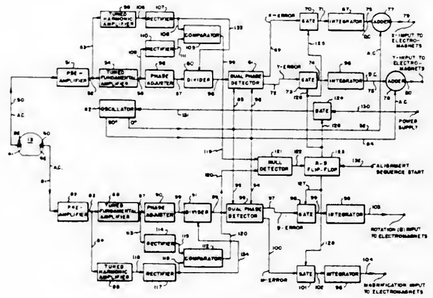


Described is a protective circuit for an electron beam device which gives a failure indication when the sweep signal fails and the electron beam is not properly deflected across the target. The circuit includes a bi-stable device which is set in a first output state in response to the unblank signal of the electron beam device and reset to a second output state in response to a sweep detection signal generator. The signal generator is triggered only when the sweep signal exceeds a predetermined threshold. When the signal generator is not triggered the bi-stable device is not reset and remains in its first output state. Output circuitry provides an output failure signal responsive to the bi-stable device when it remains in its first output state for the entire unblank portion of the unblank signal. A gate in feedback relationship to the output circuitry prevents a false failure indication.

3,811,069
SIGNAL STABILIZATION OF AN ALIGNMENT DETECTION DEVICE

Terence W. O'Keeffe, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 20, 1972, Ser. No. 264,699
Int. Cl. H01j 29/70
U.S. Cl. 315—31 R **13 Claims**



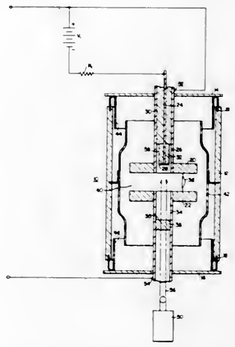
A radiation beam such as an electron beam of predetermined preferably polygonal cross-section is rapidly precision aligned with a radiation detector mark of like cross-section on a member such as a resist coated substrate by measuring the radiation induced output signal from the mark. The output signal is proportional to the portion or area of the mark irradiated by the beam. The impingement of the patterned radiation beam on the member is moved in a predetermined overlapping, preferably circular or elliptic pattern over the detector mark to modulate the output signal from the mark. At least two frequency signals are extracted from the output signal and compared with a preselected alignment relationship. The over-lapping pattern is changed in position, and the comparing and changing in position repeated until the extracted frequency signals compare in the preselected relationship. Preferably the rate at which the change in position proceeds is controlled by a ratio of the two frequency signals as the preselected alignment relationship is approached.

3,811,070
LASER INITIATED THREE ELECTRODE TYPE TRIGGERED VACUUM GAP DEVICE

Roy E. Voshall, New Alexandria, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 25, 1972, Ser. No. 300,616
Int. Cl. H05b 41/04
U.S. Cl. 315—150 **11 Claims**

A three electrode triggered vacuum gap device with the triggering mechanism being laser initiated. The triggering mechanism comprises a gas-saturated portion, which when heated by a triggering laser beam releases a gas. The gas released by the triggering mechanism is then ionized by an electric field, existing between the trigger electrode and the main electrode, starting a low power arc. The low power arc is then magnetically forced between the main arcing electrodes

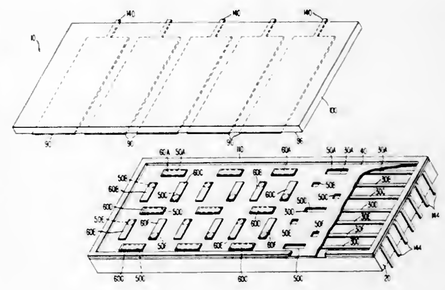


to initiate a main power arc. The laser-initated trigger provides electrical isolation between the vacuum gap device and the triggering control circuit.

3,811,071
DRIVE REGULATION AND DELAY CONTROL IN DISPLAY SYSTEMS

James A. Ogle, Neshanic Station, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed July 13, 1972, Ser. No. 271,576
Int. Cl. H05b 37/00
U.S. Cl. 315—169 TV **6 Claims**

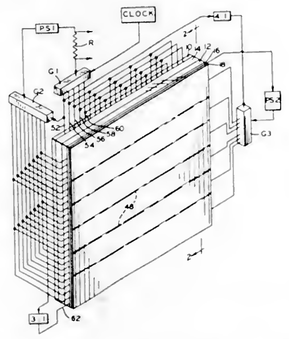


Apparatus addressing multi-position display devices directly from semiconductor integrated circuits and driving the display electrodes without exceeding the limitation on voltage excursions for the outputs of such circuits. The apparatus develops and applies to threshold-responsive display devices, including gas discharge display tubes or display panels, only the amount of voltage that is needed to operate them. Potential for operating the device is accumulated in steps until the device fires, it being applied to the display electrodes of the device in response to open-circuit input signals. The potential is regulated to maintain ionization delay in the device as a certain fraction of the display period and the required selection voltages for the electrodes of the device are minimized.

The potential for driving the cathodes is developed across a capacitance common to all of them, and a regulator circuit coupled to it and to the cathode drivers automatically increases the bias until the device fires. The potential that proves to be necessary to operate a device is stored for continued operation of it. The driver for a cathode element that is frequently operated alone is coupled to the regulator circuit

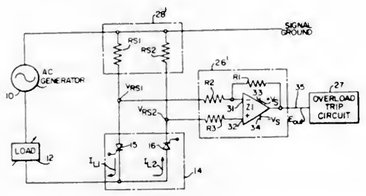
by a high impedance connection for increasing the energizing potential sufficiently to ensure ionization. The anodes are driven from semiconductor logic circuit often without intermediate circuit elements.

3,811,072
SCANNING DEVICE
Francis Jack Purchase, Kitchener, Ontario, Canada, assignor to Autotelic Industries, Ltd., Ontario, Canada
Filed Oct. 16, 1972, Ser. No. 297,830
Int. Cl. H05b *39/00*
U.S. Cl. 315—169 TV **15 Claims**



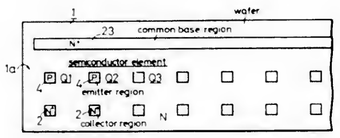
A scanning device in which an array of cathodes are in opposed relation to a matrix of anodes. The cathodes are successively addressed with one row of anodes being addressed for each cycle of addressing the cathodes. The anodes on the ends facing away from the cathodes have photosensitive elements and interposed between the photosensitive elements and the source of illumination therefor are electrically operable shutters which expose successive groups of the rows of the anodes during a scanning cycle.

3,811,073
ALTERNATING CURRENT SENSING CIRCUIT AND METHOD
Kenneth C. Shuey, Cridersville, and Donal E. Baker, Lima, both of Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 5, 1973, Ser. No. 337,969
Int. Cl. H02h *3/08*
U.S. Cl. 317—31 **6 Claims**



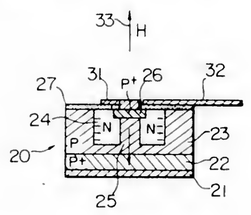
A full wave rectified voltage that is proportional to alternating current in a load circuit is developed by using inverse parallel switching devices having a rectifying characteristic, such as thyristors, to develop half wave rectified signals processed by an operational amplifier to produce the desired signal that is useful for purposes such as the input to an inverse time delay circuit.

3,811,074
SEMICONDUCTOR DEVICE AND APPARATUS USING THE SAME
Toshimasa Suzuki, and Yoshihiko Mizushima, both of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan
Filed Apr. 4, 1972, Ser. No. 240,999
Claims priority, application Japan, Apr. 10, 1971, 46-22533; Aug. 16, 1971, 46-62186; Aug. 16, 1971, 46-62187; Aug. 16, 1971, 46-62188; Sept. 14, 1971, 46-71570
Int. Cl. H011 *11/10*
U.S. Cl. 317—235 K **18 Claims**



A semiconductor device having a plurality of semiconductor elements formed in a monolithic manner in a semiconductor wafer of a first conductivity type while being sequentially arranged, in which each of the plurality of semiconductor elements consists of at least a collector region formed in the semiconductor wafer and having the first conductivity type and higher conductivity than the semiconductor wafer, a base region formed in the semiconductor wafer and having the first conductivity type and higher conductivity than the semiconductor wafer, and a relatively small emitter region formed in the semiconductor wafer between the base and collector regions and having a second conductivity type, at least the emitter region of each semiconductor element being adapted for exclusive use therewith and each semiconductor element presenting a current controlled negative resistance characteristic between the emitter and collector regions with a biasing power source being applied between the base and collector regions, and in which the distance between two adjacent ones of the semiconductor elements is selected so that when one of the two adjacent semiconductor elements is in the on state with the biasing power source being applied between the base and collector regions of the two semiconductor elements, the turnover voltage of the other semiconductor element may become low. A shift register, photoelectric conversion apparatus, logic functional circuit or apparatus and so on which employ such a semiconductor device.

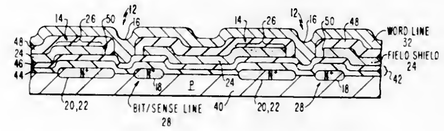
3,811,075
MAGNETO-SENSITIVE DEVICE HAVING PN JUNCTION
Kazumasa Shiga, Osaka, Japan, assignor to Matsushita Electric Industrial Company Limited, Osaka, Japan
Filed May 23, 1972, Ser. No. 256,157
Claims priority, application Japan, May 26, 1971, 46-36526
Int. Cl. H011 *5/00, 19/00*
U.S. Cl. 317—235 H **4 Claims**



A two terminal positive feedback magnetic sensitive semiconductor device having P-type regions and N-type regions in

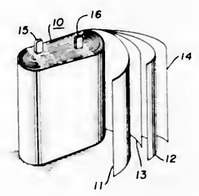
which a channel is formed between PN junctions. The width of the channel is controlled by Lorenz's force in response to the strength of the magnetic field and as a result an input current passing through the channel is controlled.

3,811,076
FIELD EFFECT TRANSISTOR INTEGRATED CIRCUIT AND MEMORY
William Michael Smith, Jr., Williston, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,395
Int. Cl. H011 *19/00*
U.S. Cl. 317—235 R **8 Claims**



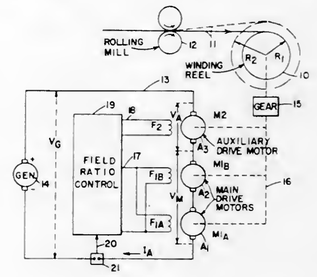
An integrated circuit structure of a field effect transistor (FET) serially connected to a capacitor has the capacitor formed by one of the current flow electrodes of the FET and by a polycrystalline silicon (polysilicon) field shield. The structure includes, in a semiconductor (e.g., silicon) substrate, of, e.g., *p*-type conductivity, two spaced regions of opposite conductivity type to that of the substrate, e.g., *n*-type. One of the spaced regions serves as a first plate of the capacitor and as a first current flow electrode of the FET. The other region serves as a second current flow electrode of the FET. A first insulating layer on the substrate has a polysilicon layer on it covering the two spaced regions and is directly and ohmically electrically connected to the substrate. The portion of the polysilicon layer over the spaced region serving as the first plate of the capacitor serves as the second plate of the capacitor. A second insulating layer covers the polysilicon layer and a second layer of conducting material, e.g., aluminum, is provided on the second insulating layer. The second conductive layer overlies the space between the two spaced regions and serves as a gate electrode for the FET. When employed as a memory circuit, the spaced region of opposite conductivity type to the substrate which does not serve as the first plate of the capacitor is desirably a diffused bit/sense line and the second conducting layer serves as a word line.

3,811,077
LIQUID IMPREGNATED CAPACITOR
Ralph H. Munch, Webster Groves, Mo., assignor to Monsanto Company, St. Louis, Mo.
Filed May 4, 1973, Ser. No. 357,158
Int. Cl. H01g *3/195*
U.S. Cl. 317—258 **8 Claims**



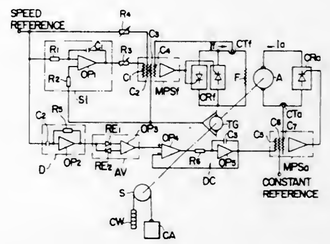
Electrical capacitors are impregnated with liquid dielectric compositions comprising mixtures of diaryl sulfones and esters of carboxylic acids.

3,811,078
DC MOTOR DRIVE SYSTEM FOR WINDING REEL
Joseph A. Greblunas, Scotia, N.Y., assignor to General Electric Company, Salem, Mass.
Filed Nov. 28, 1972, Ser. No. 310,126
Int. Cl. H02p *7/74*
U.S. Cl. 318—99 **4 Claims**



A DC motor drive system for driving a winding reel at constant horsepower over a wide range of speeds. Two or more main drive motors and one or more auxiliary drive motors are series connected in a power supply circuit. The field circuits of the main and auxiliary motors are separately controlled in a programed manner to extend the speed range. The motor drive and associated control system are well adapted for use with rolling mills wherein the reel coils the strip leaving the last stand of the mill.

3,811,079
DC MOTOR CONTROL SYSTEM
Korefumi Tashiro, Hitachi; Yoshimitsu Onoda; Seiya Shima; Yoshio Sakai, all of Katsuta, and Toshiro Narita, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 25, 1973, Ser. No. 354,459
Int. Cl. H02p *5/16*
U.S. Cl. 318—338 **3 Claims**



A system for controlling the speed of a DC motor by means of a field control in which a rectifier in the form of a thyristor is connected to the armature of the motor for supplying a current in only one direction and is controlled to constitute a constant current control means. An integrator having a saturation characterisitc is provided for integrating the difference between a reference speed and an actually detected speed of the motor. The output of the integrator is added to the reference speed and the result of addition is compared with the actually detected speed so as to apply a field current instruction signal to a field current control means provided with a current negative feedback means.

3,811,080

CONTROL CIRCUITS FOR D.C. ELECTRIC MOTORS

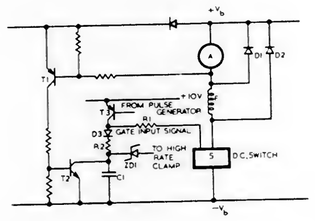
John Morton, Hazel Grove; Keith Drummond Stevens, Marple, and Graham Spencer Thexton, Marple Bridge, all of England, assignors to Cableform Limited, Cheshire, England

Filed Apr. 24, 1972, Ser. No. 246,547

Claims priority, application Great Britain, May 11, 1971, 14340/71

Int. Cl. H02p 3/12

U.S. Cl. 318—341 5 Claims



In control circuits for controlling D.C. electric motors, the motor is supplied in pulses so that the mean power supplied to the motor is varied by varying the frequency and/or mark-space ratio of the generator pulses. In such arrangements electrical braking is obtained by reversing the field winding connections but the field current has to be kept relatively low even for heavy braking. In the present invention means are provided for ascertaining if the armature current exceeds the field current during each pulse of current and for restricting the range of current which can be applied to the motor if the armature current exceeds the field current by a predetermined amount.

3,811,081

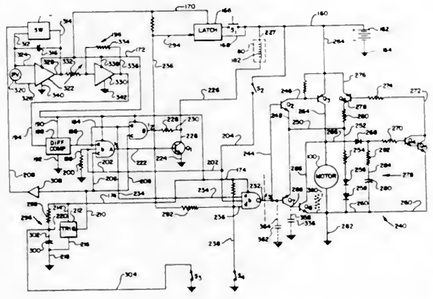
PHOTOGRAPHIC APPARATUS WITH PRECISION MOTOR CONTROL

Joseph J. Abbadessa, Waltham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 24, 1972, Ser. No. 299,667

Int. Cl. H02p 3/12

U.S. Cl. 318—375 28 Claims



Photographic apparatus of a type having instrumentalities powered by select energizations of a dynamoelectric motor. The control system of the apparatus serves to selectively energize and de-energize this motor and, subsequent to such de-energization, impose a dynamic braking function upon it. An arrangement for imposing a dead zone separation between the de-energization of the motor and dynamic braking is shown as well as an arrangement whereby an overtravel of motor actuated switching is provided through precise regulation of the number of revolutions of the output of the motor during dynamic braking.

3,811,082

BRAKING SYSTEMS FOR VEHICLES

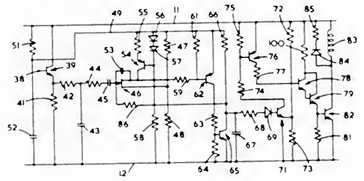
Christopher John Sutton, Belgrave, England, assignor to Joseph Lucas (Electrical) Limited, Birmingham, England

Filed Oct. 12, 1972, Ser. No. 297,069

Claims priority, application Great Britain, Oct. 22, 1971, 99308/71

Int. Cl. B60t 8/12

U.S. Cl. 318—383 3 Claims



A braking system for a vehicle has an arrangement for releasing the vehicle brakes automatically in order to prevent skidding. When the vehicle is travelling over a rough surface, such as a cobbled road, the rotational deceleration of the wheel can result in releasing of the brakes without wheel skid, and delay means is provided for preventing this possibility.

3,811,083

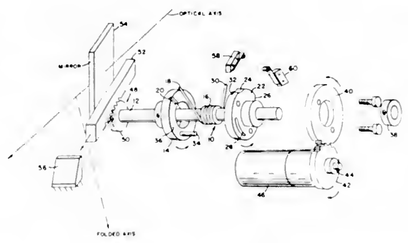
AUTOMATIC POSITIONING DEVICE EXHIBITING HIGH ACCURACY AND REPEATABILITY

Paul F. Minghella, Woburn, Mass., assignor to The United States of America as represented by the Secretary of the United States Army, Washington, D.C.

Filed Apr. 9, 1973, Ser. No. 349,367

Int. Cl. G05d 3/08

U.S. Cl. 318—466 4 Claims



An automatic positioning mechanism for achieving extreme accuracy in dynamic repeatability based on the application of a constant torsion spring force. A member to be positioned is resiliently coupled to a drive means through a constant torsion spring. The drive means is disposed for displacing the member. The resilient coupling provides for cut-off of the drive means responsive to positioning of the member in the desired location.

3,811,084

HIGH VOLTAGE SEMICONDUCTOR RECTIFYING DEVICE

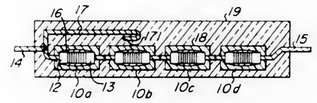
Kenzo Shima; Kensuke Suzuki; Tatuo Yosimura, and Takeshi Sasaki, all of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 6, 1971, Ser. No. 169,678

Claims priority, application Japan, Aug. 12, 1970, 45-70068

Int. Cl. H02m

U.S. Cl. 321—11 5 Claims



A high voltage semiconductor rectifying device comprising a rod-like stack of a plurality of silicon pellets and means to provide additional capacitance to silicon pellets nearer the a-c side electrode.

3,811,085

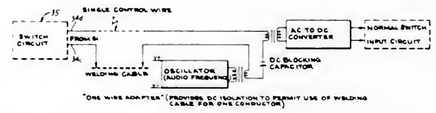
CONTROLLED POWER SOURCE WITH APPARATUS AND METHOD INCLUDING INDICIA OF CONTROL MEANS ACTUATION AT OPERATIONAL LOCATIONS SELECTIVELY SPACED FROM SOURCE, AS FOR, BUT NOT LIMITED TO, WELDING OPERATIONS

Jack C. Saulsman, 12105 Carlsbad, Houston, Tex.

Filed July 3, 1972, Ser. No. 268,784

Int. Cl. H02p 9/04

U.S. Cl. 322—16 12 Claims



There is disclosed an operative, manipulated at a production station, and a control housing easily and readily mechanically connected to a conventional regulatable source of power, as a welding machine. The control housing has incorporated therein an actuator including circuitry, as with a fractional horse power motor being connected through a transmission to drive the means that regulates the power delivered from the source. In one form of the invention the circuitry includes a single conductor, and in another form, not more than two conductors. With conductor wire connected switch operator manipulated at his work station, he sets in actuation change of power delivered to his station, with change achieved being indicated to him in one form visually by performance, in another form by count of length of switch closure, in another form by count of successive switch closures, and in still another form by count of audible clicks or "beeps" indicative of steps effected in power regulation at source.

3,811,086

DEVICE FOR TESTING MULTIPLE ELECTRIC CIRCUIT SELECTOR SWITCHES

Ernst-Friedrich Lechner, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

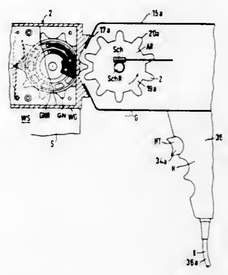
Filed Aug. 24, 1972, Ser. No. 283,405

Claims priority, application Germany, Sept. 4, 1971, 2144414

Int. Cl. G01r 31/02

U.S. Cl. 324—28 R 6 Claims

Multiple electric circuit selector switches have manually operated rotary control wheels, rotation of the wheels selecting the various circuits. When used in large numbers, each control wheel must be rotated through all its possible positions to test each position as to circuit continuity. To save labor and time, a portable assembly is used including a drive wheel



adapted for releasable peripheral engagement with each switch's control wheel, the drive wheel being motor powered and the assembly including means for determining the electric continuity of the switch elements as they are successively actuated by the driven control wheel.

3,811,087

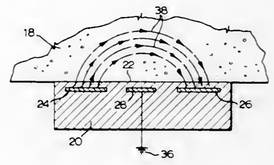
MEASUREMENT OF MOISTURE CONTENT OF MATERIALS

Juergen F. Schmelzer, Toronto, Ontario, Canada, assignor to Rothmans of Pall Mall Canada Limited, Ontario, Canada

Filed May 21, 1973, Ser. No. 361,899

Int. Cl. G01r 27/04

U.S. Cl. 324—58.5 A 2 Claims



An RF signal field is established through a partially conductive material, such as tobacco having a positive moisture content, and variations in the strength of the field, in response to change in the moisture content, are detected. The probe contacting the material is constructed with three conductive elements, the middle of which is grounded to provide measurements only of the strength of the RF field through the tobacco.

3,811,088

LOGARITHMIC CONVERTER

Norris C. Hekimian, Rockville, Md., assignor to Hekimian Laboratories, Inc., Rockville, Md.

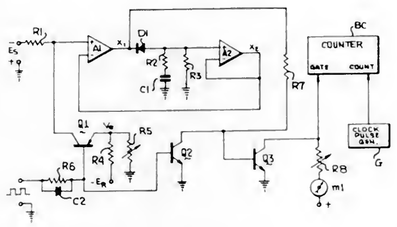
Filed Oct. 19, 1972, Ser. No. 299,139

Int. Cl. G01r 15/10; G06g 7/12

U.S. Cl. 324—132 12 Claims

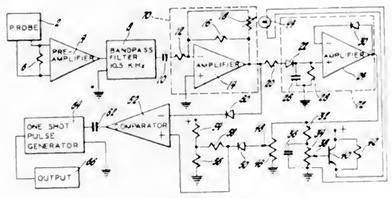
A logarighmic converter circuit includes an operational amplifier to which an input signal and a reference signal are alternately applied during respective half-cycles of a gating signal. During the input signal half-cycle, the amplifier output signal charges a capacitor through a diode and cuts off an output gate in a meter circuit, the capacitor voltage is degeneratively fed back to the amplifier. During the reference signal half cycle, the amplifier circuit signal reverses polarity, reverse-biasing the diode and closing the output circuit gate, until the capacitor discharges to the reference level. Current flows in the meter circuit only during the capacitor discharge

interval which is proportional to the logarithm of the input signal amplitude. The meter movement integrates the current duty cycle to provide a reading of the signal logarithm. The



output current may also serve as a gate for a counter fed by timing pulses or for a digital voltmeter to provide a digital output indication.

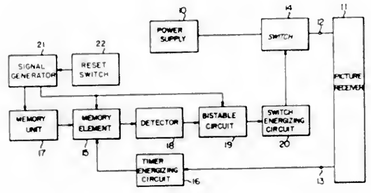
3,811,089
REMOTE ENGINE TACHOMETER
Anthony S. Strzelewicz, Roseville, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed July 14, 1972, Ser. No. 271,996
Int. Cl. G01p *3/48*
U.S. Cl. 324—170 **3 Claims**



A tachometer which does not require connection with the engine. A probe placed near the engine picks up electromagnetic radiation produced by the distributor points and coil in bursts timed with engine speed. A bandpass filter suppresses all frequencies except a narrow band which is amplified in a circuit with automatic gain control using optic elements in the feedback loop. A reference voltage whose level is a constant fraction less than the signal maximum is produced and compared with the signal in a comparator, the output of which triggers a one shot pulse generator to produce a train of pulses of constant width and amplitude at a frequency proportional to engine speed.

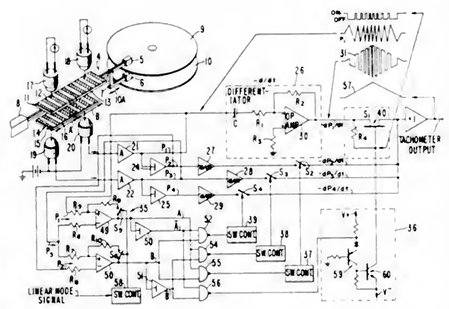
3,811,090
AUTOMATIC STOPPER SYSTEM FOR STOPPING A POWER SUPPLY IN THE ABSENCE OF INFORMATION SIGNALS
Kosaku Uchida, Neyagawa; Yoshito Dezaki, Kyoto, and Sadafumi Kitamura, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed May 31, 1972, Ser. No. 258,366
Claims priority, application Japan, June 2, 1971, 46-38850; June 9, 1971, 46-41208; Aug. 30, 1971, 46-67228
Int. Cl. H04b *1/06*
U.S. Cl. 325—390 **4 Claims**

An automatic stopper system comprises a power supply circuit for a device capable of transmitting or reproducing specific information signals contained in an input signal, a load circuit which effects the transmission or reproduction on receipt of power from the power supply circuit and a switch circuit connected between the power supply circuit and the load circuit, characterized in that the switch circuit is opened when an output from an information detector circuit which detects the presence of the information signals ceases to be



produced for a certain period of time, whereby power from the power supply circuit to the load circuit is stopped, thereby automatically stopping the useless reception of information to improve the safety of operation.

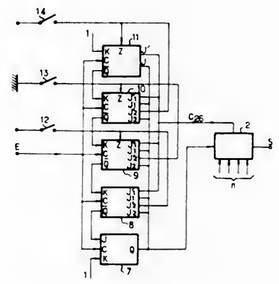
3,811,091
ELECTRONIC TACHOMETER
In W. Ha, San Jose, and James J. Touchton, Sunnyvale, both of Calif., assignors to Itel Corporation, San Francisco, Calif.
Filed Aug. 24, 1972, Ser. No. 283,528
Int. Cl. G08c *11/00*
U.S. Cl. 328—1 **6 Claims**



This invention relates to a tachometer for detecting the velocity of movement of a moveable member by use of signals indicating passage of that member past predetermined points along the path of movement.

3,811,092
VARIABLE-RATIO ELECTRONIC COUNTER-DIVIDER
Roger C. Charbonnier, Meudon, France, assignor to Adret Electronique, Trappes, France
Filed Oct. 17, 1972, Ser. No. 298,424
Claims priority, application France, Oct. 18, 1971, 71.37407
Int. Cl. H03k *23/06*
U.S. Cl. 328—39 **15 Claims**

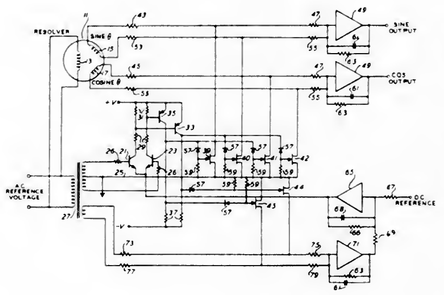
In a digital frequency dividers with a programmable ratio, there is provided two serially connected division scales, the first scale being set so that its division ratio shifts in whole units under the action of control signals applied thereto, the second scale including a fixed-capacity counter set to count permanently and to apply to the first scale a control signal



which is enabled for a predetermined number of counts of the second scale.

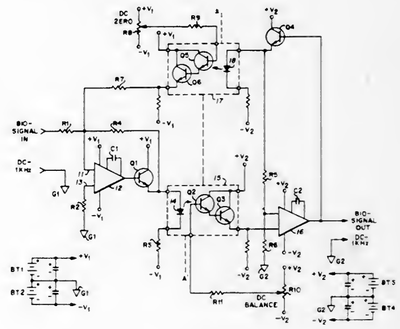
Such a divider is adapted for operation at frequencies higher than that of the prior art dividers, and will be used in frequency generators.

3,811,093
PHASE SENSITIVE DEMODULATOR WHICH AUTOMATICALLY COMPENSATES FOR VARIATIONS IN THE AC REFERENCE VOLTAGE
Louis P. DeLeo, Totowa, N.J., assignor to The Singer Company, Little Falls, N.J.
Filed Sept. 19, 1972, Ser. No. 290,415
Int. Cl. H03d *1/04*
U.S. Cl. 329—146 **15 Claims**



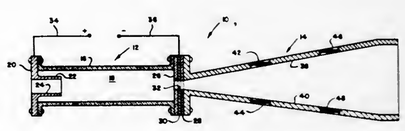
A phase sensitive demodulator which also provides automatic compensation for variations in the AC reference voltage is shown. The same reference voltage used in generating the signal to be demodulated is itself demodulated and summed with a DC reference value to develop a control signal which is used to cause more or less of the signal to be demodulated as the reference voltage rises and falls thereby resulting in an output which does not change with changes in reference voltage.

3,811,094
BIO-ISOLATED DC OPERATIONAL AMPLIFIER
Robert D. Lee, San Mateo, Calif., assignor to The United States of America as represented by the Administration of the National Aeronautics and Space Administration, Washington, D.C.
Filed June 30, 1972, Ser. No. 267,862
Int. Cl. H03f *17/00*
U.S. Cl. 330—59 **5 Claims**



A bio-isolated DC operational amplifier is provided for use in making bio-electrical measurements of a patient while providing isolation of the patient from electrical shocks and the like, the circuit comprising a first operational amplifier coupled to the patient and having its output coupled in a forward loop through a first optic coupler to a second operational amplifier, the output of the second operational amplifier being coupled to suitable monitoring circuitry. The output of the second operational amplifier is coupled via a feedback circuit including a second optic coupler to the input of the first operational amplifier.

3,811,095
ELECTRIC-DISCHARGE EXCITED GASEOUS LASER
Joseph W. Rich, East Aurora; Charles E. Treanor, and John W. Daiber, both of Williamsville, all of N.Y., assignors to Calspan Corporation, Buffalo, N.Y.
Filed June 20, 1972, Ser. No. 264,682
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 **5 Claims**

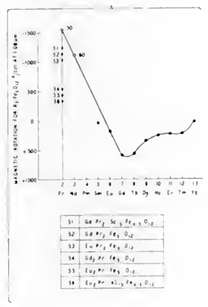


A diatomic molecular laser having an electrical gas discharge for increasing the vibrational energy of the gas and a supersonic expansion nozzle for reducing the translational temperature of the gas and optically aligned reflecting surfaces in the walls of the supersonic nozzle in communication with the electrical gas discharge.

3,811,096
MAGNETO-OPTIC MODULATORS

Joseph Francis Dillon, Jr.; Legrand Gerard Van Uitert, both of Morristown, and Stuart Harry Wemple, Chatham, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 21, 1972, Ser. No. 290,786
Int. Cl. H01s 3/10
U.S. Cl. 332—7.51 10 Claims

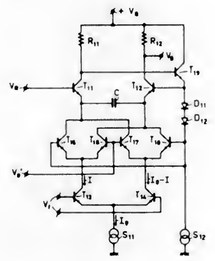


Magneto-optic modulators of the garnet structure useful over a transparency bandwidth of from about 1 to 5 micrometers show improved figure of merit where the dodecahedral site is at least partially occupied by praseodymium or neodymium, remainder gadolinium or europium.

3,811,097
A VARIABLE FREQUENCY ASTABLE MULTIVIBRATOR

Eise Carel Dijkmans, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 10, 1972, Ser. No. 305,534
Claims priority, application Netherlands, Nov. 17, 1971, 7115805
Int. Cl. H03k 7/00
U.S. Cl. 332—14 5 Claims

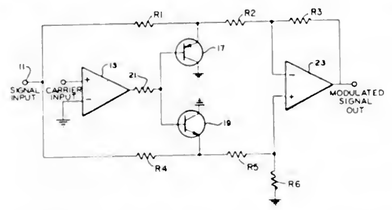


Emitter-coupled astable multivibrator in which the charging and discharging currents for the coupling capacitor are supplied by a current source circuit the two outputs of which are connected each to a terminal of the capacitor. This current source circuit comprises a differential stage and a four-quadrant multiplier.

3,811,098
TRANSFORMERLESS FULL WAVE RECTIFIER AND DIRECT COUPLED PRODUCT MODULATOR

Arthur B. Williams, Smithtown, N.Y., assignor to The Singer Company, Little Falls, N.J.

Filed Feb. 5, 1973, Ser. No. 329,622
Int. Cl. H03c 1/52
U.S. Cl. 332—44 7 Claims

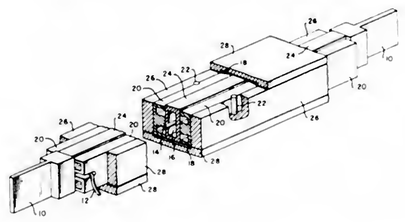


A circuit which in one configuration may be used as a rectifier and in another configuration as a direct coupled product modulator comprising a pair of transistors coupled to the input, a first integrated circuit amplifier controlling the transistors and a second integrated circuit amplifier obtaining its input inverting input from one transistor and its non-inverting input from the other and providing the final output is shown. In the rectifier configuration the signal to be rectified is applied to both the two transistors and the first amplifier with the amplifier output selectively grounding a respective one of the transistors on respective positive and negative cycles causing the second amplifier to output a uni-polar signal. In the modulator configuration the carrier is applied to the first amplifier and will modulate the signal input to the transistors through similar grounding action. Both configurations are able to handle small signals and provide variable gain a feature not present in prior art devices using transformers.

3,811,099
MEANS OF SECURING FERRIMAGNETIC CORE IN A MICROWAVE PHASER

Robert J. Mason, Medford, N.J., and Louis J. Lavedan, Jr., Springfield, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 13, 1973, Ser. No. 397,199
Int. Cl. H01p 1/32
U.S. Cl. 333—24.1 6 Claims



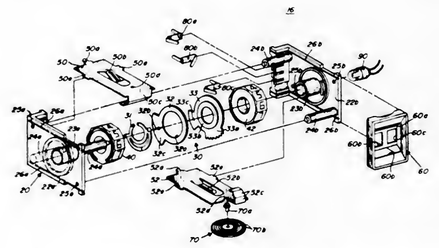
A mounting assembly for mounting a rectangular ferrimagnetic core longitudinally within a rectangular waveguide of a high-power-mode phase shifter comprising:

a. heat conducting elements on two opposite sides of the ferrimagnetic core extending longitudinally along the core;
b. dielectric transformers at each end of the core so as to partially overlap the ends of the heat-conducting elements thereby restricting motion of the core with respect to the waveguide;
c. dielectric pins inserted into pin-holes positioned partially in the waveguide and partially in the heat-conducting elements to restrict longitudinal motion of the heat-conducting elements with respect to the waveguide.

3,811,100
CHANNEL SELECTOR AND INDICATOR FOR MULTI-CHANNEL RECEIVER

Hans Schmidt, Forest Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 20, 1972, Ser. No. 246,035
Int. Cl. H03j 3/06
U.S. Cl. 334—15 7 Claims

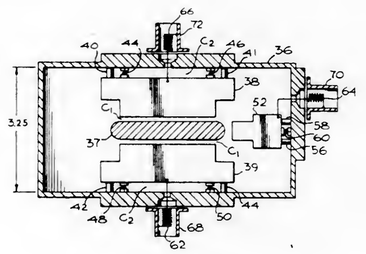


A control assembly for making channel selections in a multi-channel receiver apparatus, such as a television set, and which is comprised of a plurality of voltage selector and channel indicator units. The selector/indicator units are in modular form and include an adjustable resistance or potentiometer assembly for selective interposition between a source of reference potential and a voltage responsive, frequency determining element in the associated receiver's tuner apparatus. An included indicator wheel for providing a visual indication of the channel selected also determines the setting of the movable contactor arm of the potentiometer assembly relative to the resistance element, and thus serve as a coarse tuning adjustment. A thumb wheel with a spiral groove on its inner face which is provided in rotatable engagement with a projection in the potentiometer's resistance element for adjusting the latter through a predetermined but limited range of movement, thereby effecting a fine tuning facility.

3,811,101
ELECTROMAGNETIC RESONATOR WITH ELECTRONIC TUNING

Arthur Karp, Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed Mar. 12, 1973, Ser. No. 340,172
Int. Cl. H03j 5/24; H01p 7/04, 7/06
U.S. Cl. 334—42 20 Claims

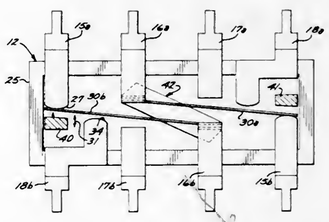


In a waveguide resonator, either coaxial, or non-coaxial, there are inserted spaced irises which establish capacitances between the conductors of the waveguide structure at the location of each iris. These capacitances tune the resonance of the waveguide cavity, which would generally be used in a bandpass filter. Switch means are provided for each iris, for discretely altering the value of the capacitance established, whereby the resonator or filter may be tuned to a large number of different center frequencies.

3,811,102
RELAY

Leonard P. Ash, Anaheim, Calif., assignor to Babcock Electronics Corporation, Costa Mesa, Calif.

Filed July 22, 1971, Ser. No. 165,253
Int. Cl. H01h 50/16
U.S. Cl. 335—106 7 Claims



The present invention relates to an improved relay and more particularly relates to a miniaturized relay that is ideally adapted for use with present day printed circuit boards. The disclosed relay is a unit (hermetically sealed, if so desired) that snaps into place at a desired location of a printed circuit board; the terminals of the relay also serving as mechanical holding devices.

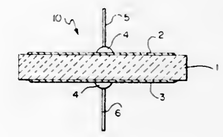
Electrically, the disclosed relay may operate in several different switch modes, with a variety of input/output terminals and has the inherent characteristic that if a dual pole switching mode is used, the poles tend to operate more simultaneously than in prior art relays.

Mechanically, the relay has a novel terminal construction that is efficient from both a manufacturing and an assembly point of view. Moreover, the disclosed relay is extremely economical to build.

3,811,103
VOLTAGE-NONLINEAR RESISTORS

Michio Matsuoka; Yoshikazu Kobayashi; Gen Itakura, and Takeshi Masuyama, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

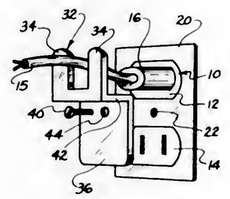
Filed Sept. 19, 1973, Ser. No. 398,779
Claims priority, application Japan, Sept. 20, 1972, 47-94739; Sept. 20, 1972, 47-94740; Sept. 20, 1972, 47-94741; Sept. 20, 1972, 47-94742; Sept. 20, 1972, 47-94743; Sept. 20, 1972, 47-94744; Sept. 20, 1972, 47-94745
Int. Cl. H01c 7/10
U.S. Cl. 338—20 6 Claims



The invention relates to voltage-nonlinear resistors having non-ohmic resistance due to the bulk thereof, and more par-

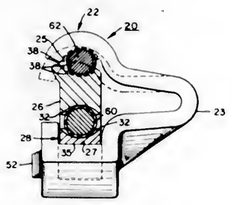
ticularly to varistors which are suitable for use as elements of lightning arresters, comprising zinc oxide, bismuth oxide, antimony oxide and nickel fluoride.

3,811,104
SAFETY DEVICE FOR ELECTRICAL OUTLETS
Thomas B. Caldwell, 50 W. Broad St., Columbus, Ohio
Filed Mar. 8, 1972, Ser. No. 232,710
Int. Cl. H01r *13/44, 13/54*
U.S. Cl. 339—39 **3 Claims**



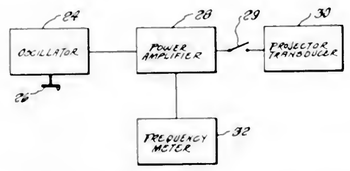
A safety device for electrical outlets which comprises an attachment for retaining electrical plugs in the sockets of a receptacle so as to preclude the inadvertent removal thereof as well as the insertion of foreign objects into the receptacles. Moreover, the present safety attachment is further adapted to provide the same safety feature in the event that only one electrical plug is mounted in a duplex receptacle in which instance the unused socket is covered to prevent the insertion of foreign objects.

3,811,105
ELECTRICAL CONNECTOR
Sidney Gerhard, 9 Pocono Rd., Norwalk, Conn.
Filed Dec. 29, 1972, Ser. No. 319,142
Int. Cl. H01r *11/20*
U.S. Cl. 339—98 **12 Claims**



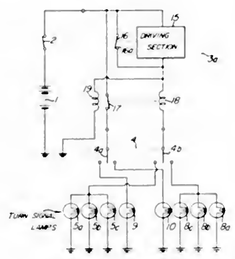
A "tap" or drop wire conductor clamp for electrical power conductors incorporating a holder having a conductor retaining surface and a ramped surface sliding advanced and locked within a resiliently deformable clamp which incorporates a "run" conductor mounting surface, a spring portion, a cooperating ramped camming surface and a latch, forming a secure branch connection joining a drop wire "tap" conductor to a continuous "run" conductor.

3,811,106
UNDERWATER LOW FREQUENCY SONIC COMMUNICATION
Warren A. Tyrrell, Mendham, N.J., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed May 31, 1963, Ser. No. 285,556
Int. Cl. H04b *11/00*
U.S. Cl. 340—5 R **12 Claims**



This invention relates to very low frequency sound wave signaling and communication through sea water over long distances.

3,811,107
FLASHING DIRECTION INDICATOR
Yasuhiko Sakurai, Kariya, Japan, assignor to Nippondenso Co., Ltd., Aichi-ken, Japan
Filed Nov. 9, 1971, Ser. No. 196,928
Claims priority, application Japan, Nov. 11, 1970, 45-111732; July 1, 1971, 46-57129
Int. Cl. B60q *1/38*
U.S. Cl. 340—80 **2 Claims**

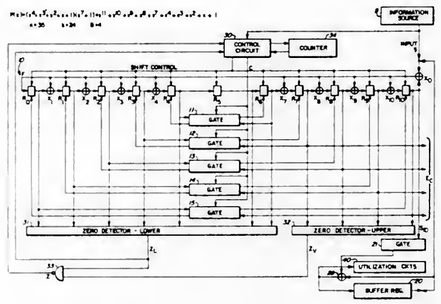


A flashing direction indicating apparatus wherein a plurality of turn signal lamps are intermittently coupled to power by a driving circuit through the closure of a normally open contact thereof. A current coil is coupled in series with the turn signal lamps, and a voltage coil is wound in opposite phase and coupled in parallel therewith. A normally closed contact is coupled to power and direction indicator lamps and is driven by the combined magnetomotive force of the coils, the coils are so wound that the normally closed contact remains closed when the current flowing through the corresponding coil decreases below a predetermined value thereby indicating a circuit malfunction.

3,811,108
REVERSE CYCLIC CODE ERROR CORRECTION
Thomas Harold Howell, Scottsdale, Ariz., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed May 29, 1973, Ser. No. 364,782
Int. Cl. H04l *1/10*
U.S. Cl. 340—146.1 AL **3 Claims**

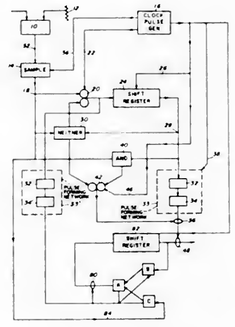
A method and apparatus is disclosed in which reversible cyclic encoding is used to enable reverse error identification.

Encoding and decoding is performed in essentially a conventional manner, except that the coding conforms to a reversible cyclic generator polynomial. In the preferred embodiment, a



linear feedback shift register is augmented with logic gates which enables the reversing of syndrome bits for subsequent error identification cycling in the event an error is detected.

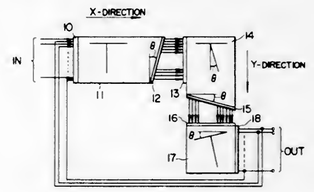
3,811,109
VIDEO SIGNAL SAMPLING DEVICE FOR USE IN IMAGE ANALYSIS SYSTEMS
Gerald Marvin Gardner, Saffron Walden, England, assignor to Image Analysing Computers Limited, Melbourn, Roston, Hertfordshire, England
Filed Oct. 30, 1970, Ser. No. 85,383
Claims priority, application Great Britain, Oct. 31, 1969, 53404/69
Int. Cl. G06k *9/12*
U.S. Cl. 340—146.3 AC **9 Claims**



The invention provides a device for standardising randomly produced electrical signals on a time basis into pulses of duration equal to a whole-number multiple of known time intervals. This is achieved by sampling the original signal at the beginning of each interval of time and generating a two level signal whose instantaneous value is dependent on the result of the sampling carried out at the beginning of the interval. This device is of particular use in image analysis systems employing multiple signal paths since it simplifies the process of synchronising the various circuit elements in the different signal paths and prevents races occurring and largely eliminates problems from rise time variation and transients.

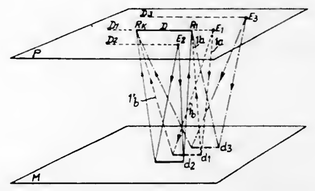
The invention also envisages the use of a particular form of signal storage device in image analysis systems which employ signal standardisation as proposed by the invention. Such signal storage devices are shift registers which derive their shifting signal from the same source as that which generates the sampling control signals. A number of different applications employing shift registers as signal storage devices are described and where applicable the signal sampling technique and standardising process as disclosed by the invention is described with reference to these arrangements.

3,811,110
ARRANGEMENT FOR NORMALIZING TWO-DIMENSIONAL PATTERN
Fumiyuki Inose, and Yuzo Kita, both of Kokubunji, Japan
Filed July 24, 1972, Ser. No. 274,422
Claims priority, application Japan, July 23, 1971, 46-54614
Int. Cl. G06k *9/04*
U.S. Cl. 340—146.3 H **15 Claims**



An arrangement for normalizing a two-dimensional pattern, wherein a pattern input unit and a pattern detecting unit are respectively provided along the X-axis and Y-axis of a memory array which provides a shift function in the X- and Y-directions, and wherein said pattern detecting unit is arranged at certain angles with respect to the X-axis and Y-axis of said memory array, whereby the two-dimensional pattern stored in said memory array is successively shifted in the X-direction and Y-direction so as to impart rotation to said pattern.

3,811,111
METHOD OF EXPLORING A MEDIUM BY TRANSMITTING ENERGY EMITTED IN THE FORM OF SEPARATE IMPULSES AND ITS APPLICATION TO SEISMIC PROSPECTING
Maurice Barbier, Ousse, and Philippe Staron, Ris Orangis, both of France, assignors to Societe Anonyme dite: Societe Nationale Des Petroles
Filed June 12, 1972, Ser. No. 261,597
Claims priority, application France, June 14, 1971, 71.21467
Int. Cl. G01v *1/14, 1/22*
U.S. Cl. 340—15.5 CC **6 Claims**



This invention concerns a method of exploring a medium by transmitting energy emitted in the form of separate impulses, and its application to seismic prospecting.

It is characterized by the fact that the long signal is emitted by a number of sources off-set laterally from one another and from the receiver, the moments of emission by each source being such that when the sequence of moments of emission by all the sources are intercorrelated with the sequence of moments of emission by any one source, a function is obtained, for a duration equal to the longest time taken by waves to

travel both ways through the medium, the ratio of the amplitude of the maximum peak of this function to the amplitude of the secondary residues being approximately the same as the corresponding ratio for the autocorrelation function of the moments of emission of this same single source.

3,811,112

CONTROL COMMAND SECURITY IN BINARY REMOTE CONTROL

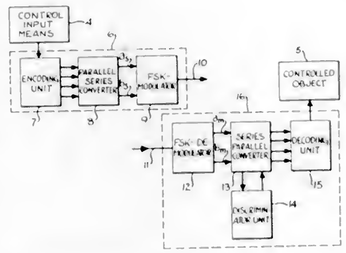
Johan Bertil Hoven, Jonkiping; Gunnar Alexius Wallgard, and Bo Herman Thorwald Svensson, both of Huskvarna, all of Sweden, assignors to Saab-Scania Aktiebolag, Linkaping, Sweden

Filed Oct. 10, 1972, Ser. No. 296,085

Claims priority, application Sweden, Oct. 12, 1971, 12890/71

Int. Cl. H04q *9/14*

U.S. Cl. 340—164 R **9 Claims**



In a remote control system wherein control commands are sent as telegrams, each containing a fixed number of binary bits, transmission of each telegram is required to span a time interval divisible into equal periods, the number of such periods being equal to the number of bits in a telegram, and each bit pulse being required to persist for a predetermined portion of the duration of its period. Preferably the last pulse of each telegram has a longer duration than the others. The long last pulse is utilized for telegram framing as well as for authenticating received telegrams.

3,811,113

KEYBOARD OPERATED PATTERN GENERATING DEVICE

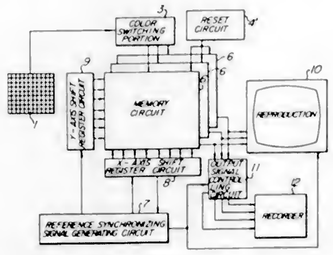
Teruo Saito; Toshihiko Yoshino, and Takeshige Ichida, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 46,041, June 15, 1970, abandoned. This application Dec. 19, 1972, Ser. No. 316,537

Claims priority, application Japan, June 21, 1969, 44-49169

Int. Cl. G06f *3/14, 3/06, 3/02*

U.S. Cl. 340—172.5 **9 Claims**



A pattern generating device for displaying figures such as letters, pictures and the like on a display means such as a cathode ray tube (CRT) and the like by arranging picture elements in a mosaic. The device is adapted to decompose a figure to be displayed into picture elements of red, green and blue colors by an equal number of switches respectively corresponding to the picture elements so that the resulting component figures may be stored in respectively corresponding memory means, and to scan the stored figures with a scanning circuit to reproduce them on a color CRT for monitoring so that the figures may be recorded in a recording means after errors have been corrected. By employing this device, figures consisting of a large number of picture elements can be obtained in a short time, and a moving picture of a mosaic pattern can be easily made.

3,811,114

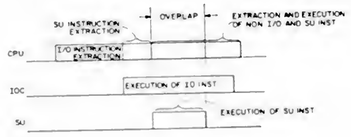
DATA PROCESSING SYSTEM HAVING AN IMPROVED OVERLAP INSTRUCTION FETCH AND INSTRUCTION EXECUTION FEATURE

Richard A. Lemay, Bolton, and David D. DeVoy, Dedham, both of Mass., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Jan. 11, 1973, Ser. No. 322,806

Int. Cl. G06f *9/00*

U.S. Cl. 340—172.5 **27 Claims**



A data processing system includes a main memory, a central processing unit, an input-output processing unit and a scientific processing unit. The central processing unit is operative to fetch each of the instructions of a program stored in main memory and then determines whether the execution of the instruction by either the input-output processing unit or the scientific processing unit can be overlapped with the central processing unit's fetching of a next instruction of the program. The scientific processing unit includes storage which enables the unit to execute certain types of instructions it receives from the central processing unit independently of the central processing unit. when the central processing unit determines that it has fetched one of these types of instructions, it begins immediately fetching a next instruction after it has delivered to the scientific processing unit information the scientific unit requires for executing the instruction. The system also includes apparatus which allows an operator access to the scientific unit storage for checking purposes.

3,811,115

ITEM LISTER USING A SHIFT REGISTER

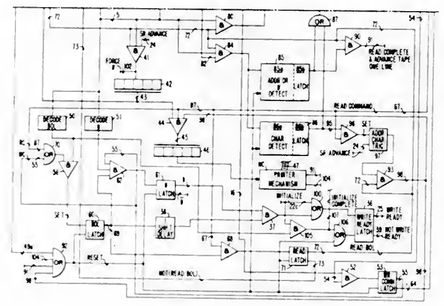
Vincent A. Cordi, Vestal, and Chester S. Gurski, Endwell, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

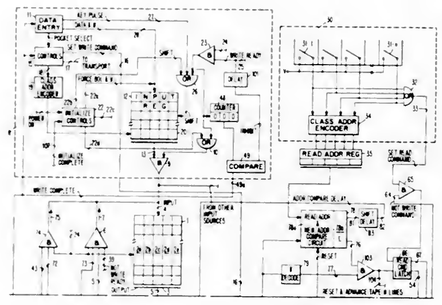
Filed Feb. 2, 1973, Ser. No. 329,265

Int. Cl. G06f *15/40*; **G11c** *19/00*

U.S. Cl. 340—172.5 **8 Claims**

A shift register store and associated controls store randomly entered classes of data records and output the data records on request by specific class in the identical order in which the records of the class were entered into the register. Records are compacted in the register so that no blank character codes exist between records. Blank codes exist only at the end of all valid records on the register. The register and controls are particularly useful in proof/inscribe/sort apparatus of the type used in bank proofing departments to permit the economic use of only one tape advance/print mechanism to produce specific class tapes for a multiplicity of sorter pockets, the documents sorted into each pocket being of the same class. The register and controls are useful in other environments, e.g., to buffer data from a plurality of terminals in a teleprocessing system.





Herein disclosed is an apparatus adapted to determine a degree of fatigue or drunkness of an examinee, which apparatus includes circuits to produce a control voltage varying with time, convert the voltage into pulses having a repetition rate proportional to the control voltage, energize a light-emissive means to produce light at a frequency proportional to the pulse repetition rate, repeat these steps a desired number of times for obtaining voltages representative of critical flicker frequencies determined by the examinee from the flashes of the light-emissive means, produce information in voltage representative of an arithmetic means and an average deviation of the critical flicker frequencies determined, compare the voltages representing these pieces of information with prescribed reference voltages to see if the mean value of the critical flicker frequencies is larger than an acceptable level and the average deviation thereof about the mean value is smaller than an acceptable level. The apparatus may be incorporated in a power driven vehicle so that a power plant thereof is made inoperative if the examinee has been "diagnosed" as incompetent for operating the vehicle.

3,811,116

DEVICE FOR DETECTING MENTAL IMPAIRMENT

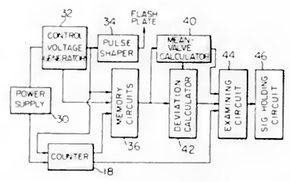
Yasuhisa Takeuchi, Yokosuka, and Hiromichi Nakamura, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokahama, Japan

Filed July 13, 1973, Ser. No. 378,875

Claims priority, application Japan, July 15, 1972, 47-71077

Int. Cl. B60r *25/00*; **B60k** *27/08*; **G05b** *13/02*

U.S. Cl. 340—172.5 **17 Claims**



3,811,117

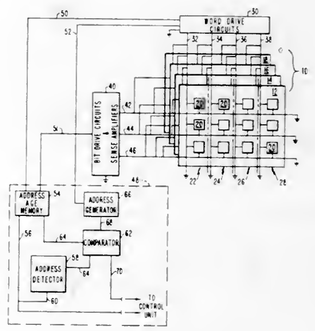
TIME ORDERED MEMORY SYSTEM AND OPERATION

Robert Douglas Anderson, Jr., and Howard Leo Kalter, both of Colchester, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1972, Ser. No. 298,918

Int. Cl. G11c *11/40*

U.S. Cl. 340—173 DR **17 Claims**

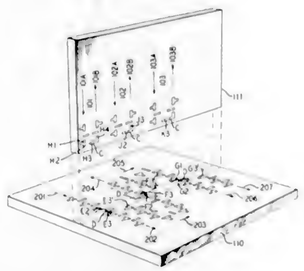


An array of memory cells in which stored information must be periodically restored in order to maintain its viability may have the restore operation carried out without interruption of the memory in most instances. The memory array is divided into a plurality of segments (e.g., on a word line basis), with the memory cells of each segment being restored as a group. Means for accessing the memory cells in the array and a pulse source for actuating the accessing means are provided. A time ordered list of segments in the array in the order of which they were last restored is maintained and updated as a particular segment is restored in, e.g., a plurality of counters or an associative memory. One of the segments of the memory is restored in each of a plurality of time intervals, each corresponding to the memory cycle time. Means for restoring the memory cells is actuated for a particular segment of the array each time an access to a portion of the memory included within that segment is made. The means for restoring is independently actuable during a time interval in which access to the memory is not being made to restore that segment of the array which had been previously restored least recently.

3,811,118
INTERMEDIUM MAGNETIC DOMAIN LOGIC CONTROL ARRANGEMENT

Amos Edward Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 22, 1972, Ser. No. 317,649
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **17 Claims**

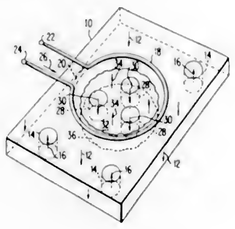


In magnetic domain technology, to achieve logic operations, a magnetically soft overlay is constructed to provide interaction points where a control domain and a controlled domain, each moving in the same substrate, come into close proximity with each other. Logic results from the magnetic interaction between the domains. An arrangement is disclosed where the control domain can be propagated in a substrate separate from the substrate in which the controlled domain moves. In one embodiment, a control domain is propagated to the edge of the controlling substrate, which edge is mounted in close physical relationship with the surface of the substrate in which the domain to be controlled is moving. Magnetic coupling between the domains, each in different substrates, provides the necessary logic control.

3,811,119
METHOD FOR GENERATING HOLLOW MAGNETIC BUBBLE DOMAINS

George S. Almasi, Katonah; Bernell E. Argyle, Putnam Valley, and John C. Deluca, Richmond Hills, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,817
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **5 Claims**

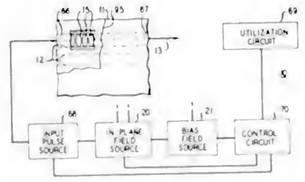


By suitably pulsing a coil overlying a magnetic film or platelet in which magnetic bubble domains exist, the domains within the coil reverse their magnetization vectors with respect to bubble domains in the magnetic material outside of the coil, thus enabling the controlled generation of hollow bubbles.

3,811,120
MAGNETIC DOMAIN PROPAGATION ARRANGEMENT HAVING CHANNELS DEFINED BY STRAIGHT LINE BOUNDARIES

Andrew Henry Bobeck, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 5, 1973, Ser. No. 348,282
Int. Cl. G11c *11/14, 19/00*
U.S. Cl. 340—174 TF **14 Claims**

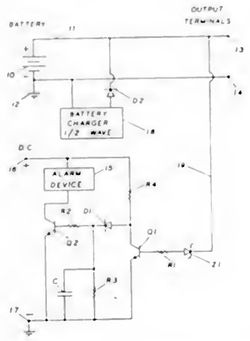


Magnetic single wall domains are moved along a channel defined by a straight line boundary in response to a magnetic field rotating in the plane of domain movement.

3,811,121
SUPERVISED BATTERY POWER SUPPLY

Alan M. Helm, Florham Park, and Raymond J. Gonzalez, Rockaway, both of N.J., assignors to Baker Industries, Inc., Cedar Knolls, N.J.

Filed June 23, 1972, Ser. No. 265,559
Int. Cl. G08b *21/00*
U.S. Cl. 340—249 **5 Claims**

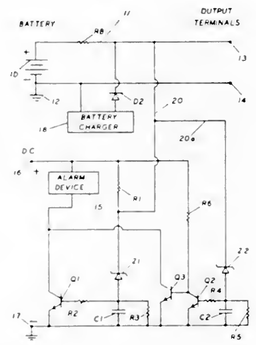


A circuit for indicating the presence or condition of a battery in which the battery is used to control the actuation of an alarm circuit by using current from the battery to actuate an electronic switch. The circuit is operative irrespective of whether or not a battery charger producing a pulsating charging current is connected to the battery.

3,811,122
SUPERVISED BATTERY POWER SUPPLY

Samuel Raber, Allendale, and Alan M. Heim, Florham Park, both of N.J., assignors to Baker Industries, Inc., Cedar Knolls, N.J.

Filed June 23, 1972, Ser. No. 265,561
Int. Cl. G08b *21/00*
U.S. Cl. 340—249 **7 Claims**

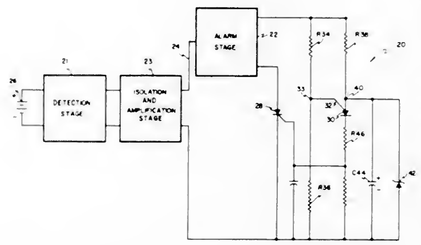


A circuit for indicating the presence or condition of a battery in which the battery while present or in good condition is used as a current by-pass to control an alarm circuit. The circuit is operative irrespective of whether or not a battery charger is connected to the battery.

3,811,123
LOW ENERGY INDICATOR

Jeffrey E. Hamm, 7432 Eastbourne Cir., Salt Lake City, Utah, and Robert S. Jenson, 2981 Middleton Way, Salt Lake City, Utah

Filed Feb. 12, 1973, Ser. No. 331,905
Int. Cl. G08b *19/00*
U.S. Cl. 340—249 **4 Claims**

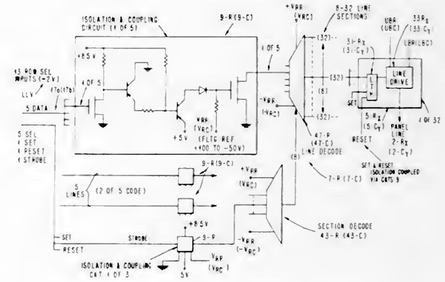


A low energy indicator circuit disclosed as part of a smoke detection system and giving a pulsating alarm when the strength of the DC energy source diminishes below a preset reference level. The circuit includes a programmable unijunction transistor with its anode maintained at a reference potential and its gate connected so as to monitor the voltage delivered by the energy source. When the voltage at the gate diminishes below the reference voltage, the programmable unijunction transistor becomes conductive and discharges to the gate of a switching device which in turn energizes an alarm circuit.

3,811,124
SOLID STATE GAS PANEL DISPLAY CIRCUITS WITH NON-INDUCTIVE SOLID STATE ISOLATION BETWEEN LOW LEVEL LOGIC AND HIGH LEVEL DRIVE SIGNAL FUNCTIONS

Bergert G. Kleen, and William R. Lamoureux, both of Kingston, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 12, 1972, Ser. No. 261,773
Int. Cl. H01j *11/00*
U.S. Cl. 340—324 M **14 Claims**



Isolation circuits for low level to high level coupling are copackaged with selection logic circuits and multiple high voltage switching line driver circuits of a gas discharge display panel. The package is an all solid-state cost-reduced configuration subject to enhanced flexibility of operation. The high voltage switching line driver circuits operate in bistable mode and receive selective low voltage pre-conditioning during quiescent sustaining phases (dead times) of write/erase cycles of panel discharge manipulation. The selectively pre-conditioned switching circuits operate in parallel, during the active phase of the write/erase cycle, to control selective write/erase conditioning of multiple panel sites. The isolation circuits are enabled and disabled at discrete phases of a floating reference potential which tracks the sustaining voltage. Consequently, coupling between low level digital sources, selection decoding circuits and drive switching circuits occurs only during quiescent phase (dead time) of the sustaining voltage. Since the isolation circuits, selection circuits and drive switching circuits are capable of extremely fast pre-conditioning operation in comparison to the minimum duration of a write/erase cycle (nanoseconds compared to multi-microseconds), it is possible to selectively precondition latching elements associated with an entire line of panel sites (row or column), or any fraction thereof, and thereby manipulate any part or the whole of a line of panel discharge sites in each write/erase cycle.

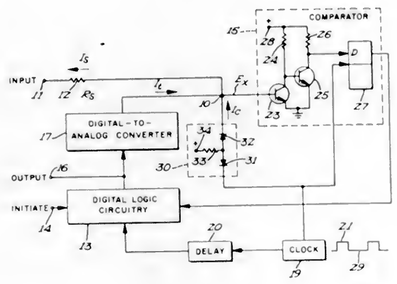
3,811,125
ANALOG-TO-DIGITAL CONVERTER

Robert W. Schumann, Madison, Wis., assignor to Nicolet Instruments, Inc., Madison, Wis.

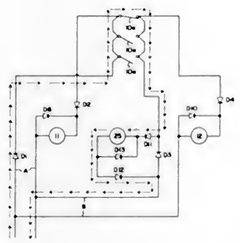
Filed May 8, 1972, Ser. No. 251,343
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 AD **20 Claims**

An analog-to-digital converter of the successive approximations type, having a summing node for receiving the input signal and a series of trial currents, and having means for comparing the two. Further means are connected to the summing

node for maintaining it at a fixed voltage for an interval preceding a comparison of a trial current with the signal input current. In the preferred embodiment, the further means includes a passive clamp connected to the node, and means for providing a clamp current to the node. Temperature compensation means may also be provided.

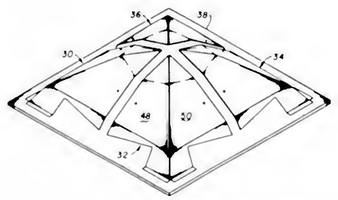


3,811,126
ALARM SYSTEM
William A. Winger, Salt Lake County, Utah, assignor to United States Smelting Refining and Mining Company, New York, N.Y.
Filed June 7, 1972, Ser. No. 260,490
Int. Cl. G08b 17/00, 29/00
U.S. Cl. 340—409 **13 Claims**



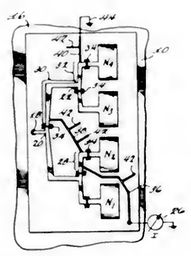
An alarm system includes two separate electrical loop circuits and means, such as diodes, controlling the supply of electrical power to the circuits so that normally one of the circuits is energized during one part of a given time period, e.g. the positive half cycle of an alternating current source common to the two circuits, and the other of the circuits is energized during the other part of such time period, e.g. the negative half cycle of such alternating current source. Alarm-condition sensors and associated normally-open switch means provide interconnection between the two circuits in case of an alarm condition so that current flows in one of the circuits from the other during the time such one circuit is unenergized. Such one circuit has a by-pass circuit portion containing alarm means and also has means for blocking normal current flow but not current flow from the other circuit, whereby the latter current flow activates the alarm means. Means may be provided in each circuit to indicate whether or not one of the other of the circuits becomes opened or shorted. A third circuit may be provided as a ground check.

3,811,127
ANTENNA FOR AIRBORNE SATELLITE COMMUNICATIONS
Leslie V. Griffee, Dallas, and Mardis V. Anderson, Richardson, both of Tex., assignors to Collins Radio Company, Dallas, Tex.
Filed Aug. 10, 1972, Ser. No. 279,590
Int. Cl. H01q 1/28
U.S. Cl. 343—705 **6 Claims**



A broadband VHF/UHF antenna exhibiting a hemispherical radiation pattern comprising four orthogonally positioned radiating elements and means for feeding the elements in phase quadrature. Each element includes a vertical blade portion and a capacitive loading section attached to the upper edge of the blade portion. The capacitive loading portions define at least approximately a spherical section.

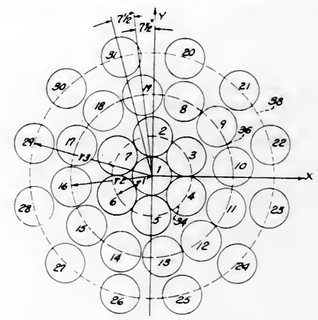
3,811,128
ELECTRICALLY SCANNED MICROSTRIP ANTENNA
Robert E. Munson, Boulder, Colo., assignor to Ball Brothers Research Corporation, Boulder, Colo.
Filed Apr. 17, 1973, Ser. No. 352,034
Int. Cl. H01q 1/00, 3/26
U.S. Cl. 343—787 **12 Claims**



A microstrip antenna including a dielectric layer loaded with a ferrite material disposed between a ground plane and a generally planar or single layer arrangement of electrical conductors constituing both r.f. radiators and r.f. feedlines. Either or both of the r.f. radiators and feedlines include special d.c. circuits for passing d.c. electrical currents. When the d.c. electrical currents are passed through the r.f. radiators, the permeability of the ferrite loaded dielectric is altered thus scanning the resonant frequency of a radiator in accordance with the applied d.c. current or voltage. Furthermore, when the d.c. currents are passed through the r.f. feedline, or portions thereof, the magnetic fields set up in the ferrite loaded dielectric causes controlled phase shifts to occur in r.f. energy passing there along thus effecting controlled phase shifts and hence beam scanning of an array of such radiators as a function of the d.c. current or voltage.

3,811,129
ANTENNA ARRAY FOR GRATING LOBE AND SIDELOBE SUPPRESSION
Dennis W. Holst, Littleton, Colo., assignor to Martin Marietta Corporation, Friendship International Airport, Md.
Filed Oct. 24, 1972, Ser. No. 299,660
Int. Cl. H01q 21/00
U.S. Cl. 343—844 **13 Claims**

A circular antenna array comprises module antennas arranged generally in rings in a plane. Although the module antennas are arranged in a systematic pattern on centers which are so far apart that grating lobes would ordinarily occur, the grating lobes are substantially eliminated because of the particular locations selected for the modules. The centers of the modules in each ring are unsymmetrically located with respect to the centers of the modules in the other rings. The level of sidelobes is reduced by providing space density tapering in only the outermost ring of module antennas. In rings other than the outermost ring, the module locations permit achievement of a high aperture illumination efficiency.



DESIGNS

MAY 14, 1974

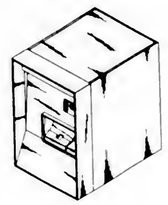
231,647
BOTTLE OR SIMILAR ARTICLE
Henry J. Morino, Hamilton, Ontario, Canada, assignor to Lavo Ltd., Montreal, Quebec, Canada
Filed Feb. 21, 1973, Ser. No. 334,440
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—40



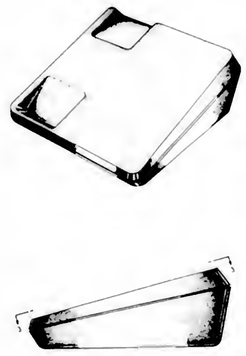
231,648
CART FOR TRANSPORTING FURNITURE OR THE LIKE
Joe Mallts, 18772 Avolinda Drive, Yorba Linda, Calif. 92686
Filed Jan. 19, 1973, Ser. No. 324,997
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—29



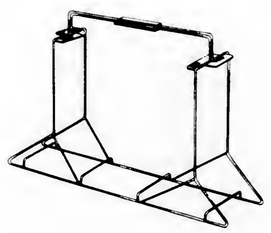
231,649
CASH ISSUING TERMINAL
Roger C. Williams, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 27, 1972, Ser. No. 248,356
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D52—4 R



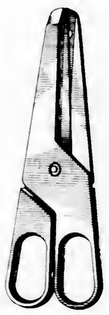
231,650
TELEPHONE STAND
Carol Hewitt Eubank, Greenwood, Ind., Donald Michael Genaro, Haworth, N.J., John Niel McGarvey, Drexell Hill, Pa., and Terry Brice Prince, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 29, 1973, Ser. No. 364,718
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 A



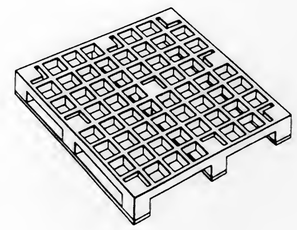
231,651
PHOTO PRINT CARRIER
Herbert F. Diegel, 1524 E. Culver St., Phoenix, Ariz. 85006
Filed Nov. 5, 1971, Ser. No. 196,247
Term of patent 14 years
Int. Cl. D16—*04*
U.S. Cl. D61—1 P



231,652
SCISSORS
Mikko Tapani Jantti, Itainen Puistotie 4 A 1, 00140 Helsinki 14, Finland
Filed Jan. 23, 1973, Ser. No. 326,018
Claims priority, application Sweden Aug. 16, 1972
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—57



231,653
PALLET
George Irwin Schell, 20 Tourello Road, Mount Eliza, Victoria, Australia 3930
Filed Apr. 30, 1973, Ser. No. 355,536
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D14—3 N



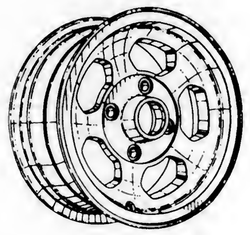
231,654
ROOF-MOUNTED AIR CONDITIONING UNIT
Walter E. Woods and Paul E. Hammann, Bettendorf, Iowa, assignors to American Air Filter Company, Inc., Louisville, Ky.
Filed Feb. 4, 1972, Ser. No. 223,817
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—139



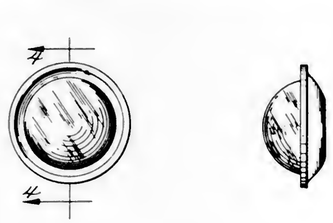
231,655
DRY SHAVER
Maarten Willem van Lelyveld, Eizebosstraat 15, Drachten, Netherlands
Filed Aug. 14, 1972, Ser. No. 280,138
Claims priority, application Switzerland Feb. 14, 1972
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3 A



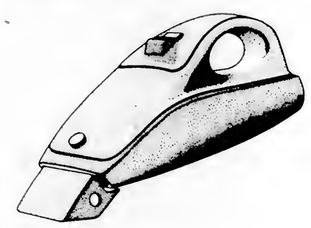
231,656
VEHICLE WHEEL
Hiroshi Ishibashi, Tokyo, Japan, assignor to Bridgestone Cycle Industry Co., Ltd., Tokyo, Japan
Filed Oct. 10, 1972, Ser. No. 296,148
Claims priority, application Japan Apr. 10, 1972
Term of patent 7 years
Int. Cl. D12—*16*
U.S. Cl. D12—211



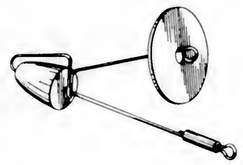
231,657
BICYCLE HUBCAP
Floyd C. Edmonds, Cleveland, Ohio, assignor to Bike Products Co., Cleveland, Ohio
Filed Oct. 3, 1972, Ser. No. 294,615
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—212



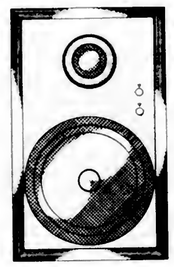
231,658
MEAT TENDERIZER
Daniel B. Stauft, 5494 Galbraith Road, Cincinnati, Ohio 45236
Filed Nov. 6, 1972, Ser. No. 303,860
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—153



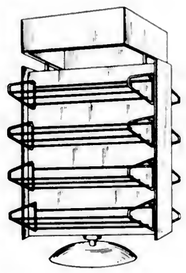
231,659
FISHING LURE
James M. Kemp, P.O. Box 5559, Phoenix, Ariz. 85010
Filed Mar. 30, 1973, Ser. No. 346,463
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27



231,660
SPEAKER CABINET
Haruo Ishikawa, Tokyo, Japan, assignor to Crysler Electric Co., Ltd., Tokyo, Japan
Filed July 5, 1973, Ser. No. 376,450
Claims priority, application Japan Jan. 23, 1973
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 G



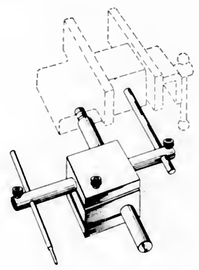
231,661
REVOLVABLE DISPLAY STAND
Joseph F. Bauman, Trenton, N.J., assignor to Emanuel Roth Company, Inc., Secaucus, N.J.
Filed May 4, 1972, Ser. No. 250,466
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—24



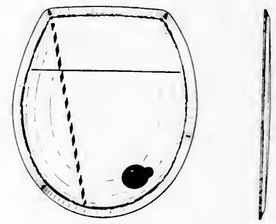
231,662
WATCH
Joseph Fusillo, Jr., 2393 Union Blvd., Islip, N.Y. 11751
Filed May 12, 1971, Ser. No. 142,841
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D42—1 B



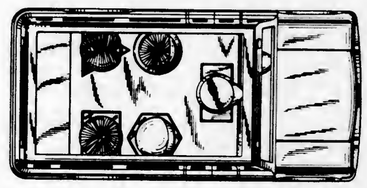
231,663
LOCATING STOP FOR WORK TO BE MACHINED OR THE LIKE
Hans A. Pingel, 307 Souix Trail, Lake In The Hills, Algonquin, Ill. 60102
Filed June 15, 1972, Ser. No. 263,328
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D54—13 A



231,664
TOILET SEAT COVER
Kerry A. Day, Parsippany, N.J., assignor to American Standard Inc., New York, N.Y.
Filed July 10, 1972, Ser. No. 270,100
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—71



231,665
TOY BUS
Norman Spiegel, New York, N.Y., assignor to Nasta Industries, Inc.
Filed Dec. 21, 1971, Ser. No. 210,633
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AJ



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Bofors: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.

AB Gustavsbergs Fabriker: *See—*
Lundqvist, Bengt Olof, 3,810,543.

AB Motala Verkstad: *See—*
Carlsson, Bengt Johan, 3,810,730.

Abbadessa, Joseph J., to Polaroid Corporation. Photographic apparatus with precision motor control. 3,811,081, Cl. 318-375.000.

Aberg, Axel Karl Gunnar: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.

Abex Corporation: *See—*
Smith, Gary C., 3,810,419.

Abrahams, Louis; and Hutchins, Burleigh M., Jr., to Waters Associates, Inc. Check valve and system containing same. 3,810,716, Cl. 417-313.000.

ACF Industries, Incorporated: *See—*
Girard, Robert R., 3,810,552.

Acrometal Products, Inc.: *See—*
Dumas, Floyd A., 3,810,736.

Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe, said Actor assor. to Smithkline Corporation. Anticestode hydrazinoquinolines. 3,810,984, Cl. 424-258.000.

Adams, William E.; Tufte, Vernon L.; and Tufte, Paul A. Personal medical record carrier. 3,810,566, Cl. 224-28.00b.

Adret-Electronique: *See—*
Charbonnier, Roger C., 3,811,092.

Aerojet-General Corporation: *See—*
King, William M., 3,810,974.

af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, to AB Bofors. Novel method and composition. 3,810,986, Cl. 424-267.000.

Agfa-Gevaert Aktiengesellschaft: *See—*
Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, 3,810,594.
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.
Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, 3,810,568.

Agfa-Gevaert N.V.: *See—*
Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,762.
Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,763.

Ahlen, Karl Gustav, to S. R. M. Hydromekanik Aktiebolag. Scaling ring arrangement. 3,810,640, Cl. 277-235.00a.

Aikawa, Hiroshi: *See—*
Ito, Naganori; and Aikawa, Hiroshi, 3,810,611.

Aikoh Co., Ltd.: *See—*
Kobayashi, Hidetaka, 3,810,506.

Air Preheater Company, Inc.: *See—*
Hazzard, Noel D., 3,810,431.

Air Preheater Company, Inc., The: *See—*
Bakker, Lubertus; and Krumm, Eugene D., 3,810,555.

Air Products and Chemicals, Inc.: *See—*
Uffner, Melville Willard, 3,810,772.

Air Techniques, Inc.: *See—*
Steinberg, Samuel B., 3,810,697.

Aircraft Specialties, Inc.: *See—*
Kyser, Smith, 3,810,502.

Akandi-Form AB: *See—*
Svensson, Sven Hugo, 3,810,674.

Aktiebolaget Tudor: *See—*
Lindholm, Alfons Seth Mikael, 3,810,828.

Al-Hassan, Saieba: *See—*
Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and Al-Hassan, Saieba, 3,810,893.

Alan Pond Equipment Limited: *See—*
Armstrong, Allan; and Fletcher, Geoffrey Charles, 3,810,544.

Alaska, St. Barth. Analyzer for simultaneously determining the RX, photochromic, and hardening characteristics of lenses. 3,810,698, Cl. 356-124.000.

Alco Electronic Products, Inc.: *See—*
Sevigny, Henry J., 3,811,024.

Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., to Kimberly-Clark Corporation. Fastening tab arrangement for disposable diapers. 3,810,472, Cl. 128-287.000.

Alexander Wiegand Armaturen- und Manometerfabrik: *See—*
Neugebauer, Gerhard, 3,810,390.

All American Industries, Inc.: *See—*
Doolittle, Donald B., 3,810,595.

Allen, Francis Edwin; and McGuire, James Daniel, to Leston and Burpee, Ltd. Bandmill strain machanism. 3,810,409, Cl. 83-810.000.

Allied Chemical Corporation: *See—*
Yeh, Chuen Y.; and Ulmer, Harry E., 3,810,946.

Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., to Midland-Ross Corporation. Air pressure discharge furnace having protective atmosphere inlet and outlet. 3,810,564, Cl. 222-146.00h.

Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., to International Business Machines Corporation. Method for generating hollow magnetic bubble domains. 3,811,119, Cl. 340-174.0tf.

Alpine Valley Resort, Inc.: *See—*
Peck, Truman C., 3,810,427.

Aluminium Suisse S.A.: *See—*
Queyroix, Christian A., 3,810,372.
Queyroix, Christian A., 3,810,373.

American Air Filter Company, Inc.: *See—*
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.
Scholl, Howard O., 3,810,350.

American Cyanamid Company: *See—*
Semp, Bernard Albert, 3,810,458.
Song, John, 3,810,929.

American Cyanamide Company: *See—*
Richter, Ferdinand Joseph, 3,810,841.

American Filtrona Corporation: *See—*
Berger, Richard M.; and Brooks, Elwin W., 3,810,477.

American Health, Inc.: *See—*
McCormick, James B., 3,810,461.

American Optical Corporation: *See—*
Becker, Gerald O., 3,810,459.

American Standard Inc.: *See—*
Daggy, Earl N., 3,810,330.
Parkison, Richard Grant, 3,810,602.

Aminkemi Aktiebolag, mesne: *See—*
Eriksson, Jan Christer; and Lagergren, Hans Ragnar, 3,810,781.

Ampoules, Inc.: *See—*
Hurschman, Alfred A., 3,810,469.

Ancra Corporation: *See—*
Prete, Ernest, Jr., 3,810,534.

Andco incorporated: *See—*
Berczynski, Frank A., 3,810,610.

Andersen, Roy Stolweather, to General Precision Industries Limited. Switch transfer mechanism having idler gear with positioning means permitting the transfer means to be clear of the idler gear after its travel through a predetermined switch position. 3,810,023, Cl. 200-153.00p.

Anderson, Albert E., to Pervel Industries, Inc. Apparatus for making plastic sheet material. 3,810,808, Cl. 156-389.000.

Anderson, Andrew W., to Scandia Packaging Machinery Company. Apparatus for tucking and folding. 3,810,314, Cl. 53-378.000.

Anderson, Arnold L. Polyacrylates containing flame retardant. 3,810,866, Cl. 260-45.90r.

Anderson, Arnold L. Polyacrylate plastic compositions containing phenolic ether flame retardants. 3,810,867, Cl. 260-45.90r.

Anderson, David P., to Woodall Industries Inc. Apparatus for forming plastic sheets. 3,810,731, Cl. 425-388.000.

Anderson, Mardis V.: *See—*
Griffee, Leslie V.; and Anderson, Mardis V., 3,811,127.

Anderson, Robert Douglas, Jr.; and Kalter, Howard Lee, to International Business Machines Corporation. Time ordered memory system and operation. 3,811,117, Cl. 340-173.0dr.

Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, to Fujitsu Limited. Gas discharge panel. 3,811,062, Cl. 313-188.000.

Andrews, Henry L.; and Hay, Donald A., to Copper Range Company. Production of elongated metallurgical mill product from loose metal powder. 3,810,757, Cl. 75-208.0cs.

Anner, Georg; and Wieland, Peter, to Ciba-Geigy Corporation. Process for the manufacture of steroid tropones. 3,810,916, Cl. 260-340.900.

Antypas, George A.; Rosztoczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, to Varian Associates. Preparation of GaP-Si heterojunction by liquid phase epitaxy. 3,810,794, Cl. 148-172.000.

Aoki, Kouji: *See—*
Takasaki, Yoshitaka; and Aoki, Kouji, 3,811,016.

Applied Power Industries, Inc.: *See—*
Hicks, John R., 3,810,313.

Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., to United States of America, Atomic Energy Commission. Carbonaceous coating for carbon foam. 3,810,780, Cl. 117-46.0cb.

Arendt, Ronald H.; and Vanburen, Charles E., to General Electric Company. Method of preparing ferrites. 3,810,973, Cl. 423-594.000.

Argyle, Bernell E.: *See—*
Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., 3,811,119.

Arimoto, Kyozo: *See—*
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.

Arledter, Hanns F. Twin wire paper making machine with vibrators connected to suction and liquid delivery boxes located beneath the converging wires. 3,810,817, Cl. 162-301.000.

Arledter, Hanns F. Twin-wire paper making machine with suction boxes within the loop of one wire and blast boxes within the other. 3,810,818, Cl. 162-301.000.

Armour and Company: *See—*
Sato, Kunito; and Hegarty, Gerald R., 3,810,998.

Armstrong, Allan; and Fletcher, Geoffrey Charles, to Sutcliffe, Speakman & Co. Ltd. and Alan Pond Equipment Limited. Filter systems. 3,810,544, Cl. 210-167.000.

Artek Systems Corporation: *See—*
Perry, Russell C., 3,811,036.

Artz, Klaus: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Sato, Hideo; and Shimizu, Kunitoshi, 3,810,878.

Ash, Leonard P., to Babcock Electronics Corporation. Relay. 3,811,102, Cl. 335-106.000.

Ashland Oil, Inc.: *See—*
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., 3,810,807.

Athansoulas, Evangelos G. Saw blade. 3,810,410, Cl. 83-852.000.

Athletics Devices, Inc.: *See—*
Nedwick, Zygmund, 3,810,618.

Atkins, Bobby L.: *See—*
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., 3,810,468.

Atkinson, Ronald Edward, to Procter & Gamble Company, The. Hard-surface treating compositions. 3,810,846, Cl. 252-529.000.

Atlantic Richfield Company: *See—*
Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, 3,810,871.
Dransfield, Clifford D., 3,810,524.

Austin, Elmer D. Mechanical fruit picker. 3,810,351, Cl. 56-328.00r.

Automation Industries, Inc.: *See—*
Turner, William R., 3,811,067.

Autotelic Industries, Ltd.: *See—*
Purchase, Francis Jack, 3,811,072.

Auyang, King: *See—*
Diamond, Julius; and Auyang, King, 3,810,979.

Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna. Plasmarons of steel-melting plasmaarc furnaces. 3,811,029, Cl. 219-121.00p.

Avicon, Inc.: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.

Baba, Kosaku; and Wazawa, Kiyoshi, to Nissan Motor Company, Limited. Velocity sensor. 3,811,056, Cl. 307-311.000.

Babcock Electronics Corporation: *See—*
Ash, Leonard P., 3,811,102.

Bach, Richard R., to Lockheed Electronics Company, Inc. Touch panel switch assembly. 3,811,025, Cl. 200-317.000.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Fischer, Adolf; Koenig, Karl-Heinz; and Reicheneder, Franz, 3,810,751.
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.

Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, to Pennwalt Corporation. 2-Substituted tetrahydropyran and 2-substituted tetrahydrofuran-2-peroxy compounds. 3,810,920, Cl. 260-345.800.

Bailey, John G., Jr.: *See—*
Smith, Gary E.; and Bailey, John G., Jr., 3,810,600.

Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., to Eastman Kodak Company. Dyes for photography. 3,810,761, Cl. 96-84.00r.

Bajusz, Sandor: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Baker, Alan Clark, to Celesco Industries, Inc. Gun launched training projectile. 3,810,426, Cl. 102-87.000.

Baker, Donal E.: *See—*
Shuey, Kenneth C.; and Baker, Donal E., 3,811,073.

Baker Industries, Inc.: *See—*
Heim, Alan M.; and Gonzalez, Raymond J., 3,811,121.
Raber, Samuel; and Heim, Alan M., 3,811,122.

Bakker, Lubertus; and Krumm, Eugene D., to Air Preheater Company, Inc., The. Railroad tie reducer. 3,810,555, Cl. 241-278.00r.

Baldwin, D. H., Company: *See—*
Harris, Michael R., 3,811,003.

Ball Brothers Research Corporation: *See—*
Munson, Robert E., 3,811,128.

Balling, T. Thomas; and Mahlmann, James P., to General Foods Corporation. Modification of aqueous coffee aroma. 3,810,999, Cl. 426-362.000.

Ballman, Albert Anthony; and Tien, Ping King. Optical waveguiding devices using monocrystalline materials of the sillenite family of dismuth oxides. 3,810,688, Cl. 350-96.0wg.

Bang, Erik Borje: *See—*
Wiklund, Per Martin; and Bang, Erik Borje, 3,810,309.

Banks, Bobby R.; and Graham, Arthur E., to International Business Machines Corporation. Method for providing a heater roll fuser with improved release material. 3,810,776, Cl. 117-21.000.

Banner Welder, Inc.: *See—*
Werner, James O., 3,810,497.

Banucci, Eugene G., to General Electric Company. Bis(3-chloro-4-hydroxyphenyl) malononitrile. 3,810,933, Cl. 260-465.00f.

Banyu Pharmaceutical Co., Ltd.: *See—*
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.

Baran, John S.; and Liang, Chi-Dean, to Searle, G. D., & Co. 3-Oxygenated-30-methylolean-12-en-30-ones and 11-oxo derivatives thereof. 3,810,927, Cl. 260-410.000.

Barbee, Wilford O., to Iowa Beef Processors, Inc. Hide removal method and apparatus. 3,810,277, Cl. 17-21.000.

Barber, Alfred W. Remote telephone calling system. 3,811,012, Cl. 179-2.00a.

Barbier, Maurice; and Staron, Philippe, to Societe Anonyme dite: Societe Nationale des Petroles. Method of exploring a medium by transmitting energy emitted in the form of separate impulses and its application to seismic prospecting. 3,811,111, Cl. 340-15.cc.

Barbour, William P., to Control Data Corporation. Bi-directional imprinter. 3,810,424, Cl. 101-269.000.

Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, to Ranks Hovis McDougall, Limited. Enzymes attached to cellulose carbonate. 3,810,821, Cl. 195-63.000.

Bashaw, Robert N.: *See—*
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., 3,810,468.

Bassoff, Arthur B.: *See—*
Kusz, Raymond S.; and Bassoff, Arthur B., 3,810,413.

Battista, Orlando A.: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.

Batzer, Hans: *See—*
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.

Bau-Stahlgewebe GmbH: *See—*
Elle, Erich, 3,810,376.

Baumgartner, Kurt, to Graphicart Internationale Ausrustungsgesellschaft fur graphische kunst AG. Fluid spreading and wiping device for etching machines for rotogravure cylinders. 3,810,272, Cl. 15-256.520.

Bayer Aktiengesellschaft: *See—*
Hoffmann, Hellmut; and Hammann, Ingeborg, 3,810,911.
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,810,983.
Kranz, Eckart; and Bock, Marianne, 3,810,894.
Meussdoerffer, Johann Nikolaus; and Niederprum, Hans, 3,810,948.
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.
Pohlmann, Heinrich; and Schmidt, Karl-Julius, 3,810,980.
Tacke, Peter; and Hermann, Karl-Heinz, 3,810,861.

Bean, Kenneth E.: *See—*
Skaggs, Frank L.; Harrap, Victor; and Bean, Kenneth E., 3,810,796.

Beavers, Allan E., to Pelsue, T. A., Company. Collapsible tent and frame therefor. 3,810,482, Cl. 135-4.00r.

Becker, Gerald O., to American Optical Corporation. Transcutaneous blood vessel probe with relocation marker. 3,810,459, Cl. 128-2.05z.

Becker, Helmut: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.

Becton, Dickinson and Company: *See—*
Rutner, Herman; Rapun, Raul; and Lewin, Nathan, 3,810,886.

Bedder, Llewllyn James: *See—*
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.

Bell, Marvin D.: *See—*
Nunnink, Charles P., Jr.; and Bell, Marvin D., 3,810,664.

Bell Telephone Laboratories, Incorporated: *See—*
Beth, Ronald Valentine; and Catterall, John Mason, 3,811,015.
Bobeck, Andrew Henry, 3,811,120.
Breitung, Glen A.; and Hershey, Harold Jacob, 3,810,575.
Buhite, Paul Harold; and Pinnow, Douglas Arthur, 3,810,802.
Courtney-Pratt, Jeofry Stuart, 3,810,699.
Dillon, Joseph, Jr.; Van Uitert, Legrand Gerard; and Wemple, Stuart Harry, 3,811,096.
Habib, Nissin, 3,811,053.
Joel, Amos Edward, Jr., 3,811,118.
Michelet, Robert Wilson; and Silverman, Edward Jerome, 3,811,050.

Belmont Casket Manufacturing Company: *See—*
Ferber, Arthur C., 3,810,281.

Bender, Leroy E., 20% to Lee, Raymond, Organization, Inc., The. Mail box mounting device. 3,810,598, Cl. 248-221.000.

Bendler, Hellnut: *See—*
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Benfer, David Van Dike. Bundle tie tool. 3,810,499, Cl. 140-123.600.

Benjamin, Milton L., to Erickson Tool Company. Collet chuck for router head and the like. 3,810,641, Cl. 279-51.000.

Benton, Richard H.: *See—*
Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,810,630.

Benton, Samuel T.; and Schmitt, Charles R., to United States of America, Atomic Energy Commission. Method of preparing a syntactic carbon foam. 3,810,963, Cl. 264-29.000.

Benz, August. Device for cleaning vertical or sloping surfaces. 3,810,702, Cl. 401-139.000.

Berczynski, Frank A., to Andco incorporated. Bosh construction for metallurgical furnaces. 3,810,610, Cl. 266-43.000.

Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, to Societe en nom Collectif Science Union et Cie, and Societe Francaise de Recherche Medical. Benzenesulfonyl semicarbazides. 3,810,914, Cl. 260-326.100.

Berends, Howard P., to Holland Hitch Company. Vehicular bag hoist. 3,810,663, Cl. 280-425.000.

Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, to Knapsack Aktiengesellschaft. Apparatus for the production of phosphoric acid. 3,810,740, Cl. 23-277.00r.

Bergandi Manufacturing Company, Inc.: *See—*
Rohrbacher, Herbert E., 3,810,496.

Berger, Richard M.; and Brooks, Elwin W., to American Filtrona Corporation. Tobacco smoke filter. 3,810,477, Cl. 131-261.00r.

Bernstein, Jack: *See—*
Hochn, Hans; and Bernstein, Jack, 3,810,905.

Berry, Thomas: *See—*
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, 3,810,285.

Berthold, Walter: *See—*
Spiller, Richard; Moser, Gottfried; and Berthold, Walter, 3,810,513.

Bertus, Brent J., to Phillips Petroleum Company. Oxidative dehydrogenation processes. 3,810,954, Cl. 260-680.00e.

Beth, Ronald Valentine; and Catterall, John Mason, to Bell Telephone Laboratories, Incorporated. Switching systems with special customer service. 3,811,015, Cl. 179-18.0bg.

Beuther, Harold; and Henke, Alfred M., to Gulf Research & Development. Asphalt compositions. 3,810,771, Cl. 106-278.000.

Beyl, Jean Joseph Alfred. Ski binding. 3,810,644, Cl. 280-11.35t.

Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio. Titanium or tantalum base electrodes with applied titanium or tantalum oxide face activated with noble metals or noble metal oxides. 3,810,770, Cl. 106-286.000.

Bielenberg, Waldemar: *See—*
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Billing, Peter George, to Froment, N. J., & Co. Electrical frequency indicating means. 3,811,052, Cl. 307-233.000.

Bio-Medical Sciences Inc.: *See—*
Pickett, Charles G.; and Molnar, James V., 3,810,779.

Birchall, James Derek: *See—*
Blacker, John Geoffrey; Birchall, James Derek; and Cassidy, John Edward, 3,810,769.

Biscardi, Salvatore F.; and Zeitlin, Benjamin R., to General Foods Corporation. Central nervous system stimulation 3,810,995, Cl. 424-331.000.

Bjorhaag, Georg. Plant for manufacturing reinforced concrete elements, preferable in the shape of a case. 3,810,726, Cl. 425-111.000.

Blacker, John Geoffrey; Birchall, James Derek; and Cassidy, John Edward, to Imperial Chemical Industries Limited. Compositions of complex phosphates of aluminium. 3,810,769, Cl. 106-135.000.

Blazer & Droll KG: *See—*
Muskulus, Willi, 3,810,587.

Blohm, Hans-Jachen, to Daimler-Benz Aktiengesellschaft. Carburator for internal combustion engines. 3,810,607, Cl. 261-78.00r.

Blough, Ronald S., to Fairfield Engineering and Manufacturing Company. Floating apparatus for liquid composting. 3,810,548, Cl. 210-242.000.

Blum, Albert. Submersible pump. 3,810,718, Cl. 417-360.000.

Bobeck, Andrew Henry, to Bell Telephone Laboratories, Incorporated. Magnetic domain propagation arrangement having channels definyd by straight line boundaries. 3,811,120, Cl. 340-174.0tf.

Bocckino, Harry G.: *See—*
Gloster, Arthur; and Bocckino, Harry G., 3,810,542.

Bock, Hermann: *See—*
Kranz, Eckart; and Bock, Marianne, 3,810,894.

Bock, Marianne: *See—*
Kranz, Eckart; and Bock, Marianne, 3,810,894.

Bodmin, Syd Ernest. Pulsator units of milking machines. 3,810,443, Cl. 119-14.370.

Boebel, Carl P.; and Stevenson, Gary E., to United States of America, Air Force, mesne. Coatings having high solar absorptance to infrared emittance ratios. 3,810,777, Cl. 117-33.300.

Boehringer Mannheim GmbH: *See—*
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Andronikij; and Roesch, Egon, 3,810,896.
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Andronikij; and Roesch, Egon, 3,810,898.

Bohner, Beat; and Rufenacht, Switzerland, to Ciba-Geigy Corporation. Cyclobutene phosphoric acid esters. 3,810,919, Cl. 260-345.200.

Boldebuck, Edith M., to General Electric Company. Method for recovering polyamide acid values from deteriorated dispersions of polyamide acid. 3,810,858, Cl. 260-29.20n.

Bom, Cornelis Johannes Gerardus: *See—*
van der Lely, Ary; and Bom, Cornelis Johannes Gerardus, 3,810,434.

Bomball, William A., to Staley, A. E., Manufacturing Company. Remoistenable, prepasted wall covering and method of making. 3,810,783, Cl. 117-122.00s.

Boncher, John L., Jr.: *See—*
London, Eugene J.; and Boncher, John L., Jr., 3,810,554.

Bonnet, Walter, Inc.: *See—*
Fussell, Edward B., Jr.; and Maynard, F. Charles, Jr., 3,810,267.

Bonvin, Jacques, to Societe Internationale De Macanique Industrielle S.A. Shaft packing. 3,810,637, Cl. 277-96.000.

Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, to Atlantic Richfield Company. Polyurethane coating composition suitable for use in low temperature environments. 3,810,871, Cl. 260-47.0cb.

Bork, Peter, to Siemens Aktiengesellschaft. Glass molding apparatus. 3,810,747, Cl. 65-158.000.

Bortnichuk, Nikolai Iosifovich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Bosch, Paul, to Bosch, Robert, GmbH. Center ring arrangement for a radial piston machine. 3,810,418, Cl. 91-484.000.

Bosch, Robert, Elektronik GmbH: *See—*
Bottcher, Lutz; and Heyne, Karl-August, 3,810,457.

Bosch, Robert, GmbH: *See—*
Bosch, Paul, 3,810,418.

Bosse, Frank, to Windmoller & Holscher. Apparatus for making carrier bags having plastics handles attached to the mouths thereof. 3,810,811, Cl. 156-516.000.

Bottcher, Lutz; and Heyne, Karl-August, to Bosch, Robert, Elektronik GmbH. Diagnostic apparatus for automatically generating an intensity-time diagram showing points of minimum involuntary muscle movement. 3,810,457, Cl. 128-2.10r.

Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., to Nalco Chemical Company. Catalyst and process of preparing. 3,810,845, Cl. 252-455.00z.

Braly, Joseph M., to Con-Sole Golf Corporation. Golf club head of the iron type having a concave sole. 3,810,631, Cl. 273-167.00a.

Brandell, John R., to Brandell Products Corporation. Golf putting practice devices. 3,810,632, Cl. 273-179.00a.

Brandell Products Corporation: *See—*
Brandell, John R., 3,810,632.

Brandenburgsky, Mikhail Galilecvich: *See—*
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galilecvich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich, 3,810,293.

Breil, Gunther: *See—*
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Breitung, Glen A.; and Hershey, Harold Jacob, to Bell Telephone Laboratories, Incorporated. Coin collecting apparatus. 3,810,575, Cl. 232-57.500.

Brenneman, Homer K.: *See—*
Cable, Russell D.; and Brenneman, Homer K., 3,810,487.

British Industrial Plastics Limited: *See—*
Doi, Kazuo; and Kitsuda, Yoshihiro, 3,810,854.

British Insulated Callender's Cables Limited: *See—*
Newberry, John; and Ettie, Alan George Albert Edward, 3,810,380.

British Leyland Motor Corporation, Limited: *See—*
Weaving, John Harold; and Haynes, Cecil David, 3,810,361.

Brochetti, Raymond E., to Hunter, James, Machine Company, Inc. Needle punching machine for endless webs. 3,810,284, Cl. 28-4.00r.

Broers, Godefridus Henricus; and van Esdonk, Johannes, to U.S. Philips Corporation. Method of manufacturing a wave-guide. 3,810,302, Cl. 29-600.000.

Brooke, Chester B., to Shell Oil Company. Start-up procedure for catalytic steam reforming of hydrocarbons. 3,810,975, Cl. 423-652.000.

Brooks, Elwin W.: *See—*
Berger, Richard M.; and Brooks, Elwin W., 3,810,477.

Brown, John F., Jr.: *See—*
Slusarczuk, George M. J.; and Brown, John F., Jr., 3,810,843.

Brown, Melancthon S.; deceased (by Kohn, Gustave K.; administrator), to Chevron Research Company. N-arylthio S-hydrocarbyl thiocarbamates. 3,810,928, Cl. 260-455.00a.

Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., to United Aircraft Corporation. Nonequilibrium magnetohydrodynamic device. 3,811,057, Cl. 310-11.000.

Browning Arms Company: *See—*
Hillberg, Robert L.; and Hartog, Thomas J., 3,810,326.

Browning, William C.; and Chesser, Billy G., to Milchem Incorporated. Composition and process for cross-linking macromolecular polysaccharide solutions. 3,810,882, Cl. 260-209.00r.

Bruce, Peter. Chain cable. 3,810,358, Cl. 59-78.000.

Brugger, Max: *See—*
Rittel, Werner; and Brugger, Max, 3,810,881.
Brun, Marcel; and Riegert, Alfred, to Pechiney Ugine Kuhlmann. Apparatus for connecting a mobile tank with loading platform. 3,810,500, Cl. 141-231.000.
Brunaud, Marcel Daniel Pierre: *See—*
Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, 3,810,820.
Brunone, Peter P., to Veeder Industries, Inc. Fluid delivery control system. 3,811,035, Cl. 235-92.0fl.
Brust, John J.: *See—*
Geist, Kenneth R.; and Walsh, James E., 3,810,737.
Bryan, James W. Slide closure cosmetic stick dispenser casing. 3,810,700, Cl. 401-59.000.
Bryan, Robert C., Jr.; and Price, Joseph F., to Ludlow Corporation. Mulch sheet. 3,810,328, Cl. 47-9.000.
Buchholz, Richard Frank; and Reintjes, Marten, to International Telephone and Telegraph Corporation. Plicatamides. 3,810,941, Cl. 260-559.00r.
Buchschacher, Paul: *See—*
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, to Roussel-UCLAF. Novel steroids and processes. 3,810,885, Cl. 260-239.55c.
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, to Roussel-UCLAF. Novel 11β-alkoxy steroids. 3,810,887, Cl. 260-239.55c.
Buhite, Paul Harold; and Pinnow, Douglas Arthur, to Bell Telephone Laboratories, Incorporated. Optical fiber splicing device and technique. 3,810,802, Cl. 156-158.000.
Bullis, Robert H.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Burg, Stanley P.; and Hentschel, William J., to Dormavac Corporation, The, mesne. Low pressure storage of metabolically active material with open cycle refrigeration. 3,810,508, Cl. 165-20.000.
Burnell, Norman; and Potruch, Robert A., to Lumidor Products Corporation. Breather cap with valve depressor. 3,811,006, Cl. 174-135.000.
Burroughs Corporation: *See—*
Ogle, James A., 3,811,071.
Burton Delingpole & Company Limited: *See—*
Lowe, Jack Graham, 3,810,704.
Bust, Gordon A.; and Polzin, Dean A. Stacker crane attachment. 3,810,551, Cl. 212-135.000.
Butt, Sheldon H.: *See—*
Ford, James A.; and Butt, Sheldon H., 3,810,754.
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, to American Air Filter Company, Inc. Scrubber arrangement. 3,810,348, Cl. 55-91.000.
Bykov, Yakov Maximovich: *See—*
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Bylund, Don M.; and Kimble, Victor W., to Deering Milliken Research Corporation. Apparatus to continuously provide fabric with a heat sealed salvage. 3,810,810, Cl. 156-499.000.
Byrne, William J.: *See—*
McCahon, John O.; and Byrne, William J., 3,810,612.
Cable, Russell D.; and Brenneman, Homer K., to Porta Service, Inc. Mobile lubrication apparatus. 3,810,487, Cl. 137-351.000.
Cableform Limited: *See—*
Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, 3,811,080.
Caldwell, Thomas B. Safety device for electrical outlets. 3,811,104, Cl. 339-39.000.
Calspan Corporation, mesne: *See—*
Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., 3,811,095.
Campbel, Virgil B.: *See—*
Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., 3,810,780.
Campbell, David D., to General Motors Corporation. Shoulder belt positioning arrangement. 3,810,657, Cl. 280-150.0sb.
Canning, William H.: *See—*
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., 3,810,837.
Cantz, Rolf J., to Kennametal Inc. Method of manufacturing tire stud. 3,810,298, Cl. 29-525.000.
Cardwell, Paul H.: *See—*
Kane, William S.; and Cardwell, Paul H., 3,810,827.
Carlson, Arthur W., to Velsicol Chemical Corporation. Process for preparing a methano-poly-cyclic hydroquinone. 3,810,945, Cl. 260-619.00f.
Carlsson, Bengt Johan, to AB Motala Verkstad. System for feeding particle slabs resting on a flexible support surface to and from multilayer presses. 3,810,730, Cl. 425-338.000.
Carreira, Leonard M.: *See—*
Tulagin, Vsevolod; and Carreira, Leonard M., 3,810,758.
Carrier Corporation: *See—*
Miller, Charlie D., 3,810,402.
Carson, William M., to Constructors Supply Comnany. . 3,810,312, Cl. 33-227.000.
Cassa, Jean: *See—*
Lecuru, Jacques; and Cassa, Jean, 3,810,329.
Cassidy, John Edward: *See—*
Blacker, John Geoffrey; Birchall, James Derck; and Cassidy, John Edward, 3,810,769.
Castleman, Curtis H.: *See—*
McGrew, David P., 3,810,265.
Catterall, John Mason: *See—*
Beth, Ronald Valentine; and Catterall, John Mason, 3,811,015.
Celesco Industries, Inc.: *See—*
Baker, Alan Clark, 3,810,426.
Cellu Products Company: *See—*
Doll, Martin, 3,810,800.
Cement & Concrete Association, The: *See—*
Weaver, John; and Maynard, David Payne, 3,810,709.
Center guided tile drill: *See—*
Voscovich, Steven J., 3,810,514.
Centre de Recherche Industrielle du Quebec: *See—*
Cook, Robert C., 3,810,301.
Century Wheels, Inc.: *See—*
Morgan, Paul A., 3,810,310.
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., to Texaco Inc. Overbased sulfurized calcium alkylphenolated manufacture. 3,810,837, Cl. 252-42.00f.
Chancey, Harold R.: *See—*
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, 3,810,892.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers from dimethyl dipyridyl compounds. 3,810,848, Cl. 260-2.00r.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers prepared from dialdehyde dipyridyl compounds. 3,810,872, Cl. 260-64.000.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers prepared from a dialdehyde dipyridyl compound and polyvinyl alcohol. 3,810,873, Cl. 260-67.00r.
Chapurlat, Robert; and Kuntz, Emile, to Rhone-Poulenc S.A. Complex forming polymers. 3,810,888, Cl. 260-240.00d.
Charbonnier, Roger C., to Adret-Electronique. Variable-ratio electronic counter-divider. 3,811,092, Cl. 328-39.000.
Chasin, Mark: *See—*
Hoehn, Hans; and Chasin, Mark, 3,810,904.
Chem Dynamics, Inc.: *See—*
Smith, Gary E.; and Bailey, John G., Jr., 3,810,600.
Cherevik, Jury Ivanovich: *See—*
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkir, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Chesser, Billy G.: *See—*
Browning, William C.; and Chesser, Billy G., 3,810,882.
Chevron Research Company: *See—*
Brown, Melancthon S., 3,810,928.
Ferm, Richard L., 3,810,835.
Chicago Fire Brick Company: *See—*
Parsons, Joseph R.; and Rechter, Harold L., 3,810,768.
Chien, Hwei-Chiu, to Kraftco Corporation. Treatment of soybeans with yeast. 3,810,997, Cl. 426-205.000.
Chimera R. & D. Inc.: *See—*
Druss, Barry Lewis, 3,810,643.
Chollet, Maurice; and Genmat, Francois, to Societe Financiere et Industrielle des Ateliers. Electromagnetic fuel injectors. 3,810,449, Cl. 123-32.0ea.
Churakov, Vladimir Mikhailovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Churchill, Thomas L.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Ciba (A.R.L.) Limited: *See—*
Dominic, Christopher John; and Garnish, Edward William, 3,810,785.
Ciba-Geigy A.G.: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Duerr, Dieter; and von Orelli, Marcus, 3,810,993.
Janiak, Stefan, 3,810,988.
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.
Ciba-Geigy Corporation: *See—*
Anner, Georg; and Wieland, Peter, 3,810,916.
Bohner, Beat; and Rufenacht, Switzerland, 3,810,919.
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, 3,810,834.
Model, Ernst; von der Crone, Jose; and Pugin, Andre, 3,810,889.
Rittel, Werner; and Brugger, Max, 3,810,881.

Cichowski, Robert S., to Phillips Petroleum Company. Dehydrogenation of organic compounds. 3,810,953, Cl. 260-680.00e.
Cincinnati Milacron Chemicals, Inc.: *See—*
Weisfeld, Lewis B.; and Witman, Robert C., 3,810,868.
Cirolla, Carmine: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.
Citizen Watch Company, Limited: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Claeson, Karl Goran: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.
Clarke, Robert E. Flowmeter. 3,810,562, Cl. 222-20.000.
Clarke, Ronald Albert William, to Klarcrete Limited. Road levelling machine. 3,810,676, Cl. 299-1.000.
Cline, William, to Lee, Raymond, Organization, Inc., The. Chilled drinking glass container. 3,810,557, Cl. 215-12.000.
Clough, David John: *See—*
McAlpine, Ian; and Clough, David John, 3,810,852.
Cobbledick, David S.: *See—*
Norman, Arthur J.; and Cobbledick, David S., 3,810,851.
Cohen, Milton: *See—*
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, 3,810,892.
Coleman, William Earl, to National Cash Register Company, The. Method of fabricating a plasma charge transfer device. 3,810,686, Cl. 316-20.000.
Colgate-Palmolive Company: *See—*
Miles, Gilbert Dwayne, 3,810,479.
Olson, Frank Wesley, Jr.; and Roberts, Karl Hutchson, 3,810,478.
Collardin, Gerhard, GmbH: *See—*
Ries, Christian; and Prymka, Margot, 3,810,792.
Collins Radio Company: *See—*
Griffee, Leslie V.; and Anderson, Mardis V., 3,811,127.
Columbus McKinnon Corporation: *See—*
Schreyer, Kenneth D.; and Manney, Charles J., 3,810,359.
Commanda, Ephrem. Retractable wheels for snowmobiles. 3,810,662, Cl. 280-415.00r.
Commercial Solvents Corporation: *See—*
James, Frank; and Jones, Richard A., 3,810,853.
Commerical Solvent Corporation: *See—*
Urry, Wilbert Herbert; and Mullenbach, Guy Towns, 3,810,918.
Con-Sole Golf Corporation: *See—*
Braly, Joseph M., 3,810,631.
Conflow Irrigation Systems: *See—*
Lodge, Hilmer G., 3,810,582.
Conley, John L. Automatic animal dropping pit cleaner. 3,810,444, Cl. 119-22.000.
Connelly, Lawrence W.: *See—*
McCurdy, Richard H.; and Connelly, Lawrence W., 3,810,331.
Consolidated Foods Corporation: *See—*
Schaffstall, Eugene; and Duncan, Ira J., 3,810,797.
Yocli, Oded; and Gibbs, Gerald W., 3,810,787.
Constructors Supply Company: *See—*
Carson, William M., 3,810,312.
Consulta-Treuhand GmbH: *See—*
Eyer, Charles, 3,810,721.
Container Corporation of America: *See—*
Gardner, Jeffrey M., 3,810,574.
Continental Conveyor and Equipment Company: *See—*
Studdard, Donald T.; and Morrison, Thomas E., 3,810,678.
Continental Drilling Co.: *See—*
Pack, Kenneth E., 3,810,495.
Control Data Corporation: *See—*
Barbour, William P., 3,810,424.
Controls Company of America: *See—*
Orth, Charles D., 3,810,366.
Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., 3,810,488.
Cook, Robert C., to Centre de Recherche Industrielle du Quebec. Method for making an integrated circuit apparatus. 3,810,301, Cl. 29-593.000.
Cope, Kenneth P.; and Pearce, Warren, Jr., to General Motors Corporation. Map and flood light assembly. 3,811,043, Cl. 240-8.160.
Copper Range Company: *See—*
Andrews, Henry L.; and Hay, Donald A., 3,810,757.
Cordi, Vincent A.; and Gurski, Chester S., to International Business Machines Corporation. Item lister using a shift register. 3,811,115, Cl. 340-172.500.
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, to Societa Italiana Telecomunicazioni Siemens S.p.A. PCM telecommunication system having means for temporary exclusion of voice channels under overload conditions. 3,811,013, Cl. 179-15.0ba.
Coursaut, Henri, to Le Bouchage Mecanique (L.B.M.). Tamper-proof easy-opening bottle cap. 3,810,556, Cl. 215-7.000.
Courtney-Pratt, Jeofry Stuart, to Bell Telephone Laboratories, Incorporated. Measuring small displacements. 3,810,699, Cl. 256-153.000.
Cousins, Terence; and Zanker, Klaus Joachim, to Kent, George, Limited. Flowmeters. 3,810,388, Cl. 73-194.00b.
Coveney, Jack Edward; and Moody, Roy Alleyne, to Panduit Corporation. Wire insertion and splicing system including reaction tool. 3,810,288, Cl. 29-203.00p.
Cowell, Clifton Douglas; and Wright, John Richardson, to Imperial Chemical Industries Limited. Process of increasing the molecular weight of molten polyamides with diaryl esters. 3,810,876, Cl. 260-78.0sc.
Coxon, George Eric: *See—*
Rees, John Michael; Coxon, George Eric; and Johnston, Robert Bernard, 3,811,063.
Coxon, George Eric, to Thorn Electrical Industries Limited. Manufacture of tungsten halogen lamps. 3,810,685, Cl. 316-20.000.
Crawford Fitting Company: *See—*
Spontellim Leonard P., 3,810,296.
Creaser, Leonard F., to Shell Oil Company. Flexible insulants for containers and conduits. 3,810,839, Cl. 252-62.000.
Crenna, Richard D. Acoustical carpiece for air-push sound systems. 3,810,525, Cl. 181-23.000.
Crisp, David J.; and Ford, Roger A., to N.R. Fitments Limited. Non-refillable fitment. 3,810,558, Cl. 215-21.000.
Crocker, Roger A.: *See—*
Crocker, Roger A.; and Schoolcraft, Jim F. (said Schoolcraft assor. to said), 3,810,553.
Crocker, Roger A.; and Schoolcraft, Jim F., said Schoolcraft assor. to said Crocker, Roger A. Pipe handling device. 3,810,553, Cl. 214-2.500.
Cross, David Edward, to Smiths Industries Limited. Tubing. 3,810,474, Cl. 128-351.000.
Cross, Raymond E. Die casting method. 3,810,505, Cl. 164-113.000.
Crosswell, Flay D.; and Galbreath, Gerald W., to Overhead Door Corporation. Cargo deflector panel. 3,810,672, Cl. 296-106.000.
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, to Avicon, Inc. Liquid-laid, Non-woven, fibrous collagen derived surgical web having hemostatic and wound sealing properties. 3,810,473, Cl. 128-334.000.
Curran, Adrian Charles Ward: *See—*
Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and Al-Hassan, Saieba, 3,810,893.
Curry, Robert G., Jr., to Westinghouse Electric Corporation. Protection circuit for cathode ray tubes. 3,811,068, Cl. 315-20.000.
Cutter Laboratories, Inc.: *See—*
Lewis, Dan, Jr.; and Von Alven, Raymond D., 3,810,503.
Cyclops Corporation, Universal-Cyclops Specialty Steel Division: *See—*
Kaufman, Ralph O., Sr., 3,810,286.
Daggy, Earl N., to American Standard Inc. Movable panel system. 3,810,330, Cl. 49-127.000.
Daiber, John W.: *See—*
Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., 3,811,095.
Daicel Ltd.: *See—*
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.
Daimler-Benz Aktiengesellschaft: *See—*
Blohm, Hans-Jachen, 3,810,607.
Puchas, Christian, 3,810,651.
Schiesterl, Gerhard; and Wulf, Helmut, 3,810,653.
Dalhuisen, Albert J.; and Deis, William H., to Merck & Co., Inc. Chloroprene polymer processing. 3,810,856, Cl. 260-23.70m.
Dar Conte, John M., to Manhattan College. Pile with reinforced leading end. 3,810,363, Cl. 61-53.000.
David, Joseph S. Mining machine dust collector. 3,810,677, Cl. 299-64.000.
Davidson, Alan John; and George, Edwin Francis, to Imperial Chemical Industries Limited. Plant growth regulating composition and process. 3,810,750, Cl. 71-78.000.
Davidson, Hugh; and Leggetter, Brian Ernest, to Hickson & Welch Limited. 3-(Coumarin-3-ylphenyl)-1,2,4-oxadiazol-5-yl ammonium salts. 3,810,901, Cl. 260-293.580.
Dawans, Francois: *See—*
Durand, Jean-Pierre; and Dawans, Francois, 3,810,952.
De Nora, Vittorio: *See—*
Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio, 3,810,770.
DeBano, John, Jr.; and Noll, James L., to General Motors Corporation. Occupant restraint cushion assembly and method of manufacture. 3,810,654, Cl. 280-150.0ab.
Decker, Charles R., III; and Harris, Gregory K. Sports racket. 3,810,620, Cl. 273-73.00h.
Deepsea Ventures, Inc.: *See—*
Kane, William S.; and Cardwell, Paul H., 3,810,827.
Deering Milliken Research Corporation: *See—*
Bylund, Don M.; and Kimble, Victor W., 3,810,810.
Dehlem, Francis E.: *See—*
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.
Deike, Robert F.: *See—*
Woodhouse, John C., 3,810,450.
Deis, William H.: *See—*
Dalhuisen, Albert J.; and Deis, William H., 3,810,856.
DeLang, Hendrik; and Velzel, Christiaan Hendrik Frans, to U.S. Philips Corporation. Apparatus for reconstructing an image of an object which image has been recorded in holographic form. 3,810,687, Cl. 350-3.500.
DeLeo, Louis P., to Singer Company, The. Phase sensitive demodulator which automatically compensates for variations in the AC reference voltage. 3,811,093, Cl. 329-146.000.

Delkor Industries, Inc.: *See—*
Klund, Robert N.; and Sorenson, Merle H., 3,810,407.

Deluca, John C.: *See—*
Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., 3,811,119.

Demers, Theodore E.; and Koivunen, Erkki A., to General Motors Corporation. Anti-lock brake system. 3,810,682, Cl. 303-21.00f.

Denis, Henri, to SAFT-Societe des Accumulateurs Fixes et de Traction. Method of effecting electric connection. 3,810,790, Cl. 136-134.00p.

Densow, Ulrich O., to Outboard Marine Corporation. Torque reducing centrifugal clutch. 3,810,533, Cl. 192-105.0ba.

Derbyshire, George Cecil, to Jacons Manufacturing Company Limited, The. Drill chucks. 3,810,642, Cl. 279-62.000.

Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, to Ciba-Geigy A.G. Styryl dyestuffs. 3,810,932, Cl. 260-465.00d.

Deschamps, Andre: *See—*
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,810,968.

Desnoyers, Pierre: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Devlieg Machine Company: *See—*
Jeruc, Richard A., 3,810,299.

DeVoy, David D.: *See—*
Lemay, Richard A.; and DeVoy, David D., 3,811,114.

Dezael, Claude: *See—*
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,810,968.

Dezaki, Yoshito: *See—*
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, 3,811,090.

Di Palma, Hugo Roland. Automatic sprinkling apparatus. 3,810,579, Cl. 239-197.000.

Diamond, Julius; and Douglas, George, to Rorer, William H., Inc. Ethynylindenyl compounds and derivatives thereof. 3,810,944, Cl. 260-612.00r.

Diamond, Julius; and Auyang, King, to Rorer, William H., Inc. Phosphonium compounds for treating gastrointestinal hyperacidity and ulceration. 3,810,979, Cl. 424-198.000.

Diamond, Julius, to Rorer, William H., Inc. S-Triazines for treating gastrointestinal hyperacidity and ulceration. 3,810,985, Cl. 424-249.000.

Dibble, Leland, Jr.: *See—*
Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,810,630.

Dijkmans, Eise Carel, to U.S. Philips Corporation. Variable frequency astable multivibrator. 3,811,097, Cl. 332-14.000.

Dillon, Joseph, Jr.; Van Uitert, Legrand Gerard; and Wemple, Stuart Harry, to Bell Telephone Laboratories, Incorporated. Magneto-optic modulators. 3,811,096, Cl. 332-7.510.

Dix, James S.: *See—*
Mathis, Ronald D.; and Dix, James S., 3,810,862.

Dixon, Richard H.: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.

Doggett, Charles F., to Hawkeye Machinery Corporation. Burial device and method for using same. 3,810,282, Cl. 27-35.000.

Doi, Kazuo; and Kitsuda, Yoshihiro, to British Industrial Plastics Limited. Process for manufacturing initial aminoplast condensates. 3,810,854, Cl. 260-21.000.

Dolci, Silvano: *See—*
Freccero, Renato; and Dolci, Silvano, 3,810,701.

Doll, Martin, to Cellu Products Company. Method of producing laminated stock materials and products. 3,810,800, Cl. 156-78.000.

Dominic, Christopher John; and Garnish, Edward William, to Ciba (A.R.L.) Limited. Carbon fiber composite structures. 3,810,785, Cl. 117-161.0zb.

Domtar Limited: *See—*
Horel, Thomas B., 3,810,501.

Doolittle, Donald B., to All American Industries, Inc. Aircraft arresting barrier. 3,810,595, Cl. 244-110.00c.

Dormavac Corporation, The, mesne: *See—*
Burg, Stanley P.; and Hentschel, William J., 3,810,508.

Doss, Richard C., to Phillips Petroleum Company. Polyacid halide modified copolymers of vinylpyridines and acrylamide or methacrylamide. 3,810,877, Cl. 260-78.40d.

Douglas, George: *See—*
Diamond, Julius; and Douglas, George, 3,810,944.

Douglass, Edward T., Jr. Apparatus for burning refuse. 3,810,432, Cl. 110-18.00r.

Dow Chemical Company, The: *See—*
Dunbar, Joseph E.; and Rogers, Joan H., 3,810,890.
Dunbar, Joseph E., 3,810,922.
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., 3,810,468.
Lee, John M., 3,810,891.
Mani, Inder, 3,810,825.
Mani, Inder, 3,810,826.
Rigterink, Raymond H., 3,810,902.
Zachariades, George, 3,810,816.

Dow Corning Corporation: *See—*
Frankenthal, Luigi, 3,810,467.

Doyle, Earl N., to Petro-Form Industries (Trinidad) Ltd. Polymerization of crude petroleum hydrocarbon. 3,810,860, Cl. 260-33.6ub.

Dransfield, Clifford D., to Atlantic Richfield Company. Apparatus for carrying a seismic energy generator. 3,810,524, Cl. 181-.50h.

Drasch, Josef; Scheiber, Robert; and Wessner, Harald, to Vockenhuber, Karl and Hauser, Raimund. Photographic film-handling appliance. 3,810,692, Cl. 352-174.000.

Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, to International Business Machines Corporation. Error testing and error localization in a modular data processing system. 3,810,577, Cl. 235-153.0ae.

Druss, Barry Lewis, to Chimera R. & D. Inc. Ski binding. 3,810,643, Cl. 280-11.35r.

Du Pont de Nemours, E. I., and Company: *See—*
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., 3,810,545.

Dubuc, Rene A.: *See—*
Ty, Henry; and Dubuc, Rene A., 3,811,028.

Duerden, Francis: *See—*
Rosenbaum, Harold Matthew; and Duerden, Francis, 3,810,317.

Duerr, Dieter; and von Orelli, Marcus, to Ciba-Geigy AG. Control of acrinae and molluscs with phenylisothiocyanate compounds. 3,810,993, Cl. 424-302.000.

Dugan, Thomas J. Latch. 3,810,667, Cl. 292-346.000.

Duhault, Jacques: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.

Dumas, Floyd A., to Acrometal Products, Inc. Curing oven for enameled wire. 3,810,736, Cl. 432-59.000.

Dumbaugh, William H., Jr.; and Malmendier, Joseph W. Method for making fused silica glass composites. 3,810,744, Cl. 65-42.000.

Dunbar, Joseph E.; and Rogers, Joan H., to Dow Chemical Company, The. Aminecarbotrithioates and preparation. 3,810,890, Cl. 260-246.00b.

Dunbar, Joseph E., to Dow Chemical Company, The. Sulfur-containing 4-hydroxycoumarins and their salts. 3,810,922, Cl. 260-343.20r.

Duncan, Ira J.: *See—*
Schaffstall, Eugene; and Duncan, Ira J., 3,810,797.

Dunlap Limited: *See—*
Kenney, Michael J., 3,810,278.

Duplessy, Jean. Device to supply a thread. 3,810,494, Cl. 139-122.000.

Durand, Jean-Pierre; and Dawans, Francois, to Institut Francais du Petrole, des Carburants et Lubrifiants. Liquid copolymers of 1,3-butadiene and 1-monolefins, their preparation and uses. 3,810,952, Cl. 260-677.00r.

Dynamit Nobel AG: *See—*
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Eastman Kodak Company: *See—*
Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., 3,810,761.
Stahr, Richard W.; and Morse, Theodore H., 3,810,759.

Eberle, William C. Board game apparatus. 3,810,626, Cl. 273-131.0ab.

Edlich, William. Transmission. 3,810,401, Cl. 74-691.000.

Edmunds, John O., to General Motors Corporation. Lock up clutch control. 3,810,531, Cl. 192-3.300.

Edwards, James W.: *See—*
Lemmond, Everett C.; and Edwards, James W., 3,810,345.

Egorov, Vladimir Sergeevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Ehrenfreund, Herbert A., to Polytech Systems, Inc. Process for extruding a foamed closed-cell polyolefin extrudate substantially free from cell collapse by use of a barrier material. 3,810,964, Cl. 264-53.000.

Eifel, Paul J.: *See—*
Hampton, Robert S.; and Eifel, Paul J., 3,810,365.

Eisen, Josef; and Gauger, Horst, to Schloemann Aktiengesellschaft. Movable cable-and conductor infeed arrangement for transport-and change wagons possessing limited mobility with the halls of steel works. 3,811,017, Cl. 191-12.00r.

Electro-Speed Tool Corporation: *See—*
Malkin, Bruce, 3,810,572.

Elle, Erich, to Bau-Stahlgewebe GmbH. Roll stand for cold working of rolled steel in rod or wire form. 3,810,376, Cl. 72-194.000.

Ellis, Glenn. to Sesame Industries, Limited. Closure-forming strip with an attached tear strip structure. 3,810,813, Cl. 161-145.000.

Elm, Robert A., to Minnesota Mining and Manufacturing Company. Flexible base for cable tie. 3,810,596, Cl. 248-47.0pb.

Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., to General Motors Corporation. Cooled turbine blade and its manufacture. 3,810,711, Cl. 416-97.000.

Ennemoser, Joseph O. Vehicle wheel stud drill. 3,810,710, Cl. 408-111.000.

Enrico, Cesare: *See—*
Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe, 3,810,984.

Epstein, Roland, to Salamander Aktiengesellschaft. Shoe, especially for aiding children in learning to walk. 3,810,318, Cl. 36-2.50f.

Erdman, Donald C.: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.

Erdman, Donald C., Company, Inc.: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.

Erdolchemie Gesellschaft mit beschrankter Haftung: *See—*
Schleppinghoff, Bernhard; Scherb, Helmut; and Puxbaumer, Hans, 3,810,831.

Erickson Tool Company: *See—*
Benjamin, Milton L., 3,810,641.

Eriksson, Jan Christer; and Lagergren, Hans Ragnar, to Aminkemi Aktiebolag, mesne. Method of stabilizing heparinized non-thrombogenic plastic surfaces. 3,810,781, Cl. 117-47.00a.

Escher Wyss, G.m.b.H.: *See—*
Kahmann, Albrecht, 3,810,584.

ESPE Fabrik Pharmazeutischer Praparate GmbH: *See—*
Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, 3,810,938.

Esso Research and Engineering Company: *See—*
Humphrey, Robert Walter; and Moss, Gerald, 3,810,972.
Norton, James H., 3,810,836.

Etablissements Carpano & Pons S.A.: *See—*
Host, Pierre L., 3,810,592.
Vouthier, Marcel, 3,810,645.

Ethyl Corporation: *See—*
Shepherd, Lawrence H., Jr., 3,810,949.
Wiegand, Karl E., 3,810,994.
Zaweski, Edward F., 3,810,869.

Ettie, Alan George Albert Edward: *See—*
Newberry, John; and Ettie, Alan George Albert Edward, 3,810,380.

Evans, Dwight J. Ultrasonic pipeline inspection device. 3,810,384, Cl. 73-67.80s.

Evans Products Company: *See—*
Ford, Ralph E.; and Wright, Kim W., 3,810,274.

Evans, Stephen F.; and Sorensen, Eugene R., to Procter & Gamble Company, The. Machine for packaging flexible articles. 3,810,344, Cl. 53-124.00d.

Eyer, Charles, to Consulta-Treuhand GmbH. Rotary piston machine with bypass regulation. 3,810,721, Cl. 417-440.000.

Eymard, Pierre L.: *See—*
Meunier, Henry E.; and Eymard, Pierre L., 3,810,942.

Fabrika, Ljudmila Petrovna: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Fahey, John J., Jr. Article transport means. 3,810,649, Cl. 280-37.000.

Fairchild Industries, Inc.: *See—*
Summers, George D., 3,810,259.

Fairfield Engineering and Manufacturing Company: *See—*
Blough, Ronald S., 3,810,548.

Fales, Douglas I., to General Motors Corporation. Ignition spark vacuum advance system. 3,810,451, Cl. 123-117.00a.

Famolare, Inc.: *See—*
Famolare, Joseph P., Jr., 3,810,319.

Famolare, Joseph P., Jr., to Famolare, Inc. Clog construction. 3,810,319, Cl. 36-11.500.

Farbwerke Hoechst Aktiengesellschaft: *See—*
Uhl, Klaus; and Fischer, Klaus, 3,810,775.

Fatula, James J., to Ryman Engineering Company. Self-centering rolls. 3,810,571, Cl. 226-192.000.

Faust, Stewart W.: *See—*
Smith, Thomas R.; and Faust, Stewart W., 3,810,480.

Feasey, Ronald George; and Freeman, John Leslie, to Imperial Chemical Industries Limited. Aromatic polyethers. 3,810,870, Cl. 260-47.00r.

Ferber, Arthur C., to Belmont Casket Manufacturing Company. Casket lid interior trim including molded padding strips. 3,810,281, Cl. 27-19.000.

Ferlux: *See—*
Philippe, Jean B., 3,810,897.

Ferm, Richard L., to Chevron Research Company. Process for treating oil slicks using chemical agnets. 3,810,835, Cl. 210-59.000.

Ferranti, Limited: *See—*
Hulmes, Harold; and Pickin, John Robert, 3,810,300.

Ferrara, Rudolph A., to General Motors Corporation. Vehicle seat cushion with resilient back bar. 3,810,675, Cl. 297-460.000.

Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, to Heathcoat, John, & Company Limited. Method of producing bulked yarns. 3,810,285, Cl. 28-72.110.

Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., to University of Oklahoma Foundation, Inc. Lung scanning 99m technetium macroaggregate and method of preparation. 3,810,976, Cl. 424-1.000.

Figge, Irving E.: *See—*
Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., 3,810,803.

Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., to Du Pont de Nemours, E. I., and Company. Centrifuge chromatography apparatus and system. 3,810,545, Cl. 210-198.000.

Finke, Ernst-Guenter, to Voith Getriebe KG. Hydrodynamic torque converter. 3,810,362, Cl. 60-362.000.

Firestone Tire & Rubber Company, The: *See—*
Weihe, Don L., 3,810,268.

Fisch, Willy: *See—*
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.

Fischer, Adolf; Koenig, Karl-Heinz; and Reichenecker, Franz, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Herbicidal composition of a pyridazone derivative and a carbamoyl-oxy phenyl methyl carbamate. 3,810,751, Cl. 71-92.000.

Fischer, Klaus: *See—*
Uhl, Klaus; and Fischer, Klaus, 3,810,775.

Fisher, Howard M., to Pennsylvania Engineering Corporation. Method of transforming a top-blown steel converter vessel to a bottom-blown type. 3,810,297, Cl. 29-428.000.

Fister, Julius C., Jr.: *See—*
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., 3,810,287.

Fitch, John L.; and Strubhar, Malcolm K., to Mobil Oil Corporation. Method of viscous oil recovery through hydraulically fractured wells. 3,810,510, Cl. 166-271.000.

Flach, Karl Egon: *See—*
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.

Flegel, George J.; and Scheuer, Nicholas G., to Josam Manufacturing Co. Lavatory carrier bracket and support. 3,810,597, Cl. 248-214.000.

Fleischmann, Lewis W. BOD measuring apparatus. 3,810,738, Cl. 23-230.00r.

Fleming, Myron T., to Thermal Exchange Systems, Inc. apparatus for treating materials. 3,810,315, Cl. 34-160.000.

Fletcher, Geoffrey Charles: *See—*
Armstrong, Allan; and Fletcher, Geoffrey Charles, 3,810,544.

FMC Corporation: *See—*
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, 3,810,892.
Thomas, James L., 3,810,865.

Ford, Eric Harold, to Lumenition Limited. Fuel injection systems for internal combustion engines. 3,810,448, Cl. 123-32.0ea.

Ford, Harry L.: *See—*
Unger, Peter J.; and Ford, Harry L., 3,811,007.

Ford, James A.; and Butt, Sheldon H., to Olin Corporation. Oxidation resistant nickel base alloys. 3,810,754, Cl. 75-171.000.

Ford Motor Company: *See—*
Morris, Thomas H.; and Wu, Tao-Yuan, 3,810,452.

Ford, Ralph E.; and Wright, Kim W., to Evans Products Company. Pivot and guide rod assembly for bi-fold door. 3,810,274, Cl. 16-169.000.

Ford, Roger A.: *See—*
Crisp, David J.; and Ford, Roger A., 3,810,558.

Fornari, Massima. Mold for manufacturing toothed articles such as combs. 3,810,599, Cl. 249-67.000.

Foster, William R.: *See—*
Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., 3,810,965.

Fox, Robert M.; and Truran, Karl, to General Motors Corporation. Vehicle body energy absorbing panel. 3,810,656, Cl. 280-150.00b.

Frankenthal, Luigi, to Dow Corning Corporation. Device for hernia correction. 3,810,467, Cl. 128-95.000.

Freccero, Renato; and Dolci, Silvano, to Major S.p.A. Automatic two-part control device for ball point pens and similar writing instruments. 3,810,701, Cl. 401-110.000.

Freeman, John Leslie: *See—*
Feasey, Ronald George; and Freeman, John Leslie, 3,810,870.

Frick, Richard H.: *See—*
Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., 3,810,472.

Friedmann, Evan B.: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.

Froment, N. J., & Co.: *See—*
Billing, Peter George, 3,811,052.

Fuji Photo Film Co., Ltd.: *See—*
Miyake, Yoshiaki, 3,810,590.

Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, to Oriental Yeast Co., Ltd. Method for isolation of enzymes. 3,810,823, Cl. 195-66.00r.

Fujita, Kinji, to Kabushiki Kaisha Suwa Seikosha. Time correcting apparatus for an electronic timepiece. 3,810,356, Cl. 58-23.00r.

Fujitsu Limited: *See—*
Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, 3,811,062.
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, 3,811,061.

Fukumoto, Akira; Hane, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, to Matsushita Electric Industrial Co., Ltd. Facsimile device. 3,811,009, Cl. 178-6.700.

Fulk, James B. Method and apparatus for gathering webs of paper. 3,810,569, Cl. 226-109.000.

Fuller & Sadao, Incorporated: *See—*
Sadao, Shoji, 3,810,336.

Fuller, Walter T.: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.

Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, to Hoffmann-La Roche Inc.

Processes and intermediates for benzindenes. 3,810,915, Cl. 260-340.900.
Fussell, Edward B., Jr.; and Maynard, F. Charles, Jr., to Bonnet, Walter, Inc. Boat windshield mounting means. 3,810,267, Cl. 9-1.00r.
Galbreath, Gerald W.: *See—*
Crosswell, Flay D.; and Galbreath, Gerald W., 3,810,672.
Galigher Company, The: *See—*
Huntington, Fred R., 3,810,537.
Gallone, Patrizio: *See—*
Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio, 3,810,770.
Galmiche, Philippe, to Office National d'Etudes et de Recherches Aerospatiales (par abreviation: O.N.E.R.A.). Process of forming diffusion alloys on metallic refractory materials. 3,810,782, Cl. 117-107.20p.
Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., to International Harvester Company. Vehicle transmission assembly. 3,810,519, Cl. 180-70.00r.
Gam Rad, Incorporated: *See—*
Shea, James J., 3,810,695.
Garanov, Viktor Nikolaevich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.
Garbe, Siegfried A. E.; Zalm, Pieter; and Pastoor, Willem, to U.S. Philips Corporation. Method of manufacturing an electric discharge tube having an electron emitting electrode comprising a cesium-containing layer on a support. 3,811,002, Cl. 316-.500.
Gardner, Gerald Marvin, to Image Analysing Computers Limited. Video signal sampling device for use in image analysis systems. 3,811,109, Cl. 340-146.3ac.
Gardner, Jeffrey M., to Container Corporation of America. Self-locking tray. 3,810,574, Cl. 229-31.0fs.
Garmon, Lee F., Jr., to Victor Comptometer Corporation. Pneumatic gun with polygonal cross-section belt member. 3,810,455, Cl. 124-13.00a.
Garnish, Edward William: *See—*
Dominic, Christopher John; and Garnish, Edward William, 3,810,785.
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, to Societe Nationale des Petroles d'Aquitaine pour Aquitaine. Bituminous compositions containing plastic or elastomer polysulphide polymers. 3,810,857, Cl. 260-28.000.
Gasc, Jean-Claude: *See—*
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Gauger, Horst: *See—*
Eisen, Josef; and Gauger, Horst, 3,811,017.
Gaughan, Edmund Jeremiah, to Stauffer Chemical Company. (N-Alkoxyalyl)-o-alkyl-S-alkylthiophasphors-amides. 3,810,959, Cl. 260-941.000.
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, to Dynamit Nobel AG. Explosive charge actuated valve. 3,810,485, Cl. 137-71.000.
Gec-Elliott Mechanical Handling Limited: *See—*
Moyes, Martin Gerald, 3,810,538.
Geist, Kenneth R.; and Walsh, James E., 1/2 interest to Brust, John J. Method for measuring alcoholic content of a liquid. 3,810,737, Cl. 23-230.00r.
General Electric Company: *See—*
Arendt, Ronald H.; and Vanburen, Charles E., 3,810,973.
Banucci, Eugene G., 3,810,933.
Boldebuck, Edith M., 3,810,858.
Greblunas, Joseph A., 3,811,078.
Hay, Allan S.; and Relles, Howard M., 3,810,879.
Herrick, Carlyle S.; and Shultz, Allan R., 3,810,814.
Relles, Howard M., 3,810,913.
Slusarczuk, George M. J.; and Brown, John F., Jr., 3,810,843.
Weinfurt, Phillip T.; and Lijewski, Robert P., 3,811,040.
General Foods Corporation: *See—*
Balling, T. Thomas; and Mahlmann, James P., 3,810,999.
Biscardi, Salvatore F.; and Zeitlin, Benjamin R., 3,810,995.
Holzberg, Irving, 3,810,766.
General Motors Corporation: *See—*
Campbell, David D., 3,810,657.
Cope, Kenneth P.; and Pearce, Warren, Jr., 3,811,043.
DeBano, John, Jr.; and Noll, James L., 3,810,654.
Demers, Theodore E.; and Koivunen, Erkki A., 3,810,682.
Edmunds, John O., 3,810,531.
Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., 3,810,711.
Fales, Douglas I., 3,810,451.
Ferrara, Rudolph A., 3,810,675.
Fox, Robert M.; and Truran, Karl, 3,810,656.
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., 3,810,489.
Prachar, Otakar P., 3,810,655.
Schenk, Donald E., 3,810,680.
Schluckebier, Floyd A.; and Harkrader, Ronald L., 3,810,399.
Strzelewicz, Anthony S., 3,811,089.
Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., 3,810,715.
General Precision Industries Limited: *See—*
Andersen, Roy Stolweather, 3,811,023.
General Tire & Rubber Company, The: *See—*
Norman, Arthur J.; and Cobbledick, David S., 3,810,851.
Genmat, Francois: *See—*
Chollet, Maurice; and Genmat, Francois, 3,810,449.
George, Edwin Francis: *See—*
Davidson, Alan John; and George, Edwin Francis, 3,810,750.
George, Richard Alexander. Pye Limited Burners for chemical analysis. 3,810,583, Cl. 239-597.000.
Georges Lagain: *See—*
Ravel, Leon, 3,810,420.
Georges, Michael P. Component sorting and segregating system. 3,810,540, Cl. 209-73.000.
Gerber, Heinz Joseph, to Gerber Scientific Instrument Company, The. Method for generating contoured part holders. 3,810,414, Cl. 90-11.00c.
Gerber Scientific Instrument Company, The: *See—*
Gerber, Heinz Joseph, 3,810,414.
Gerhard, Sidney. Electrical connector. 3,811,105, Cl. 339-98.000.
Gerisch, Gunther, to Max-Planck-Gesellschaft zur Forderung der Wissenchafter e.V. Process for obtaining a phosphodiesterase from dictyostelium discoideum. 3,810,822, Cl. 195-65.000.
Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, to Agfa-Gevaert Aktiengesellschaft. Cartridge for motion picture film. 3,810,594, Cl. 242-194.000.
Giansante, Joseph A. Atmosphere control system for growing mushrooms and the like. 3,810,327, Cl. 47-1.100.
Gibbs, Gerald W.: *See—*
Yocli, Oded; and Gibbs, Gerald W., 3,810,787.
Giesselmann, Monica Linnea. Arrangement for cutting the threads in a sewing machine when changing the bobbin thread. 3,810,439, Cl. 112-252.000.
Gillette Company, The: *See—*
Perry, Roger L., 3,810,305.
Gillette, Robert H., to Micromatic Industries, Inc. Honing tool. 3,810,333, Cl. 51-338.000.
Giovanniello, Michael A. Locking device for a vehicle transmission shift lever. 3,810,369, Cl. 70-202.000.
Girard, Robert R., to ACF Industries, Incorporated. Universal draft pocket arrangement. 3,810,552, Cl. 213-8.000.
Gloster, Arthur; and Boeckino, Harry G., to Texas Gulf, Inc. Process for removing chromium from cooling tower blowdown streams. 3,810,542, Cl. 210-50.000.
Goens, Georges: *See—*
Schmid, August; and Goens, Georges, 3,810,617.
Goff, Frank M.: *See—*
Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, 3;810,871.
Gold, Elijah H., to Schering Corporation. 1-Adamantyl-2-carboxy-azacylic compounds. 3,810,884, Cl. 260-239.00a.
Golden, William R.: *See—*
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., 3,811,020.
Goldsworthy Engineering, Inc., mesne: *See—*
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., 3,810,805.
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., to Goldsworthy Engineering, Inc., mesne. Geodesic path length compensator for composite-tape placement head. 3,810,805, Cl. 156-361.000.
Gonzales, Michael; Benton, Richard H.; and Moore, William G., to Dibble, Leland, Jr. Game having captured marble exposed for digital manipulation. 3,810,630, Cl. 273-153.00s.
Gonzalez, Raymond J.: *See—*
Heim, Alan M.; and Gonzalez, Raymond J., 3,811,121.
Goodrich, B. F., Company, The: *See—*
Kletecka, George; and Smith, Peter D., 3,810,912.
Mikofalvy, Bela K., 3,810,859.
Parker, Richard G., 3,810,930.
Goodrich, Robert S.: *See—*
Kightlinger, Ronald J.; and Goodrich, Robert S., 3,810,446.
Gormley, William T.; and Russ, Muchere C., to Koppers Company, Inc. Phosphorus-containing monoesters of unsaturated dicarboxylic acids. 3,810,960, Cl. 260-952.000.
Gorski, Paul T., to Reliance Electric Company. Bearing sealing structure. 3,810,636, Cl. 277-94.000.
Gottwald, Gunther: *See—*
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.
Gotze, Johannes: *See—*
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.
Grace, W. R., & Co.: *See—*
Maselli, James Michael; and Kim, Gwan, 3,810,921.
Steyermark, Paul R., 3,810,842.
Graham, Arthur E.: *See—*
Banks, Bobby R.; and Graham, Arthur E., 3,810,776.
Grainger, Lewis M. D. Anti-pollution steam generation system. 3,810,447, Cl. 122-248.000.
Graphicart: Internationale Ausrustungsgesellschaft fur graphische kunst AG: *See—*
Baumgartner, Kurt, 3,810,272.

Gray, Charles John: *See—*
Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, 3,810,821.
Greblunas, Joseph A., to General Electric Company. DC motor drive system for winding reel. 3,811,078, Cl. 318-99.000.
Green, Bernard J.; and Green, Milton J. Vehicle wheel weight locator. 3,810,392, Cl. 73-458.000.
Green, Joseph H. Automatic slack adjuster for cable cylinder assembly. 3,810,397, Cl. 74-110.000.
Green, Milton J.: *See—*
Green, Bernard J.; and Green, Milton J., 3,810,392.
Greenwald, Harry, to Kidde, Walter, & Company, Inc. Coin controlled appliance timer. 3,810,396, Cl. 74-107.000.
Gregoire, Jean-Francois: *See—*
Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, 3,810,725.
Grewer, Rudolf: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.
Griffee, Leslie V.; and Anderson, Mardis V., to Collins Radio Company. Antenna for airborne satellite communications. 3,811,127, Cl. 343-705.000.
Griffoul, Marcel P.: *See—*
Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., 3,810,488.
Grimm, Henry B.; Matsuo, Chickau; and Wilborn, Donald C. Portable sectional racetrack for automobiles or motorcycles. 3,810,706, Cl. 404-1.000.
Grossman, Abraham. Multipurpose weatherstrip construction. 3,810,332, Cl. 49-421.000.
Grube, William L., to MacLean-Fogg Lock Nut Co. Application tool for pierce nuts in strip form. 3,810,290, Cl. 29-208.00d.
GSW Appliances Limited: *See—*
Smith, William E., 3,810,275.
GTE Sylvania Incorporated: *See—*
Perkins, Richard E., 3,810,541.
Guidosh, Edward F., to Westinghouse Electric Corporation. Vacuum switch drive mechanism. 3,811,022, Cl. 200-144.00b.
Gulf Research & Development: *See—*
Beuther, Harold; and Henke, Alfred M., 3,810,771.
Gulling, Jack N. Suspended quoit target. 3,810,625, Cl. 273-104.000.
Gurski, Chester S.: *See—*
Cordi, Vincent A.; and Gurski, Chester S., 3,811,115.
Gutekunst, Werner, to Rexroth, G. L., GmbH. Valve for use in hydraulic machines. 3,810,486, Cl. 137-269.000.
Guthrie, Robert William; Hamilton, James Guthric; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, to Hoffmann-La Roche Inc. Citric acid derivatives. 3,810,931, Cl. 260-456.00r.
Gutman, Arnold D., to Stauffer Chemical Company. Insecticidal phosphonyl cyanodithioimido carbonates. 3,810,982, Cl. 424-210.000.
Ha, In W.; and Touchton, James J., to Itel Corporation, mesne. Electronic tachometer. 3,811,091, Cl. 328-1.000.
Haack, Werner, to Pfister Waagen GmbH. Weighing apparatus. 3,810,638, Cl. 177-213.000.
Habib, Nissin, to Bell Telephone Laboratories, Incorporated. Video clamping circuit with variable clamping level during blanking. 3,811,053, Cl. 307-237.000.
Hadley, Richard E.: *See—*
Harrell, Robert E.; and Hadley, Richard E., 3,810,694.
Hagedorn, Erwin C.; and Hall, Dallas P., to Owens-Illinois, Inc. Method of adding glass colorant composition. 3,810,745, Cl. 65-134.000.
Hakansson, Sven Anders Samuel, to Kommanditbolaget United Stirling (Sweden) AB & Co. Reciprocating rod sealing means for hot gas engines. 3,810,634, Cl. 277-3.000.
Hall, C. P., Company, The: *See—*
Kuceski, Vincent P., 3,810,937.
Hall, Dallas P.: *See—*
Hagedorn, Erwin C.; and Hall, Dallas P., 3,810,745.
Hall, Robert J.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Hallenius, Nils Ragnar, to Innovia Logislekmaskiner AB. Collapsable storage container. 3,810,648, Cl. 280-33.99r.
Halls, Lawrence M.: *See—*
Hurlburt, Joseph C.; and Halls, Lawrence M., 3,810,517.
Halpern, Samuel E.: *See—*
Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., 3,810,976.
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, to Taiho Pharmaceutical Company, Limited. Process for producing antilipemic substance. 3,810,978, Cl. 424-95.000.
Hamilton, James Guthrie: *See—*
Guthrie, Robert William; Hamilton, James Guthric; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.
Hamm, Jeffrey E.; and Jenson, Robert S. Low energy indicator. 3,811,123, Cl. 340-249.000.
Hammann, Ingeborg: *See—*
Hoffmann, Hellmut; and Hammann, Ingeborg, 3,810,911.
Hampton, Robert S.; and Eifel, Paul J., to Lox Equipment Company. Method of distributing carbon dioxide. 3,810,365, Cl. 62-48.000.
Hane, Toshihide: *See—*
Fukumoto, Akira; Hane, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, 3,811,009.
Hannabery, Ad R. Cable terminating machine. 3,810,289, Cl. 29-203.00d.
Hanscom, Genevieve L.: *See—*
Lazzarini, Louis P., 3,811,000.
Hanscom, Genevieve L., (formerly Magnuson, Genevieve L.): *See—*
Lazzarini, Louis P., 3,811,000.
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, to National Cash Register Company, The. Color bar printer. 3,810,423, Cl. 101-93.00c.
Hansen, Robert L.: *See—*
Rice, David E.; and Hansen, Robert L., 3,810,875.
Hardesty, Ethridge E.: *See—*
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., 3,810,805.
Hardwick, Charles W.: *See—*
Taylor, Clifton I.; and Hardwick, Charles W., 3,810,263.
Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, to Itek Corporation. Multiple image registration system. 3,811,011, Cl. 178-6.800.
Harkrader, Ronald L.: *See—*
Schluckebier, Floyd A.; and Harkrader, Ronald L., 3,810,399.
Harper, Billy G.; Bashaw, Robert N.; and Atkins, Bobby L., to Dow Chemical Company, The. Sorbent. 3,810,468, Cl. 128-156.000.
Harrap, Victor: *See—*
Skaggs, Frank L.; Harrap, Victor; and Bean, Kenneth E., 3,810,796.
Harrell, John F.: *See—*
Welhart, Erwin K.; Voss, David L.; and Harrell, John F., 3,810,815.
Harrell, Robert E.; and Hadley, Richard E., to Western Litho Plate & Supply Co. Photographic printing apparatus. 3,810,694, Cl. 355-18.000.
Harris, Arthur: *See—*
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, 3,810,834.
Harris, Gregory K.: *See—*
Decker, Charles R., III; and Harris, Gregory K., 3,810,620.
Harris, Michael R., to Baldwin, D. H., Company. Rhythm accompaniment system. 3,811,003, Cl. 84-1.030.
Hart, Royal V. Mat for mounting prints. 3,810,324, Cl. 40-158.00r.
Hartog, Thomas J.: *See—*
Hillberg, Robert L.; and Hartog, Thomas J., 3,810,326.
Hatcher, Victor E. Panel securing latch. 3,810,666, Cl. 292-262.000.
Hatton, John A., Jr.; and McNally, John S., to Koppers Company, Inc. Polymerizable unsaturated polyester resin compositions and articles made therefrom. 3,810,863, Cl. 260-40.00r.
Haugen, Haakon, to Texaco Inc. and Oligomeric phosphorodiamidate. 3,810,838, Cl. 252-46.700.
Hauser, Charles Frank, to Union Carbide Corporation. Process for producing acid chlorides. 3,810,940, Cl. 260-544.00m.
Hauser, Raimund: *See—*
Drasch, Josef; Scheiber, Robert; and Wessner, Harald, 3,810,692.
Haven, Robert L., to Stanley Works, The. Dispensing machine for coil stock. 3,810,591, Cl. 242-78.600.
Hawkeye Machinery Corporation: *See—*
Doggett, Charles F., 3,810,282.
Hay, Allan S.; and Relles, Howard M., to General Electric Company. Method for making aromatic hydrocarbon polymers and products produced thereby. 3,810,879, Cl. 260-93.50r.
Hay, Donald A.: *See—*
Andrews, Henry L.; and Hay, Donald A., 3,810,757.
Hayami, Heijiro: *See—*
Fukumoto, Akira; Hane, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, 3,811,009.
Haynes, Cecil David: *See—*
Weaving, John Harold; and Haynes, Cecil David, 3,810,361.
Hazzard, Noel D., to Air Preheater Company, Inc. Recirculation of gases generated in ash pit. 3,810,431, Cl. 110-8.00a.
HC Products Co.: *See—*
Wolfert, Clarke K., 3,810,338.
Heathcoat, John, & Company Limited: *See—*
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, 3,810,285.
Hegarty, Gerald R.: *See—*
Sato, Kunito; and Hegarty, Gerald R., 3,810,998.
Heibye, Paulus; and Heibye, Rolf. Method of producing thin, flexible heating elements. 3,810,304, Cl. 29-611.000.
Heibye, Rolf: *See—*
Heibye, Paulus; and Heibye, Rolf, 3,810,304.
Heim, Alan M.: *See—*
Raber, Samuel; and Heim, Alan M., 3,811,122.
Heim, Alan M.; and Gonzalez, Raymond J., to Baker Industries, Inc. Supervised battery power supply. 3,811,121, Cl. 340-249.000.
Hekimian Laboratories, Inc.: *See—*
Kekimian, Norris C., 3,811,088.
Heller, Wilhelm, to Krupp, Fried., Huttenwerke A.G., Firma. Process of manufacturing a reinforcing bar steel for prestressed concrete. 3,810,793, Cl. 148-12.000.
Hengstler, J., K.G.: *See—*
Neher, Hans, 3,811,032.
Henke, Alfred M.: *See—*
Beuther, Harold; and Henke, Alfred M., 3,810,771.
Hentschel, William J.: *See—*

Burg, Stanley P.; and Hentschel, William J., 3,810,508.
Herd, Josef; and Jakob, Hans, to Maschinenfabrik Goebel GmbH. Arrangement for the production of connecting points between superimposed webs, especially continuous forms. 3,810,809, Cl. 156-468.000.
Hermann, Karl-Heinz: *See*—
Tacke, Peter; and Hermann, Karl-Heinz, 3,810,861.
Herrick, Carlyle S.; and Shultz, Allan R., to General Electric Company. Asymmetric polymer membranes of reduced elastic modulus. 3,810,814, Cl. 161-159.000.
Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., to Monarch Marking Systems, Inc. Coded record interpreting system. 3,811,033, Cl. 235-61.11e.
Hershey, Harold Jacob: *See*—
Breitung, Glen A.; and Hershey, Harold Jacob, 3,810,575.
Hessburg, Philip C. Training device for swimmers. 3,810,614, Cl. 272-71.000.
Heyne, Karl-August: *See*—
Bottcher, Lutz; and Heyne, Karl-August, 3,810,457.
Hicks, John R., to Applied Power Industries, Inc. Vehicle frame gauge. 3,810,313, Cl. 33-288.000.
Hickson & Welch Limited: *See*—
Davidson, Hugh; and Leggetter, Brian Ernest, 3,810,901.
Hidaka, Hiroyoshi: *See*—
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.
Hidassy, Laszlo, to Thomas & Betts Corporation. Tool jaws. 3,810,498, Cl. 140-93.00a.
Higuchi, Masaru: *See*—
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.
Hijioka, Yoshito: *See*—
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, 3,810,967.
Hilderbrandt, Ullrich, to Linde Aktiengesellschaft. Method of insulating conduit. 3,810,491, Cl. 138-149.000.
Hildreth, Donald M.; and Tyler, Edward P. Remote control engine starter. 3,811,049, Cl. 290-38.000.
Hill, Homer G.: *See*—
Wong, Robert; and Hill, Homer G., 3,810,784.
Hillberg, Robert L.; and Hartog, Thomas J., to Browning Arms Company. Construction for revolvers. 3,810,326, Cl. 42-59.000.
Hiller, P. Russell. Photographic slide container and transfer device. 3,810,539, Cl. 206-73.000.
Hillman, Edwin K. Wind powered motive apparatus. 3,810,712, Cl. 416-117.000.
Hirschel, Armin: *See*—
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, 3,810,799.
Hitachi, Ltd.: *See*—
Inose, Fumiyuki; and Kita, Yuzo, 3,811,110.
Katagiri, Shinjiro; and Tonomura, Akira, 3,811,059.
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.
Takasaki, Yoshitaka; and Aoki, Kouji, 3,811,016.
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Sciya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.
Hitachi Shipbuilding and Engineering Company Ltd.: *See*—
Shudo, Yasunobu, 3,810,547.
Hitomi, Nobuteru: *See*—
Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, 3,810,395.
Hobrough, Gilbert: *See*—
Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, 3,811,011.
Hochn, Hans; and Chasin, Mark, to Squibb, E. R., & Sons, Inc. Hydrazides of pyrazolopyridine carboxylic acids and esters. 3,810,904, Cl. 260-295.50b.
Hochn, Hans; and Bernstein, Jack, to Squibb, E. R., & Sons, Inc. Pyrazolo(3,4-b)pyridine-5-carboxamides. 3,810,905, Cl. 260-295.50b.
Hoell, John. Method of making electrical transformer means. 3,810,303, Cl. 29-605.000.
Hoffmann, Hellmut; and Hammann, Ingeborg, to Bayer Aktiengesellschaft. N,N-dimethyl-O-[1-alkyl-4-cyano-5-alkoxypyrazol (3)yl]-carbamic acid esters. 3,810,911, Cl. 260-310.00r.
Hoffmann-La Roche Inc.: *See*—
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.
Kaplan, Jean-Pierre; and Kyburz, Emilio, 3,811,026.
Lartigue, Gerard; and Rousselet, Andre, 3,810,720.
Leimgruber, Willy; and Weigele, Manfred, 3,810,935.
Mohacsi, Ernest; and Leimgruber, Willy, 3,810,899.
Saucy, Gabriel, 3,810,909.
Holland Hitch Company: *See*—
Berends, Howard P., 3,810,663.
Hollander, Kurt W. Flush valve assembly for tank. 3,810,261, Cl. 4-41.000.
Holman, Benedictus Timotheus, to U.S. Philips Corporation. Television camera comprising an interference-free mesh connection conductor. 3,811,066, Cl. 315-10.000.
Holst, Dennis W., to Martin Marietta Corporation. Antenna array for grating lobe and sidelobe suppression. 3,811,129, Cl. 343-844.000.
Holz, Heinrich. Multipart joining element for butt and corner joints. 3,810,341, Cl. 52-753.00e.
Holzberg, Irving, to General Foods Corporation. Method of extracting roasted coffee. 3,810,766, Cl. 426-386.000.
Honeywell Information Systems, Inc.: *See*—
Howell, Thomas Harold, 3,811,108.
Lemay, Richard A.; and DeVoy, David D., 3,811,114.
Stafford, John P., 3,811,039.
Hooker Chemical Corporation: *See*—
Schlumberger, Allan A., 3,810,969.
Takahashi, Akio; and Lemper, Anthony L., 3,810,958.
Horel, Thomas B., to Domtar Limited. Post domer. 3,810,501, Cl. 144-30.000.
Horio, Takekazu: *See*—
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.
Horiuchi, Kenji: *See*—
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.
Host, Pierre L., to Etablissements Carpano & Pons S.A. Fishing reel. 3,810,592, Cl. 242-84.51a.
Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, to Saab-Scania Aktiebolag. Control command security in binary remote control. 3,811,112, Cl. 340-164.00r.
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, to Ciba-Geigy Corporation. Aqueous acid tin-plating bath. 3,810,824, Cl. 204-54.00r.
Howell, Thomas Harold, to Honeywell Information Systems, Inc. Reverse cyclic code error correction. 3,811,108, Cl. 340-146.1al.
Hubsch, Gunter: *See*—
Gawlick, Heinz; Bendler, Hellnut; Gottwald, Gunther; Hubsch, Gunter; and Flach, Karl Egon, 3,810,485.
Hudson, Norman H. Anti-dive banking suspension apparatus for vehicles. 3,810,650, Cl. 280-124.00f.
Hugon, Pierre: *See*—
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.
Hulmes, Harold; and Pickin, John Rabert, to Ferranti, Limited. Electrical circuit assemblies. 3,810,300, Cl. 29-574.000.
Humbarger, Ross C.: *See*—
Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., 3,811,033.
Humphrey, Robert Walter; and Moss, Gerald, to Esso Research and Engineering Company. Reduction of sulphur oxides. 3,810,972, Cl. 423-569.000.
Hunt, John. Pollution free fuel inlet system for internal combustion engines. 3,810,454, Cl. 123-142.000.
Hunter, James, Machine Company, Inc.: *See*—
Brochetti, Raymond E., 3,810,284.
Huntington, Fred R., to Galigher Company, The. Belt feeder. 3,810,537, Cl. 198-57.000.
Hurlburt, Joseph C.; and Halls, Lawrence M., to Sperry Rand Corporation. Loader drive. 3,810,517, Cl. 180-49.000.
Hurlbut, Gordon: *See*—
Ianuzzi, Joseph N.; and Hurlbut, Gordon, 3,810,403.
Hurschman, Alfred A., to Ampoules, Inc. Multiple compartment hypodermic devices. 3,810,469, Cl. 128-218.00m.
Hutchins, Burleigh M., Jr.: *See*—
Abrahams, Louis; and Hutchins, Burleigh M., Jr., 3,810,716.
Hutchins, Burleigh M., Jr., to Waters Associates, Inc. Improved analytical apparatus for measuring light absorbance of fluids. 3,810,696, Cl. 356-93.000.
Ianuzzi, Joseph N.; and Hurlbut, Gordon, to Union Electronics (a Division of Union Corporation, The). Contact lens edging machine. 3,810,403, Cl. 82-1.00c.
Ibex Precision Products, Inc.: *See*—
Longarzo, Roland P., 3,810,550.
Ichida, Takeshige: *See*—
Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, 3,811,113.
Ikeda, Yuichi: *See*—
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Iller, Adabelle E.: *See*—
Iller, John A., 3,810,266.
Iller, John A., 50% to Iller, Adabelle E. Hardtop cover for convertible runabout boats. 3,810,266, Cl. 9-1.00r.
Illinois Tool Works Inc.: *See*—
Swick, Edwin Grant; and Nelson, John Frederick, 3,810,279.
Image Analysing Computers Limited: *See*—
Gardner, Gerald Marvin, 3,811,109.
Imperial Chemical Industries Limited: *See*—
Blacker, John Geoffrey; Birchall, James Derek; and Cassidy, John Edward, 3,810,769.
Cowell, Clifton Douglas; and Wright, John Richardson, 3,810,876.
Davidson, Alan John; and George, Edwin Francis, 3,810,750.
Feasey, Ronald George; and Freeman, John Leslie, 3,810,870.
Jones, Geraint; and Raphael, Ralph Alexander, 3,810,943.
Ingro, Ben. Wall climbing devices. 3,810,515, Cl. 180-1.0vs.
Innovia Logislekmaskiner AB: *See*—
Hallenius, Nils Ragnar, 3,810,648.
Inose, Fumiyuki; and Kita, Yuzo, to Hitachi, Ltd. Arrangement for normalizing two-dimensional pattern. 3,811,110, Cl. 340-146.30h.
Institut Francais du Petrole, des Carburants et Lubrifiants: *See*—
Durand, Jean-Pierre; and Dawans, Francois, 3,810,952.

Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,810,968.
International Business Machines Corporation: *See*—
Almasi, George S.; Argyle, Bernell E.; and Deluca, John C., 3,811,119.
Anderson, Robert Douglas, Jr.; and Kalter, Howard Lee, 3,811,117.
Banks, Bobby R.; and Graham, Arthur E., 3,810,776.
Cordi, Vincent A.; and Gurski, Chester S., 3,811,115.
Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.
Kleen, Bergert G.; and Lamoureux, William R., 3,811,124.
Smith, William Michael, Jr., 3,811,076.
Troutman, Ronald Roy, 3,810,795.
International Computers Limited: *See*—
Reddaway, Stewart Fiddian, 3,811,038.
International Harvester Company: *See*—
Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., 3,810,519.
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., 3,811,020.
International Standard Electric Corporation: *See*—
Terryn, Raymond Martin Florent, 3,811,034.
International Telephone and Telegraph Corporation: *See*—
Buchholz, Richard Frank; and Reintjes, Marten, 3,810,941.
Iovine, Carmine P.: *See*—
Ray-Chaudhuri, Dilip K.; and Iovine, Carmine P., 3,810,939.
Iowa Beef Processors, Inc.: *See*—
Barbee, Wilford O., 3,810,277.
Ireland, Roy D., Jr.: *See*—
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.
Itakura, Gen: *See*—
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.
Itek Corporation: *See*—
Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, 3,811,011.
Itel Corporation, mesne: *See*—
Ha, In W.; and Touchton, James J., 3,811,091.
Ito, Kazuo, to Kabushiki Kaisha Daini Seikosha. Electronic circuit for quartz crystal watch. 3,810,355, Cl. 58-23.00a.
Ito, Naganori; and Aikawa, Hiroshi, to Nissan Motor Company, Limited. Hydropneumatic suspension unit for a road vehicle. 3,810,611, Cl. 267-64.00r.
Ito, Shinya, to Kabushiki Kaisha Tokai Kika Denki Seisakusho. Automatic reset hydraulic switch. 3,811,021, Cl. 200-82.00d.
Ito, Yoshie: *See*—
Matsushita, Teruko, 3,811,041.
Iwata, Masayoshi; and Maeda, Tsuneo, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Automatic damping device for braking a vehicle. 3,810,520, Cl. 180-103.000.
Jackson, Ohie R.; Olson, George R.; and Putney, Robert B., to Ashland Oil, Inc. Apparatus for backing tufted carpet. 3,810,807, Cl. 156-381.000.
Jacobs, Arthur W. Injection molding machine. 3,810,728, Cl. 425-244.000.
Jacobs, Hubert Hudson; and Jacobs, Virginia Michael. Milking system. 3,810,442, Cl. 119-14.030.
Jacobs, Jimmy L. Ball and cup game demonstrating properties of inertia. 3,810,623, Cl. 273-101.000.
Jacobs, Virginia Michael: *See*—
Jacobs, Hubert Hudson; and Jacobs, Virginia Michael, 3,810,442.
Jacons Manufacturing Company Limited, The: *See*—
Derbyshire, George Cecil, 3,810,642.
Jakob, Hans: *See*—
Herd, Josef; and Jakob, Hans, 3,810,809.
James, Frank; and Jones, Richard A., to Commercial Solvents Corporation. Acid-curing thermosetting coating composition. 3,810,853, Cl. 260-21.000.
James, Russell H. Automatic fire extinguishing system. 3,810,511, Cl. 169-37.000.
Janiak, Stefan, to Ciba-Geigy AG. Control of phytopathogenic fungi with N-benzothiazole-2-yl N'-propylureas. 3,810,988, Cl. 424-270.000.
Japan Atomic Energy Research Institute: *See*—
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Jarke Corporation: *See*—
Jay, Richard S., 3,810,530.
Jason, Alfred Charles, to National Research Development Corporation. Hygrometers. 3,810,389, Cl. 73-336.500.
Jay, Richard S., to Jarke Corporation. Wheel chock. 3,810,530, Cl. 188-32.000.
Jayaraman, Ponnusami: *See*—
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Jeandel, Ferdinand. Engines and compressors of the kind in which a valve device engages with a helicoidal rotor. 3,810,722, Cl. 418-195.000.
Jefferson Chemical Company, Inc.: *See*—
Rowton, Richard Lee, 3,810,850.
Jeffery, Philip Auriol Edgar, to United Aircraft Corporation. Jettison device for helicopter load carrying system. 3,810,671, Cl. 294-83.0ae.
Jenny, Walter: *See*—
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Jenson, Robert S.: *See*—
Hamm, Jeffrey E.; and Jenson, Robert S., 3,811,123.
Jeppesen, Jerry J. Apparatus for immobilizing a vehicle. 3,810,370, Cl. 70-225.000.
Jerue, Richard A., to Devlieg Machine Company. Machine tool with automatic tool changing mechanism. 3,810,299, Cl. 29-568.000.
Jochum, Peter: *See*—
Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, 3,810,938.
Joel, Amos Edward, Jr., to Bell Telephone Laboratories, Incorporated. Intermedium magnetic domain logic control arrangement. 3,811,118, Cl. 340-174.0tf.
Johnson, C. Sherman, Co., Inc.: *See*—
Johnson, Curtiss S., Jr., 3,810,440.
Johnson, Carl E.: *See*—
Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., 3,810,845.
Johnson, Curtiss S., Jr., to Johnson, C. Sherman, Co., Inc. Steering mechanism for sailboats and the like. 3,810,440, Cl. 114-162.000.
Johnson, Matthey & Mallory Limited: *See*—
Jordan, David R., 3,810,755.
Johnson, Robert. Fluid pressure device. 3,810,723, Cl. 428-205.000.
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., to International Harvester Company. Safety lock lever and starting safety switch operable thereby. 3,811,020, Cl. 200-61.880.
Johnson Service Company: *See*—
Matthews, Russell B., 3,810,578.
Johnson, Theodore B. Ground anchor. 3,810,364, Cl. 61-72.100.
Johnston, Robert Bernard: *See*—
Rees, John Michael; Coxon, George Eric; and Johnston, Robert Bernard, 3,811,063.
Joiner, Walter Charles, to Westland Aircraft Limited. Helicopter rotor systems. 3,810,713, Cl. 416-205.000.
Jones, Geraint; and Raphael, Ralph Alexander, to Imperial Chemical Industries Limited. Cyclopentane dialdehydes. 3,810,943, Cl. 260-600.000.
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, to Ciba-Geigy Corporation. Treatment of water or aqueous systems. 3,810,834, Cl. 210-58.000.
Jones, Richard A.: *See*—
James, Frank; and Jones, Richard A., 3,810,853.
Jordan, David R., to Johnson, Matthey & Mallory Limited. Gold alloy for jewelry. 3,810,755, Cl. 75-165.000.
Jorwa, Mildred M. Exercise and weight reduction device. 3,810,613, Cl. 272-57.00r.
Josam Manufacturing Co.: *See*—
Flegel, George J.; and Scheuer, Nicholas G., 3,810,597.
Joslyn Mfg. and Supply Co.: *See*—
Kawiecki, Chester J., 3,811,064.
Jurd, Leonard; and King, Alfred Douglas, Jr., to United States of America, Agriculture. Inhibiting growth of bacteria. 3,810,990, Cl. 424-283.000.
Kahel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft: *See*—
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, 3,810,799.
Kabushiki Kaisha Daini Seikosha: *See*—
Ito, Kazuo, 3,810,355.
Kabushiki Kaisha Koparu: *See*—
Murata, Kingo, 3,810,357.
Kabushiki Kaisha Meidensha: *See*—
Tsukajaki, Shohei, 3,810,586.
Kabushiki Kaisha Suwa Seikosha: *See*—
Fujita, Kinji, 3,810,356.
Kabushiki Kaisha Tokai Kika Denki Seisakusho: *See*—
Ito, Shinya, 3,811,021.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See*—
Iwata, Masayoshi; and Maeda, Tsuneo, 3,810,520.
Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Miyazaki, Tsutomu; and Suzuki, Yoshihisa, 3,810,352.
Kagi, Dieter: *See*—
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Kahmann, Albrecht, to Escher Wyss, G.m.b.H. Grinding apparatus for fibrous material. 3,810,584, Cl. 241-37.000.
Kajihara, Motoyoshi: *See*—
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Kallenbach, Ralph M. Railway car roll control device. 3,810,429, Cl. 105-199.00a.
Kalter, Howard Lee: *See*—
Anderson, Robert Douglas, Jr.; and Kalter, Howard Lee, 3,811,117.
Kammann, Werner, Firma: *See*—
Kammann, Wilfried, 3,810,422.
Kammann, Wilfried, to Kammann, Werner, Firma. Screen printing machine for articles with curved non-circular cross-sectional. 3,810,422, Cl. 101-40.000.

Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, to Agfa-Gevaert Aktiengesellschaft. Photographic dry copying process with acylacetonitrile. 3,810,760, Cl. 96-29.00d.

Kanayama, Mitsuru: *See—*
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.

Kane, William S.; and Cardwell, Paul H., to Deepsea Ventures, Inc. Method for separating metal values from ocean floor nodule ore. 3,810,827, Cl. 204-105.00m.

Kanegafuchi Boseki Kabushiki Kaisha: *See—*
Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, 3,810,956.

Kaplan, Jean-Pierre; and Kyburz, Emilio, to Hoffmann-La Roche Inc. Process for benzothiepins. 3,811,026, Cl. 4-20-72.

Kaplan, Joseph, to Machine Components Corporation. Multidirectional joy stick type lever actuated switches. 3,811,018, Cl. 200-6.00a.

Karlson, Harald E.: *See—*
Goldsworthy, William B.; Karlson, Harald E.; and Hardesty, Ethridge E., 3,810,805.

Karman, Harvey, to Medical Concepts, Inc. Abortifacient. 3,810,456, Cl. 128-1.00r.

Karp, Arthur, to Stanford Research Institute. Electromagnetic resonator with electronic tuning. 3,811,101, Cl. 334-42.000.

Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., to United States of America, Army. Continuous fiber reinforcement, cross-ply test specimen. 3,810,803, Cl. 156-190.000.

Kartinen, Ernest Orval, to Signal Oil and Gas Company. Centrifugal separator for three phase mixture. 3,810,347, Cl. 55-45.000.

Kaspers, Helmut: *See—*
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.

Katagiri, Shinjiro; and Tonomura, Akira, to Hitachi, Ltd. Electron gun device of field emission type. 3,811,059, Cl. 313-82.000.

Kaufman, Ralph O., Sr., to Cyclops Corporation, Universal-Cyclops Specialty Steel Division. Method for manufacturing hollow members. 3,810,286, Cl. 29-156.80h.

Kaufmann, Karl Josef: *See—*
Polson, Alfred; and Kaufmann, Karl Josef, 3,810,576.

Kawasaki, Masaru, to Yamaha Hatsudoki Kabushiki Kaisha. Intake silencer for an internal combustion engine. 3,810,526, Cl. 181-35.00a.

Kawiecki, Chester J., to Joslyn Mfg. and Supply Co. Spark-gap device. 3,811,064, Cl. 313-325.000.

Keever, Joseph M.; and Zisa, William J., to Westinghouse Electric Corporation. Temperature compensated magnetic bearing assembly for an induction meter. 3,810,683, Cl. 308-10.000.

Kekimian, Norris C., to Hekimian Laboratories, Inc. Logarithmic converter. 3,811,088, Cl. 324-132.000.

Kempe, Horst: *See—*
Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, 3,810,568.

Kendall, Don Leslie, to Texas Instruments, Incorporated. Process for the fabrication of semiconductor materials. 3,810,791, Cl. 148-1.500.

Kennametal Inc.: *See—*
Cantz, Rolf J., 3,810,298.

Kennecott Copper Corporation: *See—*
Skarbo, Roald R.; and Miguel, Antonio H., 3,810,971.

Kennedy, John Frederick: *See—*
Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, 3,810,821.

Kenney, Michael J., to Dunlap Limited. Conveyor belts. 3,810,278, Cl. 24-31.00w.

Kent, George, Limited: *See—*
Cousins, Terence; and Zanker, Klaus Joachim, 3,810,388.

KEURO Maschinenbau Gesellschaft mit beschrankter Haftung & Co. Kommanditgesellschaft: *See—*
Stolzer, Paul, 3,810,404.

Khovrin, Boris Vladimirovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Kiba, Jack Y., to Magenta Corporation. Mounting for identification badge. 3,810,321, Cl. 40-1.500.

Kidde, Walter, & Company, Inc.: *See—*
Greenwald, Harry, 3,810,396.

Kierstead, Richard Wightman: *See—*
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.

Kiessling, Werner: *See—*
Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, 3,810,594.

Kightlinger, Ronald J.; and Goodrich, Robert S. Animal food bowl and cover therefor. 3,810,446, Cl. 119-61.000.

Kim, Gwan: *See—*
Maselli, James Michael; and Kim, Gwan, 3,810,921.

Kimberly-Clark Corporation: *See—*
Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., 3,810,472.

Kimble, Victor W.: *See—*
Bylund, Don M.; and Kimble, Victor W., 3,810,810.

Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, to Kanegafuchi Boseki Kabushiki Kaisha. Anti-electrostic polyamides containing a urethane derivative of a polyether. 3,810,956, Cl. 260-857.00r.

Kimura, Kikuo: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.

King, Alfred Douglas, Jr.: *See—*
Jurd, Leonard; and King, Alfred Douglas, Jr., 3,810,990.

King, William M., to Aerojet-General Corporation. Aluminum hydride preparation. 3,810,974, Cl. 423-645.000.

Kiniski, Zane Chadrick, to Unit 1. Rotary-to-reciprocating device. 3,811,058, Cl. 310-80.000.

Kirilanko, Anatoly Vasilievich: *See—*
Orro, Pavel Ivanovich; and Kirilanko, Anatoly Vasilievich, 3,810,377.

Kirilenko, Nilla Sergeevne: *See—*
Orro, Pavel Ivanovich; and Kirilanko, Anatoly Vasilievich, 3,810,377.

Kirth, Grainger Dan. Method of making lampshade. 3,810,295, Cl. 29-445.000.

Kisfaludy, Lajos: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, to Bayer Aktiengesellschaft. Pesticidal compositions and methods of killing pests using O-alkyl-S-(β-alkoxyethyl)-S-(alkoxy or phenoxy-alkyl) phosphoro dithiolates. 3,810,983, Cl. 424-217.000.

Kiss, Sandor Gyorgy. Dredge and sludge alembic. 3,810,549, Cl. 210-297.000.

Kita, Yuzo: *See—*
Inose, Fumiyuki; and Kita, Yuzo, 3,811,110.

Kitamura, Sadafumi: *See—*
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, 3,811,090.

Kitano, Akira, to Nippondenso Co., Ltd. Digital data corrector. 3,811,037, Cl. 235-152.000.

Kitsuda, Yoshihiro: *See—*
Doi, Kazuo; and Kitsuda, Yoshihiro, 3,810,854.

Klamp, Paul. Subfloor conveyor tow truck. 3,810,428, Cl. 104-172.0bt.

Klarcrete Limited: *See—*
Clarke, Ronald Albert William, 3,810,676.

Kleen, Bergert G.; and Lamoureux, William R., to International Business Machines Corporation. Solid state gas panel display circuits with noninductive solid state insolation between low level logic and high level drive signal functions. 3,811,124, Cl. 340-24.00m.

Klein, Donald R.; and Read, Fredrick C., to Sheller-Globe Corporation. Remotely controlled day-night rear view mirror. 3,810,690, Cl. 350-282.000.

Kletecka, George; and Smith, Peter D., to Goodrich, B. F., Company, The. Alkylhydroxyphenylcarboalkoxy-substituted phthalimide. 3,810,912, Cl. 260-326.00a.

Klimkovsky, Bronislav Mecheslavovich: *See—*
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.

Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., to Owens-Corning Fiberglas Corporation. Apparatus for winding thermoplastic strands. 3,810,742, Cl. 65-11.00w.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Spiller, Richard; Moser, Gottfried; and Berthold, Walter, 3,810,513.

Klund, Robert N.; and Sorenson, Merle H., to Delkor Industries, Inc. Stamp applicating machine. 3,810,407, Cl. 83-285.000.

Knapsack Aktiengesellschaft: *See—*
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Kneller, Klaus: *See—*
Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, 3,810,725.

Knott, Edward B.: *See—*
Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., 3,810,761.

Kobayashi, Hidetaka, to Aikoh Co., Ltd. Molding for use in steel ingot making by bottom pouring and method of making steel ingot. 3,810,506, Cl. 164-13.00b.

Kobayashi, Takanori: *See—*
Yokoyama, Masahiro; and Kobayashi, Takanori, 3,810,438.

Kobayashi, Yoshikazu: *See—*
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.

Koch, Christian, to Siemens Aktiengesellschaft. Method and apparatus for flameless combustion of gaseous or vaporous fuel-air mixtures. 3,810,732, Cl. 431-7.000.

Koch, Josef: *See—*
Berg, Leo; Breil, Gunther; Bielenberg, Waldemar; and Koch, Josef, 3,810,740.

Koehler, Max; deceased. Method of making valve seat rings from a mixture of C, Pb and a pre-alloy of Fe-Co-Ni-Mo by powder metallurgy. 3,810,756, Cl. 75-214.000.

Koenig, Claus. Covering mask. 3,810,812, Cl. 161-1.000.

Koenig, Karl-Heinz: *See—*
Fischer, Adolf; Koenig, Karl-Heinz; and Reicheneder, Franz, 3,810,751.

Kohn, Gustave K.: *See—*
Brown, Melancthon S., 3,810,928.

Kohno, Yasumasa: *See—*
Yamaguchi, Michio; and Kohno, Yasumasa, 3,810,523.

Koivunen, Erkki A.: *See—*
Demers, Theodore E.; and Koivunen, Erkki A., 3,810,682.
Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., 3,810,715.

Kommanditholaget United Stirling (Sweden) AB & Co.: *See—*
Hakansson, Sven Anders Samuel, 3,810,634.

Koper, Franz-Josef. Multiyear calendar. 3,810,325, Cl. 40-335.000.

Koppers Company, Inc.: *See—*
Gormley, William T.; and Russ, Muchere C., 3,810,960.
Hatton, John A., Jr.; and McNally, John S., 3,810,863.

Korczykowski, Leonard Ernest: *See—*
Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, 3,810,920.

Kornhauser, Murray, to Safety Consultants. Energy absorbing bumper system. 3,810,668, Cl. 293-71.00p.

Koshimura, Saburo: *See—*
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, 3,810,819.

Kostjuchenko, Mikhail Ivanovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Kouwenhoven, Herman Wouter: *See—*
Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, 3,810,830.

Kovalenko, Jury Nikolaevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.

Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich. Apparatus for balancing inertial forces of reciprocating masses of tube cold rolling mill stand. 3,810,378, Cl. 72-214.000.

Kraftco Corporation: *See—*
Chien, Hwei-Chiu, 3,810,997.

Kramer, John J. Foldable sawhorse. 3,810,527, Cl. 182-155.000.

Kranz, Eckart; and Bock, Marianne; deceased (by Bock, Hermann; executor), to Bayer Aktiengesellschaft. Derivative of pyrazolo[1,5-c]pyrimidines and process for their preparation. 3,810,894, Cl. 260-256.40f.

Kraus, Charles E., to Tracotr, Inc. Toric transmission with hydraulic controls and roller damping means. 3,810,398, Cl. 74-200.000.

Kristiansen, Aage, to Mo Och Domsjo Aktiebolag. Process for preparing free-flowing alpha-olefin sulfonate powders while hydrolyzing sultones. 3,810,847, Cl. 252-536.000.

Krumm, Eugene D.: *See—*
Bakker, Lubertus; and Krumm, Eugene D., 3,810,555.

Krummenacher, Leo. Apparatus for pedicure. 3,810,463, Cl. 128-56.000.

Krupp, Fried., Huttenwerke A.G., Firma: *See—*
Heller, Wilhelm, 3,810,793.

Krutyansky, Mikhail Mironovich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.

Krysl, Melvin F. Hand-crank toy winch. 3,810,593, Cl. 242-86.500.

Kuceski, Vincent P., to Hall, C. P., Company, The. Purification of carboxylic acids. 3,810,937, Cl. 260-485.00r.

Kudamatsu, Akio: *See—*
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,810,983.

Kun, Leslie C., to Union Carbide Corporation. Cross flow heat exchanger. 3,810,509, Cl. 165-148.000.

Kunishima, Mamoru: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.

Kuntz, Emile: *See—*
Chapurlat, Robert; and Kuntz, Emile, 3,810,848.
Chapurlat, Robert; and Kuntz, Emile, 3,810,872.
Chapurlat, Robert; and Kuntz, Emile, 3,810,873.
Chapurlat, Robert; and Kuntz, Emile, 3,810,888.

Kusz, Raymond S.; and Bassoff, Arthur B., to Lear Siegler, Inc. Progressive pot broach systems. 3,810,413, Cl. 90-10.000.

Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, to Agfa-Gevaert Aktiengesellschaft. Apparatus for transporting webs of photosensitive material through developing machines or the like. 3,810,568, Cl. 226-92.000.

Kyburz, Emilio: *See—*
Kaplan, Jean-Pierre; and Kyburz, Emilio, 3,811,026.

Kyser, Smith, to Aircraft Specialties, Inc. Combination straight slotted and cross slotted screw starter. 3,810,502, Cl. 145-50.00e.

La Fermeture Ailee: *See—*
Lacam, Guy S. P., 3,810,437.

La Mers, Herbert. Plastic melting and feeding machine. 3,810,563, Cl. 222-146.00r.

La Telemecanique Electrique: *See—*
Mongredien, Emile R., 3,810,307.

Labbe, Francis Auguste Maurice, to Molins Limited. Cigarette making machines. 3,810,475, Cl. 131-84.00b.

Laboratoires J. Berthier: *See—*
Meunier, Henry E.; and Eymard, Pierre L., 3,810,942.

Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, to Societe d'Etudes et d'Applications Biochimiques; and Ugine-Kuhlmann. Urate oxidase and process for the production thereof. 3,810,820, Cl. 195-62.000.

Lacam, Guy S. P., to La Fermeture Ailee. Device for guiding and putting under tension a band of a sliding fastener. 3,810,437, Cl. 112-152.000.

Ladouceur, Harold A., to Multifastener Corporation. Installation die and nut method of installing a nut in a panel. 3,810,291, Cl. 29-243.530.

Lagergren, Hans Ragnar: *See—*
Eriksson, Jan Christer; and Lagergren, Hans Ragnar, 3,810,781.

Lahlou, Bachir. Student teaching system and the like and related method. 3,810,316, Cl. 35-8.00a.

Lambert, Benoit. Stirrer for cooking vessels. 3,810,605, Cl. 259-108.000.

Lambert, John W. Pulsating syringe. 3,810,465, Cl. 128-66.000.

Lamoureux, William R.: *See—*
Kleen, Bergert G.; and Lamoureux, William R., 3,811,124.

Lampe, Hans Hermann: *See—*
Dreseher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.

Lang, William D.: *See—*
White, Edward L.; Schwarcz, Joseph; and Lang, William D., 3,810,864.

Lang, Zsuzsanna: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Langlois, Claude: *See—*
Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, 3,810,820.

Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, to Agfa-Gevaert N.V. Photochromic composition containing polyhalogenated hydrocarbon, spiropyran compound and poly-N-vinylcarbazole and the use thereof. 3,810,762, Cl. 96-48.00r.

Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, to Agfa-Gevaert N.V. Photochromic composition containing polyhalogenated hydrocarbon, spiropyran compound and ZnO or Pb(II) oxide and the use thereof. 3,810,763, Cl. 96-48.00r.

Larson, Carlen E.: *See—*
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., 3,810,489.

Lartigue, Gerard; and Rousselet, Andre, to Hoffmann-La Roche Inc. Apparatus for transferring liquids. 3,810,720, Cl. 417-429.000.

Lary, Edmund C.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.

Lauritsen, William Eger Nyboe. Shedding motion of healds for Jacquard weaving machines. 3,810,492, Cl. 139-59.000.

Lavedan, Louis J., Jr.: *See—*
Mason, Robert J.; and Lavedan, Louis J., Jr., 3,811,099.

Lazzarini, Louis P., 1/2 to Hanscom, Genevieve L., (formerly Magnuson, Genevieve L.), 1/2 to Hanscom, Genevieve L., Magnuson, Robert and Thompson, Lois J.; formerly Duggan, Lois J., trustees of the estate of Magnuson, Roy M. Peeling machine and method. 3,810,000, Cl. 426-483.000.

Le Bouchage Mecanique (L.B.M.): *See—*
Coursaut, Henri, 3,810,556.

Lear Siegler, Inc.: *See—*
Kusz, Raymond S.; and Bassoff, Arthur B., 3,810,413.

Lechner, Ernst-Friedrich, to Siemens Aktiengesellschaft. Device for testing multiple electric circuit selector switches. 3,811,086, Cl. 324-28.00r.

Lecuru, Jacques; and Cassa, Jean. Cellular trays for cultivating and displaying plants. 3,810,329, Cl. 47-34.130.

Lee, John M., to Dow Chemical Company, The. Production of cyanuric acid. 3,810,891, Cl. 260-248.00a.

Lee, Raymond, Organization, Inc., The: *See—*
Bender, Leroy E., 3,810,598.
Cline, William, 3,810,557.
Madore, Roger J., 3,810,536.
Miller, Kenneth W., 3,810,615.
Reid, Claude L., 3,810,669.
Sheeler, William, 3,810,464.
Turi, Dino P., 3,810,670.

Lee Raymond, Organization, Inc., The: *See—*

Weimer, Howard A., Sr., 3,810,658.
Lee, Robert D., to United States of America, National Aeronautics and Space Administration. Bio-isolated DC operational amplifier. 3,811,094, Cl. 330-59.000.
Lee, Saishek. Video multiplex system. 3,811,008, Cl. 178-6.60a.
Leggetter, Brian Ernest: *See—*
Davidson, Hugh; and Leggetter, Brian Ernest, 3,810,901.
Leibach, Heinrich, to Motoren- und Turbinen-Union Munchen GmbH. Gas generator with selectively connectible turbine system. 3,810,360, Cl. 60-229.000.
Leimgruber, Willy: *See—*
Mohacsi, Ernest; and Leimgruber, Willy, 3,810,899.
Leimgruber, Willy; and Weigele, Manfred, to Hoffmann-La Roche Inc. Process for producing malononitrile. 3,810,935, Cl. 260-465.80r.
Lemay, Richard A.; and DeVoy, David D., to Honeywell Information Systems, Inc. Data processing system having an improved overlap instruction feteh and instruction execution feature. 3,811,114, Cl. 340-172.500.
Lemmond, Everett C.; and Edwards, James W. Box capping machine. 3,810,345, Cl. 53-306.000.
Lemper, Anthony L.: *See—*
Takahashi, Akio; and Lemper, Anthony L., 3,810,958.
Lensky, Alexandr Nikolaevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Lenz, George R., to Searle, G. D., & Co. 21-Dialkylamino-20-methylpregna-4,17(20)-dien-3-ones and congeners. 3,810,926, Cl. 260-397.100.
Leston and Burpee, Ltd.: *See—*
Allen, Francis Edwin; and McGuire, James Daniel, 3,810,409.
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., to Stauffer Chemical Company. Control of confused flour beetles using geranyl phenyl ethers. 3,810,989, Cl. 424-278.000.
Lethen, Robert, to Otto Junker GmbH. Tiltable induction furnace for molten metals. 3,811,001, Cl. 13-27.000.
LeVan Electronics, Inc.: *See—*
Levick, Herbert, 3,811,046.
Levick, Herbert, to LeVan Electronics, Inc. Light sensitive security system. 3,811,046, Cl. 250-206.000.
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., to National Starch and Chemical Corporation. Hair fixing composition and process containing a solid terpolymer. 3,810,977, Cl. 424-47.000.
Levy, David. Data-processing system for determining gains and losses from bets. 3,810,627, Cl. 273-138.00a.
Lewin, Nathan: *See—*
Rutner, Herman; Rapuh, Raul; and Lewin, Nathan, 3,810,886.
Lewis, Dan, Jr.; and Von Alven, Raymond D., to Cutter Laboratories, Inc. Variable volume container for fluids. 3,810,503, Cl. 150-8.000.
Liang, Chi-Dean: *See—*
Baran, John S.; and Liang, Chi-Dean, 3,810,927.
Libingston, Graydon C., to Wolf & Vine, Inc. Manikin construction. 3,810,565, Cl. 223-68.000.
Lichman, Nikolai Iosifovich: *See—*
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich, 3,810,293.
Licke, David R., to Sperry Rand Corporation. Shaver cutter head. 3,810,306, Cl. 30-43.820.
Lien, Erling L., to Varian Associates. Velocity modulation microwave tube employing a harmonic prebuncher for improved efficiency. 3,811,065, Cl. 315-5.430.
Lijewski, Robert P.: *See—*
Weinfurt, Phillip T.; and Lijewski, Robert P., 3,811,040.
Linde Aktiengesellschaft: *See—*
Hilderbrandt, Ullrich, 3,810,491.
Lindgren, Boris, to Nyby Bruks Aktiebolag. Method for cleaning (degreasing) web material. 3,810,786, Cl. 134-9.000.
Lindholm, Alfons Seth Mikael, to Aktiebolaget Tudor. Reference electrode. 3,810,828, Cl. 204-195.00f.
Lindlof, James A.: *See—*
Tungseth, Barry F.; and Lindlof, James A., 3,810,707.
Link, Donald F. Device for removing articles from a shaft. 3,810,294, Cl. 29-261.000.
Litvin, Anatoly Vasilievich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Lochmann, Robert L.: *See—*
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., 3,810,489.
Lockheed Electronics Company, Inc.: *See—*
Bach, Richard R., 3,811,025.
Lodge, Hilmer G., to Conflow Irrigation Systems. Irrigation system. 3,810,582, Cl. 239-542.000.
Lodi, Frank, to Sani-Seat, Inc. Hygienic apparatus. 3,810,260, Cl. 4-7.000.
Logicon, Inc.: *See—*
Seitz, Neal B., 3,811,014.
Lohse, Friedrich: *See—*
Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, 3,810,855.
London, Eugene J.; and Boncher, John L., Jr. Freezer unloading system for hamburger patties. 3,810,554, Cl. 214-6.00d.
Long, David T., to United States of America, Navy. Intrusion detection apparatus. 3,811,010, Cl. 178-6.800.
Longarzo, Roland P., to Ibex Precision Products, Inc. Ball, socket and clip device. 3,810,550, Cl. 211-69.600.
Lonza Ltd.: *See—*
O'Murchu, Colm, 3,810,934.
Low, Miklos: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo, and Lang, Zsuzsanna, 3,810,880.
Lowe, Bernice E. Convertible bingo card holder. 3,810,323, Cl. 40-124.000.
Lowe, Jack Graham, to Burton Delingpole & Company Limited. Scaffold tube coupler. 3,810,704, Cl. 403-385.000.
Lowrance, Larry D. Trailer hitch. 3,810,661, Cl. 280-415.00b.
Lox Equipment Company: *See—*
Hampton, Robert S.; and Eifel, Paul J., 3,810,365.
Lucas Aerospace Limited: *See—*
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.
Lucas, Joseph, (Electrical) Limited: *See—*
Sutton, Christopher John, 3,811,082.
Ludlow Corporation: *See—*
Bryan, Robert C., Jr.; and Price, Joseph F., 3,810,328.
Ludwick, Ralph. Hose support. 3,810,490, Cl. 138-106.000.
Luecke, Juergen, to Sandoz Ltd. Process for the production of nitriles. 3,810,903, Cl. 260-294.900.
Lumenition Limited: *See—*
Ford, Eric Harold, 3,810,448.
Lumidor Products Corporation: *See—*
Burnell, Norman; and Potruch, Robert A., 3,811,006.
Lundqvist, Bengt Olof, to AB Gustavsbergs Fibriker. Mobile purifying plant for waste water. 3,810,543, Cl. 210-152.000.
Lunk, Hans E., to Shell Oil Company. Selectively hydrogenated block copolymer-polystyrene blends. 3,810,957, Cl. 260-876.00b.
Luukkonen, Paavo O. Rotary engine with cushioning device for the partition. 3,810,724, Cl. 418-248.000.
Lygovskoi, Andrei Likyanovich: *See—*
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich, 3,810,293.
Lyle, Phra D.: *See—*
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.
M & T Chemicals Inc.: *See—*
Passal, Frank, 3,810,917.
MacDonald, William Ronald, to National Research development Corporation. Angular accelerometers. 3,810,393, Cl. 73-505.000.
MacDougall, John A.: *See—*
Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., 3,810,564.
Machida, Takayasu: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Machine Components Corporation: *See—*
Kaplan, Joseph, 3,811,018.
MacLean-Fogg Lock Nut Co.: *See—*
Grube, William L., 3,810,290.
MacManus, Daniel C.; Larson, Carlen E.; and Lochmann, Robert L., to General Motors Corporation. Solenoid latched diaphragm fuel shutoff valve assembly. 3,810,489, Cl. 137-495.000.
MacManus, John. Whipping apparatus. 3,810,415, Cl. 99-60.000.
Madore, Roger J., 20% to Lee, Raymond, Organization, Inc., The. Typewriter roll label holder. 3,810,536, Cl. 197-133.00r.
Maeda, Tsuneo: *See—*
Iwata, Masayoshi; and Maeda, Tsuneo, 3,810,520.
Magelic, Orville Leonard: *See—*
Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, 3,810,920.
Magenta Corporation: *See—*
Kiba, Jack Y., 3,810,321.
Magnesium Elektron Limited: *See—*
McAlpine, Ian; and Clough, David John, 3,810,852.
Magnetic Laboratories Inc.: *See—*
Turner, Norman E.; and McGonigal, James J., 3,811,045.
Magnuson, Robert: *See—*
Lazzarini, Louis P., 3,811,000.
Mahlmann, James P.: *See—*
Balling, T. Thomas; and Mahlmann, James P., 3,810,999.
Mahoney, Ralph P. Dispensing container enabling a coil of a resilient, edged metal band to be formed therein. 3,810,588, Cl. 242-5.000.
Major S.p.A.: *See—*
Freccero, Renato; and Dolei, Silvano, 3,810,701.
Malcolm, George David. Tape dispenser attachment. 3,810,567, Cl. 225-67.000.

Malinovsky, Vladimir Sergeevich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.
Malkin, Arkady Semenovich: *See—*
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Malkin, Bruce, to Electro-Speed Tool Corporation. Electric nailer. 3,810,572, Cl. 227-132.000.
Malmendier, Joseph W.: *See—*
Dumbaugh, William H., Jr.; and Malmendier, Joseph W., 3,810,744.
Maltsev, Lev Alexandrovich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich, and Panycheva, Lidia Alexandrovna, 3,811,29.
Manhattan College: *See—*
Dar Conte, John M., 3,810,363.
Mani, Inder, to Dow Chemical Company, The. Resin and process for curing by exposing to ionizing radiation a mixture of a vinyl ester resin, an alkenyl aromatic monomer and a 2-oxazoline or guanidine. 3,810,825, Cl. 204-159.150.
Mani, Inder, to Dow Chemical Company, The. Radiation polymerizable vinyl ester resins containing 2-oxazoline and guanidine additives. 3,810,826, Cl. 204-159.150.
Manney, Charles J.: *See—*
Schreyer, Kenneth D.; and Manney, Charles J., 3,810,359.
Marcil, Jean Pierre. Suspension damping device. 3,810,659, Cl. 280-276.000.
Marconi Company Limited, The: *See—*
Rosenbaum, Harold Matthew; and Duerden, Francis, 3,810,317.
Marcor Housing Systems, Incorporated: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.
Marforio, Nerino, to S.p.A. Virginio Rimoldi & C. Apparatus for forming patterned seams in fabric workpieces. 3,810,436, Cl. 112-121.150.
Marr, Peter A.: *See—*
Bailey, Joseph; Knott, Edward B.; and Marr, Peter A., 3,810,761.
Martchenke, Earl J. Ski pole with camera mounting means 280/011.37e. 3,810,647, Cl. 7-20-72.
Martin Marietta Corporation: *See—*
Holst, Dennis W., 3,811,129.
Martin, William W.; Schell, Donald H.; and Tauh, James M., to United States of America, Atomic Energy Commission. Method of making a carbide-graphite composite nuclear fuel. 3,810,962, Cl. 264-.500.
Martini, Leonard J., to United States of America, Navy. Cooling water valve. 3,810,484, Cl. 137-70.000.
Masaki, Kenji, to Nissan Motor Company, Limited. Carburetter output control device. 3,810,606, Cl. 261-39.00a.
Maschinenfabrik Gochel GmbH: *See—*
Herd, Josef; and Jakob, Hans, 3,810,809.
Maselli, James Michael; and Kim, Gwan, to Grace, W. R., & Co. Catalytic process for the oxidation of orthoxylene to phthalic anhydride. 3,810,921, Cl. 260-346.400.
Mason, Robert J.; and Lavedan, Louis J., Jr., to United States of America, Navy, mesne. Means of securing ferrimagnetic core in a microwave phaser. 3,811,099, Cl. 333-24.100.
Masonite Corporation: *See—*
Pittman, Raymond H., 3,810,774.
Massie, Stephen N., to Universal Oil Products Company. Molybdenum oxalate-anion exchange resin catalyst. 3,810,849, Cl. 260-2.10e.
Massie, Stephen N., to Universal Oil Products Company. Synthesis of piperazines. 3,810,895, Cl. 260-268.0sy.
Masuyama, Takeshi: *See—*
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.
Matherne, Carrol J. Compact tubing testing unit. 3,810,383, Cl. 73-40.50r.
Mathis, Ronald D.; and Dix, James S., to Phillips Petroleum Company. Char-forming, flame retardant polyolefin composition. 3,810,862, Cl. 260-42.450.
Matossi, Dario: *See—*
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, to Banyu Pharmaceutical Co., Ltd. and Hidaka, Hiroyoshi. Pyridine bis(dithiocarbamate)derivatives and preparation thereof. 3,810,900, Cl. 260-293.690.
Matsumoto, Seiji; and Takahashi, Isoji, to Xerox Corporation. Electrophotographic charging apparatus. 3,811,048, Cl. 250-326.000.
Matsumoto, Yoshi; and Tashiro, Tsuneo, to Tokyo Shibaura Electric Co., Ltd. Color electrostatic copying apparatus. 3,810,693, Cl. 355-4.000.
Matsuo, Chickau: *See—*
Grimm, Henry B.; Matsuo, Chickau; and Wilborn, Donald C., 3,810,706.
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, to Matsushita Electric Industrial Co., Ltd. Voltage-nonlinear resistors. 3,811,103, Cl. 338-20.000.
Matsushita Electric Industrial Co., Ltd.: *See—*
Fukumoto, Akira; Hane, Toshihide; Tsuchiya, Hiroyoshi; and Hayami, Heijiro, 3,811,009.
Matsuoka, Michio; Kobayashi, Yoshikazu; Itakura, Gen; and Masuyama, Takeshi, 3,811,103.
Nagaoka, Tadashi, 3,810,570.
Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, 3,811,113.
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, 3,811,090.
Matsushita Electric Industrial Company, Limited: *See—*
Shiga, Kazumasa, 3,811,075.
Matsushita, Teruko, 50% to Ito, Yoshie. Novelty type light device. 3,811,041, Cl. 240-2.00r.
Matsuzaki, Meiki: *See—*
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.
Matthews, Russell B., to Johnson Service Company. Bulb modulating gas valve. 3,810,578, Cl. 236-80.000.
Matthewson, Ian: *See—*
Wade, Thomas Cyril James; Matthewson, Ian; and Savage, Sidney Clifford, 3,810,368.
Matty, Thomas C., to Westinghouse Electric Corporation. Method of and apparatus for producing a vehicle movement breaking signal in response to sensing the direction of travel of a vehicle. 3,810,681, Cl. 303-20.000.
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, to Japan Atomic Energy Research Institute and Nakajima Industry Company Limited. Glass processing lathe. 3,810,748, Cl. 65-271.000.
Maurice, George T.: *See—*
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., 3,810,545.
Max-Planck-Gesellschaft zur Forderung der Wissenchafter e.V.: *See—*
Gerisch, Gunther, 3,810,822.
Maynard, David Payne: *See—*
Weaver, John; and Maynard, David Payne, 3,810,709.
Maynard, F. Charles, Jr.: *See—*
Fussell, Edward B., Jr.; and Maynard, F. Charles, Jr., 3,810,267.
Maytag Company, The: *See—*
Smtih, Thomas R.; and Faust, Stewart W., 3,810,480.
Mayville Metal Products Co.: *See—*
Merkl, Lloyd D., 3,810,561.
McAlpine, Ian; and Clough, David John, to Magnesium Elektron Limited. Thixotropic aqueous dispersions of polymers and copolymers derived from ethylenically unsaturated monomers. 3,810,852, Cl. 260-17.00r.
McAshan, Robert Burton, Jr. Ice distribution and level control. 3,810,386, Cl. 62-137.000.
McBride, Roby C.; and Owens, Howard, to TPI Corporation. Duct electrical heater unit. 3,811,031, Cl. 219-374.000.
McCahon, John O.; and Byrne, William J., to Smyth Manufacturing Company, The. Method and apparatus for handling sheet materials, signatures and the like. 3,810,612, Cl. 271-11.000.
McCormick, James B., to American Health, Inc. Disposable pulmonary function kit. 3,810,461, Cl. 128-2.080.
McCormick, Walter R., to NL Industries, Inc. Process for scrubbing hydrogen chloride from waste gases and selective recovery of anhydrous magnesium chloride. 3,810,970, Cl. 423-498.000.
McCoy, Wallace W. Random honeycomb structure. 3,810,798, Cl. 156-62.200.
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., to Marcor Housing Systems, Incorporated. Fire barrer system for multi-family dwellings. 3,810,335, Cl. 52-79.000.
McCurdy, Richard H.; and Connelly, Lawrence W., to Sitelines, Inc. Pivotally mounted hermetically sealed window unit. 3,810,331, Cl. 49-401.000.
McDonnell Douglas Corporation: *See—*
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 3,810,385.
Welhart, Erwin K.; Voss, David L.; and Harrell, John F., 3,810,815.
McFaul, Howard J.; Erdman, Donald C.; and Friedmann, Evan B., 1/2 to McDonnell Douglas Corporation and 1/2 to Erdman, Donald C., Company, Inc. Transducer means for ultrasonic extensometer. 3,810,385, Cl. 73-71.50u.
McGonigal, James J.: *See—*
Turner, Norman E.; and McGonigal, James J., 3,811,045.
McGrew, David P., 37.5% to Castleman, Curtis H. Viscosity control additive for water beds and other aqueous-filled furniture. 3,810,265, Cl. 5-348.9wb.
McGuire, James Daniel: *See—*
Allen, Francis Edwin; and McGuire, James Daniel, 3,810,409.
McNally, John S.: *See—*
Hatton, John A., Jr.; and McNally, John S., 3,810,863
McNemar, Edward R. Mystery game with balanced pocketed container. 3,810,624, Cl. 273-102.10c.
Meador, Thomas G., Jr., to United States of America, National Aeronautics and Space Administration. Light shield and cooling apparatus. 3,811,044, Cl. 240-47.000.
Medical Concepts, Inc.: *See—*

Karman, Harvey, 3,810,456.
Medicotech Company: *See—*
Szpur, Roman, 3,810,462.
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, to Richter Gedeon Vegyeszeti Gyar Rt. Process for the preparation of biologically active polypeptides. 3,810,880, Cl. 260-112.500.
Meerson, Grigory Izrailevich: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich; Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.
Meginnis, George B.: *See—*
Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., 3,810,711.
Meier, Werner: *See—*
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Menn, Julius J.: *See—*
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., 3,810,989.
Menn, Julius Joel, to Stauffer Chemical Company. Anthelmintic bis-thioureido benzene derivative. 3,810,992, Cl. 424-300.000.
Merck & Co., Inc.: *See—*
Dalhuisen, Albert J.; and Deis, William H., 3,810,856.
Saari, Walfred S., 3,810,987.
Merkl, Lloyd D., to Mayville Metal Products Co. Vending machine delivery apparatus. 3,810,561, Cl. 221-201.000.
Merrell, Kenneth C., to Robertshaw Controls Company. Capacitance responsive detector system. 3,811,051, Cl. 307-118.000.
Mesiah, Raymond N.; Chancey, Harold R.; and Cohen, Milton, to FMC Corporation. Trichloroisocyanuric acid manufacture. 3,810,892, Cl. 260-248.00c.
Metz, Anthony B. Bumper jack. 3,810,603, Cl. 254-100.000.
Meunier, Henry E.; and Eymard, Pierre L., to Laboratoires J. Berthier. Acetamido naphthyl or acetophenone compounds and derivatives thereof. 3,810,942, Cl. 260-562.00b.
Meussdoerffer, Johann Nikolaus; and Niederprum, Hans, to Bayer Aktiengesellschaft. Catalytic production of 1,1-difluoroethane. 3,810,948, Cl. 260-653.600.
Meyer, Frieda Anna: *See—*
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.
Meyer, Friedrich J.; deceased (by Meyer, Frieda Anna; heiress); Kaspers, Helmut; and Scheinpflug, Hans, to Bayer Aktiengesellschaft. 1-Aldoxy- or 1-alkylthio-carbonyl-2-thienyl-(2)-benzimidazoles. 3,810,910, Cl. 260-309.200.
Micchelli, Albert L.: *See—*
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., 3,810,977.
Michelet, Robert Wilson; and Silverman, Edward Jerome, to Bell Telephone Laboratories, Incorporated. Interlocked power supply transfer circuit to inhibit secondary transfer after a primary transfer. 3,811,050, Cl. 307-64.000.
Micromatic Industries, Inc.: *See—*
Gillette, Robert H., 3,810,333.
Midland-Ross Corporation: *See—*
Allyn, Jerome B., MacDougall, John A.; and Nesbitt, John D., 3,810,564.
Miguel, Antonio H.: *See—*
Skarbo, Roald R.; and Miguel, Antonio H., 3,810,971.
Mikofalvy, Bela K., to Goodrich, B. F., Company, The. Thickenable alkyl acrylate latices. 3,810,859, Cl. 260-29.6rw.
Milchem Incorporated: *See—*
Browning, William C.; and Chesser, Billy G., 3,810,882.
Miles, Gilbert Dwayne, to Colgate-Palmolive Company. Toothbrush having antimicrobial means. 3,810,479, Cl. 132-84.000.
Miles Laboratories, Inc.: *See—*
Wiley, Richard H., 3,810,923.
Miller, Charlie D., to Carrier Corporation. Tube severing device. 3,810,402, Cl. 82-82.000.
Miller, Kenneth W., 20% to Lee, Raymond, Organization, Inc., The. Educational game: Space station. 3,810,615, Cl. 273-1.00c.
Miller, Leonard R.: *See—*
Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., 3,810,976.
Miller, O. Neal: *See—*
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.
Mills, Truett P. Hosel-less wood type golf club. 3,810,621, Cl. 273-80.200.
Miltenberger, Robert S., to National Steel Corporation. Process for casting molten aluminum killed steel continuously and the solidified steel shaped thus produced. 3,810,753, Cl. 75-49.000.
Minghella, Paul F., to United States of America, Army, mesne. Automatic positioning device exhibiting high accuracy and repeatability. 3,811,083, Cl. 318-466.000.
Minnesota Mining and Manufacturing Company: *See—*
Elm, Robert A., 3,810,596.
Tungseth, Barry F.; and Lindlof, James A., 3,810,707.
Miram, Oleg V. Form for use in building construction. 3,810,601, Cl. 249 189.000.
Miron, Jerry: *See—*
Borchert, Alfred E.; Goff, Frank M.; and Miron, Jerry, 3,810,871.
Mitsch, Ronald A.; and Zollinger, Joseph La Mar. Polymers prepared from poly(perfluoroalkylene oxide) compounds. 3,810,874, Cl. 260-75.00h.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Yokoyama, Masahiro; and Kobayashi, Takanori, 3,810,438.
Miyake, Yoshiaki, to Fuji Photo Film Co., Ltd. Method and means for moving a shiftable holder for a roll core or the like. 3,810,590, Cl. 242-68.400.
Miyano, Masateru, to Searle, G. D., & Co. 2-Formyl 3-oxygenated 5-oxocyclopentaneheptanoic acids, esters corresponding and derivatives. 3,810,936, Cl. 260-468.00k.
Miyazaki, Tsutomu; and Suzuki, Yoshihisa, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Automatic yarn piecing apparatus for continuous ringless spinning machine and method of using same. 3,810,352, Cl. 57-34.00r.
Mizuno, Yikio, to Nissan Motor Company, Limited. Tension regulating apparatus for loom. 3,810,493, Cl. 139-110.000.
Mizushima, Yoshihiko: *See—*
Suzuki, Toshimasa; and Mizushima, Yoshihiko, 3,811,074.
Mo Och Domsjo Aktiebolag: *See—*
Kristiansen, Aage, 3,810,847.
Mobil Oil Corporation: *See—*
Fitch, John L.; and Strubhar, Malcolm K., 3,810,510.
Model, Ernst; von der Crone, Jose; and Pugin, Andre, to Ciba-Geigy Corporation. Iminoisoindolinone dyestuffs and process for their manufacture. 3,810,889, Cl. 260-240.00g.
Modern Faucet Manufacturing Company: *See—*
Rauh, Jack, 3,810,580.
Mohacsi, Ernest; and Leimgruber, Willy, to Hoffmann-La Roche Inc. 2-Hydroxy-N-substituted-morphinan derivatives. 3,810,899, Cl. 260-285.000.
Molins Limited: *See—*
Labbe, Francis Auguste Maurice, 3,810,475.
Molnar, James V.: *See—*
Pickett, Charles G.; and Molnar, James V., 3,810,779.
Monarch Marking Systems, Inc.: *See—*
Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., 3,811,033.
Mongredien, Emile R., to La Telemecanique Electrique. Wire cutting and stripping pliers. 3,810,307, Cl. 30-90.100.
Monsanto Chemicals Limited: *See—*
Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., 3,810,965.
Monsanto Company: *See—*
Munch, Ralph H., 3,811,077.
Olin, John F., 3,810,981.
Monti, Giancarlo: *See—*
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, 3,811,013.
Moodie, Donald E., to Polaroid Corporation. Device for varying light transmission employing roller-cable machanism. 3,810,689, Cl. 350-159.000.
Moody, Roy Alleyne: *See—*
Coveney, Jack Edward; and Moody, Roy Alleyne, 3,810,288.
Moore, Glenn L. Electrical cord hatch. 3,811,004, Cl. 174-67.000.
Moore, William G.: *See—*
Gonzales, Michael; Benton, Richard H.; and Moore, William G., 3,810,630.
Morduchowitz, Abraham, to Texaco Inc. Method of pretecting surfaces by coating with imide-ester derivatives of ethene-maleic anhydride copolymers. 3,810,276, Cl. 117-161.00n.
Moreno, Maria F.: *See—*
Sutliff, Gloria M.; and Moreno, Maria F., 3,810,996.
Morgan, John Roderick Cromwell, to Von Meijer, Frederick William Albert. Air-cushion supported vehicles. 3,810,522, Cl. .
Morgan, Paul A., to Century Wheels, Inc. Micrometer measuring devices. 3,810,310, Cl. 33-166.000.
Morinaga Milk Industry Co., Ltd.: *See—*
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.
Morissette, Bertrand G.: *See—*
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., 3,810,837.
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, to Lucas Aerospace Limited. Turbine with lubricant tanks in centre body and housing. 3,810,528, Cl. 184-6.110.
Morris, Thomas H.; and Wu, Tao-Yuan, to Ford Motor Company. Engine spark timing system control. 3,810,452, Cl. 123-117.00a.
Morrison, Charles R., to Truck-Lite Company, Inc. License plate lamp assembly. 3,811,042, Cl. 240-7.10r.
Morrison, Thomas E.: *See—*
Studdard, Donald T.; and Morrison, Thomas E., 3,810,678.
Morse, Theodore H.: *See—*
Stahr, Richard W.; and Morse, Theodore H., 3,810,759.
Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, to Cableform Limited. Control circuits for D.C. electric motors. 3,811,080, Cl. 318-341.000.
Moser, Gottfried: *See—*
Spiller, Richard; Moser, Gottfried; and Berthold, Walter, 3,810,513.
Moser, Rabin, to Xerox Corporation. Heat fixing apparatus for fusible material. 3,810,735, Cl. 432-59.000.

Mosley, Fred E., to Mosley Machinery Co., Inc. Scrap feeding apparatus. 3,810,421, Cl. 100-95.000.
Mosley Machinery Co., Inc.: *See—*
Mosley, Fred E., 3,810,421.
Mosquera, Hugo O.: *See—*
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., 3,811,020.
Moss, Gerald: *See—*
Humphrey, Robert Walter; and Moss, Gerald, 3,810,972.
Motoren- und Turbinen-Union Munchen GmbH: *See—*
Leibach, Heinrich, 3,810,360.
Motorola, Inc.: *See—*
Schmidt, Hans, 3,811,100.
Mousseau, Jean-Marie. Process and apparatus for winding sheet material. 3,810,589, Cl. 242-66.000.
Moyes, Martin Gerald, to Gee-Elliott Mechanical Handling Limited. Conveyors. 3,810,538, Cl. 198-127.00r.
Mueller, Richard H. Bed device. 3,810,264, Cl. 5-220.000.
Mullenbach, Guy Towns: *See—*
Urry, Wilbert Herbert; and Mullenbach, Guy Towns, 3,810,918.
Muller, Marcel: *See—*
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.
Multifastener Corporation: *See—*
Ladouceur, Harold A., 3,810,291.
Munch, Ralph H., to Monsanto Company. Liquid impregnated capacitor. 3,811,077, Cl. 317-258.000.
Munchbach assor. to said Walton: *See—*
Walton, Richard R.; and Munchbach, George E., 3,810,280.
Munchbach, George E.: *See—*
Walton, Richard R.; and Munchbach, George E., 3,810,280.
Mundo, Louis J. Rotatable washing brush. 3,810,271, Cl. 15-183.000.
Munson, Robert E., to Ball Brothers Research Corporation. Electrically scanned microstrip antenna. 3,811,128, Cl. 343-787.000.
Murata, Kingo, to Kabushiki Kaisha Koparu. Timer device. 3,810,357, Cl. 58-33.000.
Murenbeeld, Karel: *See—*
Ferrier, Duncan Cameron; Berry, Thomas; and Murenbeeld, Karel, 3,810,285.
Murphy, Lillian A. Target apparatus with ball catching means. 3,810,616, Cl. 273-26.00a.
Muskulus, Willi, to Blazer & Droll KG. Coil winding method and apparatus. 3,810,587, Cl. 242-7.030.
Myers, Robert C. Nonrotatable hub and seal means for automotive vehicle. 3,810,679, Cl. 301-108.00s.
Nagaoka, Tadashi, to Matsushita Electric Industrial Co., Ltd. Tape driving mechanism in recording and/or reproducing apparatus. 3,810,570, Cl. 226-176.000.
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, to Morinaga Milk Industry Co., Ltd. Process for preparing a cold-water soluble fat-containing powdered milk product. 3,810,765, Cl. 426-92.000.
Naik, Navnitrai Nagarji: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Nakagawa, Kanji: *See—*
Matsumoto, Ikuo; Nakagawa, Kanji; Matsuzaki, Meiki; and Horiuchi, Kenji, 3,810,900.
Nakajima, Fumio: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Nakajima Industry Company Limited: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Nakajima, Shigeji: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.
Nakamura, Hiromichi: *See—*
Takeuchi, Yasuhisa; and Nakamura, Hiromichi, 3,811,116.
Nakao, Masaru: *See—*
Yamamoto, Hisao; and Nakao, Masaru, 3,810,906.
Nakayama, Norihiko: *See—*
Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, 3,811,062.
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, to Fujitsu Limited. Plane surface discharge plasma display panel. 3,811,061, Cl. 313-109.500.
Nakayama, Yuya: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.
Nalco Chemical Company: *See—*
Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., 3,810,845.
Narita, Toshiro: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.
National Cash Register Company, The: *See—*
Coleman, William Earl, 3,810,686.
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, 3,810,423.
Posner, John David, 3,810,433.
National Research Development Corporation: *See—*
Jason, Alfred Charles, 3,810,389.
MacDonald, William Ronald, 3,810,393.
National Starch and Chemical Corporation: *See—*
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., 3,810,977.
Ray-Chaudhuri, Dilip K.; and Iovine, Carmine P., 3,810,939.
National Steel Corporation: *See—*
Miltenberger, Robert S., 3,810,753.
Nedelec, Lucien: *See—*
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Nedwick, Zygmund, to Athletics Devices, Inc. Quarterback football trainer with attachable target unit. 3,810,618, Cl. 273-55.00r.
Neher, Hans, to Hengstler, J., K.G. Mechanical counter. 3,811,032, Cl. 235-1.00c.
Nelms, David E., Jr. Key-mode apparatus and system. 3,810,416, Cl. 90-62.00r.
Nelson, John Frederick: *See—*
Swick, Edwin Grant; and Nelson, John Frederick, 3,810,279.
Nelson, Vaugh A.: *See—*
Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., 3,810,519.
Nelsson, Nels, to United States Gypsum Company. Integral stud and bracket standard. 3,810,340, Cl. 52-729.000.
Nesbitt, John D.: *See—*
Allyn, Jerome B.; MacDougall, John A.; and Nesbitt, John D., 3,810,564.
Neugebauer, Gerhard, to Alexander Wiegand Armaturen- und Manometerfabrik. Miniature pressure gauge. 3,810,390, Cl. 73-418.000.
Newberry, John; and Ettie, Alan George Albert Edward, to British Insulated Callender's Cables Limited. Method of and apparatus for drawing wire. 3,810,380, Cl. 72-279.000.
Newman, June S. Shoe flexer. 3,810,270, Cl. 12-41.100.
Nicklin, Thomas, to North Western Gas Board. Purification processes. 3,810,833, Cl. 210-32.000.
Nicolau, Albert: *See—*
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, 3,810,857.
Nicolet Instruments, Inc.: *See—*
Schumann, Robert W., 3,811,125.
Nidola, Antonio: *See—*
Bianchi, Giuseppe; De Nora, Vittorio; Gallone, Patrizio; and Nidola, Antonio, 3,810,770.
Niederprum, Hans: *See—*
Meussdoerffer, Johann Nikolaus; and Niederprum, Hans, 3,810,948.
Nighan, William L., III: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, to Citizen Watch Company, Limited. Quick correction mechanism for a seconds hand of a timepiece. 3,810,354, Cl. 58-23.00d.
Nippon Telegraph and Telephone Public Corporation: *See—*
Suzuki, Toshimasa; and Mizushima, Yoshihiko, 3,811,074.
Nippondenso Co., Ltd.: *See—*
Kitano, Akira, 3,811,037.
Sakurai, Yasuhiko, 3,811,107.
Nissan Motor Company, Limited: *See—*
Baba, Kosaku; and Wazawa, Kiyoshi, 3,811,056.
Ito, Naganori; and Aikawa, Hiroshi, 3,810,611.
Masaki, Kenji, 3,810,606.
Mizuno, Yikio, 3,810,493.
Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, 3,810,395.
Takeuchi, Yasuhisa; and Nakamura, Hiromichi, 3,811,116.
Yamaguchi, Michio; and Kohno, Yasumasa, 3,810,523.
NL Industries, Inc.: *See—*
McCormick, Walter R., 3,810,970.
Nohmura, Ryotaro. Tent. 3,810,481, Cl. 135-3.00r.
Noll, James L.: *See—*
DeBano, John, Jr.; and Noll, James L., 3,810,654.
Norman, Arthur J.; and Cobbledick, David S., to General Tire & Rubber Company, The. Flame retardant flexible polyurethane foams. 3,810,851, Cl. 260-2.5aj.
North Western Gas Board: *See—*
Nicklin, Thomas, 3,810,833.
Norton, James H., to Esso Research and Engineering Company. Non-staining drill lubricants. 3,810,836, Cl. 252-8.50e.
Novak, Leo J. Centrifugal mechanical device. 3;810,394, Cl. 74-87.000.
N.R. Fitments Limited: *See—*
Crisp, David J.; and Ford, Roger A., 3,810,558.
Nunnink, Charles P., Jr.; and Bell, Marvin D., to Recreation Creations, Inc. Trailer vehicle anti-theft plug assembly. 3,810,664, Cl. 280-507.000.
Nussbaum, William J. Reagent-impregnated substrate for the performance of bacterial and chemical tests. 3,810,739, Cl. 23-253.0tp.
Nyby Bruks Aktiebolag: *See—*
Lindgren, Boris, 3,810,786.
Oberloier, John W. Timming apparatus. 3,810,405, Cl. 83-100.000.
Oehm, Otto, to Stahlwerke Bruninghaus Gesellschaft mit beschrankter Haftung. Apparatus for the production of elongated conical metallic articles. 3,810,375, Cl. 72-81.000.

Office National d'Etudes et de Recherches Aerospatiales (par abreviation: O.N.E.R.A.): *See—*
Galmiche, Philippe, 3,810,782.
Ogata, Fumimaro: *See—*
Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, 3,810,956.
Ogawa, Fumiaki: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Ogle, James A., to Burroughs Corporation. Drive regulation and delay control in display systems. 3,811,071, Cl. 315-169.0tv.
Ohlschlager, Hans: *See—*
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.
Ohtomo, Koichiro: *See—*
Kimura, Isao; Ogata, Fumimaro; and Ohtomo, Koichiro, 3,810,956.
Oil Mop, Inc.: *See—*
Rhodes, Herbert M., 3,810,832.
Okamoto, Hajime: *See—*
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, 3,810,819.
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, to Okamoto, Hajime. Anti-tumor substance from hemolytic streptococci and process for producing the same using ammonium sulfate. 3,810,819, Cl. .
O'Keeffe, Terence W., to Westinghouse Electric Corporation. Signal stabilization of an alignment detection device. 3,811,069, Cl. 315-31.00r.
Oldani, John R.: *See—*
McCrillis, Raymond L.; Fuller, Walter T.; Dixon, Richard H.; and Oldani, John R., 3,810,335.
Oligomeric phosphorodiamidate: *See—*
Haugen, Haakon, 3,810,838.
Olin Corporation: *See—*
Ford, James A.; and Butt, Sheldon H., 3,810,754.
Pivawer, Philip M., 3,810,961.
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., 3,810,287.
Olin, John F., to Monsanto Company. Insecticidal compositions and methods employing phosphorylated anilides. 3,810,981, Cl. 424-204.000.
Oliver, Gerald D.: *See—*
United States of America, National Aeronautics and Space administration, 3,810,829.
Olson, Frank Wesley, Jr., and Roberts, Karl Hutchson, to Colgate-Palmolive Company. Shampoo composition possessing separate lotion phase. 3,810,478, Cl. 132-7.000.
Olson, George R.: *See—*
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., 3,810,807.
Olsson, Gunnar Otto Hugo. Method and apparatus for anchoring a cement concrete body such as a roadway onto a base of sand, gravel, soil or similar material. 3,810,708, Cl. 404-72.000.
O'Murchu, Colm, to Lonza Ltd. Process for the production of cyanoacetylcarbamates. 3,810,934, Cl. 260-465.00d.
Onda, Mitsuo: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Onoda, Yoshimitsu: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.
Oomen, Joris Jan Cornelis: *See—*
Vermeulen, Cornelis Geerhard; and Oomen, Joris Jan Cornelis, 3,810,789.
Oriental Yeast Co., Ltd.: *See—*
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.
Orro, Pavel Ivanovich; and Kirilanko, Anatoly Vasilievich; deceased (by Kirilenko, Nilla Sergeevne; administrator). Thin-walled tube cold-rolling mill. 3,810,377, Cl. 72-208.000.
Orth, Charles D., to Controls Company of America. Refrigeration valve. 3,810,366, Cl. 62-217.000.
Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., to Controls Company of America. Pressure regulator valve. 3,810,488, Cl. 137-489.300.
Ostapenko, Viktor Vladimirovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Otto Junker GmbH: *See—*
Lethen, Robert, 3,811,001.
Outboard Marine Corporation: *See—*
Densow, Ulrich O., 3,810,533.
Outboard Marino Corporation: *See—*
Smale, William B., 3,810,518.
Overhead Door Corporation: *See—*
Crosswell, Flay D.; and Galbreath, Gerald W., 3,810,672.
Owens, Howard: *See—*
McBride, Roby C.; and Owens, Howard, 3,811,031.
Owens-Corning Fiberglas Corporation: *See—*
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.
Shannon, Richard F., 3,810,773.
Stalego, Charles J., 3,810,741.
Wong, Robert; and Hill, Homer G., 3,810,784.
Owens-Illinois, Inc.: *See—*
Hagedorn, Erwin C.; and Hall, Dallas P., 3,810,745.
Oxenham, James Preston, to Shell Oil Company. Apparatus for controlling a polluting liquid. 3,810,546, Cl. 210-242.000.
Pack, Kenneth E., to Continental Drilling Co. Automatic stapling system. 3,810,495, Cl. 140-93.00a.
Padgett, Clifford A.; and Slade, Lester C., to Raymond International, Inc. Lining machine. 3,810,441, Cl. 118-105.000.
Pallos, Ferenc M.: *See—*
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., 3,810,989.
Palomo, Manuel W. Method of rendering pressurized bottle non-explosive. 3,810,343, Cl. 53-37.000.
Panduit Corporation: *See—*
Coveney, Jack Edward; and Moody, Roy Alleyne, 3,810,288.
Pantke, Heinz Dieter: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.
Panycheva, Lidia Alexandrovna: *See—*
Averyanov, Viktor Vasilievich; Bortnichuk, Nikolai Iosifovich, Garanov, Viktor Nikolaevich; Krutyansky, Mikhail Mironovich; Malinovsky, Vladimir Sergeevich; Meerson, Grigory Izrailevich; Maltsev, Lev Alexandrovich; and Panycheva, Lidia Alexandrovna, 3,811,29.
Papillon Etablissement: *See—*
Wolthers, Adolf Johan, 3,810,719.
Park-Ohio Industries, Inc.: *See—*
Vickers, Robert V., 3,810,608.
Parker, Richard G., to Goodrich, B. F., Company, The. Bis-(β-amino acrylyl thiocarboxylate) of cyclic hydrocarbon alcohols. 3,810,930, Cl. 260-455.00r.
Parker-Hannifin Corporation: *See—*
Scannell, John B., 3,810,639.
Parkison, Richard Grant, to American Standard Inc. Ceramic disk faucet. 3,810,602, Cl. 251-304.000.
Parsons, Joseph R.; and Rechter, Harold L., to Chicago Fire Brick Company. Refractory composition comprising coarse particles of clay or bauxite and carbon. 3,810,768, Cl. 106-56.000.
Pasbrig, Max. Releasable joints with male and female elements. 3,810,703, Cl. 403-324.000.
Pasha, Mohiuddin: *See—*
Byers, Thomas W.; Dehlem, Francis E.; Ireland, Roy D., Jr.; and Pasha, Mohiuddin, 3,810,348.
Passal, Frank, to M & T Chemicals Inc. Oxyomegasulfohydrocarbondi-yl-coumarins. 3,810,917, Cl. 260-343.20r.
Pastoor, Willem: *See—*
Garbe, Siegfried A. E.; Zalm, Pieter; and Pastoor, Willem, 3,811,002.
Patchell, Albert George, to Smith & Nephew Research Limited. Apparatus for improving the regularity of embossments on thin polymer film. 3,810,729, Cl. 425-308.000.
Patentverwertungs- und Finanzierungsgesellschaft Serania AG: *See—*
Schmid, August; and Goens, Georges, 3,810,617.
Paulay, Zoltan: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.
Paxson, Ernest B., Jr.: *See—*
Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., 3,810,803.
Payne, Calvin L., Jr., to Tudor Metal Products Corporation. Hockey game playing piece. 3,810,622, Cl. 273-85.00a.
Pearce, Warren, Jr.: *See—*
Cope, Kenneth P.; and Pearce, Warren, Jr., 3,811,043.
Pechiney Ugine Kuhlmann: *See—*
Brun, Marcel; and Riegert, Alfred, 3,810,500.
Peck, Truman C., to Alpine Valley Resort, Inc. Ski lift. 3,810,427, Cl. 104-173.000.
Peddinghaus, Carl Ullrich. Conveyor device for conveying bars. 3,810,406, Cl. 83-222.000.
Pellerano, Giuseppe: *See—*
Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe, 3,810,984.
Pelsue, T. A., Company: *See—*
Beavers, Allan E., 3,810,482.
Pennau, Karl L.: *See—*
Aldinger, Karl E.; Pennau, Karl L.; and Frick, Richard H., 3,810,472.
Pennsylvania Engineering Corporation: *See—*
Fisher, Howard M., 3,810,297.
Pennwalt Corporation: *See—*
Bafford, Richard Anthony; Korczykowski, Leonard Ernest; and Magelic, Orville Leonard, 3,810,920.
Perkins, Richard E., to GTE Sylvania Incorporated. Method of segregating temperature responsive circuit brakes according to their opening temperature. 3,810,541, Cl. 209-81.00r.
Perry, Roger L., to Gillette Company, The. Blade unit. 3,810,305, Cl. 30-32.000.
Perry, Russell C., to Artek Systems Corporation. Micro-biological colony counter. 3,811,036, Cl. 235-92.0pc.

Pervel Industries, Inc.: *See—*
Anderson, Albert E., 3,810,808.
Peter, Philip R. Two for one twisting device. 3,810,353, Cl. 57-58.830.
Petersen, Harro: *See—*
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.
Peterson, Harold B. Folding implement cart. 3,810,660, Cl. 280-411.00a.
Peterson, William D. Contginer for cooling, storage, and shipping of human organ for transplant. 3,810,367, Cl. 62-457.000.
Petro-Form Industries (Trinidad) Ltd.: *See—*
Doyle, Earl N., 3,810,860.
Petrolite Corporation: *See—*
Redmore, Derek, 3,810,907.
Pfister Waagen GmbH: *See—*
Haack, Werner, 3,810,638.
Philippe, Jean B., to Ferlux. N-substituted-N-alkanol piperazine carbamates, and acid addition salts thereof. 3,810,897, Cl. 260-268.0ft.
Phillips Petroleum Company: *See—*
Bertus, Brent J., 3,810,954.
Cichowski, Robert S., 3,810,953.
Doss, Richard C., 3,810,877.
Mathis, Ronald D.; and Dix, James S., 3,810,862.
Pitzer, Emory W., 3,810,844.
Phipps, Cornelius M., to Superior Toy Manufacturing Co., Inc. Gumball machine coin bank. 3,810,535, Cl. 194-85.000.
Pickett, Charles G.; and Molnar, James V., to Bio-Medical Sciences Inc. Method and apparatus for depositing precisely metered quantities of liquid on a surface. 3,810,779, Cl. 117-37.000.
Pickin, John Rabert: *See—*
Hulmes, Harold; and Pickin, John Rabert, 3,810,300.
Pierdet, Andre: *See—*
Bucourt, Robert; Pierdet, Andre; Gasc, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, 3,810,887.
Pingel, Hans A. Locating stop for work to be machined or the like. 3,810,311, Cl. 33-169.00r.
Pinnow, Douglas Arthur: *See—*
Buhite, Paul Harold; and Pinnow, Douglas Arthur, 3,810,802.
Pittman, Raymond H., to Masonite Corporation. Multi-color, multi-patterned panels. 3,810,774, Cl. 117-12.000.
Pitzer, Emory W., to Phillips Petroleum Company. Phosphorus-tin oxide oxidative dehydrogenation catalyst. 3,810,844, Cl. 252-435.000.
Pivar, Stewart, to Rotoron Corporation. Thermally controlled apparatus for molding hollow plastic articles and the like. 3,810,727, Cl. 425-144.000.
Pivawer, Philip M., to Olin Corporation. Process for preparing tris(2-haloalkyl) phosphites. 3,810,961, Cl. 260-977.000.
Piwonka, Thomas S., to TRW Inc. Method for directional solidification. 3,810,504, Cl. 164-60.000.
Plessey Handel und Investments A.G.: *See—*
Turner, Horace George, 3,810,714.
Pobegailo, Grigory Gavrilovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Pohl, Ulrich: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.
Pohlmann, Heinrich; and Schmidt, Karl-Julius, to Bayer Aktiengesellschaft. Insecticidal and acaricidal formulation of increased stability. 3,810,980, Cl. 424-200.000.
Polaroid Corporation: *See—*
Abbadessa, Joseph J., 3,811,081.
Moodie, Donald E., 3,810,689.
Seiden, Myron A., 3,810,691.
Wang, David, 3,810,778.
Pollard, Stephen Leroy. Elongated stressed structural member. 3,810,337, Cl. 52-223.00r.
Polson, Alfred; and Kaufmann, Karl Josef, to South African Inventions Development Corporation. Ultracentrifuge rotor. 3,810,576, Cl. 233-37.000.
Polytech Systems, Inc.: *See—*
Ehrenfreund, Herbert A., 3,810,964.
Polzin, Dean A.: *See—*
Bust, Gordon A.; and Polzin, Dean A., 3,810,551.
Pommer, Ernest-Heinrich: *See—*
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.
Popplewell, Alan Francis: *See—*
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.
Poretti, Isidoro: *See—*
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, 3,811,013.
Porta Service, Inc.: *See—*
Cable, Russell D.; and Brenneman, Homer K., 3,810,487.
Porter, Wellington W. Harvesting apparatus for removing crops from plants or vines. 3,810,512, Cl. 171-14.000.
Posner, John David, to National Cash Register Company, The. Printed circuit card guide. 3,810,433, Cl. 211-41.000.
Post, John R. Method of blasting with an NH4 NOS3-nitropropane blasting agent. 3,810,425, Cl. 102-23.000.
Potruch, Robert A.: *See—*
Burnell, Norman; and Potruch, Robert A., 3,811,006.
Povill, Jonathan W. Steel wool swab. 3,810,334, Cl. 51-358.000.
PPG Industries, Inc.: *See—*
Rau, Frank J.; and Staahl, Joseph R., Jr., 3,810,743.
Prachar, Otakar P., to General Motors Corporation. Gas generator with liquid phase cooling. 3,810,655, Cl. 280-150.0ab.
Prat Deniel Poelman: *See—*
Rebours, Albert, 3,810,349.
Prazdnikov, Anatoly Vladimirovich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Prete, Ernest, Jr., to Ancra Corporation. Automatic pallet locking device. 3,810,534, Cl. 193-40.000.
Price, Joseph F.: *See—*
Bryan, Robert C., Jr.; and Price, Joseph F., 3,810,328.
Procter & Gamble Company, The: *See—*
Atkinson, Ronald Edward, 3,810,846.
Evans, Stephen F.; and Sorensen, Eugene R., 3,810,344.
Properzi, Ilario. Hot rolling method for obtaining wire rod. 3,810,371, Cl. 72-39.000.
Prymka, Margot: *See—*
Ries, Christian; and Prymka, Margot, 3,810,792.
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., to Olin Corporation. Composite rod or wire. 3,810,287, Cl. 29-191.600.
Puchas, Christian, to Daimler-Benz Aktiengesellschaft. Suspension for the rear wheels of a motor vehicle. 3,810,651, Cl. 280-124.00a.
Pugin, Andre: *See—*
Model, Ernst; von der Crone, Jose; and Pugin, Andre, 3,810,889.
Purchase, Francis Jack, to Autotelic Industries, Ltd. Scanning device. 3,811,072, Cl. 315-169.0tv.
Purrmann, Robert: *See—*
Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, 3,810,938.
Putney, Robert B.: *See—*
Jackson, Obie R.; Olson, George R.; and Putney, Robert B., 3,810,807.
Puxbaumer, Hans: *See—*
Schleppinghoff, Bernhard; Scherb, Helmut; and Puxbaumer, Hans, 3,810,831.
Queyroix, Christian A., to Aluminium Suisse S.A. Die. 3,810,372, Cl. 72-56.000.
Queyroix, Christian A., to Aluminium Suisse S.A. Machine for the magnetomotive forming of metallic objects. 3,810,373, Cl. 72-56.000.
Quirk, Jack M. Running gear. 3,810,652, Cl. 280-125.000.
Raber, Samuel; and Heim, Alan M., to Baker Industries, Inc. Supervised battery power supply. 3,811,122, Cl. 340-249.000.
Rabinowitz, L. M., & Company, a Division of Athlone Industries, Inc.: *See—*
Simon, Jack, 3,810,435.
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Fungicide. 3,810,767, Cl. 106-15.0af.
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Method of preparing polyethylene parts for ultrasonic welding. 3,810,799, Cl. 156-73.000.
Rakcevic, Savo, to Titovi Zavodi Litostroj. Starting arrangement for reversible pump-turbines. 3,810,717, Cl. 417-323.000.
Ralston Purina Company: *See—*
Waggle, Doyle H., 3,810,764.
Ramanathan, Visvanathan: *See—*
Desai, Nalin Binduprasad; Jayaraman, Ponnusami; Ramanathan, Visvanathan; Artz, Klaus; Naik, Navnitrai Nagarji; and Jenny, Walter, 3,810,932.
Ranks Hovis McDougall, Limited: *See—*
Barker, Sidney Alan; Kennedy, John Frederick; and Gray, Charles John, 3,810,821.
Raphael, Ralph Alexander: *See—*
Jones, Geraint; and Raphael, Ralph Alexander, 3,810,943.
Rapun, Raul: *See—*
Rutner, Herman; Rapun, Raul; and Lewin, Nathan, 3,810,886.
Rasmussen, Svein B.: *See—*
Filz, Charles J.; Maurice, George T.; and Rasmussen, Svein B., 3,810,545.
Rau, Frank J.; and Staahl, Joseph R., Jr., to PPG Industries, Inc. Thermal conditioning of molten glass. 3,810,743, Cl. 65-29.000.
Rauh, Jack, to Modern Faucet Manufacturing Company. Adjustable shower head assembly with diverter valve. 3,810,580, Cl. 239-460.000.
Ravel, Leon, to Georges Lagain. Machines for the manufacture of plastic bags. 3,810,420, Cl. 93-93.0ht.

Ray-Chaudhuri, Dilip K.; and Iovine, Carmine P., to National Starch and Chemical Corporation. Fluorocarbon sulfonic acid water and oil repellency agents. 3,810,939, Cl. 260-513.00r.

Raymond International, Inc.: *See—*
Padgett, Clifford A.; and Slade, Lester C., 3,810,441.

RCA Corporation: *See—*
Weimer, Paul Kessler, 3,811,055.

Read, Fredrick C.: *See—*
Klein, Donald R.; and Read, Fredrick C., 3,810,690.

Reagan, John J., to Standard Oil Company, The. Multiple flare stack support system. 3,810,733, Cl. 431-202.000.

Rebours, Albert, to Prat Daniel Poelman. Apparatus for putting a gas in contact with a liquid. 3,810,349, Cl. 55-248.000.

Rechter, Harold L.: *See—*
Parsons, Joseph R.; and Rechter, Harold L., 3,810,768.

Recreation Creations, Inc.: *See—*
Nunnink, Charles P., Jr.; and Bell, Marvin D., 3,810,664.

Reddaway, Stewart Fiddian, to International Computers Limited. Pseudo-random number generators. 3,811,038, Cl. 235-152.000.

Redmore, Derek, to Petrolite Corporation. Full pyridine phosphonic acids. 3,810,907, Cl. 260-297.00p.

Redpath, Donald C.: *See—*
Hardy, John W.; Redpath, Donald C.; and Hobrough, Gilbert, 3,811,011.

Rees, John Michael; Coxon, George Eric; and Johnston, Robert Bernard. Electric incandescent lamps. 3,811,063, Cl. 313-222.000.

Reicheneder, Franz: *See—*
Fischer, Adolf; Koenig, Karl-Heinz; and Reicheneder, Franz, 3,810,751.

Reid, Claude L., 20% to Lee, Raymond, Organization, Inc., The. Golf ball pickup device. 3,810,669, Cl. 294-19.00a.

Reimer, Walter E. Vehicle with multiple rocking beam suspension system and steering means. 3,810,516, Cl. 180-24.000.

Reintjes, Marten: *See—*
Buchholz, Richard Frank; and Reintjes, Marten, 3,810,941.

Reiter Industries, Inc.: *See—*
Reiter, Jerome A., 3,810,604.

Reiter, Jerome A., to Reiter Industries, Inc. Tank agitating and cleaning system. 3,810,604, Cl. 259-18.000.

Reliance Electric Company: *See—*
Gorski, Paul T., 3,810,636.

Relles, Howard M.: *See—*
Hay, Allan S.; and Relles, Howard M., 3,810,879.

Relles, Howard M., to General Electric Company. Method of chlorinating maleic anhydride, maleimides and bismaleimides. 3,810,913, Cl. 260-326.260.

Relton Corporation: *See—*
Voscovich, Steven J., 3,810,514.

Renault, Philippe; Deschamps, Andre; and Dezael, Claude, to Institut Francais du Petrole des Carburants et Lubrifiants. Process for manufacturing sulfur dioxide from ammonium sulfate. 3,810,968, Cl. 423-356.000.

Reuther, Wolfgang: *See—*
Raff, Paul; Reuther, Wolfgang; Petersen, Harro; and Pommer, Ernest-Heinrich, 3,810,767.

Rexroth, G. L., GmbH: *See—*
Gutekunst, Werner, 3,810,486.

Reynolds, Carl D.: *See—*
Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., 3,810,780.

Rhine, Samuel; and Showalter, Merle Robert. Timed pulsed fuel injection apparatus and method. 3,810,581, Cl. 239-533.000.

Rhodes, Herbert M., to Oil Mop, Inc. Oil/water separation acceleration media. 3,810,832, Cl. 210-23.000.

Rhone-Poulenc S.A.: *See—*
Chapurlat, Robert; and Kuntz, Emile, 3,810,848.
Chapurlat, Robert; and Kuntz, Emile, 3,810,872.
Chapurlat, Robert; and Kuntz, Emile, 3,810,873.
Chapurlat, Robert; and Kuntz, Emile, 3,810,888.
Tchelitcheff, Serge, 3,810,908.

Rice, David E.; and Hansen, Robert L. Fluorine-containing block copolymers. 3,810,875, Cl. 260-899.000.

Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., to Calspan Corporation, mesne. Electric-discharge excited gaseous laser. 3,811,095, Cl. 331-94.500.

Richardson, Norman: *See—*
Jones, Rhomas Ivor; Richardson, Norman; and Harris, Arthur, 3,810,834.

Richter, Ferdinand Joseph, to American Cyanamide Company. Soap impregnated resilient polyurethane foams. 3,810,841, Cl. 252-91.000.

Richter Gedeon Vegyeszeti Gyar Rt.: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.

Richter, Harvey E., to Tec Group, Inc., The. Mechanical seal. 3,810,635, Cl. 277-34.000.

Riegert, Alfred: *See—*
Brun, Marcel; and Riegert, Alfred, 3,810,500.

Ries, Christian; and Prymka, Margot, to Collardin, Gerhard, GmbH. Process for the application of phosphate coatings on steel, iron and zinc surfaces. 3,810,792, Cl. 148-6.15z.

Rigterink, Raymond H., to Dow Chemical Company, The. O,O-diethyl O-(6-fluoro-2-pyridyl)phosphorothioate. 3,810,902, Cl. 260-294.80k.

Rinesch, Rudolf: *See—*
Schoffmann, Rudolf; and Rinesch, Rudolf, 3,810,507.

Riordan, Michael D.; and Weetman, David G., to Texaco Inc. Extraction process. 3,810,951, Cl. 260-677.00a.

Ritchie, Ellis Ray. Calendar display device. 3,810,322, Cl. 40-107.000.

Rittel, Werner; and Brugger, Max, to Ciba-Geigy Corporation. Peptides having D-α-phenylglycine, L-lysine and L-ornithine in positions 1, 17 and 18, respectively. 3,810,881, Cl. 260-112.500.

Roberts, Karl Hutchson: *See—*
Olson, Frank Wesley, Jr.; and Roberts, Karl Hutchson, 3,810,478.

Robertshaw Controls Company: *See—*
Merrell, Kenneth C., 3,811,051.

Robinson, Kenneth Buckley, to Thorn Electrical Industries Limited. Lamps. 3,810,684, Cl. 316-4.000.

Rodgers, Fletcher. Pipe coupling. 3,810,665, Cl. 285-97.000.

Roesch, Androniki: *See—*
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,896.
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.

Roesch, Egon: *See—*
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,896.
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.

Rogers, Betty W. Cover of cervical collars. 3,810,466, Cl. 128-75.000.

Rogers, Dow A., Jr.: *See—*
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J., and Rogers, Dow A., Jr., 3,811,005.

Rogers, Joan H.: *See—*
Dunbar, Joseph E.; and Rogers, Joan H., 3,810,890.

Rohrbacher, Herbert E., to Bergandi Manufacturing Company, Inc. Fabrication of chain wire fencing incorporating slats. 3,810,496, Cl. 140-25.000.

Rohrig, Herbert: *See—*
Rager, Horst; Rohrig, Herbert; and Hirschel, Armin, 3,810,799.

Rorer, William H., Inc.: *See—*
Diamond, Julius; and Douglas, George, 3,810,944.
Diamond, Julius; and Auyang, King, 3,810,979.
Diamond, Julius, 3,810,985.

Rosenbaum, Harold Matthew; and Duerden, Francis, to Marconi Company Limited, The. Display systems. 3,810,317, Cl. 35-9.00a.

Rosztoczy, Ferene E.: *See—*
Antypas, George A.; Rosztoczy, Ferene E.; Stein, William W.; and Von Szeremy, Sigmund, 3,810,794.

Roth, Josef. Detachable slidable form block for reciprocating die press. 3,810,381, Cl. 72-421.000.

Rothmans of Paul Mall Canada Limited: *See—*
Schmelzer, Juergen F., 3,811,087.

Rotoron Corporation: *See—*
Pivar, Stewart, 3,810,727.

Roussel-UCLAF: *See—*
Bucourt, Robert; Pierdet, Andre; Gase, Jean-Claude; and Nedelec, Lucien, 3,810,885.
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, 3,810,887.

Rousselet, Andre: *See—*
Lartigue, Gerard; and Rousselet, Andre, 3,810,720.

Rowland Development Corporation: *See—*
Rowland, William P.; and Rowland Development Corporation, 3,810,804.

Rowland, William P.; and Rowland Development Corporation. Method of making retroreflective material. 3,810,804, Cl. 156-245.000.

Rowton, Richard Lee, to Jefferson Chemical Company, Inc. Piperazine phosphates as fire retardants for organic polymers. 3,810,850, Cl. 260-2.5aj.

Rudolph, Peter: *See—*
Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.

Rufenacht, Switzerland: *See—*
Bohner, Beat; and Rufenacht, Switzerland, 3,810,919.

Russ, Muchere C.: *See—*
Gormley, William T.; and Russ, Muchere C., 3,810,960.

Russell, Lee E.; and Stegner, Douglas M. Two piece storage and shipping carton. 3,810,573, Cl. 229-32.000.

Russo Architectural Metals, Incorporated: *See—*
Russo, Dominic C., 3,810,339.

Russo, Dominic C., to Russo Architectural Metals, Incorporated. Method and apparatus for forming construction element locating and mounting voids in a poured concrete structure. 3,810,339, Cl. 52-700.000.

Rutner, Herman; Rapun, Raul; and Lewin, Nathan, to Beeton, Dickinson and Company. Derivatives of digitoxigenin. 3,810,886, Cl. 260-239.570.

Ryman Engineering Company: *See—*
Fatula, James J., 3,810,571.

Ryoki, Taizo: *See—*
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.

S. R. M. Hydromekanik Aktiebolag: *See—*
Ahlen, Karl Gustav, 3,810,640.

Saab-Scania Aktiebolag: *See—*

Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, 3,811,112.

Saari, Walfred S., to Merck & Co., Inc. Blood pressure lowering method using an aporphine. 3,810,987, Cl. 424-258.000.

Sadao, Shoji, to Fuller & Sadao, Incorporated. Geodesic pentegon and hexagon structure. 3,810,336, Cl. 52-81.000.

Safety Consultants: *See—*
Kornhauser, Murray, 3,810,668.

SAFT-Societe des Accumulateurs Fixes et de Traction: *See—*
Denis, Henri, 3,810,790.

Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, to Matsushita Electric Industrial Co. Ltd. Keyboard operated pattern generating device. 3,811,113, Cl. 340-172.500.

Sakai, Yoshio: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.

Sakurai, Yasuhiko, to Nippondenso Co., Ltd. Flashing direction indicator. 3,811,107, Cl. 340-80.000.

Salamander Aktiengesellschaft: *See—*
Epstein, Roland, 3,810,318.

Salmon, Jean: *See—*
Bucourt, Robert; Pierdet, Andre; and Salmon, Jean, 3,810,887.

Sandoz Ltd.: *See—*
Luecke, Juergen, 3,810,903.

Sandvik Aktiebolag: *See—*
Strandell, Per-Olof, 3,810,382.

Suni-Seat, Inc.: *See—*
Lodi, Frank, 3,810,260.

Sasaki, Takeshi: *See—*
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.

Sato, Hideo; and Shimizu, Kunitoshi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for preparing polymers. 3,810,878, Cl. 260-78.50b.

Sato, Kunito; and Hegarty, Gerald R., to Armour and Company. Inhibition of warmed-over flavor in uncured cooked meats. 3,810,998, Cl. 426-332.000.

Sato, Ryo: *See—*
Matuzawa, Kinihiro; Kimura, Kikuo; Sato, Ryo; Nakajima, Shigeji; and Ikeda, Yuichi, 3,810,748.

Saucy, Gabriel, to Hoffmann-La Roche Inc. Substituted 1-(3,5-substituted-4-isoxazolyl)-7-hydroxy-non-8-en-3-ones and tautomers. 3,810,909, Cl. 260-307.00h.

Saulsman, Jack C. Controlled power source with apparatus and method including indicia of control means actuation at operational locations selectively spaced from source, as for, but not limited to, welding operations. 3,811,085, Cl. 322-16.000.

Savage, Sidney Clifford: *See—*
Wade, Thomas Cyril James; Matthewson, Ian; and Savage, Sidney Clifford, 3,810,368.

Scandia Packaging Machinery Company: *See—*
Anderson, Andrew W., 3,810,314.

Scannell, John B., to Parker-Hannifin Corporation. Frangible backup ring for sealing rings. 3,810,639, Cl. 277-188.000.

Schaffstall, Eugene; and Duncan, Ira J., to Consolidated Foods Corporation. Aluminum etch bath additive. 3,810,797, Cl. 156-22.000.

Schambacher, Eugene E. Baton. 3,810,411, Cl. 84-477.00b.

Scheiber, Robert: *See—*
Drasch, Josef; Scheiber, Robert; and Wessner, Harald, 3,810,692.

Scheinpflug, Hans: *See—*
Meyer, Friedrich J.; Kaspers, Helmut; and Scheinpflug, Hans, 3,810,910.

Schell, Donald H.: *See—*
Martin, William W.; Schell, Donald H.; and Taub, James M., 3,810,962.

Schenk, Donald E., to General Motors Corporation. Pressure supported modulator. 3,810,680, Cl. 303-6.00c.

Scherb, Helmut: *See—*
Schleppinghoff, Bernhard; Scherb, Helmut; and Puxbaumer, Hans, 3,810,831.

Schering Corporation: *See—*
Gold, Elijah H., 3,810,884.

Scheuer, Nicholas G.: *See—*
Flegel, George J.; and Scheuer, Nicholas G., 3,810,597.

Schiesterl, Gerhard; and Wulf, Helmut, to Daimler-Benz Aktiengesellschaft. Motor vehicles equipped with gas cushion. 3,810,653, Cl. 280-150.0ab.

Schleppinghoff, Bernhard; Scherb, Helmut; and Puxbaumer, Hans, to Erdolchemie Gesellschaft mit beschrankter Haftung. Process for recovering cyclopentene and conjugated C_5-diolefins. 3,810,831, Cl. 208-321.000.

Schloemann Aktiengesellschaft: *See—*
Eisen, Josef; and Gauger, Horst, 3,811,017.

Schlogelhofer, Ferdinand, to Vereinigte Metallwerke Panshofen-Berndorf Aktiengesellschaft. Apparatus for the extrusion of billets. 3,810,379, Cl. 72-255.000.

Schluckebier, Floyd A.; and Harkrader, Ronald L., to General Motors Corporation. Steering gear assembly. 3,810,399, Cl. 74-409.000.

Schlumberger, Allan A., to Hooker Chemical Corporation. Process for the production of chlorine dioxide. 3,810,969, Cl. 423-478.000.

Schmelzer, Juergen F., to Rothmans of Paul Mall Canada Limited. Measurement of moisture content of materials. 3,811,087, Cl. 324-58.50a.

Schmerling, Louis, to Universal Oil Products Company. Alkylation of aromatic compounds. 3,810,947, Cl. 260-651.00r.

Schmid, August; and Goens, Georges, to Patentverwertungs- und Finanzierungsgesellschaft Scrania AG. Bowling pin loading apparatus and method. 3,810,617, Cl. 273-43.00d.

Schmid, Rolf; Lohse, Friedrich; Fisch, Willy; and Batzer, Hans, to Ciba-Geigy AG. Adducts, containing epoxide groups, from polyglycidyl compounds and acid polyesters of aliphatic-cycloaliphatic dicarboxylic acids, process for their manufacture and use. 3,80,855, Cl. 260-22.00d.

Schmidt, Hans, to Motorola, Inc. Channel selector and indicator for multi-channel receiver. 3,811,100, Cl. 334-15.000.

Schmidt, Karl-Julius: *See—*
Pohlmann, Heinrich; and Schmidt, Karl-Julius, 3,810,980.

Schmitt, Charles R.: *See—*
Benton, Samuel T.; and Schmitt, Charles R., 3,810,963.

Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, to ESPE Fabrik Pharmazeutischer Praparate GmbH. Novel diacrylic and dimethacrylic acid esters. 3,810,938, Cl. 260-486.00r.

Schoffmann, Rudolf; and Rinesch, Rudolf, to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft. Continuous casting plate for slabs. 3,810,507, Cl. 164-260.000.

Scholl, Howard O., to American Air Filter Company, Inc. U-shaped fluid treating filter. 3,810,350, Cl. 55-487.000.

Scholten, Pieter Cornelis: *See—*
Van Ruler, Johannes; and Scholten, Pieter Cornelis, 3,810,840.

Schoolcraft, Jim F.: *See—*
Crocker, Roger A.; and Schoolcraft, Jim F., 3,810,553.

Schreyer, Kenneth D.; and Manney, Charles J., to Columbus McKinnon Corporation. Load chain loose end stop. 3,810,359, Cl. 59-93.000.

Schroter, Hans O. Variable ratio brake operating lever. 3,810,400, Cl. 74-518.000.

Schuler, Lawrence D.: *See—*
Levine, Ralph M.; Schuler, Lawrence D.; and Micchelli, Albert L., 3,810,977.

Schulman, Elliot R.: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.

Schumann, Robert W., to Nicolet Instruments, Inc. Analog-to-digital converter. 3,811,125, Cl. 340-347.0ad.

Schuppel, Friedrich, to Zahnradfabrik Friedrichshafen Aktiengesellschaft. Automotive transmission with clutch pedal and hydraulic torque converter. 3,810,532, Cl. 192-.062.

Schwarcz, Joseph: *See—*
White, Edward L.; Schwarcz, Joseph; and Lang, William D., 3,810,864.

Schweizerische Industrie-Gesellschaft: *See—*
Trub, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, 3,810,725.

Scott, Hollis C., to Western Wood Structures, Inc. Dome joint. 3,810,342, Cl. 52-758.00r.

Scott, Wray M., III. Golf putter sighting device. 3,810,633, Cl. 273-183.00d.

Seale, Virgil L.: *See—*
Braithwaite, David G.; Johnson, Carl E.; and Seale, Virgil L., 3,810,845.

Searle, G. D., & Co.: *See—*
Baran, John S.; and Liang, Chi-Dean, 3,810,927.
Lenz, George R., 3,810,926.
Miyano, Masateru, 3,810,936.

Seiden, Myron A., to Polaroid Corporation. Photographic apparatus including resilient mirror mount. 3,810,691, Cl. 350-288.000.

Seitz, Neal B., to Logicon, Inc. Adaptive pulse code modulation system. 3,811,014, Cl. 179-15.0bw.

Semp, Bernard Albert, to American Cyanamid Company. Minimizing tissue reaction to glove powder. 3,810,458, Cl. 128-1.00r.

Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., to Monsanto Chemicals Limited. Process of producing a foamed resin sheet. 3,810,965, Cl. 264-53.000.

Sesame Industries, Limited: *See—*
Ellis, Glenn, 3,810,813.

Sevigny, Henry J., to Alco Electronic Products, Inc. Momentary contact, non-bounce switch. 3,811,024, Cl. 200-160.000.

Shannon, Richard F., to Owens-Corning Fiberglas Corporation. Strong light weight, bonded, porous aggregate. 3,810,773, Cl. 106-288.00b.

Shape, Norman R.: *See—*
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.

Shea, James J., to Gam Rad, Incorporated. Fluid analyzer with variable light path. 3,810,695, Cl. 356-73.000.

Sheeler, William, 20% to Lee, Raymond, Organization, Inc., The. Whirlpool bath unit. 3,810,464, Cl. 128-66.000.

Shell Oil Company: *See—*
Brooke, Chester B., 3,810,975.
Creaser, Leonard F., 3,810,839.
Lunk, Hans E., 3,810,957.
Oxenham, James Preston, 3,810,546.
Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, 3,810,830.

Sheller-Globe Corporation: *See—*
Klein, Donald R.; and Read, Fredrick C., 3,810,690.

Shellman, Carl E.: *See—*
Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., 3,810,715.

Shepherd, Lawrence H., Jr., to Ethyl Corporation. Intermolecular addition. 3,810,949, Cl. 260-665.00g.
Shiga, Kazumasa, to Matsushita Electric Industrial Company, Limited. Magneto-sensitive device having PN junction. 3,811,075, Cl. 317-235.00h.
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, to Hitachi, Ltd. High voltage semiconductor rectifying device. 3,811,084, Cl. 321-11.000.
Shima, Sciya: *See—*
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Sciya; Sakai, Yoshio; and Narita, Toshiro, 3,811,079.
Shimada, Nobuyoshi: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.
Shimizu, Kunitoshi: *See—*
Sato, Hideo; and Shimizu, Kunitoshi, 3,810,878.
Shinozaki, Takashi: *See—*
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.
Shiokawa, Kozo: *See—*
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,810,983.
Shirouchi, Yasunari: *See—*
Andoh, Shizuo; Nakayama, Norihiko; and Shirouchi, Yasunari, 3,811,062.
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, 3,811,061.
Shoin, Susumu: *See—*
Okamoto, Hajime; Shoin, Susumu; and Koshimura, Saburo, 3,810,819.
Shoji, Nagayoshi, to Takura Belmont Kubushiki Kaisha. Horizontally adjustable chair in combination with a shampoo bowl unit. 3,810,673, Cl. 297-217.000.
Showalter, Merle Robert: *See—*
Rhine, Samuel; and Showalter, Merle Robert, 3,810,581.
Shragal, Robert, to Wells-Gardner Electronics Corporation. Balance control. 3,811,047, Cl. 250-208.000.
Shudo, Yasunobu, to Hitachi Shipbuilding and Engineering Company Ltd. Slurry carrying vessel. 3,810,547, Cl. 210-242.000.
Shuey, Kenneth C.; and Baker, Donal E., to Westinghouse Electric Corporation. Alternating current sensing circuit and method. 3,811,073, Cl. 317-31.000.
Shultz, Allan R.: *See—*
Herrick, Carlyle S.; and Shultz, Allan R., 3,810,814.
Shute, Adrian L. Locking mechanism. 3,810,273, Cl. 16-147.000.
Sidorov, Ivan Sergeevich: *See—*
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Litvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, 3,810,283.
Siebert, Howard G. Snow shovel. 3,810,320, Cl. 37-46.000.
Siegal, Burton L., to Tiffany Industries, Inc. Shelf assembly. 3,810,430, Cl. 108-144.000.
Sieke, Helmut. Method and apparatus for producing vibratory motion. 3,810,417, Cl. 91-39.000.
Siemens Aktiengesellschaft: *See—*
Bork, Peter, 3,810,747.
Koch, Christian, 3,810,732.
Lechner, Ernst-Friedrich, 3,811,086.
Signal Oil and Gas Company: *See—*
Kartinen, Ernest Orval, 3,810,347.
Signouret, Jean-Baptiste: *See—*
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, 3,810,857.
Silverman, Edward Jerome: *See—*
Michelet, Robert Wilson; and Silverman, Edward Jerome, 3,811,050.
Simon, Jack, to Rabinowitz, L. M., & Company, a Division of Athlone Industries, Inc. Apparatus for making a fastener section for securing elastic material thereto. 3,810,435, Cl. 112-105.000.
Simonini, Franco: *See—*
Drescher, Heinz; Lampe, Hans Hermann; Rudolph, Peter; and Simonini, Franco, 3,810,577.
Singer Company, The: *See—*
DeLeo, Louis P., 3,811,093.
Williams, Arthur B., 3,811,098.
Sitelines, Inc.: *See—*
[illegible] and Schaefer, Lawrence W., 3,810,721.
Siwersson, Per-Olof: *See—*
Bjorkman, Hans-Goran; and Siwersson, Per-Olof, 3,810,682.
Skarbo, Roald R.; and Miguel, Antonio H., to Kennecott Copper Corporation. Metal recovery from salt mixtures of copper and metals more electropositive than copper. 3,810,971, Cl. 423-565.000.
Skinner, Stanley J.: *See—*
Sen, Durgacharan; Skinner, Stanley J.; and Foster, William R., 3,810,965.
Slade, Lester C.: *See—*
Padgett, Clifford A.; and Slade, Lester C., 3,810,441.
Slusarczuk, George M. J.; and Brown, John F., Jr., to General Electric Company. Silicone-silica compositions. 3,810,843, Cl. 252-313.00s.
Smale, William B., to Outboard Marino Corporation. Quiet snowmobile. 3,810,518, Cl. 180-54.00a.
Smith & Nephew Research Limited: *See—*
Patchell, Albert George, 3,810,729.
Smith, Charles Giles, to Upjohn Company, The. Adenosine 3,5-cyclic monophosphate palmitates. 3,810,883, Cl. 260-211.50r.
Smith, Gary C., to Abex Corporation. Adjustable fixed displacement hydraulic transducer apparatus. 3,810,419, Cl. 91-505.000.
Smith, Gary E.; and Bailey, John G., Jr., to Chem Dynamics, Inc. Edge mold having epoxy resin walls. 3,810,600, Cl. 249-95.000.
Smith, Peter D.: *See—*
Kletecka, George; and Smith, Peter D., 3,810,912.
Smith, William E., to GSW Appliances Limited. Hinge structure. 3,810,275, Cl. 16-189.000.
Smith, William Michael, Jr., to International Business Machines Corporation. Field effect transistor integrated circuit and memory. 3,811,076, Cl. 317-235.00r.
Smithkline Corporation: *See—*
Actor, Philip Paul; Enrico, Cesare; and Pellerano, Giuseppe (said Actor assor. to), 3,810,984.
Smiths Industries Limited: *See—*
Cross, David Edward, 3,810,474.
Smtih, Thomas R.; and Faust, Stewart W., to Maytag Company, The. Fluid control system. 3,810,480, Cl. 134-104.000.
Smyth Manufacturing Company, The: *See—*
McCahon, John O.; and Byrne, William J., 3,810,612.
Sobel, Jay E., to Universal Oil Products Company. Butene separation and alkylation. 3,810,955, Cl. 260-683.490.
Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Costa, Gianmario; Monti, Giancarlo; and Poretti, Isidoro, 3,811,013.
Societe Anonyme dite: Societe Nationale des Petroles: *See—*
Barbier, Maurice; and Staron, Philippe, 3,811,111.
Societe d'Etudes et d'Applications Biochimiques; and Ugine-Kuhlmann: *See—*
Laboureur, Pierre; Brunaud, Marcel Daniel Pierre; and Langlois, Claude, 3,810,820.
Societe en nom Collectif Science Union et Cie,: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.
Societe Financiere et Industrielle des Ateliers: *See—*
Chollet, Maurice; and Genmat, Francois, 3,810,449.
Societe Francaise de Recherche Medical: *See—*
Beregi, Laszlo; Hugon, Pierre; Desnoyers, Pierre; and Duhault, Jacques, 3,810,914.
Societe Internationale De Macanique Industrielle S.A.: *See—*
Bonvin, Jacques, 3,810,637.
Societe Nationale des Petroles d'Aquitaine pour Aquitaine: *See—*
Garrigues, Claude; Nicolau, Albert; and Signouret, Jean-Baptiste, 3,810,857.
Solari & C/Udine S.p.A.: *See—*
Solari, Fermo, 3,811,019.
Solari, Fermo, to Solari & C/Udine S.p.A. Rotary-drum programming timer device. 3,811,019, Cl. 200-38.0ca.
Solymos, Frederick: *See—*
Tosato, Lawrence; and Solymos, Frederick, 3,810,529.
Somekawa, Akira: *See—*
Taira, Tetsuro; and Somekawa, Akira, 3,810,408.
Song, John, to American Cyanamid Company. Polycarboxylic acid-bridged thiomethylenephenol antioxidants. 3,810,929, Cl. 260-455.00r.
Sorensen, Eugene R.: *See—*
Evans, Stephen F.; and Sorensen, Eugene R., 3,810,344.
Sorenson, Merle H.: *See—*
Klund, Robert N.; and Sorenson, Merle H., 3,810,407.
South African Inventions Development Corporation: *See—*
Polson, Alfred; and Kaufmann, Karl Josef, 3,810,576.
S.p.A. Virginio Rimoldi & C.: *See—*
Marforio, Nerino, 3,810,436.
Sparr, Albert E. Anti-fishtail device for trailers. 3,810,521, Cl. 180-103.000.
Speer, Lawrence, to Vinyltron Corporation. Method for patching materials such as plastic. 3,810,801, Cl. 156-94.000.
Sperry Rand Corporation: *See—*
Hurlburt, Joseph C.; and Halls, Lawrence M., 3,810,517.
Licke, David R., 3,810,306.
Sperry-Sun Well Surveying Company: *See—*
Stancliff, Thomas H., 3,810,387.
Spialter, Eila B.: *See—*
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and [illegible] 3,810,[illegible]
[illegible] Gesellschaft, Motor vehicle with two driving units, especially for agricultural purposes. 3,810,513, Cl. 172-114.000.
Spontellim Leonard P., to Crawford Fitting Company. Method of swaging and testing ferrules. 3,810,296, Cl. 29-407.000.
Sprengling, Gerhard R.: *See—*
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J.; and Rogers, Dow A., Jr., 3,811,005.
Squibb, E. R., & Sons, Inc.: *See—*
Hoehn, Hans; and Chasin, Mark, 3,810,904.
Hoehn, Hans; and Bernstein, Jack, 3,810,905.
Staahl, Joseph R., Jr.: *See—*

Rau, Frank J.; and Staahl, Joseph R., Jr., 3,810,743.
Stach, Kurt: *See—*
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,896.
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.
Stadler, Otto E. Parrot-stand perch. 3,810,445, Cl. 119-26.000.
Stafford, John P., to Honeywell Information Systems, Inc. Binary arithmetic, logical and shifter unit. 3,811,039, Cl. 235-175.000.
Stahlwerke Bruninghaus Gesellschaft mit beschrankter Haftung: *See—*
Ochm, Otto, 3,810,375.
Stahr, Richard W.; and Morse, Theodore H., to Eastman Kodak Company. Matte photoconductive layers for use in electrophotography. 3,810,759, Cl. 96-1.500.
Stalego, Charles J., to Owens-Corning Fiberglas Corporation. Method and apparatus for processing glass and controlling the thermal pattern in a stream feeder. 3,810,741, Cl. 65-2.000.
Staley, A. E., Manufacturing Company: *See—*
Bomball, William A., 3,810,783.
Stancliff, Thomas H., to Sperry-Sun Well Surveying Company. Apparatus for recording borehole conditions at the surface. 3,810,387, Cl. 73-151.000.
Standard Oil Company, The: *See—*
Reagan, John J., 3,810,733.
Stanford Research Institute: *See—*
Karp, Arthur, 3,811,101.
Stanley Works, The: *See—*
Haven, Robert L., 3,810,591.
Stanton, Thomas A. Bicycle-attached article carrier. 3,810,559, Cl. 224-41.000.
Staron, Philippe: *See—*
Barbier, Maurice; and Staron, Philippe, 3,811,111.
Stauffer Chemical Company: *See—*
Gaughan, Edmund Jeremiah, 3,810,959.
Gutman, Arnold D., 3,810,982.
Letchworth, Peter E.; Menn, Julius J.; and Pallos, Ferenc M., 3,810,989.
Menn, Julius Joel, 3,810,992.
Viksne, George Juris, 3,810,925.
Stegeman, Berend. Dispenser with adjustable paddle vending member. 3,810,560, Cl. 221-116.000.
Stegner, Douglas M.: *See—*
Russell, Lee E.; and Stegner, Douglas M., 3,810,573.
Stein, William W.: *See—*
Antypas, George A., Rosztoczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, 3,810,794.
Steinbarger, Jay O.: *See—*
Emmerson, Calvin W.; Meginnis, George B.; and Steinbarger, Jay O., 3,810,711.
Steinberg, Samuel B., to Air Techniques, Inc. Portable filter evaluation apparatus. 3,810,697, Cl. 356-103.000.
Stevens, Keith Drummond: *See—*
Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, 3,811,080.
Stevenson, Basil Charles James: *See—*
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.
Stevenson, Gary E.: *See—*
Boebel, Carl P.; and Stevenson, Gary E., 3,810,777.
Steyermark, Paul R. Method for decontaminating chemical warfare agents. 3,810,788, Cl. 134-42.000.
Steyermark, Paul R., to Grace, W. R., & Co. Composition for decontaminating chemical warfare agents. 3,810,842, Cl. 252-153.000.
Stolzer, Paul, to KEURO Maschinenbau Gesellschaft mit beschrankter Haftung & Co. Kommanditgesellschaft. Apparatus for supplying material. 3,810,404, Cl. 83-71.000.
Strahan, Ronald R. Control system for gas-shielded electric welders. 3,811,027, Cl. 219-74.000.
Strand, John B. Automatic pressurization system for inflated pool enclosure. 3,810,262, Cl. 4-172.120.
Strandell, Per-Olof, to Sandvik Aktieholag. Moulds. 3,810,382, Cl. 72-467.000.
Strom, John R., to Sweco, Inc. Material handling system for vibratory mills. 3,810,585, Cl. 241-171.000.
Strubhar, Malcolm K.: *See—*
Fitch, John L.; and Strubhar, Malcolm K., 3,810,510.
Strzelewicz, Anthony S., to General Motors Corporation. Remote engine tachometer. 3,811,089, Cl. 324-170.000.
Stuart, Alexander: *See—*
Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and McMeeken, Stephen, 3,810,895.
[illegible] Company, Limited: *See—*
[illegible] and Lemmon, Thomas E., to Continental Conveyor and Equipment Company. Fabricated brake drum and hub assembly. 3,810,678, Cl. 301-6.00s.
Suhner, Willy. Ski binding construction. 3,810,646, Cl. 280-11.35t.
Sullivan, Ann Clare: *See—*
Guthrie, Robert William; Hamilton, James Guthrie; Kierstead, Richard Wightman; Miller, O. Neal; and Sullivan, Ann Clare, 3,810,931.
Sumida Equipment Industries, Inc.: *See—*
Uratani, Eiichi, 3,810,346.
Sumitomo Chemical Company, Ltd.: *See—*
Yamamoto, Hisao; and Nakao, Masaru, 3,810,906.
Summers, George D., to Fairchild Industries, Inc. Implantable urinary control apparatus. 3,810,259, Cl. 3-1.000.
suovaniemi, Osamo A. Adjustable pipette. 3,810,391, Cl. 73-425.600.
Superior Toy Manufacturing Co., Inc.: *See—*
Phipps, Cornelius M., 3,810,535.
Suteliffe, Speakman & Co. Ltd.: *See—*
Armstrong, Allan; and Fletcher, Geoffrey Charles, 3,810,544.
Sutliff, Gloria M.; and Moreno, Maria F. Cosmetic preparation. 3,810,996, Cl. 424-364.000.
Sutton, Christopher John, to Lucas, Joseph, (Electrical) Limited. Braking systems for vehicles. 3,811,082, Cl. 318-383.000.
Suzue, Takashi: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Suzuki, Kensuke: *See—*
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.
Suzuki, Toshimasa; and Mizushima, Yoshihiko, to Nippon Telegraph and Telephone Public Corporation. Semiconductor device and apparatus using the same. 3,811,074, Cl. 317-235.00k.
Suzuki, Yasuo: *See—*
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.
Suzuki, Yoshihisa: *See—*
Miyazaki, Tsutomu; and Suzuki, Yoshihisa, 3,810,352.
Svensson, Bo Herman Thorwald: *See—*
Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, 3,811,112.
Svensson, Sven Hugo, to Akandi-Form AB. Chair aggregates. 3,810,674, Cl. 297-326.000.
Swanson, William C.: *See—*
Galos, Imiro; Swanson, William C.; and Nelson, Vaugh A., 3,810,519.
Swartz, Henry D. Thermoplastic heat sealing apparatus. 3,810,806, Cl. 156-380.000.
Sweco, Inc.: *See—*
Strom, John R., 3,810,585.
Swick, Edwin Grant; and Nelson, John Frederick, to Illinois Tool Works Inc. Plastic drive fastener. 3,810,279, Cl. 24-73.00p.
Symborski, Alex P.: *See—*
Klink, Jerome P.; Lyle, Phra D.; Shape, Norman R.; and Symborski, Alex P., 3,810,742.
Szporny, Laszlo: *See—*
Medzihradszky, Kalman; Bajusz, Sandor; Kisfaludy, Lajos; Low, Miklos; Paulay, Zoltan; Szporny, Laszlo; and Lang, Zsuzsanna, 3,810,880.
Szpur, Roman, to Medicotech Company. Self-retaining surgical retractor. 3,810,462, Cl. 128-20.000.
Tabata, Kazuo; and Togasaka, Masanari. Swimmer's foot fin. 3,810,269, Cl. 9-309.000.
Tacke, Peter; and Hermann, Karl-Heinz, to Bayer Aktiengesellschaft. Self-extinguishing reinforced polyamide moulding compositions. 3,810,861, Cl. 260-37.00n.
Taiho Pharmaceutical Company, Limited: *See—*
Hamakawa, Toshihiro; Kajihara, Motoyoshi; Suzue, Takashi; and Ogawa, Fumiaki, 3,810,978.
Taira, Tetsuro; and Somekawa, Akira, to Tsumura, Kaoru. Guide frame for chain saw. 3,810,408, Cl. 83-802.000.
Takagahara, Isamu: *See—*
Fujii, Katsumi; Takagahara, Isamu; Suzuki, Yasuo; and Horio, Takekazu, 3,810,823.
Takahashi, Akio; and Lemper, Anthony L., to Hooker Chemical Corporation. Method of obtaining small particle size polymers and copolymers of vinyl chloride by bulk polymerization. 3,810,958, Cl. 260-880.00r.
Takahashi, Isoji: *See—*
Matsumoto, Seiji; and Takahashi, Isoji, 3,811,048.
Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, to Nissan Motor Company, Limited. Worn and reciprocating ball type steering gear for motor vehicles. 3,810,395, Cl. 74-89.150.
Takasaki, Yoshitaka; and Aoki, Kouji, to Hitachi, Ltd. Low frequency cut-off compensation system for baseband pulse transmission lines. 3,811,016, Cl. 179-170.00r.
Takasu, Itaru; Higuchi, Masaru; Hijioka, Yoshito; and Arimoto, Kyozo, to Daicel Ltd. Process for recovering cobalt from oxo reaction products. 3,810,967, Cl. 423-139.000.
Takeuchi, Tomio: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.
Takeuchi, Yasuhisa; and Nakamura, Hiromichi, to Nissan Motor Company, Limited. Device for detecting vertical movement [illegible] 3,810,[illegible]
[illegible] Kaisha: *See—*
Shoji, Nagayoshi, 3,810,673.
Tappan Company, The: *See—*
Vonderhaar, Arthur W., 3,810,483.
Tashiro, Korefumi; Onoda, Yoshimitsu; Shima, Seiya; Sukai, Yoshio; and Narita, Toshiro, to Hitachi, Ltd. DC motor control system. 3,811,079, Cl. 318-338.000.
Tashiro, Tsuneo: *See—*
Matsumoto, Yoshi; and Tashiro, Tsuneo, 3,810,693.
Taub, James M.: *See—*
Martin, William W.; Schell, Donald H.; and Taub, James M., 3,810,962.

Taylor, Clifton I.; and Hardwick, Charles W. Medical examining table. 3,810,263, Cl. 5-81.00r.
Taylor, Wilson G. Bowling ball and method of closing and opening a cavity opening therein. 3,810,619, Cl. 273-63.00e.
Tchelitcheff, Serge, to Rhone-Poulenc S.A. 1-(5-Nitrothiazol-2-yl)-imidazolidine-2-thione. 3,810,908, Cl. 260-306.80r.
Tec Group, Inc., The: *See—*
Richter, Harvey E., 3,810,635.
Tektronix, Inc.: *See—*
Unger, Peter J.; and Ford, Harry L., 3,811,007.
Terryn, Raymond Martin Florent, to International Standard Electric Corporation. Signal recognition system. 3,811,034, Cl. 235-61.11r.
Texaco Inc.: *See—*
Chafetz, Harry; Canning, William H.; and Morissette, Bertrand G., 3,810,837.
Haugen, Haakon, 3,810,838.
Morduchowitz, Abraham, 3,810,276.
Riordan, Michael D.; and Weetman, David G., 3,810,951.
Woodle, Robert A., 3,810,950.
Texas Gulf, Inc.: *See—*
Gloster, Arthur; and Boeckino, Harry G., 3,810,542.
Texas Instruments, Incorporated: *See—*
Kendall, Don Leslie, 3,810,791.
Skaggs, Frank L.; Harrap, Victor; and Bean, Kenneth E., 3,810,796.
Ty, Henry; and Dubuc, Rene A., 3,811,028.
Thalen, Bror Arne: *See—*
af Ekenstam, Bo Thuresson; Thalen, Bror Arne; Aberg, Axel Karl Gunnar; and Claeson, Karl Goran, 3,810,986.
Thermal Exchange Systems, Inc.: *See—*
Fleming, Myron T., 3,810,315.
Thexton, Graham Spencer: *See—*
Morton, John; Stevens, Keith Drummond; and Thexton, Graham Spencer, 3,811,080.
Thiel, Max: *See—*
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max, Roesch, Androniki; and Roesch, Egon, 3,810,896.
Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, 3,810,898.
Thomas & Betts Corporation: *See—*
Hidassy, Laszlo, 3,810,498.
Thomas, Brian Martin: *See—*
Howard, Donald Kearey; Thomas, Brian Martin; Popplewell, Alan Francis; and Matossi, Dario, 3,810,824.
Thomas, James L., to FMC Corporation. Diallyl phthalate compositions containing diace tone acrylamide. 3,810,865, Cl. 260-42.180.
Thomas, Leonard L. Cigarette holder. 3,810,476, Cl. 131-187.000.
Thompson, Lois J.; formerly Duggan, Lois J., trustees of the estate of Magnuson, Roy M.: *See—*
Lazzarini, Louis P., 3,811,000.
Thorn Electrical Industries Limited: *See—*
Coxon, George Eric, 3,810,685.
Robinson, Kenneth Buckley, 3,810,684.
Thyssen Niederrhein GmbH Hutten und Walzwerke: *See—*
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, 3,810,609.
Tien, Ping King: *See—*
Ballman, Albert Anthony; and Tien, Ping King, 3,810,688.
Tiffany Industries, Inc.: *See—*
Siegal, Burton L., 3,810,430.
Titovi Zavodi Litostroj: *See—*
Rakcevic, Savo, 3,810,717.
Tkachenko, Arkady Semenovich: *See—*
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Tobak, Lev Zeilikovich; Brandenburgsky, Mikhail Galileevich; Lichman, Nikolai Iosifovich; and Lygovskoi, Andrei Likyanovich. Horizontal hydraulic press. 3,810,293, Cl. 29-251.000.
Tober, Edward Paul, to Western Electric Company, Incorporated. Method of continuously sealing an interface between two relatively movable members. 3,810,966, Cl. 264-262.000.
Togasaka, Masanari: *See—*
Tabata, Kazuo; and Togasaka, Masanari, 3,810,269
Toida, Takashi: *See—*
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.
Tokyo Shibaura Electric Co., Ltd.: *See—*
Matsumoto, Yoshi; and Tashiro, Tsuneo, 3,810,693.
Toloka, Valentin Ivanovich: *See—*
Kozhevnikov, Sergei Nikolaevich; Cherevik, Jury Ivanovich; Tkachenko, Arkady Semenovich; Klimkovsky, Bronislav Mecheslavovich; Toloka, Valentin Ivanovich; Malkin, Arkady Semenovich; and Bykov, Yakov Maximovich, 3,810,378.
Tomy Kogyo Co. Ltd.: *See—*
Yamamoto, Hideyuki, 3,810,629.
Tonomura, Akira: *See—*
Katagiri, Shinjiro; and Tonomura, Akira, 3,811,059.
Tosato, Lawrence; and Solymos, Frederick, to Westinghouse Electric Corporation. Elevator system. 3,810,529, Cl. 187-94.000.
Touchton, James J.: *See—*
Ha, In W.; and Touchton, James J., 3,811,091.
TPI Corporation: *See—*
McBride, Rohy C.; and Owens, Howard, 3,811,031.
Tracotr, Inc.: *See—*
Kraus, Charles E., 3,810,398.
Trassler, LaVerne C.: *See—*
Cruz, Mamerto M., Jr.; Battista, Orlando A.; Trassler, LaVerne C.; and Cirolla, Carmine, 3,810,473.
Traynor, Edward J.: *See—*
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J.; and Rogers, Dow A., Jr., 3,811,005.
Treanor, Charles E.: *See—*
Rich, Joseph W.; Treanor, Charles E.; and Daiber, John W., 3,811,095.
Treder, Charles F.: *See—*
Orth, Charles D.; Treder, Charles F.; and Griffoul, Marcel P., 3,810,488.
Troutman, Ronald Roy, to International Business Machines Corporation. Method for making self-aligning structure for charge-coupled and bucket brigade devices. 3,810,795, Cl. 148-187.000.
Truh, Jean; Kneller, Klaus; and Gregoire, Jean-Francois, to Schweizerische Industrie-Gesellschaft. Apparatus for use in the manufacture of a tubular film from plastic material. 3,810,725, Cl. 425-72.000.
Truck-Lite Company, Inc.: *See—*
Morrison, Charles R., 3,811,042.
Truhan, Andrew. Surgical aspirating cannula. 3,810,471, Cl. 128-276.000.
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J., and Rogers, Dow A., Jr., to Westinghouse Electric Corporation. Glass-mica composite structure containing diphenyl oxide B-stage resin. 3,811,005, Cl. 174-121.0sr.
Truran, Karl: *See—*
Fox, Robert M.; and Truran, Karl, 3,810,656.
TRW Inc.: *See—*
Piwonka, Thomas S., 3,810,504.
Tsuchiya, Hiroyoshi: *See—*
Fukumoto, Akira, Hane, Toshihide, Tsuchiya, Hiroyoshi, and Hayami, Heijiro, 3,811,009.
Tsujimoto, Koji, to Ushio Electric Inc. Electrodesegment type gaseous display device. 3,811,060, Cl. 313-109.500.
Tsukajaki, Shohei, to Kabushiki Kaisha Meidensha. Winding device for electrical machinery. 3,810,586, Cl. 242-1.10a.
Tsumura, Kaoru: *See—*
Taira, Tetsuro; and Somekawa, Akira, 3,810,408.
Tudor Metal Products Corporation: *See—*
Payne, Calvin L., Jr., 3,810,622.
Tufte, Paul A.: *See—*
Adams, William E.; Tufte, Vernon L., and Tufte, Paul A., 3,810,566.
Tufte, Vernon L.: *See—*
Adams, William E.; Tufte, Vernon L., and Tufte, Paul A., 3,810,566.
Tulagin, Vsevolod, and Carreira, Leonard M., to Xerox Corporation. Photographic masking system. 3,810,758, Cl. 96-1.200.
Tungseth, Barry F.; and Lindlof, James A., to Minnesota Mining and Manufacturing Company. Joint structure and method. 3,810,707, Cl. 404-67.000.
Turi, Dino P., 20% to Lee, Raymond, Organization, Inc., The. Sanitary device. 3,810,670, Cl. 294-19.00r.
Turner, Horace George, to Plessey Handel und Investments A.G. Disposal of liquid spillage and the like. 3,810,714, Cl. 417-80.000.
Turner, Norman E.; and McGonigal, James J., to Magnetic Laboratories Inc. Coil manufacturing process. 3,811,045, Cl. 264-250.000.
Turner, William R., to Automation Industries, Inc. Ultrasonic imaging tube. 3,811,067, Cl. 315-11.000.
Ty, Henry; and Dubuc, Rene A., to Texas Instruments, Incorporated. Thermostat metal and method of making. 3,811,028, Cl. 219-117.00r.
Tyler, Edward P.: *See—*
Hildreth, Donald M.; and Tyler, Edward P., 3,811,049.
Tyrrell, Warren A., to United States of America, Navy, mesne. Underwater low frequency sonic communication. 3,811,106, Cl. 340-5.00r.
Uchida, Kosaku; Dezaki, Yoshito; and Kitamura, Sadafumi, to Matsushita Electric Industrial Co., Ltd. Automatic stopper system for stopping a power supply in the absence of information signals. 3,811,090, Cl. 325-390.000.
Uffner, Melville Willard, to Air Products and Chemicals, Inc. Fluorochemical compositions for organophobic sizing of paper products. 3,810,772, Cl. 106-287.00r.
Uhl, Klaus; and Fischer, Klaus, to Farbwerke Hoechst Aktiengesellschaft. Process for making fibrous material water-repellent. 3,810,775, Cl. 117-21.000.
Ulmer, Harry E.: *See—*
Yeh, Chuen Y.; and Ulmer, Harry E., 3,810,946.
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, to Zaidan Hojin Biseibutsu Kagaku Kenkyo Kai. 5-Dihydrocoriolin C. 3,810,924, Cl. 260-348.00c.
Unger, Peter J.; and Ford, Harry L., to Tektronix, Inc. Facsimile method and apparatus. 3,811,007, Cl. 178-6.60a.
Union Carbide Corporation: *See—*
Hauser, Charles Frank, 3,810,940.
Kun, Leslie C., 3,810,509.
Union Electronics (a Division of Union Corporation, The): *See—*
Ianuzzi, Joseph N.; and Hurlbut, Gordon, 3,810,403.
Union Oil Company of California: *See—*

Young, Donald C., 3,810,749.
Unit 1: *See—*
Kiniski, Zane Chadrick, 3,811,058.
United Aircraft Corporation: *See—*
Brown, Robert T.; Bullis, Robert H.; Churchill, Thomas L.; Hall, Robert J.; Lary, Edmund C.; Nighan, William L., III; and Schulman, Elliot R., 3,811,057.
Jeffery, Philip Auriol Edgar, 3,810,671.
United States Gypsum Company: *See—*
Nelsson, Nels, 3,810,340.
United States of America
Agriculture: *See—*
Jurd, Leonard; and King, Alfred Douglas, Jr., 3,810,990.
Air Force, mesne: *See—*
Boebel, Carl P.; and Stevenson, Gary E., 3,810,777
Army: *See—*
Karp, Bernard L.; Figge, Irving E.; and Paxson, Ernest B., Jr., 3,810,803.
Army, mesne: *See—*
Minghella, Paul F., 3,811,083.
Atomic Energy Commission: *See—*
Ardary, Zane L.; Campbel, Virgil B.; and Reynolds, Carl D., 3,810,780.
Benton, Samuel T.; and Schmitt, Charles R., 3,810,963.
Martin, William W.; Schell, Donald H.; and Taub, James M., 3,810,962.
National Aeronautics and Space Administration: *See—*
Lee, Robert D., 3,811,094.
Meador, Thomas G., Jr., 3,811,044.
National Aeronautics and Space administration;. Administrator; with respect to an invention of:
Oliver, Gerald D. Scanning nozzle plating system. 3,810,829, Cl. 204-222.000.
Navy: *See—*
Long, David T., 3,811,010.
Martini, Leonard J., 3,810,484.
Navy, mesne: *See—*
Mason, Robert J.; and Lavedan, Louis J., Jr., 3,811,099.
Tyrrell, Warren A., 3,811,106.
United States Smelting Refining and Mining Company: *See—*
Winger, William A., 3,811,126.
Universal Oil Products Company: *See—*
Massie, Stephen N., 3,810,849.
Massie, Stephen N., 3,810,895.
Schmerling, Louis, 3,810,947.
Sobel, Jay E., 3,810,955.
University of Oklahoma Foundation, Inc.: *See—*
Ficken, Vernon Joe; Halpern, Samuel E.; and Miller, Leonard R., 3,810,976.
Upjohn Company, The: *See—*
Smith, Charles Giles, 3,810,883.
Urade, Toshinori: *See—*
Nakayama, Norihiko; Shirouchi, Yasunari; and Urade, Toshinori, 3,811,061.
Uratani, Eiichi, to Sumida Equipment Industries, Inc. Method for removal of oil and water from compressed air. 3,810,346, Cl. 55-29.000.
Urry, Wilbert Herbert; and Mullenbach, Guy Towns, to Commerical Solvent Corporation. Synthesis of zearalanone. 3,810,918, Cl. 260-343.20f.
U.S. Philips Corporation: *See—*
Broers, Godefridus Henricus; and van Esdonk, Johannes, 3,810,302.
DeLang, Hendrik; and Velzel, Christiaan Hendrik Frans, 3,810,687.
Garbe, Siegfried A. E.; Zalm, Pieter; and Pastoor, Willem, 3,811,002.
Holman, Benedictus Timotheus, 3,811,066.
Van den Broek, Franciscus Josephus, 3,810,746.
Van Nie, Cornelis Pieter, 3,810,460.
Van Ruler, Johannes; and Scholten, Pieter Cornelis, 3,810,840.
Ushio Electric Inc.: *See—*
Tsujimoto, Koji, 3,811,060.
Van den Broek, Franciscus Josephus, to U.S. Philips Corporation. Device for sealing electric filament lamps or discharge tubes. 3,810,746, Cl. 65-140.000.
Van den Houte, Jozef Willy: *See—*
Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,762.
Laridon, Urbain Leopold; and Van den Houte, Jozef Willy, 3,810,763.
van der Lely, Ary; and Bom, Cornelis Johannes Gerardus. Agricultural cultivator and seed drill combination. 3,810,434, Cl. 111-10.000.
van Esdonk, Johannes: *See—*
Broers, Godefridus Henricus; and van Esdonk, Johannes, 3,810,302.
Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, to Shell Oil Company. Hydrocracking and hydrodesulfurization utilizing a salt-containing neutralized silica-alumina support calcined at different temperature ranges. 3,810,830, l. 208-111.000.
Van Nie, Cornelis Pieter, to U.S. Philips Corporation. Detector for physiological quantities. 3,810,460, Cl. 128-2.05e.
Van Ruler, Johannes; and Scholten, Pieter Cornelis, to U.S. Philips Corporation. Method of manufacturing a magnetic tape lacquer, and a magnetic tape manufactured with said lacquer. 3,810,840, Cl. 252-62.540.
Van Uitert, Legrand Gerard: *See—*
Dillon, Joseph, Jr.; Van Uitert, Legrand Gerard; and Wemple, Stuart Harry, 3,811,096.
Van Weeren, Pieter Albert: *See—*
Van Klinken, Jakob; Kouwenhoven, Herman Wouter; and Van Weeren, Pieter Albert, 3,810,830.
Vanburen, Charles E.: *See—*
Arendt, Ronald H.; and Vanburen, Charles E., 3,810,973.
Vanderpool, James L.: *See—*
Herrin, Carlos B.; Humbarger, Ross C.; and Vanderpool, James L., 3,811,033.
Varian Associates: *See—*
Antypas, George A.; Rosztoczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, 3,810,794.
Lien, Erling L., 3,811,065.
Vasiliev, Evgeny Mikhailovich; Egorov, Vladimir Sergeevich; Kovalenko, Jury Nikolaevich; Kostjuchenko, Mikhail Ivanovich; Latvin, Anatoly Vasilievich; Pobegailo, Grigory Gavrilovich; Churakov, Vladimir Mikhailovich; Lensky, Alexandr Nikolaevich; Prazdnikov Anatoly Vladimirovich; Sidorov, Ivan Sergeevich; Khovrin, Boris Vladimirovich; and Fabrika, Ljudmila Petrovna, to Ostapenko, Viktor Vladimirovich. Apparatus for braking rolled bars to rest on the cooling bed of a bar mill. 3,810,283, Cl. 72-250.000.
Veach, Carlos W. Electrically heated stylus for transferring a printing medium. 3,811,030, Cl. 219-237.000.
Veeder Industries, Inc.: *See—*
Brunone, Peter P., 3,811,035.
Velsicol Chemical Corporation: *See—*
Carlson, Arthur W., 3,810,945.
Velzel, Christiaan Hendrik Frans: *See—*
DeLang, Hendrik; and Velzel, Christiaan Hendrik Frans, 3,810,687.
Vereinigte Metallwerke Panshofen-Berndorf Aktiengesellschaft: *See—*
Schlogelhofer, Ferdinand, 3,810,379.
Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft: *See—*
Schoffmann, Rudolf; and Rinesch, Rudolf, 3,810,507.
Vermeulen, Cornelis Geerhard; and Oomen, Joris Jan Cornelis. Electrochemical cell having cathode mass comprising hollow carbon bodies. 3,810,789, Cl. 136-6.0ln.
Vickers, Robert V., to Park-Ohio Industries, Inc. Method and apparatus for quench hardening valve seats. 3,810,608, Cl. 266-4.00e.
Victor Comptometer Corporation: *See—*
Garmon, Lee F., Jr., 3,810,455.
Vidakovic, Milovan: *See—*
Kwiatkowski, Wolfgang; Vidakovic, Milovan; and Kempe, Horst, 3,810,568.
Vigan, Elaine G. Plural rotatable discs chance device. 3,810,628, Cl. 273-142.0ha.
Viksne, George Juris, to Stauffer Chemical Company. Stabilized heat curable silicone elastomers. 3,810,925, Cl. 260-37.0sb.
Vinyltron Corporation: *See—*
Speer, Lawrence, 3,810,801.
Vockenhuber, Karl: *See—*
Drasch, Josef; Scheiber, Robert; and Wessner, Harald, 3,810,692.
Voith Getriebe KG: *See—*
Finke, Ernst-Guenter, 3,810,362.
Von Alven, Raymond D.: *See—*
Lewis, Dan, Jr.; and Von Alven, Raymond D., 3,810,503.
Von Bogdandy, Ludwig; Becker, Helmut; Grewer, Rudolf; Pantke, Heinz Dieter; and Pohl, Ulrich, to Thyssen Niederrhein GmbH Hutten und Walzwerke. Shaft-type direct-reduction furnace. 3,810,609, Cl. 266-25.000.
von der Crone, Jose: *See—*
Model, Ernst; von der Crone, Jose; and Pugin, Andre, 3,810,889.
Von Gunten, Leo J. Nestable pill-administering drinking vessel. 3,810,470, Cl. 128-222.000.
Von Konig, Anita: *See—*
Kampfer, Helmut; Ohlschlager, Hans; Von Konig, Anita; and Gotze, Johannes, 3,810,760.
Von Meijer, Frederick William Albert: *See—*
Morgan, John Roderick Cromwell, 3,810,522.
von Orelli, Marcus: *See—*
Duerr, Dieter; and von Orelli, Marcus, 3,810,993.
Von Szeremy, Sigmund: *See—*
Antypas, George A.; Rosztoczy, Ferenc E.; Stein, William W.; and Von Szeremy, Sigmund, 3,810,794.
Vonderhaar, Arthur W., to Tappan Company, The. Removable oven door seal. 3,810,483, Cl. 126-190.000.
Voscovich, Steven J., to Relton Corporation and Center guided tile drill. . 3,810,514, Cl. 175-403.000.
Voshall, Roy E., to Westinghouse Electric Corporation. Laser initiated three electrode type triggered vacuum gap device. 3,811,070, Cl. 315-150.000.
Voss, David L.: *See—*
Welhart, Erwin K.; Voss, David L.; and Harrell, John F., 3,810,815.
Vouthier, Marcel, to Etablissements Carpano & Pons S.A. Ski binding. 3,810,645, Cl. 280-11.35t.

Wade, Thomas Cyril James; Matthewson, Ian; and Savage, Sidney Clifford, to Wildt Mellor Bromley Limited. Patterning machanisms for knitting machines. 3,810,368, Cl. 66-50.00r.

Waggle, Doyle H., to Ralston Purina Company. Method of producing expanded, textured protein products. 3,810,764, Cl. 426-241.000.

Wallgard, Gunnar Alexius: *See*—
Hoven, Johan Bertil; Wallgard, Gunnar Alexius; and Svensson, Bo Herman Thorwald, 3,811,112.

Walsh, James E.: *See*—
Geist, Kenneth R.; and Walsh, James E., 3,810,737.

Walton, Richard R.; and Munchbach, George E., said Munchbach assor. to said Walton. Method and apparatus for longitudinal compressive treatment of flexible material. 3,810,280, Cl. 26-18.600.

Wang, David, to Polaroid Corporation. Method for production of a photographic film. 3,810,778, Cl. 117-34.000.

Warriner, Gerald E. Portable drive-in platform. 3,810,705, Cl. 404-1.000.

Watanabe, Tadashi: *See*—
Nagasawa, Taro; Ryoki, Taizo; Shinozaki, Takashi; Watanabe, Tadashi; and Kanayama, Mitsuru, 3,810,765.

Waters Associates, Inc.: *See*—
Abrahams, Louis; and Hutchins, Burleigh M., Jr., 3,810,716.
Hutchins, Burleigh M., Jr., 3,810,696.

Wave, George H.: *See*—
Johnson, Robert W.; Wave, George H.; Golden, William R.; and Mosquera, Hugo O., 3,811,020.

Wazawa, Kiyoshi: *See*—
Baba, Kosaku; and Wazawa, Kiyoshi, 3,811,056.

Weaver, John; and Maynard, David Payne, to Cement & Concrete Association, The. Apparatus for making a rigid road which has a textured surface. 3,810,709, Cl. 404-93.000.

Weaving, John Harold; and Haynes, Cecil David, to British Leyland Motor Corporation, Limited. Exhaust systems for internal combustion engines. 3,810,361, Cl. 60-288.000.

Week, Nils P.; Shellman, Carl E.; and Koivunen, Erkki A., to General Motors Corporation. Hydrostatic machine valve biasing system. 3,810,715, Cl. 417-213.000.

Weetman, David G.: *See*—
Riordan, Michael D.; and Weetman, David G., 3,810,951.

Weigele, Manfred: *See*—
Leimgruber, Willy; and Weigele, Manfred, 3,810,935.

Weihe, Don L., to Firestone Tire & Rubber Company, The. Hydrofoil attachment for boats. 3,810,268, Cl. 9-2.00r.

Weimer, Howard A., Sr., 30% to Lee Raymond, Organization,Inc., The. Wheelchair steering apparatus. 3,810,658, Cl. 280-269.000.

Weimer, Paul Kessler, to RCA Corporation. Charge transfer fun-in circuitry. 3,811,055, Cl. 307-304.000.

Weinfurt, Phillip T.; and Lijewski, Robert P., to General Electric Company. Vector contour plot of physiological parameters. 3,811,040, Cl. 235-193.000.

Weisfeld, Lewis B.; and Witman, Robert C., to Cincinnati Milacron Chemicals, Inc. Dimethyltin mercapto ester stabilizers for halogenated resins. 3,810,868, Cl. 260-45.75k.

Welhart, Erwin K.; Voss, David L.; and Harrell, John F., to McDonnell Douglas Corporation. Transparent laminate. 3,810,815, Cl. 161-183.000.

Wells, Arthur Henry: *See*—
Morley, Charles Gordon; Stevenson, Basil Charles James; Bedder, Llewllyn James; and Wells, Arthur Henry, 3,810,528.

Wells-Gardner Electronics Corporation: *See*—
Shragal, Robert, 3,811,047.

Wemple, Stuart Harry: *See*—
Dillon, Joseph, Jr.; Van Uitert, Legrand Gerard; and Wemple, Stuart Harry, 3,811,096.

Wern, Carl Rune; Wern, George Herman; and Wern, Lars Ake. Manually operated switch. 3,811,054, Cl. 307-252.00h.

Wern, George Herman: *See*—
Wern, Carl Rune; Wern, George Herman; and Wern, Lars Ake, 3,811,054.

Wern, Lars Ake: *See*—
Wern, Carl Rune; Wern, George Herman; and Wern, Lars Ake, 3,811,054.

Werner, James O., to Banner Welder, Inc. Apparatus for bending rods. 3,810,497, Cl. 140-71.00r.

Wessner, Harald: *See*—
Drusch, Josef; Scheiber, Robert; and Wessner, Harald, 3,810,692.

Western Electric Company, Incorporated: *See*—
Tober, Edward Paul, 3,810,966.

Western Litho Plate & Supply Co.: *See*—
Harrell, Robert E.; and Hadley, Richard E., 3,810,694.

Western Wood Structures, Inc.: *See*—
Scott, Hollis C., 3,810,342.

Westinghouse Electric Corporation: *See*—
Curry, Robert G., Jr., 3,811,068.
Guidosh, Edward F., 3,811,022.
Keever, Joseph M.; and Zisa, William J., 3,810,683.
Matty, Thomas C., 3,810,681.
O'Keeffe, Terence W., 3,811,069.
Shuey, Kenneth C.; and Baker, Donal E., 3,811,073.
Tosato, Lawrence; and Solymos, Frederick, 3,810,529.
Trunzo, Floyd F.; Sprengling, Gerhard R.; Traynor, Edward J.; and Rogers, Dow A., Jr., 3,811,005.
Voshall, Roy E., 3,811,070.

Westland Aircraft Limited: *See*—
Joiner, Walter Charles, 3,810,713.

Whales, George Basil. Clipping machines. 3,810,292, Cl. 29-243.570.

White, Edward L.; Schwarez, Joseph; and Lang, William D. Translucent polyvinylchloride plastic composition and method for preparing same. 3,810,864, Cl. 260-42.75r.

Whitely, Robert M.: *See*—
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, 3,810,423.

Widmer, Erich: *See*—
Furst, Andor; Buchschacher, Paul; Kagi, Dieter; Muller, Marcel; Meier, Werner; and Widmer, Erich, 3,810,915.

Wiedemann, Otto: *See*—
Gersch, Josef; Wiedemann, Otto; and Kiessling, Werner, 3,810,594.

Wiegand, Karl E., to Ethyl Corporation. Method and composition for treating obesity. 3,810,994, Cl. 424-316.000.

Wieland, Peter: *See*—
Anner, Georg; and Wieland, Peter, 3,810,916.

Wiklund, Per Martin; and Bang, Erik Borje. Protection arrangement at chain motor saws. 3,810,309, Cl. 30-382.000.

Wilborn, Donald C.: *See*—
Grimm, Henry B.; Matsuo, Chickau; and Wilborn, Donald C., 3,810,706.

Wilcox, Merrill. Pyridine-N-oxides as citrus abscission agents. 3,810,752, Cl. 71-94.000.

Wildt Mellor Bromley Limited: *See*—
Wade, Thomas Cyril James; Matthewson, Ian; and Savage, Sidney Clifford, 3,810,368.

Wiley, Richard H., to Miles Laboratories, Inc. Monoester derivatives of oxalocitrolactone. 3,810,923, Cl. 260-343.600.

Williams, Arthur B., to Singer Company, The. Transformerless full wave rectifier and direct coupled product modulator. 3,811,098, Cl 332-44.000.

Willson, James R. Electric igniter construction. 3,810,734, Cl. 431-258.000.

Windmoller & Holscher: *See*—
Bosse, Frank, 3,810,811.

Winger, William A., to United States Smelting Refining and Mining Company. Alarm system. 3,811,126, Cl. 340-409.000.

Winter, Joseph: *See*—
Pryor, Michael J.; Winter, Joseph; and Fister, Julius C., Jr., 3,810,287.

Witman, Robert C.: *See*—
Weisfeld, Lewis B.; and Witman, Robert C., 3,810,868.

Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, to Boehringer Mannheim GmbH. Flavonyloxyalkyl-piperazine compounds. 3,810,896, Cl. 260-268.0bc.

Witte, Ernst-Christian; Stach, Kurt; Thiel, Max; Roesch, Androniki; and Roesch, Egon, to Boehringer Mannheim GmbH. Coumarin-7-yloxy-alkyl piperazine compounds. 3,810,898, Cl. 260-268.0bc.

Wolf & Vine, Inc.: *See*—
Libingston, Graydon C., 3,810,565.

Wolfert, Clarke K., to HC Products Co. Metal reinforced plastic panel. 3,810,338, Cl. 52-475.000.

Wolff, George D. Fuel injection system. 3,810,453, Cl. 123-139.00r.

Wolthers, Adolf Johan, to Papillon Etablissement. Pump for discharging a predetermined quantity of fluid. 3,810,719, Cl. 417-416.000.

Wong, Robert; and Hill, Homer G., to Owens-Corning Fiberglas Corporation. Reversible shear thinning gel coated glass fiber strand. 3,810,784, Cl. 117-126.0gc.

Wood, Hamish Christopher Swan; Stuart, Alexander; Curran, Adrian Charles Ward; and Al-Hassan, Saieba Amino pyrimidines. 3,810,893, Cl. 260-256.40c.

Woodall Industries Inc.: *See*—
Anderson, David P., 3,810,731.

Woodhouse, John C., to Deike, Robert F. Stuffer for two-cycle engines. 3,810,450, Cl. 123-73.00a.

Woodle, Robert A., to Texaco Inc. Process for converting reactant into product including adsorption-desorption cycle for recycle of unreacted reactant. 3,810,950, Cl. 260-667.000.

Wright, John Richardson: *See*—
Cowell, Clifton Douglas; and Wright, John Richardson, 3,810,876.

Wright, Kim W.: *See*—
Ford, Ralph E.; and Wright, Kim W., 3,810,274.

Wu, Ning: *See*—
Hansen, Raymond J.; Spialter, Eila B.; Whitely, Robert M.; and Wu, Ning, 3,810,423.

Wu, Tao-Yuan: *See*—
Morris, Thomas H.; and Wu, Tao-Yuan, 3,810,452.

Wulf, Helmut: *See*—
Schiesterl, Gerhard; and Wulf, Helmut, 3,810,653.

Xerox Corporation: *See*—
Matsumoto, Seiji; and Takahashi, Isoji, 3,811,048.
Moser, Rabin, 3,810,735.
Tulagin, Vsevolod; and Carreira, Leonard M., 3,810,758.

Yamaguchi, Michio; and Kohno, Yasumasa, to Nissan Motor Company, Limited. Safety device for motor vehicle. 3,810,523, Cl. 280-150.0ab.

Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Kawasaki, Masaru, 3,810,526.

Yamamoto, Hideyuki, to Tomy Kogyo Co. Ltd. Mixing and dispensing random selection device. 3,810,629, Cl. 273-144.00a.

Yamamoto, Hisao; and Nakao, Masaru, to Sumitomo Chemical Company, Ltd. N'-heteroacylated phenylhydrazines. 3,810,906, Cl. 260-295.00h.

Yanagawa, Yoshihiko. *See*—
Nikaido, Akira; Onda, Mitsuo; Machida, Takayasu; Nakajima, Fumio; Toida, Takashi; and Yanagawa, Yoshihiko, 3,810,354.

Yanai, Tokiyoshi: *See*—
Takahashi, Koichi; Hitomi, Nobuteru; and Yanai, Tokiyoshi, 3,810,395.

Yeh, Chuen Y.; and Ulmer, Harry E., to Allied Chemical Corporation. Purification of phenol. 3,810,946, Cl. 260-621.00a.

Yoeli, Oded; and Gibbs, Gerald W., to Consolidated Foods Corporation. Method for cleaning and sanitizing food handling equipment. 3,810,787, Cl. 134-29.000.

Yokoyama, Masahiro; and Kobayashi, Takanori, to Mitsubishi Denki Kabushiki Kaisha. Fixed point stop mechanism for sewing needle in sewing machine. 3,810,438, Cl. 112-219.00a.

Yoshino, Toshihiko: *See*—
Saito, Teruo; Yoshino, Toshihiko; and Ichida, Takeshige, 3,811,113.

Yosimura, Tatuo: *See*—
Shima, Kenzo; Suzuki, Kensuke; Yosimura, Tatuo; and Sasaki, Takeshi, 3,811,084.

Young, Donald C., to Union Oil Company of California. Foam crop maturant. 3,810,749, Cl. 71-70.000.

Zachariades, George, to Dow Chemical Company, The. Process for making reinforced resin laminates of uniform thickness. 3,810,816, Cl. 161-214.000.

Zahler, Wolf Dieter: *See*—
Schmitt, Werner; Purrmann, Robert; Jochum, Peter; and Zahler, Wolf Dieter, 3,810,938.

Zahnradfabrik Friedrichshafen Aktiengesellschaft: *See*—
Schuppel, Friedrich, 3,810,532.

Zaidan Hojin Biseibutsu Kagaku Kenkyo Kai: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Shimada, Nobuyoshi; Nakayama, Yuya; and Kunishima, Mamoru, 3,810,924.

Zalm, Pieter: *See*—
Garbe, Siegfried A. E.; Zalm, Pieter; and Pastoor, Willem, 3,811,002.

Zamacola, Eduardo Iraegui. Gas cylinder for firearms. 3,810,412, Cl. 89-90.00a.

Zanker, Klaus Joachim: *See*—
Cousins, Terence; and Zanker, Klaus Joachim, 3,810,388.

Zaweski, Edward F., to Ethyl Corporation. Oxidatively stabilized polymer compositions. 3,810,869, Cl. 260-45.85b.

Zeitlin, Alexander. Apparatus and method for hydrostatic extrusion. 3,810,374, Cl. 72-60.000.

Zeitlin, Benjamin R.: *See*—
Biscardi, Salvatore F.; and Zeitlin, Benjamin R., 3,810,995.

Zisa, William J.: *See*—
Keever, Joseph M.; and Zisa, William J., 3,810,683.

Zollinger, Joseph La Mar: *See*—
Mitsch, Ronald A.; and Zollinger, Joseph La Mar, 3,810,874.

1/2 to Hanscom, Genevieve I.; formerly Magnuson, Genevieve I.: *See*—
Lazzarini, Louis P., 3,811,000.

1/2 to Magnuson, Genevieve I.: *See*—
Lazzarini, Louis P., 3,811,000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Aktiebolaget Electrolux: *See*—
Liljendahl, Sven A. J. Re. 28,003.

Liljendahl, Sven A. J. to Aktiebolaget Electrolux. Valve structure for controlling discharge of waste liquid into pneumatic sewage disposal system. Re. 28,003, 5–14–74, Cl. 4—10.

Urbin, Matthew C. Pharmaceutical preparation. Re. 28,011, 5–14–74, Cl. 424—94.

Vicario, Guido. Method for measuring the coagulation time of organic substances (and albuminoid liquids), such as blood, and apparatus for carrying out such a method. Re. 28,009, 5–14–74, Cl. 73—64.100.

Way, David G. Device for dispensing and applying pressure sensitive tape. Re. 28,010, 5–14–74, Cl. 156—530.

LIST OF PLANT PATENTEES

Cully, Earl. Bald cypress. 3,547, 5–14–74, Cl. 50.

Cully, Earl. Pond cypress. 3,548, 5–14–74, Cl. 50.

Duffett, William E.: *See*—
Niklas, Edmund R., Jessel, and Duffett. 3,549.

Jessel, Walter H., Jr.: *See*—
Niklas, Edmund R., Jessel, and Duffett. 3,549.

Klass, Otto J., to Stark Bros. Nurseries and Orchards Co. Apple tree. 3,550, 5–14–74, Cl. 34.

Niklas, Edmund R., W. H. Jessel, Jr., and W. E. Duffett, said Jessel and said Duffet assors. to said Niklas. Chrysanthemum plant. 3,549, 5–14–74, Cl. 76.

Stark Bros. Nurseries and Orchards Co.: *See*—
Klass, Otto J. 3,550.

LIST OF DESIGN PATENTEES

American Air Filter Co., Inc.: *See*—
Woods, Walter E., and Hammann. 231,654.

American Standard Inc.: *See*—
Day, Kerry A. 231,664.

Bauman, Joseph F., to Emanuel Roth, Co., Inc. Revolvable display stand. 231,661, 5–14–74, Cl. D6—24.

Bell Telephone Laboratories Inc.: *See*—
Eubank, Carol H., Genaro, McGarvey, and Prince. 231,650.

Bike Products Co.: *See*—
Edmonds, Floyd C. 231,657.

Bridgestone Cycle Industry Co., Ltd.: *See*—
Ishibashi, Hiroshi. 231,656.

Crysler Electric Co., Ltd.: *See*—
Ishikawa, Haruo. 231,660.

Day, Kerry A., to American Standard Inc. Toilet seat cover. 231,664, 5–14–74, Cl. D23—71.

Diegel, Herbert F. Photo print carrier. 231,651, 5–14–74, Cl. D61—1.

Edmonds, Floyd C., to Bike Products Co. Bicycle hubcap. 231,657, 5–14–74, Cl. D12—212.

Eubank, Carol H., D. M. Genaro, J. N. McGarvey, and T. B. Prince, to Bell Telephone Laboratories Inc. Telephone stand. 231,650, 5–14–74, Cl. D26—14.

Fingel, Hans A. Locating stop for work to be machined or the like. 231,663, 5–14–74, Cl. D54—13.

Fusillo, Joseph, Jr. Watch. 231,662, 5–14–74, Cl. D42—1.

Genaro, Donald M.: *See*—
Eubank, Carol H., Genaro, McGarvey, and Prince. 231,650.

Hammann, Paul E.: *See*—
Woods, Walter E., and Hammann. 231,654.

International Business Machines Corp.: *See*—
Williams, Roger C. 231,649.

Ishibashi, Hiroshi, to Bridgestone Cycle Industry Co., Ltd. Vehicle wheel. 231,656, 5–14–74, Cl. D12—211.

Ishikawa, Haruo, to Crysler Electric Co., Ltd. Speaker cabinet. 231,660, 5–14–74, Cl. D26—14.

Jantti, Mikko T. Scissors. 231,652, 5–14–74, Cl. D8—57.

Kemp, James M. Fishing lure. 231,659, 5–14–74, Cl. D22—27.

Lavo Ltd.: *See*—
Morino, Henry J. 231,647.

Malits, Joe. Cart for transporting furniture or the like. 231,648, 5–14–74, Cl. D12—29.

Morino, Henry J., to Lavo Ltd. Bottle or similar article. 231,647, 5–14–74, Cl. D9—40.

Nasta Industries, Inc.: *See*—
Spiegel, Norman. 231,665.

Prince, Terry B.: *See*—
Eubank, Carol H., Genaro, McGarvey, and Prince. 231,650.

Roth, Emanuel Co., Inc.: *See*—
Bauman, Joseph F. 231,661.

Schell, George I. Pallet. 231,653, 5–14–74, Cl. D14—3.

Spiegel, Norman, to Nasta Industries, Inc. Toy bus. 231,665, 5–14–74, Cl. D34—15.

Stuft, Daniel B. Meat tenderizer. 231,658, 5–14–74, Cl. D7—153.

Van Lelyveld, Maarten W. Dry shaver. 231,655, 5–14–74. Cl. D95—3.

Williams, Roger C., to International Business Machines Corp. Cash issuing terminal. 231,649, 5–14–74, Cl. D19—2.

Woods, Walter E., and P. E. Hammann, to American Air Filter Co., Inc. Roof-mounted air conditioning unit. 231,654, 5–14–74, Cl. D23—139.

CLASSIFICATION OF PATENTS

ISSUED MAY 14, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 3
1 3,810,259

CLASS 4
7 3,810,260
10 Re.28,008
41 3,810,261
172.12 3,810,262

CLASS 5
81R 3,810,263
220 3,810,264
348WB 3,810,265

CLASS 9
1R 3,810,266
3,810,267
2R 3,810,268
309 3,810,269

CLASS 12
41.1 3,810,270

CLASS 13
27 3,811,001

CLASS 15
183 3,810,271
256.52 3,810,272

CLASS 16
147 3,810,273
169 3,810,274
189 3,810,275

CLASS 17
21 3,810,277

CLASS 23
230R 3,810,737
3,810,738
253TP 3,810,739
277R 3,810,740

CLASS 24
31W 3,810,278
73P 3,810,279

CLASS 26
18.6 3,810,280

CLASS 27
19 3,810,281
35 3,810,282

CLASS 28
4R 3,810,284
72.11 3,810,285

CLASS 29
156.8H 3,810,286
191.6 3,810,287
203D 3,810,289
203P 3,810,288
208D 3,810,290
243.52 3,810,291
243.57 3,810,292
251 3,810,293
261 3,810,294
407 3,810,296
428 3,810,297
445 3,810,295
525 3,810,298
568 3,810,299
574 3,810,300
593 3,810,301
600 3,810,302
605 3,810,303
611 3,810,304

CLASS 30
32 3,810,305
43.92 3,810,306
90.1 3,810,307
130 3,810,308
382 3,810,309

CLASS 33
166 3,810,310
169R 3,810,311
227 3,810,312
288 3,810,313

CLASS 34
160 3,810,315

CLASS 35
8A 3,810,316
9A 3,810,317

CLASS 36
2.5F 3,810,318
11.5 3,810,319

CLASS 37
46 3,810,320

CLASS 40
1.5 3,810,321
107 3,810,322
124 3,810,323
158R 3,810,324
335 3,810,325

CLASS 42
59 3,810,326

CLASS 47
1.1 3,810,327
9 3,810,328
34.13 3,810,329

CLASS 49
127 3,810,330
401 3,810,331
421 3,810,332

CLASS 51
338 3,810,333
358 3,810,334

CLASS 52
79 3,810,335
81 3,810,336
223R 3,810,337
475 3,810,338
700 3,810,339
729 3,810,340
753E 3,810,341
758R 3,810,342

CLASS 53
37 3,810,343
124D 3,810,344
306 3,810,345
378 3,810,314

CLASS 55
29 3,810,346
45 3,810,347
91 3,810,348
248 3,810,349
487 3,810,350

CLASS 56
328R 3,810,351

CLASS 57
34R 3,810,352
58.83 3,810,353

CLASS 58
23A 3,810,355
23D 3,810,354
23R 3,810,356
33 3,810,357

CLASS 59
78 3,810,358
93 3,810,359

CLASS 60
229 3,810,360
288 3,810,361
362 3,810,362

CLASS 61
53 3,810,363
72.1 3,810,364

CLASS 62
48 3,810,365
137 3,810,366
217 3,810,366
457 3,810,367

CLASS 65
2 3,810,741
11W 3,810,742
29 3,810,743
42 3,810,744
134 3,810,745
140 3,810,746
158 3,810,747
271 3,810,748

CLASS 66
50R 3,810,368

CLASS 70
202 3,810,369
225 3,810,370

CLASS 71
70 3,810,749
78 3,810,750
92 3,810,751
94 3,810,752

CLASS 72
39 3,810,371
56 3,810,372
3,810,373
60 3,810,374
81 3,810,375
194 3,810,376
208 3,810,377
214 3,810,378
250 3,810,283
255 3,810,379
279 3,810,380
421 3,810,381
467 3,810,382

CLASS 73
40.5R 3,810,383
64.1 Re.28,009
67.8S 3,810,384
71.5U 3,810,385
151 3,810,387
194B 3,810,388
336.5 3,810,389
418 3,810,390
425.6 3,810,391
458 3,810,392
505 3,810,393

CLASS 74
87 3,810,394
89.15 3,810,395
107 3,810,396
110 3,810,397
200 3,810,398
409 3,810,399
518 3,810,400
691 3,810,401

CLASS 75
49 3,810,753
165 3,810,755
171 3,810,754
208CS 3,810,757
214 3,810,756

CLASS 82
1C 3,810,403
82 3,810,402

CLASS 83
71 3,810,404
100 3,810,405
222 3,810,406
285 3,810,407
802 3,810,408
819 3,810,409
852 3,810,410

CLASS 84
1.03 3,811,003
477B 3,810,411

CLASS 89
191A 3,810,412

CLASS 90
10 3,810,413
11C 3,810,414
62R 3,810,416

CLASS 91
39 3,810,417
484 3,810,418
505 3,810,419

CLASS 93
93HT 3,810,420

CLASS 96
1.2 3,810,758
1.5 3,810,759
29D 3,810,760
48R 3,810,762
3,810,763
84R 3,810,761

CLASS 99
60 3,810,415

CLASS 100
95 3,810,421

CLASS 101
40 3,810,422
93C 3,810,423
269 3,810,424

CLASS 102
23 3,810,425
87 3,810,426

CLASS 104
172BT 3,810,428
173 3,810,427

CLASS 105
199A 3,810,429

CLASS 106
15AF 3,810,767
56 3,810,768
135 3,810,769
278 3,810,771
286 3,810,770
287R 3,810,772
288B 3,810,773

CLASS 108
144 3,810,430

CLASS 110
8A 3,810,431
18R 3,810,432

CLASS 111
10 3,810,434

CLASS 112
105 3,810,435
121.15 3,810,436
152 3,810,437
219A 3,810,438
252 3,810,439

CLASS 114
162 3,810,440

CLASS 117
12 3,810,774
21 3,810,775
3,810,776
33.3 3,810,777
34 3,810,778
37 3,810,779
46CB 3,810,780
47A 3,810,781
107.2P 3,810,782
122S 3,810,783
126GE 3,810,784
132B 3,810,276
161ZB 3,810,785

CLASS 118
105 3,810,441

CLASS 119
14.03 3,810,442
14.37 3,810,443
22 3,810,444
26 3,810,445
61 3,810,446

CLASS 122
248 3,810,447

CLASS 123
32EA 3,810,448
3,810,449
73A 3,810,450
117A 3,810,451
3,810,452
139R 3,810,453
142 3,810,454

CLASS 124
13A 3,810,455

CLASS 126
190 3,810,483

CLASS 128
1R 3,810,456
3,810,458
2.05E 3,810,460
2.05Z 3,810,459
2.08 3,810,461
2.1R 3,810,457
20 3,810,462
56 3,810,463
66 3,810,464
3,810,465
75 3,810,466
95 3,810,467
156 3,810,468
218M 3,810,469
222 3,810,470
276 3,810,471
287 3,810,472
334 3,810,473
351 3,810,474

CLASS 131
84B 3,810,475
187 3,810,476
261R 3,810,477

CLASS 132
7 3,810,478
84 3,810,479

CLASS 134
9 3,810,786
29 3,810,787
42 3,810,788
104 3,810,480

CLASS 135
3R 3,810,481
4R 3,810,482

CLASS 136
6LN 3,810,789
134P 3,810,790

CLASS 137
70 3,810,484
71 3,810,485
269 3,810,486
351 3,810,487
489.3 3,810,488
495 3,810,489

CLASS 138
106 3,810,490
149 3,810,491

CLASS 139
59 3,810,492
110 3,810,493
122R 3,810,494

CLASS 140
25 3,810,496
71R 3,810,497
93A 3,810,495
3,810,498
123.6 3,810,499

CLASS 141
231 3,810,500

CLASS 144
30 3,810,501

CLASS 145
50E 3,810,502

CLASS 148
1.5 3,810,791
6.15Z 3,810,792
12 3,810,793
172 3,810,794
187 3,810,795

CLASS 150
8 3,810,503

CLASS 156
3,810,796
22 3,810,797
62.2 3,810,798
73 3,810,799
78 3,810,800
94 3,810,801
158 3,810,802
190 3,810,803
245 3,810,804
361 3,810,805
380 3,810,806
381 3,810,807
389 3,810,808
468 3,810,809
499 3,810,810
516 3,810,811
530 Re.28,010

CLASS 161
1 3,810,812
145 3,810,813
159 3,810,814
183 3,810,815
214 3,810,816

CLASS 162
301 3,810,817
3,810,818

CLASS 164
60 3,810,504
113 3,810,505
133 3,810,506
260 3,810,507

CLASS 165
20 3,810,508
148 3,810,509

CLASS 166
271 3,810,510

CLASS 169
37 3,810,511

CLASS 171
14 3,810,512

CLASS 172
114 3,810,513

CLASS 174
67 3,811,004
121SR 3,811,005
135 3,811,006

CLASS 175
403 3,810,514

CLASS 177
213 3,810,638

CLASS 178
6.6A 3,811,007
3,811,008
6.7 3,811,009
6.8 3,811,010
3,811,011

CLASS 179
2A 3,811,012
15BA 3,811,013
15BW 3,811,014
18BG 3,811,015
18E Re.28,007
170R 3,811,016

CLASS 180
1VS 3,810,515
24 3,810,516
49 3,810,517
54A 3,810,518
70R 3,810,519
103 3,810,520
3,810,521
116 3,810,522

CLASS 181
.5H 3,810,524
23 3,810,525
35A 3,810,526

CLASS 182
155 3,810,527

CLASS 184
6.11 3,810,528

CLASS 187
94 3,810,529

CLASS 188
32 3,810,530

CLASS 191
12R 3,811,017

CLASS 192
.062 3,810,532
3.3 3,810,531
105BA 3,810,533

CLASS 193
40 3,810,534

CLASS 194
85 3,810,535

CLASS 195
4 3,810,819
62 3,810,820
63 3,810,821
66R 3,810,822
3,810,823

CLASS 197
133R 3,810,536

CLASS 198
57 3,810,537
127R 3,810,538

CLASS 200
6A 3,811,018
38CA 3,811,019
61.88 3,811,020
82D 3,811,021

144B 3,811,022
153P 3,811,023
160 3,811,024
317 3,811,025

CLASS 204
54R 3,810,824
105M 3,810,827
159.15 3,810,825
3,810,826
195F 3,810,828
222 3,810,829

CLASS 206
73 3,810,539

CLASS 208
111 3,810,830
321 3,810,831

CLASS 209
73 3,810,540
81R 3,810,541

CLASS 210
23 3,810,832
32 3,810,833
50 3,810,542
58 3,810,834
59 3,810,835
152 3,810,543
167 3,810,544
198C 3,810,545
242 3,810,546
3,810,547
3,810,548
297 3,810,549

CLASS 211
41 3,810,433
69.6 3,810,550

CLASS 212
135 3,810,551

CLASS 213
8 3,810,552

CLASS 214
2.5 3,810,553
6D 3,810,554

CLASS 215
7 3,810,556
12 3,810,557
21 3,810,558

CLASS 219
74 3,811,027
117R 3,811,028
121P 3,811,029
237 3,811,030
374 3,811,031

CLASS 221
116 3,810,560
201 3,810,561

CLASS 222
20 3,810,562
146H 3,810,564
146R 3,810,563

CLASS 223
68 3,810,565

CLASS 224
28B 3,810,566
41 3,810,559

CLASS 225
67 3,810,567

CLASS 226
92 3,810,568
109 3,810,569
176 3,810,570
192 3,810,571

CLASS 227
132 3,810,572

CLASS 229
31FS 3,810,574
32 3,810,573

CLASS 232
57.5 3,810,575

CLASS 233
37 3,810,576

CLASS 235
1C 3,811,032
61.11E 3,811,033
61.11R 3,811,034
92FL 3,811,035
92PC 3,811,036
152 3,811,037
3,811,038
153AC 3,810,577
175 3,811,039
193 3,811,040

CLASS 236
80 3,810,578

CLASS 239
197 3,810,579
460 3,810,580
533 3,810,581
542 3,810,582
597 3,810,583

CLASS 240
2R 3,811,041
7.1R 3,811,042
8.16 3,811,043
47 3,811,044

CLASS 241
37 3,810,584
171 3,810,585
278R 3,810,555

CLASS 242
1.1A 3,810,586
7.03 3,810,587
55 3,810,588
66 3,810,589
68.4 3,810,590
78.6 3,810,591
84.51A 3,810,592
86.5 3,810,593
194 3,810,594

CLASS 244
110C 3,810,595

CLASS 248
74PB 3,810,596
214 3,810,597
221 3,810,598

CLASS 249
67 3,810,599
95 3,810,600
189 3,810,601

CLASS 250
206 3,811,046
208 3,811,047
326 3,811,048

CLASS 251
304 3,810,602

CLASS 252
8.5C 3,810,836
42.7 3,810,837
46.7 3,810,838
62 3,810,839
62.54 3,810,840
91 3,810,841
153 3,810,842
313S 3,810,843
435 3,810,844
455Z 3,810,845
529 3,810,846
536 3,810,847

CLASS 254
100 3,810,603

CLASS 259
18 3,810,604
108 3,810,605

CLASS 260
2R 3,810,848
2.1E 3,810,849
2.5AJ 3,810,850
3,810,851
17R 3,810,852
21 3,810,853
3,810,854
22CB 3,810,855
23.7M 3,810,856
28 3,810,857
29.2N 3,810,858
29.6RW 3,810,859
33.6UB 3,810,860
37SB 3,810,925
37N 3,810,861
40R 3,810,863
42.18 3,810,865
42.45 3,810,862
42.75R 3,810,864
45.75K 3,810,868
45.85B 3,810,869
45.9R 3,810,866
3,810,867
47CB 3,810,871
47R 3,810,870
64 3,810,872
67R 3,810,873
75H 3,810,874
78SC 3,810,876
78.4D 3,810,877
78.5B 3,810,878
93.5R 3,810,879
112.5 3,810,880
3,810,881
209R 3,810,882
211.5R 3,810,883
239A 3,810,884
239.55C 3,810,885
3,810,887
239.57 3,810,886
240D 3,810,888
240G 3,810,889
246B 3,810,890
248A 3,810,891
248C 3,810,892
256.4C 3,810,893
256.4F 3,810,894
268BC 3,810,896
3,810,898
268FT 3,810,897
268SY 3,810,895
268TR 3,811,026
285 3,810,899
293.58 3,810,901
293.69 3,810,900
294.8K 3,810,902
294.9 3,810,903
295H 3,810,906
295.5B 3,810,904
3,810,905
297P 3,810,907
306.8R 3,810,908
307H 3,810,909
309.2 3,810,910
310R 3,810,911
326A 3,810,912
326.1 3,810,914
326.26 3,810,913
340.9 3,810,915
3,810,916
343.2F 3,810,918
343.2R 3,810,917
3,810,922
343.6 3,810,923
345.2 3,810,919
345.8 3,810,920
346.4 3,810,921
348C 3,810,924
397.1 3,810,926
410 3,810,927
455A 3,810,928
455R 3,810,929
3,810,930
456R 3,810,931
465D 3,810,932
3,810,934
465F 3,810,933
465.8R 3,810,935
468K 3,810,936
485R 3,810,937
486R 3,810,938
513R 3,810,939
544M 3,810,940
559R 3,810,941
562B 3,810,942
600 3,810,943
612R 3,810,944
619F 3,810,945
621A 3,810,946
651R 3,810,947
653.6 3,810,948
665G 3,810,949
667 3,810,950
677A 3,810,951
677R 3,810,952
680E 3,810,953
3,810,954
683.49 3,810,955
857R 3,810,956
876B 3,810,957
880R 3,810,958
899 3,810,875
941 3,810,959
952 3,810,960
977 3,810,961

CLASS 261
39A 3,810,606
78R 3,810,607

CLASS 264
.5 3,810,962
29 3,810,963
53 3,810,964
3,810,965
250 3,811,045
262 3,810,966

CLASS 266
4E 3,810,608
25 3,810,609
43 3,810,610

CLASS 267
64R 3,810,611

CLASS 271
11 3,810,612

CLASS 272
57R 3,810,613
71 3,810,614

CLASS 273
1E 3,810,615
26A 3,810,616
43D 3,810,617
55R 3,810,618
63E 3,810,619
73H 3,810,620
80.2 3,810,621
85A 3,810,622
101 3,810,623
102.1C 3,810,624
104 3,810,625
131AB 3,810,626
138A 3,810,627
142HA 3,810,628
144A 3,810,629
153S 3,810,630
167A 3,810,631
179A 3,810,632
183D 3,810,633

CLASS 277
3 3,810,634
34 3,810,635
94 3,810,636
96 3,810,637
188 3,810,639
235A 3,810,640

CLASS 279
51 3,810,641
62 3,810,642

CLASS 280
11.35R 3,810,643
11.35T 3,810,644
3,810,645
3,810,646
11.37E 3,810,647
33.99R 3,810,648
37 3,810,649
124A 3,810,651
124F 3,810,650
125 3,810,652
150AB 3,810,523
3,810,653
3,810,654
150SB 3,810,657
150B 3,810,656
269 3,810,658
276 3,810,659
411A 3,810,660
415B 3,810,661
415R 3,810,662
425 3,810,663
507 3,810,664

CLASS 285
97 3,810,665

CLASS 290
38 3,811,049

CLASS 292
262 3,810,666
346 3,810,667

CLASS 293
71P 3,810,668

CLASS 294
19A 3,810,669
19R 3,810,670
83AE 3,810,671

CLASS 296
106 3,810,672

CLASS 297
217 3,810,673
326 3,810,674
460 3,810,675

CLASS 299
1 3,810,676
64 3,810,677

CLASS 301
6S 3,810,678
108SC 3,810,679

CLASS 303
6C 3,810,680
20 3,810,681
21F 3,810,682

CLASS 307
64 3,811,050
118 3,811,051
233 3,811,052
237 3,811,053
252H 3,811,054
304 3,811,055
311 3,811,056

CLASS 308
10 3,810,683

CLASS 310
11 3,811,057
80 3,811,058

CLASS 313
82 3,811,059
109.5 3,811,060
3,811,061
188 3,811,062
222 3,811,063
325 3,811,064

CLASS 315
5.43 3,811,065
10 3,811,066
11 3,811,067
20 3,811,068
31R 3,811,069
150 3,811,070
169TV 3,811,071
3,811,072

CLASS 316
4 3,810,684
5 3,811,002
20 3,810,685
3,810,686

CLASS 317
31 3,811,073
235H 3,811,075
235K 3,811,074
235R 3,811,076
258 3,811,077

CLASS 318
99 3,811,078
338 3,811,079
341 3,811,080
375 3,811,081
383 3,811,082
466 3,811,083

CLASS 321
11 3,811,084

CLASS 322
16 3,811,085

CLASS 324
28R 3,811,086
58.5A 3,811,087
132 3,811,088
170 3,811,089

CLASS 325
390 3,811,090

CLASS 328
1 3,811,091
39 3,811,092

CLASS 329
146 3,811,093

CLASS 330
59 3,811,094

CLASS 331
94.5 3,811,095

CLASS 332
7.51 3,811,096
14 3,811,097
44 3,811,098

CLASS 333
24.1 3,811,099

CLASS 334
15 3,811,100
42 3,811,101

CLASS 335
106 3,811,102

CLASS 338
20 3,811,103

CLASS 339
39 3,811,104
98 3,811,105

CLASS 340
5R 3,811,106
15.5CC 3,811,111
80 3,811,107
146.1AL 3,811,108
146.3AC 3,811,109
146.3H 3,811,110
164R 3,811,112
172.5 3,811,113
3,811,114
3,811,115
3,811,116
173DR 3,811,117
174TF 3,811,118
3,811,119
3,811,120
249 3,811,121
3,811,122
3,811,123
324M 3,811,124
347AD 3,811,125
409 3,811,126

CLASS 343
705 3,811,127
787 3,811,128
844 3,811,129

CLASS 350
3.5 3,810,687
96WG 3,810,688
159 3,810,689
282 3,810,690
288 3,810,691

CLASS 352
174 3,810,692

CLASS 355
4 3,810,693
18 3,810,694

CLASS 356
73 3,810,695
93 3,810,696
103 3,810,697
124 3,810,698
153 3,810,699

CLASS 401
59 3,810,700
110 3,810,701
139 3,810,702

CLASS 403
324 3,810,703
385 3,810,704

CLASS 404
1 3,810,705
3,810,706
67 3,810,707
72 3,810,708
93 3,810,709

CLASS 408
111 3,810,710

CLASS 416
97 3,810,711
117 3,810,712
205 3,810,713

CLASS 417
80 3,810,714
213 3,810,715
313 3,810,716
323 3,810,717
360 3,810,718
416 3,810,719
429 3,810,720
440 3,810,721

CLASS 418
195 3,810,722
205 3,810,723
248 3,810,724

CLASS 423
139 3,810,967
356 3,810,968
478 3,810,969
498 3,810,970
565 3,810,971
569 3,810,972
594 3,810,973
645 3,810,974
652 3,810,975

CLASS 424
1 3,810,976
47 3,810,977
94 Re.28,011
95 3,810,978
198 3,810,979
200 3,810,980
204 3,810,981
210 3,810,982
217 3,810,983
249 3,810,985
258 3,810,984
3,810,987
263 3,810,991
267 3,810,986
270 3,810,988
278 3,810,989
283 3,810,990
300 3,810,992
302 3,810,993
316 3,810,994
331 3,810,995
364 3,810,996

CLASS 425
72 3,810,725
111 3,810,726
144 3,810,727
244 3,810,728
308 3,810,729
338 3,810,730
388 3,810,731

CLASS 426
92 3,810,765
205 3,810,997
241 3,810,764
332 3,810,998
362 3,810,999
386 3,810,766
483 3,811,000

CLASS 431
7 3,810,732
202 3,810,733
258 3,810,734

CLASS 432
59 3,810,735
3,810,736

D06—	24	231,661	D12—	29	231,648	D14—	3N	231,653	139	231,654	D34— 15AJ 231,665	D54— 13A 231,663
D07—	153	231,658		211	231,656	D22—	27	231,659	D26— 14A	231,650	D42— 1B 231,662	D61— 1P 231,651
D08—	57	231,652		212	231,657	D23—	71	231,664	G	231,660	D52— 4R 231,649	D95— 3A 231,655
D09—	40	231,647										

CLASSIFICATION OF PLANTS

P. —	34	3,550	P. —	50	3,547	P. —		3,548	P. — 76	3,549		

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1	3,810,294		3,810,630		3,810,635		3,810,549	24	3,810,259		3,810,502
	3,810,345		3,810,639		3,810,671		3,810,574		3,810,261		3,810,551
	3,810,432		3,810,658		3,810,700		3,810,620		3,810,324		3,810,614
	3,810,621		3,810,664		3,810,734		3,810,632		3,810,424		3,810,654
	3,810,678		3,810,667		3,810,754		3,810,661		3,810,562		3,810,655
2	3,810,322		3,810,706		3,810,804		3,810,698		3,810,623		3,810,656
4	3,810,273		3,810,723		3,810,808		3,810,768		3,810,697		3,810,657
	3,810,566		3,810,749		3,810,841		3,810,774		3,810,738		3,810,663
	3,810,649		3,810,794		3,810,961		3,810,783		3,810,788		3,810,675
	3,810,679		3,810,798		3,810,964		3,810,849		3,810,842		3,810,682
	3,810,712		3,810,805		3,810,999		3,810,895		3,810,865		3,810,695
	3,811,108		3,810,829		3,811,035		3,810,918		3,810,921		3,810,715
5	3,810,455		3,810,835		3,811,046		3,810,926		3,810,996		3,810,731
6	Re 28,011		3,810,856		3,811,057		3,810,927		3,811,067		3,810,825
	3,810,262		3,810,928		3,811,105		3,810,936		3,811,068		3,810,826
	3,810,289		3,810,953	10	3,810,595		3,810,937		3,811,088		3,810,866
	3,810,295		3,810,957	12	3,810,263		3,810,945	25	Re 28,010		3,810,867
	3,810,312		3,810,959		3,810,267		3,810,947		3,810,280		3,810,869
	3,810,328		3,810,974		3,810,351		3,810,955		3,810,284		3,810,890
	3,810,332		3,810,982		3,810,442		3,810,975		3,810,305		3,810,902
	3,810,334		3,810,989		3,810,453		3,810,997		3,810,336		3,810,917
	3,810,337		3,810,990		3,810,508		3,810,998		3,810,459		3,810,922
	3,810,347		3,810,992		3,810,559		3,811,020		3,810,536		3,810,925
	3,810,365		3,811,000		3,810,573		3,811,047		3,810,540		3,811,089
	3,810,385		3,811,003		3,810,625		3,811,100		3,810,603	27	3,810,407
	3,810,426		3,811,014		3,810,705	18	3,810,330		3,810,616		3,810,427
	3,810,433		3,811,025		3,810,752		3,810,333		3,810,626		3,810,596
	3,810,441		3,811,030		3,811,006		3,810,487		3,810,689		3,810,707
	3,810,444		3,811,049		3,811,010		3,810,531		3,810,691		3,810,736
	3,810,446		3,811,051	13	3,810,787		3,810,575		3,810,696		3,810,874
	3,810,456		3,811,064		3,810,797		3,810,578		3,810,716		3,810,875
	3,810,465		3,811,065		3,810,807		3,810,597		3,810,757	28	3,810,650
	3,810,476		3,811,091	16	3,810,460		3,810,636		3,810,778		3,810,845
	3,810,484		3,811,094	17	3,810,260		3,810,690		3,810,806	29	3,810,552
	3,810,495		3,811,101		3,810,271		3,810,711		3,810,971		3,810,694
	3,810,496		3,811,102		3,810,279		3,811,004		3,811,011		3,810,764
	3,810,503	8	Re 28,007		3,810,288	19	3,810,277		3,811,028		3,810,815
	3,810,514		3,810,265		3,810,290		3,810,282		3,811,081		3,810,907
	3,810,516		3,810,335		3,810,310		3,810,480		3,811,083		3,810,981
	3,810,525		3,810,425		3,810,311		3,810,548		3,811,114		3,811,027
	3,810,534		3,810,482		3,810,321		3,810,660	26	3,810,274		3,811,077
	3,810,563		3,811,128		3,810,338	21	3,810,348		3,810,291	30	3,810,545
	3,810,565		3,811,129		3,810,340		3,810,350		3,810,299	31	3,810,593
	3,810,569	9	3,810,287		3,810,429		3,810,776		3,810,397		3,810,633
	3,810,580		3,810,306		3,810,430	22	3,810,383		3,810,399	33	3,811,024
	3,810,582		3,810,414		3,810,461		3,810,490		3,810,405	34	3,810,308
	3,810,585		3,810,440		3,810,505		3,810,832		3,810,413		3,810,314
	3,810,598		3,810,511		3,810,515		3,810,949		3,810,428		3,810,318
	3,810,601		3,810,572		3,810,519		3,810,994		3,810,451		3,810,401
	3,810,619		3,810,591		3,810,530	23	3,810,541		3,810,452		3,810,471
	3,810,628		3,810,612		3,810,535		3,810,588		3,810,489		3,810,473

	3,810,478		3,810,276		3,810,933		3,810,728		3,810,554		3,810,853
	3,810,498		3,810,296		3,810,951		3,810,733		3,810,571		3,810,860
	3,810,529		3,810,316		3,810,958		3,810,741		3,810,631		3,810,882
	3,810,542		3,810,359		3,810,969		3,810,742		3,810,668		3,810,891
	3,810,602		3,810,363		3,810,973		3,810,745		3,810,677		3,810,950
	3,810,613		3,810,374		3,810,995		3,810,773		3,810,681		3,810,966
	3,810,688		3,810,396		3,811,012		3,810,777		3,810,743		3,811,008
	3,810,699		3,810,402		3,811,018		3,810,784		3,810,771		3,811,085
	3,810,779		3,810,403		3,811,036		3,810,800		3,810,772		3,811,127
	3,810,801		3,810,415		3,811,042		3,810,851		3,810,863	49	3,810,326
	3,810,802		3,810,431		3,811,078		3,810,859		3,810,944		3,810,367
	3,810,864		3,810,435		3,811,095		3,810,912		3,810,960		3,810,537
	3,810,868		3,810,464		3,811,098		3,810,930		3,810,979		3,810,970
	3,810,871		3,810,479		3,811,119		3,811,015		3,810,984		3,811,123
	3,810,883		3,810,509		3,811,124		3,811,022		3,810,985		3,811,126
	3,810,884		3,810,512	37	3,810,353		3,811,033		3,810,987	50	3,810,795
	3,810,886		3,810,550		3,810,683		3,811,043		3,811,005		3,811,076
	3,810,892		3,810,555		3,811,115		3,811,073		3,811,045		3,811,117
	3,810,899		3,810,557	39	3,810,268		3,811,104		3,811,069	51	3,810,331
	3,810,909		3,810,581		3,810,281	40	3,810,264		3,811,070		3,810,447
	3,810,929		3,810,610		3,810,303		3,810,384	45	3,810,810		3,810,458
	3,810,931		3,810,618		3,810,320		3,810,624		3,810,862		3,810,477
	3,810,935		3,810,622		3,810,339		3,810,665	47	3,810,392		3,810,600
	3,810,939		3,810,627		3,810,344		3,810,844		3,810,780		3,810,803
	3,810,946		3,810,643		3,810,381		3,810,877		3,810,963		3,810,827
	3,810,977		3,810,670		3,810,394		3,810,954		3,811,031		3,811,044
	3,811,050		3,810,727		3,810,411		3,810,976	48	3,810,323	53	3,810,266
	3,811,053		3,810,735		3,810,416		3,811,039		3,810,386		3,810,370
	3,811,055		3,810,739		3,810,419	41	3,810,342		3,810,387		3,810,941
	3,811,071		3,810,744		3,810,423		3,810,454		3,810,398	54	3,810,753
	3,811,093		3,810,758		3,810,462		3,811,007		3,810,421		3,810,940
	3,811,096		3,810,759		3,810,469	42	3,810,286		3,810,468	55	3,810,313
	3,811,099		3,810,766		3,810,470		3,810,297		3,810,524		3,810,366
	3,811,106		3,810,814		3,810,483		3,810,315		3,810,546		3,810,472
	3,811,118		3,810,837		3,810,504		3,810,327		3,810,553		3,810,488
	3,811,120		3,810,838		3,810,564		3,810,369		3,810,604		3,810,497
	3,811,121		3,810,843		3,810,608		3,810,466		3,810,615		3,810,518
	3,811,122		3,810,858		3,810,641		3,810,499		3,810,652		3,810,561
35	3,810,647		3,810,879		3,810,672		3,810,510		3,810,791		3,810,737
	3,810,666		3,810,913		3,810,680		3,810,517		3,810,796		3,811,040
	3,810,962		3,810,920		3,810,686		3,810,521		3,810,816		3,811,125
36	3,810,270		3,810,923		3,810,710		3,810,527		3,810,850	56	3,810,450
							3,810,539				

DESIGN PATENTS

4	231,651	17	231,663	19	231,654		231,664		231,665	39	231,657
6	231,659	18	231,650	34	231,661	36	231,662	37	231,649		231,658
	231,648										

PLANT PATENTS

17	3,547		3,548		3,550	41	3,549				

TITLE 37
Patents, Trademarks, and Copyrights

CHAPTER I
PATENT OFFICE, DEPARTMENT OF COMMERCE
PART 1
RULES OF PRACTICE IN PATENT CASES
PART 2
RULES OF PRACTICE IN TRADEMARK CASES

Addition of Metric (S.I.) Equivalents

The Commissioner of Patents is revising §§ 1.84, 1.253, 2.31, 2.52, 2.56 and 2.57 of the rules of practice to set forth and encourage use of the metric system of measurements in papers submitted to the Patent Office. These changes provide dual dimensions in both the patent and trademark rules of practice.

Since the revision of these sections makes no change in practice, and merely adds an indication of the metric equivalents, procedure for public comment thereon is deemed unnecessary. Therefore, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971 (85 Stat. 364), and section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), 37 CFR Parts 1 and 2 are hereby amended as follows:

1. In § 1.84, paragraphs (b), (d)(1), (f), (j) and (l) are revised to read as follows:

§ 1.84 Standards for drawings.

* * * * * * *

(b) *Size of sheet and margins.* The size of a sheet on which a drawing is made must be exactly 8½ by 14 inches (21.6 by 35.6 cm.). One of the shorter sides of the sheet is regarded as its top. The drawing must include a top margin of 2 inches (5.1 cm.) and bottom and side margins of one-quarter inch (6.4 mm.) from the edges, thereby leaving a "sight" precisely 8 by 11¾ inches (20.3 by 29.8 cm.). Margin border lines are not permitted. All work must be included with the "sight." The sheets may be provided with two one-quarter inch (6.4 mm.) diameter holes having their centerlines spaced eleven-sixteenths

inch (17.5 mm.) below the top edge and 2¾ inches (7.0 cm.) apart, said holes being equally spaced from the respective side edges.

* * * * * * *

(d) *Hatching and shading.* (1) Hatching should be made by oblique parallel lines, which may be not less than about one-twentieth inch (1.3 mm.) apart.

* * * * * * *

(f) *Reference characters.* The different views should be consecutively numbered figures. Reference numerals (and letters, but numerals are preferred) must be plain, legible and carefully formed, and not be encircled. They should, if possible, measure at least one-eighth of an inch (3.2 mm.) in height so that they may bear reduction to one twenty-fourth of an inch (1.1 mm.); and they may be slightly larger when there is sufficient room. They must not be so placed in the close and complex parts of the drawing as to interfere with a thorough comprehension of the same, and therefore should rarely cross or mingle with the lines. When necessarily grouped around a certain part, they should be placed at a little distance, at the closest point where there is available space, and connected by lines with the parts to which they refer. They should not be placed upon hatched or shaded surfaces but when necessary, a blank space may be left in the hatching or shading where the character occurs so that it shall appear perfectly distinct and separate from the work. The same part of an invention appearing in more than one view of the drawing must always be designated by the same character, and the same character must never be used to designate different parts.

* * * * * * *

(j) *Arrangement of views.* All views on the same sheet must stand in the same direction and should, if possible, stand so that they can be read with the sheet held in an upright position. If views longer than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the two-inch (5.1 cm.) margin is on the right hand side. One figure must not be placed upon another or within the outline of another.

* * * * * * *

(l) *Extraneous matter.* An inventor's, agent's, or attorney's name, signature, stamp, or address, or other extraneous matter, will not be permitted upon the face of a drawing, within or without the margin, except that identifying indicia (attorney's docket number, inventor's name, number of sheets, etc.) should be placed within three-fourths inch (19.1 mm.) of the top edge and between the hole locations defined in paragraph (b) of this section. Authorized security markings may be placed on the drawings provided they be outside the illustrations and are removed when the material is declassified.

* * * * * * *

2. In § 1.253, paragraphs (e) and (f) are revised to read as follows:

§ 1.253 Copies of the testimony.

* * * * * * *

(e) When the copies of the record are submitted in printed form, they shall be printed in 11-point type and adequately leaded; the paper must be opaque and unglazed; the size of the page shall be 7⅝ by 10¼ inches (19.4 by 26 cm.); the size of the printed matter shall be 4⅛ by 7⅛ inches (10.6 by 18.2 cm.); and they shall be bound to lie flat when opened. Twenty-five additional copies for the United States Court of Customs and Patent Appeals, should appeal be taken, may also be filed; if no such appeal be taken, the twenty-five copies will be returned to the party filing them.

(f) When the copies of the record are submitted in typewritten form, they must be clearly legible on opaque, unglazed, durable paper approximately 8½ by 11 inches (21.6 by 27.9 cm.) in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277.) The typing shall be on one side of the paper, in not smaller than pica-type; and double-spaced with a margin of 1½ inches (3.8 cm.) on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

* * * * * * *

3. Section 2.31 is revised to read as follows:

§ 2.31 Application must be in English.

The application must be in the English language and plainly written on but one side of the paper. It is deemed preferable that the application be on legal or letter-sized paper, typewritten double spaced, with at least a one and one-half inch (3.8 cm.) margin on the left-hand side top of the page.

4. In § 2.52, paragraphs (c) and (d) are revised to read as follows:

§ 2.52 Requirements for drawings.

* * * * * * *

(c) *Size of paper and margins.* The size of the sheet on which a drawing is made must be 8 to 8½ inches (20.3 to 21.6 cm.) wide and 11 inches (27.9 cm.) long. One of the shorter sides of the sheet should be regarded as its top. When the figure is longer than the width of the sheet, the sheet should be turned on its side with the top at the right. The size of the mark must be such as to leave a margin of at

least 1 inch (2.5 cm.) on the sides and bottom of the paper and at least 1 inch (2.5 cm.) between it and the heading.

(d) *Heading.* Across the top of the drawing, beginning one inch (2.5 cm.) from the top edge and not exceeding one-fourth of the sheet, there should be placed a heading, listing in separate lines, applicant's name, applicant's post office address, the dates of first use, and the goods or services recited in the application (or typical item of the goods or services if a number are recited in the application). This heading may be typewritten.

* * * * * * *

5. Section 2.56 is revised to read as follows:

§ 2.56 Specimens.

The application must include five specimens of the trademark as actually used on or in connection with the goods in commerce. The specimens shall be duplicates of the actually used labels, tags, or containers, or the displays associated therewith or portions thereof, when made of suitable flat material and of a size not to exceed 8½ inches (21.6 cm.) wide and 13 inches (33.0 cm.) long.

* * * * * * *

6. Section 2.57 is revised to read as follows:

§ 2.57 Facsimiles.

When, due to the mode of applying or affixing the trademark to the goods, or to the manner of using the mark on the goods, or to the nature of the mark, specimens as above stated cannot be furnished, five copies of a suitable photograph or other acceptable reproduction, not to exceed 8½ inches (21.6 cm.) wide and 13 inches (33.0 cm.) long, and clearly and legibly showing the mark and all matter used in connection therewith, shall be furnished.

Effective date. These amendments shall become effective May 6, 1974.

Dated: March 25, 1974.

C. MARSHALL DANN,
Commissioner of Patents.

Approved: March 25, 1974.

BETSY ANCKER-JOHNSON,
Assistant Secretary for Science and Technology.

[FR Doc.74-7796 Filed 4-3-74; 8:45 am]

U. S. GOVERNMENT PRINTING OFFICE : O - 1974

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*

A UNITED STATES DEPARTMENT OF **COMMERCE** PUBLICATION

U. S. DEPARTMENT OF COMMERCE

Patent Office

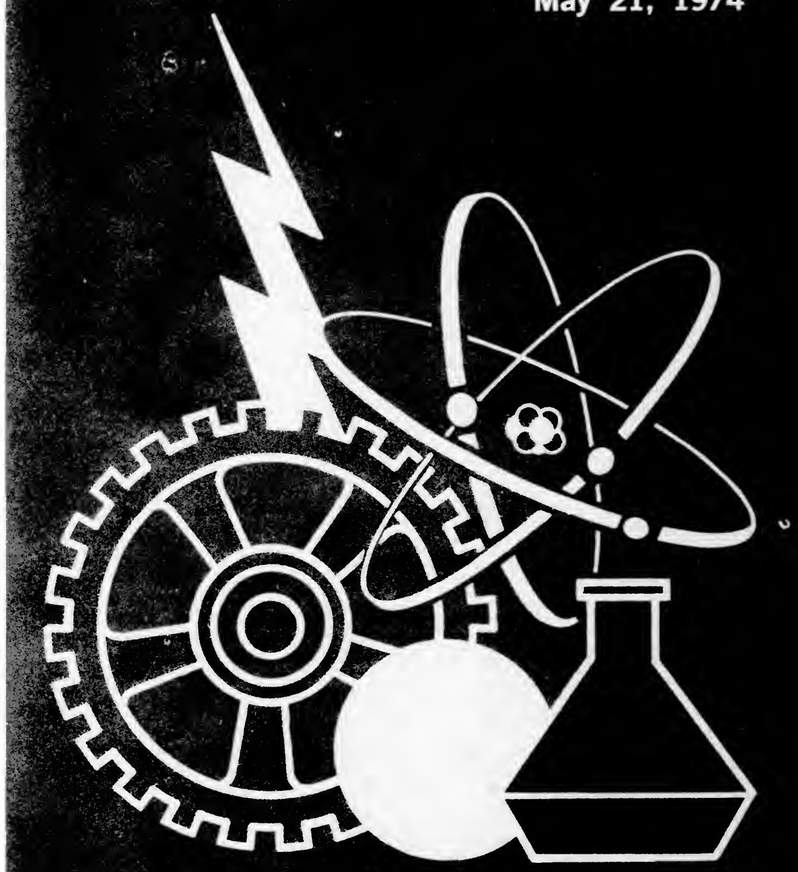
Vol. 922 Number 3

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

PATENTS

May 21, 1974



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 21, 1974 Volume 922 Number 3

CONTENTS

	Page
Patents and Trademark Notices	
Patent Suits	662
Patent Notices	
Certificates of Correction for the Week of May 21, 1974	664
Erratum	664
Adverse Decisions in Interferences	664
Patents Available for Licensing or Sale	664
National Technical Information Service	666
Condition of Patent Applications	669
Reissue Patents Granted (28,012)	670
Plant Patents Granted (3,551)	672
Patents Granted	
General and Mechanical (3,811,130)	673
Chemical (3,811,830)	854
Electrical (3,812,275)	940
Design Patents Granted (231,666)	1011
Index of Patentees	PI 1
Indices of Applicants of Reissues, Plants and Designs	PI 44
Classification of	
Patents (Including Reissues)	PI 45
Designs and Plants	PI 48
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 49
Designs and Plants	PI 51

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $211.00 per annum, foreign mailing $52.75 additional; single copies $4.10 each.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly, subscription $60.25 per annum, foreign mailing $15.10 additional; single copies $1.25 each.

CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

PATENT OFFICE NOTICES

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,700,000, Levi and Hughes, THERMIONIC CATHODE AND METHOD OF MANUFACTURING SAME, **filed** May 18, 1973, Ct. of Claims (District of Columbia), Doc. 22–72, *U.S. Philips Corporation* v. *The United States.* Order, defendant's motion for partial summary judgment granted and petition dismissed, Oct. 19, 1973.

2,990,094, R. F. Reifers, MOLDED PULP EGG CARTON; **3,028,065,** same, **filed** Sept. 12, 1969, D.C. Md. (Baltimore), Doc. 21200–W, *Diamond International Corporation* v. *Dolco Packaging Corp.* Consent order and decree, motion to amend its complaint hereby granted, Dolco permanently enjoined and restrained, plaintiff waives any claim for other relief in this case, Oct. 29, 1970.

3,028,065. (See 2,990,094.)

3,028,247, E. J. Molnar, DENTAL COMPOSITION AND PROCESS OF MAKING SAME, **filed** Oct. 31, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–2543–F, *Coe Laboratories, Inc.* v. *Don D. Porteous, Michael Pellico and Denton Industries, Inc.*

3,239,661, Wince and Meyer, SURFACE-ATTACHED LUMINAIRE; **D. 201,093,** same, LIGHTING FIXTURE; **D. 214,943,** B. Zapolski, CLIP-ON FLASHLIGHT, **filed** June 19, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1514, *Progressive Dynamics* v. *Triangle Products.* Order, plaintiff's patent is invalid and not infringed, and judgment is entered in behalf of the defendant on the complaint, July 23, 1973.

3,251,418, E. L. Condra, OIL WELL SCRAPER, **filed** Sept. 8, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–2142–RJK, *Midway Fishing Tool Company* v. *Industrial Concepts Corporation.* Filed summary judgment and order declaring Claim 12 of patent invalid and dismissing with prejudice plaintiff's claim of infringement entered Nov. 6, 1973.

3,420,064, Blass and Blass, IRRIGATION DRIPPER UNIT AND PIPE SYSTEM; **3,604,728,** same, DRIP LEVEL IRRIGATION, **filed** Oct. 17, 1972, D.C., S.D. Calif. (San Diego), Doc. 72–436–S, *Drip Irrigation Corporation of America* v. *Controlled Water Emission Systems.* Stipulated dismissal as to defendant's products with prejudice to bringing another action, defendant's counterclaim dismissed without prejudice, Nov. 6, 1973.

3,528,820, Schwall, Rogers and Corbin, PROCESS OF PREPARING A SELF-BASTING POULTRY PRODUCT; **3,563,763,** same, SELF-BASTING POULTRY PRODUCTS, **filed** July 31, 1972, D.C., W.D. Va. (Harrisonburg), Doc. 72–C–38–H, *Armour and Company* v. *Swift & Company.* Stipulation, complaint dismissed without prejudice, Nov. 1, 1973.

3,535,974, J. B. Habig, DOOR FOR A PIANO CASE HAVING ARRANGEMENT FOR TONAL ESCAPEMENT, **filed** Oct. 29, 1973, D.C., S.D. Ind. (Indianapolis), Doc. IP73–C–521, *Kimball Piano and Organ Company* v. *Billy Lay, doing business as Bill Lay Music Company.*

3,696,625, J. M. Alexander, POST IMPLANTING METHOD AND VEHICULAR APPARATUS THEREFOR, **filed** Nov. 1, 1973, D.C., E.D. Tex. (Sherman), Doc. S–73–CA–72, *Stillwell-Gerard Construction Co.* v. *Reed Tool Company.*

3,563,763. (See 3,528,820.)

3,604,728. (See 3,420,064.)

3,750,882, G. W. Hays, AUTOMATIC GRADER, **filed** Nov. 1, 1973, D.C., S.D.N.Y., Doc. 73–C–4713, *Technical Development Corp.* v. *AMF Industries, Inc.*

D. 201,093. (See 3,239,661.)

D. 214,943. (See 3,239,661.)

3,098,520, Greenstadt and Ziers, DRAPERY APPARATUS, **filed** Mar. 16, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–574–CC, *Lightron Corporation* v. *John H. Higgins.* Consent judgment, defendant permanently enjoined from further infringing said patent, entered Apr. 2, 1973.

3,135,634, D. P. Moore, SOLID EXPLOSIVE COMPOSITION AND METHOD OF PREPARATION EMPLOYING VULCANIZED RUBBER AND A SOLID INORGANIC OXIDIZING SALT; **Re. 26,108,** same, **filed** Oct. 23, 1973, Ct. of Claims (District of Columbia), Doc. 393–73, *David Pelton Moore* v. *The United States.*

3,149,431, M. B. Blish, SELF-ALIGNING NECK CARD LABEL, **filed** Sept. 18, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2398, *Matthew B. Blish* v. *Pfizer, Inc.*

3,206,688, M. J. DiToro, APPARATUS FOR CORRECTING DISTORTION IN WAVE-SIGNAL TRANSLATING CHANNELS, **filed** Feb. 5, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c315, *General Signal Corp.* v. *Bell Telephone Lab.* Order cause transferred to the Eastern District of New York, Aug. 10, 1973.

3,230,675, Frommelt and Frommelt, DOCK PADS WITH ADJUSTABLE HEAT PAD; **3,403,489,** same, LOADING DOCK SHELTERS, **filed** July 31, 1969, D.C., N.D.N.Y. (Utica), Doc. 69–CV–265, *Dubuque Awning & Tent Company* v. *W. B. McGurie Co., Inc.* Stipulation and order of dismissal filed Nov. 5, 1973.

3,253,544, G. W. Von Hofe, MANUFACTURE AND USE OF LABELS FOR BOTTLES, CONTAINERS, AND THE LIKE; **3,536,550,** same, METHOD OF AND APPARATUS FOR PRINTING AND FEEDING LABELS IN A CONTINUOUS WEB, AND FOR VERIFYING AND CUTTING INDIVIDUAL LABELS THEREFROM FOR APPLICATION TO ARTICLES, **filed** Sept. 25, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–2261–EC, *NJM, Inc.* v. *Avery Products Corporation.*

3,299,906, A. G. Petzetakis, HOLLOW REINFORCED SEAMLESS TUBULAR ARTICLE, **filed** May 30, 1973, D.C. (District of Columbia), Doc. 1054–73, *Bridgestone Tire Company of America, Inc. et al.* v. *Aristovoulos G. Petzetakis.*

3,309,459, D. S. Donigian, COLOR TELEVISION SERVICING INSTRUMENT, **filed** Aug. 31, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2261, *Donald S. Donigian* v. *Zenith Radio Corporation.*

3,317,149, W. C. Gooch, ELECTRICAL CABLE STRINGING APPARATUS, **filed** Sept. 28, 1973, D.C., W.D. La. (Shreveport), Doc. 19,427–S, *Gearhart-Owen Industries, Inc.* v. *Superior Iron Works and Supply Company, Inc.*

3,349,726, L. Fono, METHOD FOR PANCAKE PRODUCTION, **filed** July 9, 1973, D.C., M.D. Tenn. (Nashville), Doc. 6966, *Magic Pan, Inc.* v. *Tex Ritter's Chuckwagon System, Incorporated, Mark-Clark Bates, and Ronald Wallace.* Stipulated order, complaint dismissed, writ of injunction against defendants enjoining and restraining them from plaintiff's rights under said patent, July 9, 1973.

3,351,073, R. G. Gregg, COIFFURE PROTECTORS, **filed** June 12, 1972, D.C., N.D. Ala. (Birmingham), Doc. CA72–L–511–NE, *Richard Gregg Manufacturing Company* v. *Fairco Drug, Inc.* Judgment, patent valid and infringed by defendant; defendant permanently enjoined, Oct. 11, 1973.

3,382,280, C. W. Huffman, 3′,4′-DICHLOROPROPIONANILIDE, **filed** May 14, 1968, D.C., C.D. Calif. (Los Angeles), Doc. 68–815–WPG, *Baldwin-Montrose Chemical Company, Incorporated* v. *Monsanto Company.* Decision and order, defendant's motion to dismiss granted. If Plaintiff does desire to present evidentiary proof that this is an "exceptional" case, a motion to reopen would be granted, Apr. 23, 1973.

3,403,489. (See 3,230,675.)

3,535,974, J. B. Habig, DOOR FOR A PIANO CASE HAVING ARRANGEMENT FOR TONAL ESCAPEMENT, **filed** Nov. 12, 1973, D.C., N.D. Ind. (Fort Wayne), Doc. 73–F–103, *Kimball Piano & Organ Co.* v. *Maurice E. Whitman, doing business as Mr. Music.*

3,536,550. (See 3,253,544.)

3,539,092, K. G. Dahlberg, EGG CARTON LATCH, **filed** July 19, 1973, D.C., W.D.N.Y. (Buffalo), Doc. C–1973–367, *Thermo Trim, Inc.* v. *Mobil Oil Corporation.*

Re. 26,056, W. P. Hickman, COMBINATION WATER DAM AND GRAVEL STOP, **filed** Oct. 10, 1972, D.C., E.D. Mich. (Detroit), Doc. 39009, *W. P. Hickman Co., Inc.* v. *Pomar Bldg. Products (Inc.).*

Re. 26,108. (See 3,135,634.)

Re. 26,667. E. G. Sarbo, FOOT COVER AND METHOD OF MANUFACTURING THE SAME, **filed** Oct. 9, 1973, D.C., W.D.N.C. (Statesville), Doc. ST–C–73–24, *Wayne-Gossard Corporation* v. *Moretz Hosiery Mills, Inc.*

D. 223,022, J. M. Yates, VEHICULAR TANK FOR FUEL OR THE LIKE, **filed** Oct. 25, 1973, D.C., N.D. Tex. (Dallas), Doc. CA–3–7834–E, *Recreational Products Marketing Inc. and James M. Yates* v. *Norwin, Inc. and Frank A. Northway.*

Certificates of Correction for the Week of May 21, 1974

3,407,010	3,760,284	3,776,311	3,785,334
3,537,823	3,760,592	3,776,339	3,785,755
3,581,511	3,761,400	3,776,804	3,785,836
3,585,537	3,761,433	3,776,807	3,786,002
3,598,761	3,761,511	3,776,876	3,786,519
3,602,488	3,761,869	3,777,182	3,786,663
3,612,454	3,763,093	3,777,487	3,786,956
3,613,534	3,763,472	3,777,488	3,786,973
3,620,695	3,763,497	3,777,724	3,787,240
3,643,184	3,764,001	3,778,130	3,787,377
3,648,893	3,764,223	3,778,173	3,787,432
3,654,243	3,765,468	3,778,184	3,787,533
3,663,569	3,765,584	3,778,429	3,787,537
3,669,910	3,765,629	3,778,486	3,787,585
3,678,732	3,765,672	3,778,608	3,787,642
3,683,304	3,765,870	3,778,681	3,787,819
3,692,706	3,766,210	3,778,713	3,788,067
3,706,524	3,766,305	3,778,739	3,788,347
3,706,756	3,766,704	3,778,854	3,788,385
3,708,492	3,767,179	3,779,318	3,788,414
3,711,509	3,767,794	3,779,689	3,788,469
3,718,105	3,768,156	3,780,073	3,788,587
3,719,611	3,768,957	3,780,583	3,788,612
3,720,342	3,769,018	3,780,867	3,788,703
3,722,440	3,769,116	3,780,963	3,789,665
3,727,545	3,769,414	3,781,003	3,789,866
3,728,152	3,769,809	3,781,173	3,789,926
3,731,278	3,770,038	3,781,187	3,789,941
3,736,134	3,770,315	3,781,338	3,790,092
3,736,968	3,770,377	3,781,637	3,790,293
3,737,898	3,770,395	3,781,697	3,790,399
3,739,738	3,771,144	3,781,852	3,790,481
3,743,773	3,771,337	3,781,856	3,790,618
3,744,920	3,771,634	3,782,319	3,790,655
3,752,536	3,771,643	3,782,477	3,790,724
3,753,620	3,771,903	3,782,775	3,790,837
3,753,640	3,772,122	3,783,199	3,790,885
3,753,826	3,772,132	3,783,294	3,791,104
3,755,439	3,772,364	3,783,404	3,791,627
3,756,165	3,772,454	3,783,494	3,791,808
3,756,554	3,772,503	3,783,915	3,791,812
3,756,959	3,773,540	3,784,162	3,791,925
3,758,190	3,774,502	3,784,469	3,792,264
3,758,657	3,775,005	3,784,504	3,792,362
3,758,875	3,775,027	3,784,655	3,792,372
3,758,952	3,775,055	3,784,848	3,793,208
3,759,279	3,775,262	3,784,854	
3,759,683	3,775,614	3,785,149	
3,759,940	3,776,049	3,785,251	

Erratum

All reference to Patent Number 3,804,604 to Anthony J. Gunderman et al., Transparent Candle, appearing in the OFFICIAL GAZETTE of April 16, 1974, should be deleted as the application inadvertently issued.

Adverse Decisions in Interferences

In the designated interference involving the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,401,804, E. A. Link, CRANE, Interference No. 96,837, decided May 12, 1971, claims 2, 3, 6 and 7.

Patent No. 3,445,891, J. Thordarson, APPARATUS FOR MANUFACTURING FILM FROM THERMOPLASTIC RESINOUS FILM-FORMING MATERIALS, Interference No. 97,697, decided Oct. 15, 1973, claims 1 and 5.

Patent No. 3,483,513, C. B. Burckhardt and R. J. Collier, HOLOGRAPHIC MATCHED FILTER PATTERN RECOGNITION TECHNIQUE, Interference No. 98,249, decided Dec. 4, 1973, claims 4, 5, 6, 15, 16, 17, 18 and 19.

Patent No. 3,492,071, G. Limnios and S. Jeffee, APPARATUS AND METHOD FOR PRINTING FROM PRE-PRINT FILM, Interference No. 98,424, decided Feb. 5, 1974, claims 1, 2, 6 and 7.

Patent No. 3,502,462, D. S. Dabkowski, P. J. Konkol, L. F. Porter and A. M. Rathbone, NICKEL, COBALT, CHROMIUM STEEL, Interference No. 97,931, decided Jan. 28, 1974, claim 1.

Patent No. 3,504,347, S. A. Harmon and E. A. Herrera, INTERRUPT MONITOR APPARATUS IN A COMPUTER SYSTEM, Interference No. 98,400, decided Feb. 11, 1974, claims 1, 3 and 7.

Patent No. 3,555,341, L. W. Curtis, REAR LOADING PANEL LAMP ASSEMBLY, Interference No. 97,849, decided Dec. 11, 1973, claims 1, 2, 3, 7 and 8.

Patent No. 3,560,498, D. E. Bublitz and R. H. Rigterink, TETRASUBSTITUTED PYRIDAZINES, Interference No. 98,006, decided Jan. 8, 1974, claims 5 and 7.

Patent No. 3,579,088, T. C. Fletcher, L. M. Silva and B. L. Wilkinson, FERRORESONANT TRANSFORMER WITH CONTROLLABLE FLUX, Interference No. 98,090, decided Feb. 12, 1974, claims 1, 3, 7, 8, 9, 11, 12, 13 and 17.

Patent No. 3,617,251, D. L. Hunter, W. G. Woods, J. D. Stone and C. W. Le Fevre, HERBICIDAL HALODINITRO-1,3-PHENYLENEDIAMINE COMPOUNDS, Interference No. 97,957, decided Jan. 9, 1974, claims 2, 8 and 10.

Patent No. 3,621,247, B. M. Lide, X-RAY TIRE INSPECTION APPARATUS, Interference No. 97,973, decided Feb. 14, 1974, claims 1, 4 and 5.

Patent No. 3,623,218, H. Mitarai, C. E. Nelson and A. P. Youmans, METHOD FOR DETERMINING DEPTH OF LAPPING OF DIELECTRICALLY ISOLATED INTEGRATED CIRCUITS, Interference No. 98,062, decided Dec. 4, 1973, claims 1, 2, 3, 4, 5, 6 and 7.

Patent No. 3,653,254, T. A. Simon, LEAK-TESTING INTERNAL SEALS IN PIPE JOINTS, Interference No. 98,115, decided Feb. 28, 1974, claims 1, 2 and 3.

Patents Available for Licensing or Sale

3,237,885. SPACE CRAFT. Jack L. Mohar, 41 W. Arbor St., Long Beach, Calif., 90805.

3,474,799. TOOTH SPACE CLEANER USING DENTAL FLOSS LINKS ON HOLDER. Vito P. Cappello, 1047 Franklin St., Santa Monica, Calif., 90403.

3,395,829. MEDICATION DISPENSING MEANS. David M. Cogdell, et al. Correspondence to Nathaniel A. Humphries, Suite 310, 1730 Rhode Island Ave. NW., Washington, D.C., 20036.

3,422,174. METHOD AND APPARATUS FOR PRODUCING HOLLOW PLASTIC ARTICLES. Norbert Hagan, Kuppenheim, Germany. Correspondence to: Michael S. Striker, 369 Lexington Ave., New York, N.Y., 10017.

3,608,241. WINDOW OPERATING DEVICE FOR AUTOMOBILES. Miguel Rodrigo-Mazure, Miami, Fla. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,727,118. CONTACTLESS REVERSIBLE DEVICE IN AN ELECTRIC CAR. Nippon Gijutsu Boeki Co., Ltd., 32F Kasumigaseki Bldg., 2-5 Kasumigaseki, 3-chome, Chiyoda-ku, Tokyo 100, Japan.

3,729,751. PARAPLEGIC BED. Wayne V. Kirkman, 960 42nd St., West Palm Beach, Fla., 33407.

3,743,636. TRIALKYLSILYLOXIMO STEROIDS. VEB Jenapharm, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,755,818. APPARATUS FOR AUTOMATICALLY SYNCHRONIZING THE OPERATION OF A DEVICE TO CORRESPOND WITH ITS MOVEMENT ALONG A PREDETERMINED ROUTE. Myron Greenspan, 1230 Avenue Y, Brooklyn, N.Y., 11235.

3,757,357. LIQUID BODY WASTE DISPOSAL SYSTEM. E. Howard Smith, Rte. 1, Box 181-C, Mobile, Ala., 36605.

3,766,727. PANETIME CLOCK. Frank T. Didik, Directorate, USDESEA, APO, New York, 09164.

3,771,281. APPARATUS FOR TRANSPORTING DISCRETE COMMODITIES TO HIGH-SPEED CONSUMING MACHINES OR THE LIKE. Hauni-Werke, Hamburg, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,774,462. VALVE ACTUATOR. J. B. Thompson, 4901 Richmond Ave., Suite 225, Houston, Tex., 77027.

3,786,498. AUDIO-VISUAL WARNING SYSTEM. Gordon C. Lipe et al., P.O. Box 241, Skaneateles, N.Y., 13152.

3,789,431. CLOTHING HAVING ADJUSTABLE BELT LOOPS. Robert B. Rand, P.O. Box 1939, Daytona Beach, Fla., 32015.

3,791,734. MICROFILM CAMERA AND LIGHT SOURCE THEREFOR. George F. Dvorak, Chicago, Ill. Correspondence to: Balogh, Osann et al., 53 W. Jackson Blvd., Chicago, Ill., 60604.

3,792,883. VEHICLE LOCK PROTECTOR. Puro de Jesus Juarbe. Correspondence to: Irons, Sears & Santorelli, 1801 K St. NW., Washington, D.C., 20006.

3,795,072. FISHING REEL. Thomas D. Sherman, 711 Daisy Lane, Fox Point, Wis., 53217.

3,798,644. VECTOR VELOCITY SYSTEM. J. N. Constant, 1603 Danbury Drive, Claremont, Calif., 91711.

The following 2 patents are offered by Susan M. Peoples, 5201 Belleville Ave., Baltimore, Md., 21207.

D. 213,627. PORTABLE ONE-WAY COIN OPERATED TELEPHONE FOR INSTITUTIONS AND HOSPITALS.

D. 217,156. PORTABLE TWO-WAY COIN OPERATED TELEPHONE.

General Motors Corporation is prepared to grant non-exclusive licenses under the following 5 patents upon reasonable terms.

Application for license may be addressed to: The Director, Patent Section, General Motors Building, 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,610,772. BLADED ROTOR.

3,610,777. COMPOSITE DRUM ROTOR.

3,611,838. HYDRAULIC CONTROL FOR NON-SYNCHRONOUS SHIFTING HYDROMECHANICAL TRANSMISSION.

3,612,403. VARIABLE AREA DUCT.

3,616,125. AIRFOIL FACING.

RCA Corporation offers to grant non-exclusive licenses under the following 22 patents on reasonable terms and conditions.

Inquiries respecting licenses should be addressed to: RCA Corporation, Staff Vice President, Domestic Licensing, 1133 Avenue of the Americas, New York, N.Y., 10036.

Re. 27,924. FREQUENCY SHIFT OSCILLATOR WHICH AVOIDS THE GENERATION OF TRANSIENTS.

Re. 27,928. GATED FLIP-FLOP EMPLOYING PLURAL TRANSISTORS AND PLURAL CAPACITORS COOPERATING TO MINIMIZE FLIP-FLOP RECOVERY TIME.

3,789,600. ELECTRONIC TIME MEASUREMENT.

3,790,245. DOUBLE-SIDED HOLOGRAPHIC REPLICAS.

3,790,267. OPTICAL SYSTEM FOR ORTHOGONALIZING IMAGE FIELD OF PROJECTION LENS.

3,790,701. SYSTEM FOR RECORDING AND PLAYING BACK COLOR ENCODED HOLOGRAMS.

3,790,845. FOCUS-GRILL CATHODE-RAY TUBE IMAGE REPRODUCER MODULATION WITH GRILL VOLTAGE.

3,790,853. SEMICONDUCTOR LIGHT RAY DEFLECTOR.

3,790,897. DIFFERENTIAL AMPLIFIER AND BIAS CIRCUIT.

3,791,024. FABRICATION OF MONOLITHIC INTEGRATED CIRCUITS.

3,791,546. CATHODE-RAY TUBE HAVING CONDUCTIVE INTERNAL COATING COMPRISED OF IRON OXIDE AND GRAPHITE.

3,792,359. HIGH FREQUENCY AUTOMATIC GAIN CONTROL CIRCUITS.

3,792,372. MEANS FOR ENSURING STARTING OF GAS LASER.

3,792,385. COAXIAL MAGNETIC SLUG TUNER.

3,792,915. NOVEL LIQUID CRYSTAL ELECTRO-OPTIC DEVICES.

3,793,489. ULTRADIRECTIONAL MICROPHONE.

3,793,539. CIRCUIT FOR OPERATING AN AVALANCHE DIODE IN THE ANOMALOUS MODE.

3,793,594. WIDE BAND PHASE-COHERENT SELF-CALIBRATING TRANSLATION LOOP.

3,793,717. METHOD OF CONTROLLING RESISTANCE VALUES OF THICK-FILM RESISTORS.

3,794,754. PAL-TYPE COLOR SIGNAL PROCESSING APPARATUS.

3,794,854. SIGNAL SENSING AND STORAGE CIRCUIT.

3,794,877. JITTER IMMUNE TRANSISTORIZED VERTICAL DEFLECTION CIRCUIT.

General Electric Company is prepared to grant non-exclusive licenses under the following 59 patents upon reasonable terms to domestic manufacturers.

Applications for licenses under the following patent may be addressed to the Patent Counsel Telecomm. Products Dept., General Electric Co., Lynchburg, Va., 24502.

3,671,884. IMPROVED AMPLIFYING CIRCUIT.

Applications for licenses under the following patent may be addressed to: Division Patent Counsel, Switchgear Equipment Business Division, General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,740,584. HIGH ARRANGEMENT FREQUENCY SCR GATING.

Applications for licenses under the following 3 patents may be addressed to: Patent Counsel, Gas Turbine Products Division, 1 River Road, Building No. 500, 2nd Floor, Schenectady, N.Y., 12345.

3,777,484. SHROUDED COMBUSTION LINER.

3,777,983. GAS COOLED DUAL FUEL AIR ATOMIZED FUEL NOZZLE.

3,785,146. SELF-COMPENSATING FLOW DIVIDER FOR A GAS TURBINE STEAM INJECTION SYSTEM.

Applications for licenses under the following 19 patents may be addressed to: General Electric Company, Division Patent Counsel, Housewares Business Division, 1285 Boston Ave., Bridgeport, Conn., 06602.

2,802,921. CONTROL FOR ELECTRICALLY HEATED APPLIANCES.

2,806,107. ADJUSTABLE THERMOSTAT FOR COOKING APPLIANCE OR THE LIKE.

2,818,487. ADJUSTABLE CONTROL FOR AUTOMATIC ELECTRIC COFFEEMAKER OR THE LIKE.

2,930,874. ADJUSTABLE TEMPERATURE RESPONSIVE CONTROL FOR ELECTRICAL DEVICES.

2,954,451. ELECTRICAL SWITCH MECHANISM FOR TOASTER OR THE LIKE.

2,959,668. JEWEL AND NEON INDICATOR LAMP MOUNTING.

2,987,607. AUTOMATICALLY CONTROLLED ELECTRIC KETTLE.

3,270,911. COFFEEMAKER LID RETAINING MEANS.

3,283,128. ELECTRIC TOASTER HEATING UNIT.

3,335,262. ELECTRIC WARMING TRAY.

3,348,024. TOAST TEMPERATURE DETECTOR.

3,363,089. ELECTRIC TOASTER WITH HEATER TENSIONING MEANS.

3,364,844. FOOD STEAMER WITH MULTI-LEVEL FOOD SUPPORTING MEANS.

3,365,071. RACK FOR SUPPORTING FOOD CONTAINERS AT SPACED LEVELS WITHIN A COOKING VESSEL.

3,550,804. ELECTRIC TOASTER CASING CONSTRUCTION.

3,497,976. STEAM IRON WATER VALVE WICK STRUCTURE.

3,624,937. IRON WITH CLEANABLE SPRAYER.

3,685,569. METHOD FOR GRAVITY PRESSURE PERMANENT MOLDING.

3,739,148. FOOD WARMING DISH.

Applications for licenses under the following 19 patents may be addressed to: Group Patent Counsel, Major Appliance Business Group, General Electric Company, Appliance Park, Louisville, Ky., 40225.

3,320,778. WASHING MACHINE HAVING MULTIPLE ELECTIVE CYCLES.

3,509,740. COVER FOR WASHING MACHINE TUB.

3,543,542. SELF-CLEANING FILTER.

3,605,455. WATER ADMISSION MEANS.

3,724,889. LATCHING DEVICE.

3,736,773. ADDITIVE DISPENSER FOR AUTOMATIC WASHING MACHINE.

3,742,175. INDUCTION COOKING APPLIANCE INCLUDING TEMPERATURE SENSING OF FOOD IN INDUCTIVELY HEATED VESSEL WITH IMMERSION-TYPE TEMPERATURE SENSING MEANS.

3,742,179. INDUCTION COOKING APPLIANCE INCLUDING WIRELESS TRANSMISSION OF TEMPERATURE DATA.

3,765,268. BELT MECHANISM.

3,771,725. WASHING APPLIANCE HAVING AN IMPROVED SPRAY ARM ASSEMBLY.

3,774,408. TWO-TEMPERATURE REFRIGERATOR INCLUDING MOISTURE CONTROL MEANS.

3,778,798. FOOD PREPARATION ELECTRIC THERMOMETER ALARM CIRCUIT.

3,779,624. CABINET HAVING A KICK PLATE ASSEMBLY.

3,781,757. GROUNDING CLIP FOR PLUG-IN SURFACE HEATING UNIT.

3,783,853. TEXTURED CONTINUOUS CLEANING SURFACE FOR COOKING OVENS.

3,783,854. FLOW-THROUGH SELF-CLEANING GAS OVEN WITH HEAT EXCHANGER.

3,785,168. HOUSEHOLD REFRIGERATOR.

3,787,674. LIGHTED CONTROL CONSOLE WITH LIFE-UP INFORMATION PLATE.

3,788,212. REFUSE COMPACTOR HAVING A PIVOTALLY ARRANGED RAM FACE MEMBER.

Applications for licenses under the following 16 patents may be addressed to: Patent Counsel, Contractor Equipment Business Division, General Electric Company, 1285 Boston Ave., Building 23–EE, Bridgeport, Conn., 06602.

3,660,158. THIN FILM NICKEL TEMPERATURE SENSOR AND METHOD OF FORMING.

3,672,235. FLUIDIC AXIS POSITION SENSOR FOR ROTATING MASS.

3,702,963. A 2-TRANSISTOR SATURATING CORE HIGH-VOLTAGE INVERTER.

3,702,983. BACK WIRED MOUNTING SYSTEM FOR STATIC CONTROL.

3,710,814. BOURDON TUBE FLUIDIC TRANSDUCER.

3,714,452. CIRCUIT BREAKER MONITOR FOR UNINTERRUPTIBLE POWER SYSTEMS INCLUDING A STATIC BYPASS.

3,721,832. TIME DELAY AFTER DE-ENERGIZATION CIRCUIT.

3,724,478. TURN-UP VORTEX VALVE.

3,728,606. SOLID STATE HOSPITAL BED POWER CONTROL UNIT.

3,728,609. ELECTRIC POWER APPARATUS COMPRISING CONVERTER, LC FILTER, AND VOLTAGE REGULATOR ARRANGED FOR HIGHLY ACCURATE AND STABLE RESPONSES.

3,740,587. SOLID STATE UNIPOLE RELAY.

3,748,174. THIN FILM NICKEL TEMPERATURE SENSOR.

3,763,534. FABRICATION PROCESS FOR POROUS METAL BEARINGS.

3,768,122. CLOSED LOOP CARDING MACHINE CONTROL.

3,769,475. PNEUMATIC BREAK DETECTOR SENSOR.

3,778,769. SOLID STATE TOUCH CONTROL HAND SET CIRCUIT.

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of Patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent-application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents
Washington, D.C. 20545

Patent 3,754,141. Shipping and Storage Container for High Power Density Radioactive Materials. Filed July 12, 1973. Patented Aug. 21, 1973. Not available NTIS.

Patent 3,760,225. High Current Plasma Source. Filed June 6, 1972. Patented Sept. 18, 1973. Not available NTIS.

DEPARTMENT OF THE AIR FORCE
AF/JACP, Washington, D.C. 20314

Patent 3,424,578. Method of Producing Permanent Magnets of Rare Earth Metals Containing Co., or Mixtures of Co, Fe and Mn. Filed June 5, 1967. Patented Jan. 28, 1969. Not available NTIS.

Patent 3,706,608. Combustion Tailoring of Solid Propellants by Oxidizer Encasement. Filed Mar. 24, 1970. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,709,748. Ionic Interhalogen Oxidizing Agent and Method. Filed May 26, 1970. Patented Jan. 9, 1973. Not available NTIS.

Patent 3,712,142. Magnetic and Pressure Transducer. Filed Nov. 17, 1971. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,713,044. N2 Pumped Tunable Dye Laser. Filed May 17, 1972. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,714,404. Birefringent Optical Correlator. Filed Mar. 11, 1970. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,714,561. Transducer for Measuring the Displacement of an Electrically Conductive Objective. Filed Nov. 24, 1970. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,715,759. Unfurlable Isotropic Antenna. Filed Mar. 8, 1970. Patented Feb. 6, 1973. Not available NTIS.

Patent 3,716,410. Lithium Battery Electrolyte Additive and Method of Improving Discharge Rate. Filed Sept. 27, 1971. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,717,628. Method for the Preparation of 2,3-Dimethyl Aziridine. Filed Oct. 9, 1970. Patented Feb. 20, 1973. Not available NTIS.

Patent 3,718,398. Method of Aligning Laser Beam by Rotation. Filed Apr. 29, 1971. Patented Feb. 27, 1973. Not available NTIS.

Patent 3,722,039. Plastic Zipper/Closure for Flexible Containers. Filed Feb. 9, 1971. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,722,875. Adjustable Suspension Unit. Filed Apr. 29, 1971. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,722,969. Ball and Roller Bearing Retainer Improvement for High Speed Operation. Filed Jan. 4, 1972. Patented Mar. 27, 1973. Not available NTIS.

Patent 3,725,282. Passive Wake Quenching System Using Nonablating Material, Sulfur and a Solid Noble Gas Fluoride. Filed Apr. 15, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,737. Corona Discharge Electrode Structure for Electrofluid Dynamic Generator. Filed Nov. 8, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,798. Proton Maser Antenna Tuning Means. Filed Sept. 3, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,814. Apparatus for Locking the Frequency of a Laser to an Atomic Absorption Line. Filed Sept. 10, 1971. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,815. Photoelastic Mode-Locking of Q-Switched Lasers Using Birefringent Crystals. Filed Jan. 10, 1972. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,816. Fan Geometry Mixing Laser. Filed Apr. 28, 1972. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,827. High Coupling Low Diffraction Acoustic Surface Wave Delay Line. Filed May 17, 1972. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,725,913. Microwave Sensitivity Time Control Circuit. Filed Nov. 22, 1971. Patented Apr. 3, 1973. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Chief, Research Agreements and Patent Mgmt. Branch, Federal Building, General Services Division, Agricultural Research Service, Hyattsville, Md. 20782

Patent application 395,025. Method of Chemically Inducing Lightwood Formation in Pine Trees. Filed Sept. 7, 1973. PC $4/MF $1.45.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent 2,983,810. Photoflash Unit. Filed May 12, 1958. Patented May 9, 1961. Not available NTIS.

Patent 2,991,421. Fish Guidance Direct Current Switching Devices. Filed Nov. 19, 1959. Patented July 4, 1961. Not available NTIS.

Patent 3,028,183. Sealed Ball Joint for Electrodes. Filed Nov. 30, 1959. Patented Apr. 3, 1962. Not available NTIS.

Patent 3,054,295. Method and Apparatus for Determining Rate of Pressure Change. Filed June 26, 1958. Patented Sept. 18, 1962. Not available NTIS.

Patent 3,069,907. Magnetic Type Current Meter. Filed July 22, 1960. Patented Dec. 25, 1962. Not available NTIS.

Patent 3,075,900. Method for Separating Molybdenum From Tungsten by Electrolysis From a Fused Electrolyte Bath. Filed Nov. 25, 1960. Patented Jan. 29, 1963. Not available NTIS.

Patent 3,078,997. Flotation Process for Concentration of Phenacite and Bertrandite. Filed Feb. 24, 1961. Patented Feb. 26, 1963. Not available NTIS.

Patent 3,103,202. Method of Treating Oyster Shells and Other Collectors to Diminish Predation. Filed May 31, 1962. Patented Sept. 10, 1963. Not available NTIS.

Patent 3,104,928. Bathkymograph. Filed Mar. 29, 1962. Patented Sept. 24, 1963. Not available NTIS.

Patent 3,305,567. Nitrated Fatty Acid Esters. Filed July 22, 1963. Patented Feb. 21, 1967. Not available NTIS.

Patent 3,321,009. High Temperature Heat Exchange Using Liquid Metal. Filed June 1, 1965. Patented May 23, 1967. Not available NTIS.

Patent 3,323,653. Multimembrane Apparatus for Demineralizing Liquids. Filed Mar. 20, 1963. Patented June 6, 1967. Not available NTIS.

Patent 3,323,857. Selective Extraction and Separation of Lanthanides With a Quaternary Ammonium Compound. Filed Dec. 16, 1965. Patented June 6, 1967. Not available NTIS.

Patent 3,329,265. Flotation of Mica. Filed Aug. 18, 1964. Patented July 4, 1967. Not available NTIS.

Patent 3,337,889. Mechanical Device for Cleaning the Interior of Large Aquarium Tanks. Filed Mar. 11, 1966. Patented Aug. 29, 1967. Not available NTIS.

Patent 3,385,669. Method of Preparing Zirconium Carbide Fibers and the Product Thereof. Filed Apr. 21, 1965. Patented May 28, 1968. Not available NTIS.

Patent 3,390,985. Consolidation and Forming by High-Energy-Rate Extrusion of Powder Material. Filed Aug. 10, 1966. Patented July 2, 1968. Not available NTIS.

Patent 3,450,267. Porous Membrane Support. Filed Aug. 28, 1967. Patented June 17, 1969. Not available NTIS.

Patent 3,463,814. Chemical Cycle for Evaporative Water Desalination Plant. Filed Mar. 24, 1967. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,463,981. On-Off Servo Control for a Fluid Level Sensor Including a Differential Transformer Pickoff With Limit Override. Filed Nov. 25, 1966. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,464,502. Hydraulic-Drive Drilling. Filed Nov. 6, 1967. Patented Sept. 2, 1969. Not available NTIS.

Patent 3,464,766. Stereo-Image Alternator System. Filed Oct. 28, 1966. Patented Sept. 2, 1969. Not available NTIS.

Patent 3,466,189. Method for Improving Heat Transfer in Condensers. Filed Sept. 2, 1966. Patented Sept. 9, 1969. Not available NTIS.

Patent 3,476,654. Multistage Flash Distillation With Scale Removal. Filed Sept. 29, 1967. Patented Nov. 4, 1969. Not available NTIS.

Patent 3,477,942. Hydrocarbon Fuels From Coal or Any Carbonaceous Material. Filed July 28, 1967. Patented Nov. 11, 1969. Not available NTIS.

Patent 3,479,266. Inorganic Ion Exchange Membranes for Use in Electrical Separatory Processes. Filed Nov. 30, 1967. Patented Nov. 18, 1969. Not available NTIS.

Patent 3,479,267. Inorganic Ion Exchange Membranes for Use in Electrical Separatory Processes. Filed Nov. 30, 1967. Patented Nov. 18, 1969. Not available NTIS.

Patent 3,479,638. Beamforming in Seismic Surveying. Filed July 29, 1968. Patented Nov. 18, 1969. Not available NTIS.

Patent 3,482,635. Polyacrylamide Removal From Porous Media. Filed Mar. 6, 1967. Patented Dec. 9, 1969. Not available NTIS.

Patent 3,483,649. Electrical Trawl Net System. Filed Oct. 29, 1968. Patented Dec. 16, 1969. Not available NTIS.

Patent 3,518,448. Intermittent Timer Circuit. Filed Feb. 13, 1969. Patented June 30, 1970. Not available NTIS.

Patent 3,551,209. Formation of Skeletal Metal Solid Electrolyte Fuel Cell Electrodes. Filed May 21, 1969. Patented Dec. 29, 1970. Not available NTIS.

Patent 3,553,501. Ultrasonic Piezoelectric Transducer Cartridge. Filed Feb. 16, 1968. Patented Jan. 5, 1971. Not available NTIS.

Patent 3,968,869. Preparation of Maps. Filed Nov. 30, 1956. Patented Jan. 24, 1961. Not available NTIS.

Patent 3,974,184. Bundle Conductor Spacer. Filed Aug. 19, 1958. Patented Mar. 7, 1961. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—Code GP-2. Washington, D.C. 20546

Patent 3,780,151. Evacuated Displacement Compression Molding. Patented Dec. 18, 1973. Not available NTIS.

[FR Doc. 74-9687; Filed 4-30-74; 8:45 am]

DEPARTMENT OF THE AIR FORCE
AF/JACP, Washington, D.C. 20314

Patent application 338,728. Improved Air Generating Mechanism for an Aircraft Air Cushion Takeoff and Landing System. Filed Mar. 7, 1973. PC $5/MF $1.45.

Patent 3,747,558. Cross-Mounted Mask Changer With Thickness Monitoring. Filed Nov. 3, 1972. Patented July 24, 1973. Not available NTIS.

Patent 3,747,875. V/Stol Aircraft-by-Pass Engine Having a Double, Thrust Diverter Valve Assembly. Filed Nov. 4, 1971. Patented July 24, 1973. Not available NTIS.

Patent 3,748,892. High Precision Dilatometer. Filed Apr. 18, 1972. Patented July 31, 1973. Not available NTIS.

Patent 3,749,022. Two-Stage Arming Mechanism. Filed Oct. 14, 1971. Patented July 31, 1973. Not available NTIS.

Patent 3,749,914. Vehicle Attitude Sensor. Filed Dec. 21, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,749,963. Device to Aid in Centering of High Energy Electric Particle Beams in an Evacuated Drift Tube. Filed May 19, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,750,013. Microstrip Plasma Probe. Filed Oct. 21, 1970. Patented July 31, 1973. Not available NTIS.

Patent 3,750,048. Window for High Power Gaseous Lasers. Filed May 17, 1972. Patented July 31, 1973. Not available NTIS.

Patent 3,750,182. Suppressed Sidelobe Equal Beamwidth Millimeter Horn Antenna. Filed Aug. 8, 1972. Patented July 31, 1973. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Chief, Research Agreements and Patent Mgmt. Branch, Federal Building, General Services Division, Agricultural Research Service, Hyattsville, Md. 20782

Patent application 272,812. Novel Process for the Preparation of Tris (Hydroxymethyl) Phospine and Tris (Hydroxymethyl) Phosphine Oxide. Filed July 18, 1972. PC $4/MF $1.45.

Patent application 288,813. N,N-Bis(2-(3-Carboalkoxypropionyloxy)Ethyl)-Oleamides. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 293,748. Electrostatic Yarn Bulking. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 295,778. Process for Improving Abrasion Resistance of Resilient Fabrics. Filed Oct. 6, 1972. PC $4/MF $1.45.

Patent application 311,611. Dry-Structured Foams From Animal Hide Glues. Filed Dec. 4, 1972. PC $4/MF $1.45.

Patent application 348,801. N-Substituted Fatty Acid Amide Lubricants. Filed Apr. 6, 1973. PC $4.25/MF $1.45.

Patent application 376,973. Chicken Coop Unstacking Machine. Filed July 6, 1973. PC $4/MF $1.45.

Patent application 382,793. Pyrolyzed Tall Oil Products as Synthetic Rubber Tackifiers. Filed July 26, 1973. PC $4/MF $1.45.

Patent 3,676,207. Permanent Sizing of Yarns and Fibers With Durable Polymers and Copolymers for the Production of Fabrics With Improved Properties for Particular End Uses. Filed July 15, 1970. Patented July 11, 1972. Not available NTIS.

Patent 3,707,024. Method for Electrostatically Bulking and Impregnating Staple Yarns. Filed Mar. 31, 1971. Patented Dec. 26, 1972. Not available NTIS.

Patent 3,725,001. Phosphinidynetrimethanol Triacetate and its Application to Cellulosic Materials. Filed Aug. 21, 1970. Patented Apr. 3, 1973. Not available NTIS.

Patent 3,733,257. Radiation Initiated Process for the Graft Copolymerization of Binary Monomer Mixtures and Cellulose. Filed Nov. 19, 1971. Patented May 15, 1973. Not available NTIS.

Patent 3,746,644. N-Substituted Fatty Acid Amide Lubricants. Filed Aug. 31, 1971. Patented July 17, 1973. Not available NTIS.

Patent application 288,840. N-Benzyl-N-2-Acetoxyethyl-Oleamide. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 292,730.Electrostatic Yarn Bulking. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 306,771. Process for Reacting Sultones With Cellulosic Materials to Produce Cellulosic Materials Having Both Basic and Acidic Groups. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 306,772. Production of Phosphorus and Nitrogen Containing Compounds and Polymers and Flameproofing Organic Textiles. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 315,731. Process for Increasing Receptivity to Fluorescent Whitening Agents in Resin-Treated Cellulosic Textiles. Filed Dec. 15, 1972. PC $4/MF $1.45.

Patent application 315,753. Flame-Resistant Organic Textiles Through Treatment With Halogen Containing Soluble Methylol Phosphine Adducts. Filed Dec. 15, 1972. PC $4/MF $1.45.

Patent application 321,417. Removal of Free Formaldehyde From Solutions of Methylolated Carbamate Finishing Agents and Textiles Treated Therewith. Filed Jan. 5, 1973. PC $4/MF $1.45.

Patent application 328,205. Flame Retardant Polymers Made From Hydroxymethylphosphorus Compounds and Guanazoles and Process for Treating Organic Textiles. Filed Jan. 31, 1973. PC $4.50/MF $1.45.

Patent application 335,861. Preparation of Cellulose N,N-Dimethylformimidate Chloride in Textile Form, and Conversion to Halogenodeozycelluloses and Cellulose Formate. Filed Feb. 26, 1973. PC $4.25/MF $1.45.

Patent application 376,971. Quaternary Arylaminoalkyl Phosphonium Salts and Process for the Preparation Thereof. Filed July 6, 1973. PC $4/MF $1.45.

Patent 3,732,256. Reduced Maleopimaric Acid and Process for its Preparation. Filed Mar. 26, 1971. Patented May 8, 1973. Not available NTIS.

Patent 3,745,835. Air Static Pressure and Temperature Measuring Device for Remote Locations in Stored Porous Material. Filed Nov. 1, 1971. Patented July 17, 1973. Not available NTIS.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
National Institutes of Health
Chief, Patent Branch, Westwood Building
Bethesda, Md. 20014

Patent 3,784,467. Droplet Countercurrent Chromatography. Filed May 26, 1971. Patented Jan. 8, 1974. Not available NTIS.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent 2,799,574. Electric Smelting Process for Manganese Ores. Filed Feb. 10, 1953. Patented July 16, 1957. Not available NTIS.

Patent 2,808,886. Selective Plugging of Gas-Injection Oil Wells in Oil Field Gas-Drive Projects. Filed July 8, 1953. Patented Oct. 8, 1957. Not available NTIS.

Patent 2,812,288. Destructive Distillation of Hydrocarbonaceous Materials. Filed Oct. 11, 1950. Patented Nov. 5, 1957. Not available NTIS.

Patent 2,817,885. Means for Orienting Diamonds in Hard Vector Directions in Diamond Bits and Tools. Filed Nov. 10, 1953. Patented Dec. 31, 1957. Not available NTIS.

Patent 2,867,478. Pulsating Counter-Flow Feeder. Filed June 9, 1958. Patented Jan. 6, 1959. Not available NTIS.

Patent 2,882,328. Controller for Regulating the Resistance of a Melt. Filed Nov. 12, 1957. Patented Apr. 14, 1959. Not available NTIS.

Patent 2,907,204. Improved Vane-Type Soil Testing Apparatus. Filed July 23, 1956. Patented Oct. 6, 1959. Not available NTIS.

Patent 2,960,771. Exaggeration Profile Plotter. Filed Apr. 14, 1958. Patented Nov. 22, 1960. Not available NTIS.

Patent 3,008,802. Recrystallizing a Reconstituted Fluorine-Mica Sheet. Filed Mar. 18, 1957. Patented Nov. 14, 1961. Not available NTIS.

Patent 3,022,842. Automatic Batch Weighing Device for Filling or Unloading. Filed Dec. 19, 1958. Patented Feb. 27, 1962. Not available NTIS.

Patent 3,027,750. Apparatus for Studying Phase Relationships of Gases and Gas Mixtures. Filed Feb. 24, 1959. Patented Apr. 3, 1962. Not available NTIS.

Patent 3,073,387. Method for Removal of Liquid and Solid Materials From Gas-Well Bores. Filed Oct. 22, 1959. Patented Jan. 15, 1963. Not available NTIS.

Patent 3,109,872. Cooler and Humidifier for Subsoil Centrifuge. Filed Aug. 29, 1961. Patented Nov. 5, 1963. Not available NTIS.

Patent 3,117,000. Activation of Inert or Passive Metals. Filed Mar. 15, 1962. Patented Jan. 7, 1964. Not available NTIS.

Patent 3,126,327. Electrolytic Method for Extracting the Chromium Values From Chromium Oxide Bearing Ores. Filed Dec. 4, 1962. Patented Mar. 24, 1964. Not available NTIS.

Patent 3,136,060. Device Isopachometer. Filed Mar. 6, 1961. Patented June 9, 1964. Not available NTIS.

Patent 3,136,627. Process and Apparatus for Selective Condensation of Metals. Filed June 11, 1959. Patented June 9, 1964. Not available NTIS.

Patent 3,137,080. Vitavue Relief Model Technique. Filed Mar. 16, 1962. Patented June 16, 1964. Not available NTIS.

Patent 3,140,170. Magnesium Reduction of Titanium Oxides in a Hydrogen Atmosphere. Filed Nov. 23, 1962. Patented July 7, 1964. Not available NTIS.

Patent 3,149,006. Prevention of Embrittlement of Metals. Filed Jan. 31, 1963. Patented Sept. 15, 1964. Not available NTIS.

Patent 3,174,857. Edge Isolation of Photographic Imagery. Filed June 25, 1962. Patented Mar. 23, 1965. Not available NTIS.

Patent 3,185,564. Method of Agglomerating Iron Ore Fines. Filed Apr. 24, 1964. Patented May 25, 1965. Not available NTIS.

Patent 3,192,912. Process for Separating the Rare Earth Elements by Means of Solvent Extraction. Filed Aug. 9, 1962. Patented June 29, 1965. Not available NTIS.

Patent 3,204,605. Live Fish Grading Apparatus. Filed July 29, 1964. Patented Sept. 7, 1965. Not available NTIS.

Patent 3,219,521. Method for Controlling Petromyzon Marinus. Filed Apr. 11, 1957. Patented Nov. 23, 1965. Not available NTIS.

Patent 3,221,906. Sealing System for Blast Furnace Bells for High Pressure Top Operation. Filed Feb. 11, 1964. Patented Dec. 7, 1965. Not available NTIS.

Patent 3,277,615. Air-Inflated Building Structure. Filed Apr. 14, 1964. Patented Oct. 11, 1966. Not available NTIS.

Patent 3,287,920. Device for Securing a Plug in an Infusion Hole. Filed Dec. 20, 1961. Patented Nov. 29, 1966. Not available NTIS.

Patent 3,302,701. Turbulence Promoter for Increased Heat and Mass Transfer. Filed Oct. 19, 1965. Patented Feb. 7, 1967. Not available NTIS.

Patent 3,463,922. Mineral Ore Exploration Apparatus Utilizing Neutron Activation. Filed July 29, 1966. Patented Aug. 26, 1969. Not available NTIS.

Patent 3,482,637. Process and Method for Quenching Incipient Gas-Air Explosions. Filed Oct. 20, 1967. Patented Dec. 9, 1969. Not available NTIS.

Patent 3,791,934. Helical Multistage Flash Distillation Unit. Filed Aug. 9, 1971. Patented Feb. 12, 1974. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP-2, Washington, D.C. 20546

Patent application 419,748. Strain Arrestor Plate. Filed Nov. 28, 1973. PC $3/MF $1.45.

Patent application 428,992. Particulate and Solar Radiation Stable Coating for Spacecraft. Filed Dec. 27, 1973. PC $3/MF $1.45.

Patent application 437,556. Transparent Fire Resistant Polymeric Structures. Filed Jan. 29, 1974. PC $3.50/MF $1.45.

Patent 3,732,397. Inherent Redundacy Electric Heater. Patented May 8, 1973. Not available NTIS.

Patent 3,780,563. Insitu Transfer Standard for Ultrahigh Vacuum Gage Calibration. Patented Dec. 25, 1973. Not available NTIS.

Patent 3,781,933. Modification of One Man Life Raft. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,205. Temperature Compensated Digital Inertial Sensor. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,698. Heater-Mixer for Stored Fluids. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,699. Bimetallic Fluid Displacement Apparatus. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,782,835. Optical Instruments. Patented Jan. 1, 1974. Not available NTIS.

Patent 3,783,250. Adaptive Voting Computer System. Patented Jan. 1, 1974. Not available NTIS.

[FR Doc. 74-9880; Filed 4-30-74; 8:45 am]

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 13, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-07-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-23-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	4-24-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	5-04-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-05-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	9-05-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	11-06-72
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	2-23-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	1-04-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-27-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director. Industrial Arts; Household, Personal and Fine Arts.	4-27-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-17-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	5-02-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—Director (Vacant). Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	5-07-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	7-11-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—Director (Vacant). Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	1-22-73

Expiration of patents: The patents within the range of numbers indicated below expire during April 1974, except those which may have expired earlier due to shortened term: under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,787,000 to 2,790,970, inclusive
Plant Patents..... Numbers 1,586 to 1,597, inclusive

REISSUES

MAY 21, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

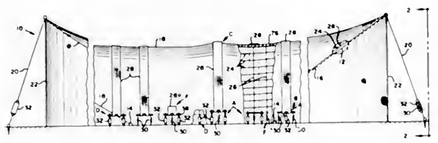
28,012
DAMPING MEANS FOR PORTABLE STRUCTURE

Carl F. Huddle, Pleasant Ridge, Mich., assignor to Tension Structures Co.

Original No. 3,465,764, dated Sept. 9, 1969, Ser. No. 654,425, July 19, 1967. Application for reissue Feb. 26, 1971, Ser. No. 118,713

Int. Cl. E04b *1/347*

U.S. Cl. 135—1 R **6 Claims**



A [portable semi-rigid] *tent-like* structure including a pair of arches inclined from a common base and pivotably tilted outward from each other, a flexible membrane attached to and stretched between the arches, longitudinal tension members secured to the arches to support the membrane, inverted tension members operatively connected to the longitudinal tension members and/or to the membrane to prevent ballooning thereof, and [vibration damping means including at least one of the following: (A) spring-loaded dash-pots connected between the inverted tension members and the base; (B) springs connected between the inverted tension members and the base; (C) bands connected between the base an the membrane in series with spring-loaded dash-pots; and (D) bands connected between the base and the membrane in series with springs] *means for damping flutter and vibration in the structure. The damping means may include a spring or springs and/or a spring-loaded dash-pot or dash-pots associated with the membrane and/or the tension members and the base in any of several ways.*

The membrane may also be lined with a thicker layer of interstitial material which may also bond the tension members together and to the membrane.

28,013
SAFETY SWITCH AND CIRCUIT FOR OIL-BURNING FURNACE

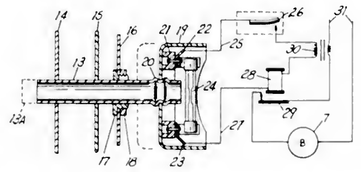
Gordon McLarty, P.O. Box 55, Augusta, Mich. 49012

Original No. 3,645,662, dated Feb. 29, 1972, Ser. No. 14,081, Feb. 25, 1970. Application for reissue June 26, 1972, Ser. No. 266,192

Int. Cl. F23h *5/24*

U.S. Cl. 431—22 **10 Claims**

Oil burning furnace designed to normally operate as subatmospheric pressure in the combustion chamber has an open tube opening from the combustion chamber to the exterior of the furnace adjacent the burner. A normally closed heat responsive fuse or switch is mounted adjacent the outer end of the tube, to be responsive to abnormal back-flow of hot combustion gases from the furnace. The fuse or switch is connected in controlling relation to the power circuit of the burner, to shut off the burner if abnormal back pressure develops in the combustion chamber. The switch and tube are adjustable to vary the degree of sensitivity of system to back pressure.



28,014
METHOD FOR DRY CLEANING

Herman Knieriem, Jr., Ballwin, Mo., assignor to The Dow Chemical Co., Midland, Mich.

No Drawing. Original No. 3,482,928, dated Dec. 9, 1969, Ser. No. 680,054, Nov. 2, 1967, which is a continuation-in-part of abandoned applications Ser. No. 296,430, July 22, 1963, and Ser. No. 395,043, Sept. 8, 1964. Application for reissue Aug. 5, 1971, Ser. No. 169,558

Int. Cl. D06f *43/108*

U.S. Cl. 8—142 **3 Claims**

In a method for dry cleaning wherein a dry cleaning solvent containing detergent, hand agents and acidity control agents is employed to wash articles, the solvent and its additives are filtered and periodically distilled to remove contaminates such as dirt particles, dyes, fatty acids, and wherein the additives are depleted during the cleaning of the article, the filtration and the distillation, the improvement which comprises initially employing a solvent compositions which contains the necessary ingredients to clean articles, maintain the acidity of the solvent at a level to prevent odor and permit withdrawal of the articles with a desirable hand; filtering the solvent composition; periodically distilling at least about five percent of the solvent in the system and returning additive-free solvent to the process; and adding the same solvent composition to the process when make-up is required; the result being to maintain by a single periodic addition all of the necessary ingredients to provide a uniform efficacious cleaning of articles.

28,015
ALUMINUM ELECTRODE ELECTROLYTIC CAPACITOR CONSTRUCTION

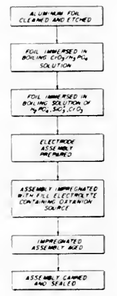
David A. Vermilyea, Schenectady, N.Y., Donald R. Ochar, Columbia, S.C., and Willem Vedder, Albany, N.Y., by General Electric Co., New York, N.Y.

Original No. 3,622,843, dated Nov. 23, 1971, Ser. No. 881,853, Dec. 3, 1969. Application for reissue Sept. 13, 1972, Ser. No. 288,508

Int. Cl. H01g *13/00*

U.S. Cl. 29—570 **6 Claims**

Both the passivation of aluminum foil particularly for use as electrodes in wet electrolytic capacitors and the inhibition of the aluminum-water reaction within the completed capacitor are described. Pretreatment of etched aluminum foil includes the combined steps of immersion in a boiling aqueous solution containing CrO_3 and H_3PO_4 followed by a 3-minute immersion in a boiling solution of controlled pH containing $H_2PO_4^-$, $SiO_3^=$ and CrO_3.



Inhibition of aluminum in a wet electrolytic capacitor is afforded by the addition of a concentration of at least one of the following inhibiting ions to the liquid electrolyte: phosphate, phosphite, periodate, arsenate, tungstate, silicate *vanadate* [vandadate], tellurate, tellurite, antimonate, arsenite, selenate, sulfite and germanate.

28,016
OPTICAL SCANNER AND SLIT EXPOSURE DEVICE FOR REPRODUCTION APPARATUS

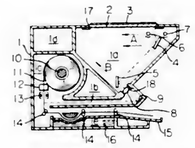
Yutaka Koizumi, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Original No. 3,543,290, dated Nov. 24, 1970, Ser. No. 757,538, Sept. 5, 1968. Application for reissue Apr. 19, 1972, Ser. No. 245,667

Claims priority, application Japan, Sept. 20, 1967, 42/60,356, 42/60,357

Int. Cl. G03b *27/32, 27/70*

U.S. Cl. 355—65 **2 Claims**



An optical scanning system for use in a document copying apparatus. Photosensitive paper is exposed by the image of an original document. Light from the original document is reflected by two moving mirrors through a fixed lens and is projected through a slit upon photosensitive paper which is moved in a coordination with the movement of the two reflecting mirrors.

28,017
HYDRAULIC SHIFTING MECHANISM FOR A MECHANICAL TRANSMISSION

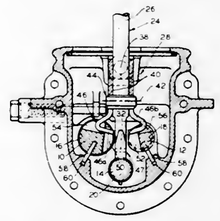
Donald S. Dence, Brooklyn, Mich., assignor to Clark Equipment Company

Original No. 3,677,105, dated July 18, 1972, Ser. No. 71,717, Sept. 14, 1970. Application for reissue May 21, 1973, Ser. No. 361,957

Int. Cl. G05g *5/10, 9/12*

U.S. Cl. 74—477 **10 Claims**

A hydraulic shifting mechanism for a mechanical transmission of the type having a plurality of shiftable pistons for producing corresponding shifting movements in the transmission, and having a manual shift lever and three pistons, including a lower central one and two upper, laterally-spaced ones, the shift lever being movable laterally for selectively engaging the pistons, and movable fore-and-back for shifting the selected piston; the shift lever has a lower end engageable with the selected piston, and is incorporated in a unit having side elements movable laterally with the shift lever but fixed against fore-and-back movement, the pistons having notches and grooves receiving the side elements; the side elements when the shift lever is in neutral or central position, respectively restain the corresponding upper pistons against fore-and-back movement and when the shift lever is moved laterally in either direction, one of the side elements releases the corresponding upper piston and restrains the lower piston against fore-and-back movement, while the other side element continues to restrain its corresponding upper piston.



28,018
VERTICAL TUBE FURNACE

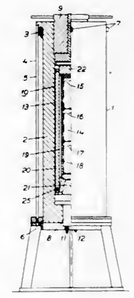
Hans Torbjorn Lundstrom, Robertsfors, Sweden, by Allmanna Svenska Electriska Aktiebolaget, Vasteras, Sweden

Original No. 3,470,303, dated Sept. 30, 1969, Ser. No. 673,623, Oct. 9, 1967. Application for reissue Apr. 2, 1973, Ser. No. 348,049

Claims priority, application Sweden, Oct. 12, 1966, 13,775/66

Int. Cl. H05b *3/62*

U.S. Cl. 13—20 **7 Claims**



A cylindrical oblong furnace arranged in a pressure chamber for isostatic compression with its longitudinal axis substantially vertical. To obtain uniform temperature in the furnace, a heat insulating sheath is provided which comprises at least one cell consisting of a space enclosed in a casing of material with low gas permeability. The said space communicates with its environment through at least one opening situated in an area which is rather short in the vertical direction in comparison with the height of the cell in the same direction.

PLANT PATENTS

GRANTED MAY 21, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,551
BALD CYPRESS
Earl Cully, R.R. 5, Jacksonville, Ill. 62650
Filed Dec. 27, 1971, Ser. No. 212,828
Int. Cl. A01h *7/00*
U.S. Cl. Plt.—50 **1 Claim**

This disclosure concerns a new and distinct variety of Gymnospermae, Pinaceae (Taxodiaceae), commonly known as a bald cypress, characterized by its rapid straight growth of its central trunk, abundant production of lateral primary branches extending at an angle of branching 40 to 45 degrees below vertical and second or tertiary branching usually at increasing angles from the top of the tree downward giving a fuller than usual crown, and the relatively short branches resulting in a tightly pyramidal crown.

3,552
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Apr. 24, 1972, Ser. No. 247,192
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the garden chrysanthemum cultivar Grandchild by its flowers which are approximately one-half inch larger in diameter; four to six days longer keeping quality; a lighter, smoother, pastel pink color with less lavender tones, which fades to a smoother, more uniform, overall color as the flower ages; its approximately one inch shorter height, approximately eight inches greater diameter, and approximately three more breaks per plant when flowered naturally as field grown plants from plantings made in mid-June and given a single pinch, by its larger, darker green foliage which is more deeply indented and serrated, and by its two to five days later response in natural season outdoor flowerings planted in mid-June and given a single pinch.

3,553
CHRYSANTHEMUM PLANT
Keith D. Butters, Littlehampton, England, assignor to Yoder Brothers, Inc., Barberton, Ohio
Filed Apr. 3, 1972, Ser. No. 240,860
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct variety of pompon chrysanthemum which is distinguished from the Hurricane family by its darker yellow color and its superior color retention, and is distinguished from the cultivar Improved Yellow Hurricane by its 3"–4" more vigor, 4–6 days later response, and a smoother flower form with less reflexing at maturity.

3,554
CARNATION PLANT
Peter F. Mazzanti, South San Francisco, and Thomas G. Harcharik, Salinas, Calif.; said Harcharik assignor to said Mazzanti
Filed Feb. 11, 1972, Ser. No. 225,684
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—70 **1 Claim**

1. A new and distinct cultivar of carnation characterized particularly as to its uniqueness when compared to the parent cultivar Tangerine Sim by its variegated color of broad orange stripes on a white background, its approximately ¼"–½" smaller diameter flowers, and its slightly lower petal count.

3,555
ROSE PLANT
William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.
Filed Nov. 7, 1972, Ser. No. 304,383
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—22 **1 Claim**

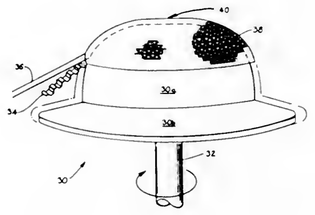
1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its compact, spreading plant, large semidouble Rose Madder flowers borne usually in clusters.

PATENTS

GRANTED MAY 21, 1974

GENERAL AND MECHANICAL

3,811,130
HEADWEAR CONSTRUCTION
Charles E. Townsend, Jr., Townsend and Townsend, One Kearny St., San Francisco, Calif.
Continuation-in-part of Ser. No. 89,218, Nov. 13, 1970, abandoned. This application Oct. 12, 1972, Ser. No. 297,140
Int. Cl. A42b *1/18*
U.S. Cl. 2—177 **9 Claims**

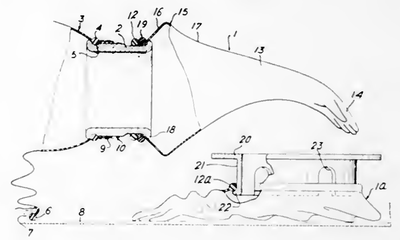


A headwear and a method of manufacturing headwear providing 95 percent or greater ventilation while at the same time providing adequate shade protection are described. The headwear comprises a crown section of cellular honeycomb, the cumulative cross-sectional open cell area accounting for at least 90 percent of the total surface area, contoured in such a manner as to provide a progressive divergence of angularity between adjacent cells of the honeycomb. The method comprises spirally winding together an elongate flat strip and an elongate corrugated strip on a headwear shaped form. The flat and corrugated strips are thus disposed in alternating arrangement defining open cells therebetween to form a cellular honeycomb contoured to the shape of the form.

3,811,131
DURABLE PRESS PROCESS FOR TREATING CELLULOSIC MATERIAL WITH METHYLOLAMIDES AND ACETIC ACID OR FORMIC ACID VAPORS
Jose P. Gamarra, San Jose; Ronald Swidler, Palo Alto, and Katherine W. Wilson, Newport Beach, all of Calif., assignors to Cotton, Incorporated, New York, N.Y.
Continuation-in-part of Ser. No. 762,119, Sept. 24, 1968, Pat. No. 3,653,805. This application Mar. 28, 1972, Ser. No. 238,983
Int. Cl. D06m *1/16, 15/56, 15/58*
U.S. Cl. 2—243 R **9 Claims**

The dimensional stability, wrinkle resistance, smooth drying characteristics and total shape retentivity of cellulosic materials such as cotton fabrics are improved by treatment with acetic acid or formic acid vapors after impregnation of the materials with an aqueous solution of a water-soluble crease-proofing agent containing reactive N-methylol groups such as trimethylolmelamine or DHDMEU, whereby the cellulosic fibers become crosslinked.

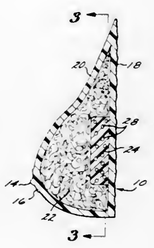
3,811,132
CUFF FOR A GLOVE, BAG OR THE LIKE, FOR MANIPULATION INSIDE SEALED ENCLOSURES
Jean-Michel Segonzac, Bois-Colombes, and Jean-Marie Lucas, Paris, both of France, assignors to La Calhene and Piercan S.A., Paris, France
Filed Aug. 7, 1973, Ser. No. 386,356
Claims priority, application France, Aug. 10, 1972, 72.28963
Int. Cl. A41d *27/10*
U.S. Cl. 2—270 **4 Claims**



The invention relates to an end cuff for a flexible glove or the like as used to give access to the interior of enclosures and which may form the extension of the sleeve of a protective suit. The construction of the cuff facilitates the replacement of the glove without breaking the sealed conditions.

The cuff comprises a circular end bead and a body portion which extends away from the bead towards the fingers of the glove. An annular portion connecting the bead and the body has an abrupt and considerable increase in diameter after the bead followed by a narrowing portion before joining the body of the glove. The construction of the annular portion is such that in section the increase in diameter forms a rounded open apex angle which in the preferred embodiment is substantially 90°.

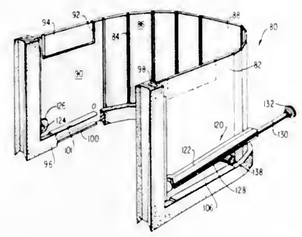
3,811,133
WEIGHTED PROSTHETIC BREAST
Eugene Harris, 3120 Craig Dr., Orange, Calif.
Filed Aug. 31, 1972, Ser. No. 285,157
Int. Cl. A61f *1/00*; **A41c** *3/10*
U.S. Cl. 3—36 **5 Claims**



Prosthesis making results in a superior product when a hollow plastic form is filled with a resilient wadding and a discrete

weight. The attributes of external appearance and feel on one hand and the feel associated with wearing the prosthesis on the other hand are dealt with separately. No attempt is made to provide homogeneity or uniform density. Skin is represented by a plastic outer shell or form, inner flesh by wadded fibers compressed to provide feel, and weight is represented by one or more discrete, flexible weights placed to facilitate holding the prosthesis in position. Flesh color is simulated by including cosmetic powder of selected color in the translucent plastic shell. The process and the product of the process are described and a breast restoration is described in particular.

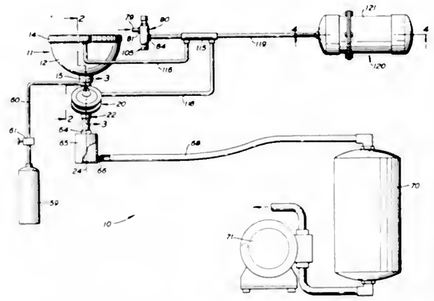
3,811,134
WATER SAVING ATTACHMENTS FOR TOILET GRAVITY FLUSH TANKS
Thomas Marvin Throckmorton, and Charles M. Crawford, III, both of Washington, D.C., assignors to Metropolitan Water-saving Co., Inc., Washington, D.C.
Continuation-in-part of Ser. No. 193,800, Oct. 25, 1972. This application May 14, 1973, Ser. No. 359,750
Int. Cl. E03d *1/20, 1/22, 1/30*
U.S. Cl. 4—18 **14 Claims**



A water saving attachment for gravity flush tanks of water closets wherein the available supply of water for each flush is reduced by a fixed volume. Specifically, this reduction is effected by forming within the tank a water retention compartment having a segment of its side wall perimeter and its entire bottom formed from segments of the tank side wall and tank bottom respectively, the remaining segment of the compartment side wall consisting of a dam or weir for impounding said fixed volumn of water during all phases of operation of the tank mechanism. Pivoted arms are provided adjacent opposite ends of the dam to facilitate introduction of the dam into and securement thereof to the flush tank.

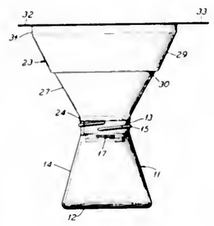
3,811,135
FLUSH CONTROL SYSTEM
Alfred J. Drouhard, Jr., and John R. Weeks, Jr., both of Mansfield, Ohio, assignors to Mansfield Sanitary Inc., Perrysville, Ohio
Filed Dec. 21, 1972, Ser. No. 317,245
Int. Cl. E03d *11/10*
U.S. Cl. 4—76 **11 Claims**

A flush system particularly adapted for toilets from which waste in pneumatically evacuated. A flush valve selectively admits flush fluid, under pressure, into the system. A portion of the flush fluid admitted to the system is directed into the toilet bowl to serve as a prerinse, a flush rinse and, to some extent, an after rinse; a portion is directed to actuate a soil discharge valve; and, a portion is directed to fill the reservoir compartment of an accumulator to serve as the bowl prefill for the subsequent use cycle. In both the soil discharge valve and the accumulator the flush fluid must overcome a predetermined resistance. The operation of the soil discharge valve and the accumulator are not only related to each other by virtue of their predetermined resistance to actuation in response to the pressure of the flush fluid but are also related to the period of time during which the flush valve remains open



either by timing the open stage of the flush valve or by making the closure of the flush valve responsive to the pressure of the flush fluid within the system itself.

3,811,136
SANITARY URINE COLLECTOR
William G. Whitney, Evanston, and Lawrence Muesing, Winnetka, both of Ill., assignors to W. G. Whitney Corporation, Skokie, Ill.
Filed Sept. 6, 1972, Ser. No. 286,771
Int. Cl. E03d *13/00*
U.S. Cl. 4—110 **8 Claims**

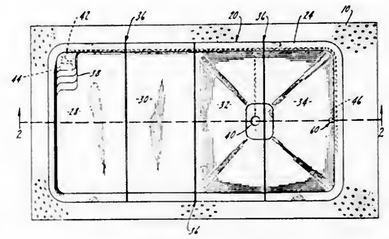


Sanitary urine specimen collector including a container, a vertically collapsible funnel made of a relatively rigid flexible material and a releasable connection from the funnel to the container extending over and about the lip of the container and protecting the lip of the container from contamination, in which the funnel is arranged to conform to the body.

3,811,137
PREFABRICATED SWIMMING POOL CONSTRUCTION
Martin M. Schankler, 12 New Dover Rd., E. Brunswick, N.J.
Division of Ser. No. 782,668, Dec. 10, 1968, Pat. No. 3,660,957, which is a continuation-in-part of Ser. No. 591,365, Dec. 10, 1968, Pat. No. 3,419,917. This application Jan. 13, 1972, Ser. No. 217,678
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.19 **10 Claims**

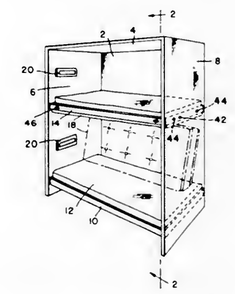
The apparatus and method for building a prefabricated swimming pool in which a flexible liner is placed within an excavated hole and a rigid shell suspended from a peripheral

walk around the excavation is spaced from the outer liner to define a water cavity. In one form the cavity is sealed from water within the rigid shell, and in another form means are



provided for circulation of water from the shell to the cavity, and from the cavity to a pump and filter where it is directed back to the shell.

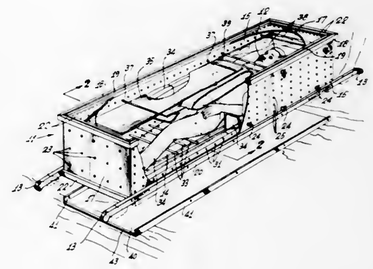
3,811,138
CONVERTIBLE BERTH
Richard J. Del Missier, Seattle, Wash., assignor to Tri-Way Industries, Inc., Seattle, Wash.
Filed May 30, 1972, Ser. No. 257,912
Int. Cl. A47c *17/40*
U.S. Cl. 5—9 **3 Claims**



A two level berth structure for use on ships, in railroad cars or the like wherein space is at a premium including a counter balanced upper bunk mounted upon track means at opposite ends whereby the berth may be easily moved from a relatively horizontal position whereat it is locked for sleeping to an inclined position having one side adjacent the top of the lower bunk at a location comfortable for sitting upon the lower bunk and resting your back against the upper bunk. The structure includes the end walls for both the upper and lower bunk and has within the end walls weights to counterbalance the weight of the upper bunk during movement from one location to another.

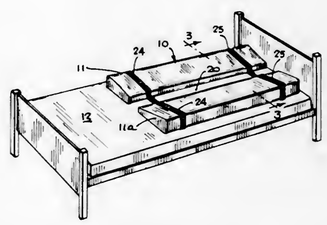
3,811,139
STRETCHER
Kenneth W. Shaw, P.O. Box 149, Tucson, Ariz.
Filed Oct. 24, 1972, Ser. No. 300,117
Int. Cl. A61g *7/10, 1/02*; **A47c** *17/64*
U.S. Cl. 5—82 **16 Claims**

A stretcher for supporting, immobilizing and carrying an injured person without substantial postural disturbance, and a method for supporting the injured person in the stretcher. A number of elongated support slats are placed under the injured person in generally parallel relation and an elongated frame, which is box-like with open top and bottom sides, is placed over the injured person to closely surround both the person and the support slats. The slats and the person are supported in the frame by a number of rods subsequently inserted in the frame to extend across it, beneath, and generally at right-angles to the slats, the rods having end portions extending through holes in the frame and being secured against axial



movement. Immobilization of the injured person is achieved with the addition of inflatable pillows placed over and around the injured person and held in position by a top panel and additional rods inserted in the frame to prevent upward movement of the pillows. The assembled stretcher can then be lifted as a unitary structure, and the injured person can be safely carried over rough terrain. Another embodiment incorporates a flatter frame and is particularly well suited for lifting bedridden persons.

3,811,140
BODY SUPPORT DEVICE
Delbert L. Burpo, 113 E. Walnut St., Harrisburg, Ill.
Filed Sept. 18, 1972, Ser. No. 289,766
Int. Cl. A61g *7/02*; **A47c** *21/00*
U.S. Cl. 5—327 R **4 Claims**



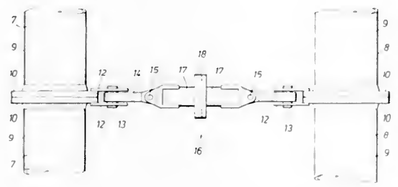
A body support device for supporting a patient in bed while lying on his back which comprises two rigid elongated generally rectangular body support sections adapted to being supported lengthwise on the upper surface of a bed in oppositely disposed mirror-image relationship with the inner longitudinal edges of the support sections being spaced less than the width of the back of the patient being supported on the said sections and having the upper surface of each of the body support sections sloping downwardly and inwardly toward the spacing maintained between the support sections. In one embodiment of the invention the body support sections are interconnected by flexible straps which encircle the oppositely disposed ends of each of the body sections. In another disclosed embodiment the body support sections have rigid plates connecting the oppositely disposed ends of the body support sections.

3,811,141
BOAT HULL AND DECK ASSEMBLY
Helmut Stoeberl, 8201 Eggstaett-Bachham, Germany
Filed Mar. 8, 1972, Ser. No. 232,829
Claims priority, application Germany, Mar. 9, 1971, 2111257
Int. Cl. B63b *5/24*
U.S. Cl. 9—6 **11 Claims**



Plastic boat hulls are connected to their decks through nested inter-fitting tongue and groove joint configurations which are bonded together by fusing, adhesives, or the like. The hull and deck are hollow molded plastic units filled with plastic foam. The units have thin fiberglass plastic type spaced parallel walls connected around the peripheries thereof by configurations which form the inter-fitting joint or seam so that the insert layer between the walls is never exposed and water-tight units are provided.

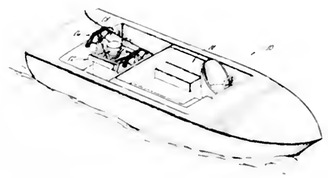
3,811,142
UNIVERSAL SPACER CONNECTOR FOR VERTICAL MOORING BUOY HOSES
Simon Westra, The Hague, Netherlands, assignor to Shell Oil Company, New York, N.Y.
Filed Mar. 20, 1972, Ser. No. 235,977
Claims priority, application Netherlands, Feb. 23, 1971, 7102363
Int. Cl. B63b *35/00*
U.S. Cl. 9—8 P **1 Claim**



A universal spacer connector for interconnecting the vertical parts of a pair of hoses interconnecting a submarine pipeline with a single buoy mooring comprising two universal joints each allowing rotation around vertical and horizontal axes and including a coupling allowing relative rotation of the two halves of the connector around the longitudinal axis of the connector.

3,811,143
WATER SKI HOLDER
Stewart E. Page, Huntington Beach, Calif., assignor to Kona Boats, Westminster, Calif.
Filed Aug. 10, 1973, Ser. No. 387,359
Int. Cl. A63c *11/02*
U.S. Cl. 9—310 R **10 Claims**

A holder for storage of water skis adjacent the exposed engine on small to medium sized inboard motor boats. The holder is comprised of two separate carrying surfaces which are anchored above the engine by support members. Existing fixtures of the engine are used to secure the support members to the engine. The water skis assume a position approximately



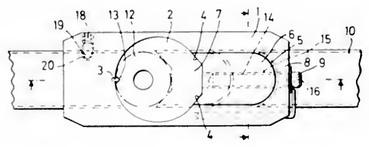
parallel with the bottom of the boat when they are placed in the holder and a resilient member secures the water skis to the holder.

3,811,144
LIFE BUOY
Senya Yamanka, 39-128 Marunouchi, Ueno-shi, Japan
Filed Nov. 27, 1972, Ser. No. 309,942
Claims priority, application Japan, July 18, 1972, 47-86876; July 18, 1972, 47-86877
Int. Cl. B63c *9/16*
U.S. Cl. 9—311 **1 Claim**



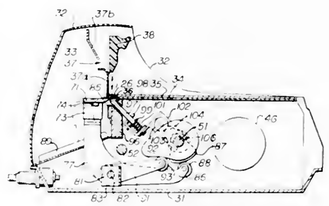
A life buoy is disclosed. The buoy is a hollow and elliptic disk member having a bottom wall formed with hard rubber or a hard synthetic resin, and in the shape of a ship bottom having a keel and an upper wall formed with soft rubber or a soft synthetic resin, said buoy being used for holding a human body on the upper wall thereof on the surface of the water.

3,811,145
UNIVERSAL HOLDER FOR THREAD CUTTING DIES
Wilfried Fink, 6250 Diez, Auweg 2, Germany
Filed June 8, 1972, Ser. No. 261,071
Claims priority, application Germany, June 9, 1971, 2128676
Int. Cl. B23g *1/26, 5/04*
U.S. Cl. 10—123 P **10 Claims**



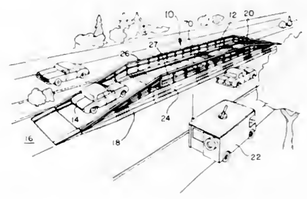
A universal thread cutting die holder comprises a body having an opening to individually accept a number of different thread cutting dies each of which is intended for a pipe, or rod, of a different diameter, with a positioning device having a pair of jaws to grip each die when accepted in the opening, and also including a universal guide having different correspondingly sized openings to concentrically align the respective dies with the object to be threaded.

3,811,146
MACHINE FOR BINDING BOOKS
William H. Abildgaard; Charles T. Groswith, III, both of Los Altos; Heiko T. Deman, Alameda, and Danilo P. Buan, Pleasanton, all of Calif., assignors to Velo-Bind, Inc., Sunnyvale, Calif.
Filed Jan. 15, 1973, Ser. No. 323,520
Int. Cl. B42c *19/00*
U.S. Cl. 11—1 R **10 Claims**



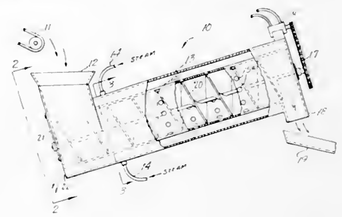
A machine binds paper punched with apertures spaced at intervals near one margin using two thermoplastic strips, the first having studs at intervals and the second having counterbored holes at the same intervals. The paper is placed on the machine platen with the second strip underlying the paper. The studs of the first strip are inserted through the holes in the paper and second strip. A pressure bar is guided to rest on the first strip. A motor is then energized to turn a cam shaft through one revolution. A pressure cam causes downward pull on the pressure bar until a pre-selected pressure is applied to the first strip, whereupon the pressure is held constant until the end of the cycle. After said pressure has been applied, a plurality of heated blades corresponding to the spacing of studs is moved by cam action to cut off the excess lengths of the studs, leaving short stubs beneath the second strip. Next, the blades are raised by cam action to deform the stubs into the counterbores in the second strip. The blades are then withdrawn. Cooling fingers are forced by cam action against the deformed studs to finish the shape of the heads of the stubs and cool same, thereby completing the binding action. The pressure cam releases the pressure bar allowing the bar to be retracted and the completed book removed.

3,811,147
MOBILE ROADWAY REPAIR UNIT
Rollin C. Dix, 2506 W. 107th St., Chicago, Ill.
Filed Aug. 9, 1971, Ser. No. 170,153
Int. Cl. E01d *1/00*
U.S. Cl. 14—1 **14 Claims**



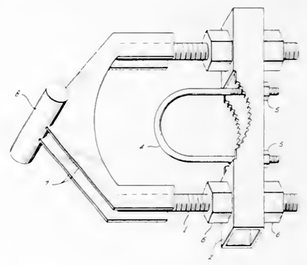
A mobile roadway repair unit including a repair module unit having a platform for carrying traffic over a roadway on which repair is to be performed. The repair module unit may be formed of a plurality of repair modules coupled end-to-end or may be a single repair module. An ascending transition ramp is releasably connected to one end of the repair module unit to direct a vehicle from the roadway upward to the platform of the repair module unit and a descending transition ramp is releasably connected to the other end of the repair module unit to direct a vehicle from the platform of the repair module unit downward to the roadway. Each repair module provides a housing beneath the platform for receiving repair equipment. An enclosure wall is provided for the longitudinal sides of the repair module unit and the transition ramps. The enclosure wall on the longitudinal sides of the roadway repair unit permits the environment beneath the unit to be controlled, blocks viewing of the repair work to prevent slowing of traffic at the repair site, and acts as a safety barrier for workers inside the roadway repair unit.

3,811,148
SCREW CONVEYOR STEAMER FOR SCALLOP PROCESSING
Roger C. Martin, Cocoa Beach, Fla., assignor to Edgar E. Griffis, Brevard County, Fla., a part interest
Filed Oct. 13, 1972, Ser. No. 297,311
Int. Cl. A22c *25/02*
U.S. Cl. 15—3.14 **2 Claims**



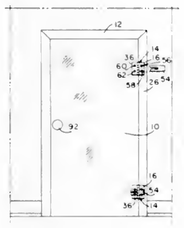
In order to cleanse scallops of dirt, barnacles and the like, and kill bacteria, scallops, still in their shells, are conveyed into a hopper. The hopper is in communication with a screw conveyor inside a perforated cylinder which conveys the scallops to further processing apparatus. The speed of rotation of the conveyor is controlled by a variable speed hydraulic motor. Steam, at a temperature from 215° to 240° F. is piped into an insulated jacket which surrounds a cylinder having holes uniformly disposed about its surface. The perforated cylinder, in turn, surrounds the screw conveyor which permits the steam to contact the scallops in a 360° pattern and thus effectively perform the intended cleansing and sanitizing functions.

3,811,149
ADJUSTABLE GATE HINGE
Ronald G. Griffin, 212 W. 19th, Houston, Tex.
Filed Aug. 31, 1972, Ser. No. 285,244
Int. Cl. E05d *7/04*
U.S. Cl. 16—130 **3 Claims**



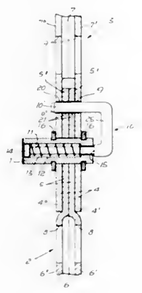
A gate hinge for steel fences, and particularly for large gates, having means for adjusting the proximity of the gate to the gate post.

3,811,150
HINGE LOCK
R. Robert Chalmers, 2650 Pleasant Hill Rd., Hatboro, Pa.
Filed Jan. 3, 1972, Ser. No. 214,809
Int. Cl. E05d *11/00*
U.S. Cl. 16—137 **9 Claims**



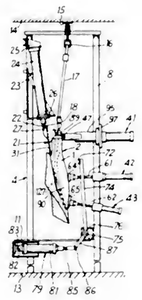
In a hinge lock, a first hinge leaf and a second hinge leaf which are pivotally interconnected to open about a vertical hinge pin. The first and second hinge leaves are generally T-shaped in cross-sectional configuration, each having a leaf portion interfitting between the edge of the door and the jamb and a locking plate portion extending respectively across the face of the door and the jamb. Extensions of the leaf portions project inwardly beyond the locking plates to form the pivotal pin connection. The respective inward surfaces of the first and second locking plates are each provided with a pair of keepers which coact with an opening provided in the extensions to receive a locking arm in sliding horizontal alignment therein. When the locking arm slides completely through the keepers and the extension opening, the arm serves to prevent opening of the door by preventing relative pivotal movement of the first and second hinge leaves. When the locking arm is horizontally urged out of the opening, the first and second hinge leaves are then free to swing about the hinge pin to permit povital opening of the door.

3,811,151
JOINT FOR COLLAPSIBLE LADDERS
Walter Kuemmerlin, Bissingen, Germany, assignor to Firma Zarges Leichtbau GmbH, Bayern, Germany
Filed Apr. 11, 1973, Ser. No. 350,156
Claims priority, application Germany, Apr. 11, 1972, 2217258; Feb. 19, 1973, 2308095
Int. Cl. E05d *11/10*
U.S. Cl. 16—144 **13 Claims**



A joint for collapsible ladders, wherein two members are pivotally connected to each by means of a hinge pin. Each member has a flange portion, through which the hinge pin extends, and a shaft portion adapted to be connected to the ladder stringer. A locking member comprising at least two parts adapted to be moved from a first locking position onto a second locking position and viceversa for locking the two members in at least two predetermined angular positions relating to each other. Biasing means connected to the two part of the locking member, which may be telescopically extended, for urging the locking member into one of the locking positions. The locking member being guidingly mounted on the hinge pin and includes a projecting portion which extends through an opening in the flange portion of each member when the locking member is in a locking position. Each flange portion having at least two openings each one of which is adapted to be aligned with a mating opening of the other flange portion when the ladder stringers are in a predetermined angular position to receive the projecting portion of the locking member and thereby lock the two ladder stringers in a predetermined angular position relative to each other.

3,811,152
MACHINE FOR SEPARATING A SHOULDER FROM A FOREQUARTER OF MEAT
Jean Frederic Herubel, Guebwiller, France, assignor to N. Schlumberger & Cie., Guebwiller, France
Filed July 14, 1972, Ser. No. 272,069
Claims priority, application France, July 23, 1971, 71.27020
Int. Cl. A22c *5/20*
U.S. Cl. 17—1 R **6 Claims**

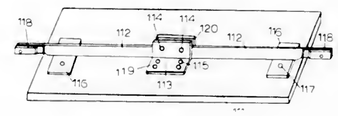


The machine essentially comprises : a frame, means for suspending a quarter of meat by the shank, a cutting-tool for separating the shoulder from the remainder of the quarter, means for guiding and raising and lowering said cutting-tool, means for positioning and maintaining the quarter of meat in a predetermined position in which the hollow portion at the junction of the shoulder with the remainder of the quarter is located immediately beneath the cutting-tool in the top position, and separating means whereby the remainder of the quarter is separated from the shoulder which is held by suspension means, progressively as the action of the cutting-blade takes place

---

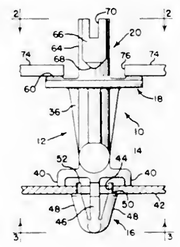
3,811,153
CLAM OPENER
Russell S. Rizzo, N.E. 37 Lincoln St., North East, Pa.
Filed Oct. 10, 1972, Ser. No. 296,283
Int. Cl. A22c *29/00*
U.S. Cl. 17—76 **1 Claim**

An opener for clams, made up of a platen in the form of a platelike member. Two L-shaped members fixed to the platen in spaced relation to each other, and two blades are swingably connected to a bracket on the platen. The blades are pivoted between two L-shaped bracket members and extend in opposite directions. A handle on each blade overlies the edge of the platen and a stop plate is disposed at each end of the platen and supported on the platen adjacent the handles so



that the blades engage the stop plate and prevent the blades from engaging the platen so that clams can be supported on the platen and opened beneath the blades.

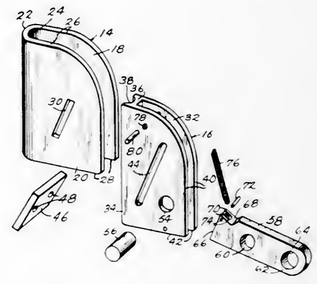
3,811,154
PANEL MOUNTING FASTENER
Richard Jay Lindeman, 2815 N. 72nd Ct., Elmwood Park, Ill., and August Pestka, 1528 Grove Ave., Park Ridge, Ill.
Filed Feb. 26, 1973, Ser. No. 335,629
Int. Cl. A44b *21/00, 17/00*
U.S. Cl. 24—73 P **7 Claims**



A one-piece, rotatable plastic fastener for supporting the edge of at least one panel in spaced relation to an apertured support including positive snap retaining means for rotatable maintenance of the fastener in installed position in the apertured support with shelf-like flange means for supporting the edge of the panel in parallel spaced relation to the support and wing means for locking the panel against the flange.

3,811,155
ROPE GRAB ASSEMBLY
Lawrence R. Stafford, 8 Gracemore St., Albany, N.Y.
Filed June 21, 1972, Ser. No. 264,877
Int. Cl. F16g *11/00*
U.S. Cl. 24—115 G **5 Claims**

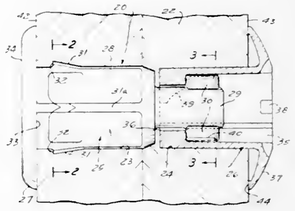
The disclosure relates to a line or cable gripping device of the releasable type used to support a load at a desired point along the line and includes first and second bracket plate members that are U-shaped in cross-section; the second bracket member has dimensions such that it can be slidably positioned within the first bracket member; the bracket members are each formed with pairs of alignable slots for receiving a key member; the slots of the second smaller, bracket member are elongated relative to the slots of the first larger, bracket members so that, when the key member occupies the slots of the bracket members, the direction of sliding motion of one bracket number relative to the other is defined by the position of the slots of the smaller bracket member and the surface of the key member. A lever is pivotably mounted in the second bracket member and spring means are provided for



biasing the lever into engagement with the key member whereby the connecting portions of the two U-shaped bracket members will be maintained in a line gripping position relative to one another.

3,811,156
Patent Not Issued For This Number

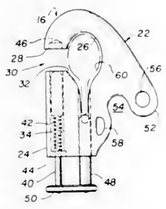
3,811,157
TAMPER-PROOF FASTENER
Peter Schenk, West Islip, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.
Filed Oct. 26, 1972, Ser. No. 301,232
Int. Cl. A44b *17/00*
U.S. Cl. 24—221 R **6 Claims**



A tamper-proof fastener adapted to fasten at least two panels together with the panels positioned to form an exterior surface and an interior surface and the panels having aligned openings therein to receive the fastener. The fastener includes a stud and a receptacle both of which are adapted to be partially extended into the openings in the panels. At least one laterally extending prong is on one of the stud and the receptacle and a corresponding cam surface terminating in a locking detent is on the other of the stud and the receptacle so that when the stud and the receptacle are positioned in the openings and rotated with respect to one another in one direction the prong will engage with and follow the cam surface into the locking detent. Thereafter, release of one of the

stud and the receptacle will permit only rotation of both the stud and receptacle together. To disassemble, the receptacle is rotated with respect to the stud in a second direction until the prong is moved from the detent over the cam surface to the disengagement position.

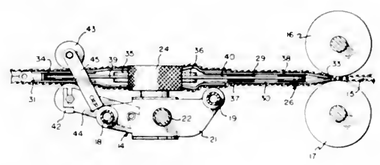
3,811,158
SYSTEM FOR RAISING SAILS
Francis Gerard Merser, 33 Grove St., Framingham Center, Mass.
Filed Dec. 26, 1972, Ser. No. 318,184
Int. Cl. A44b *13/02*
U.S. Cl. 24—239 **10 Claims**



A system for raising sails on a stay including a plurality of shackles having an eye and movable bolt attached to said sail and adapted to be hooked about the stay. A tubular sleeve adapted to be inserted within the eye of the shackle. The sleeve has a slot arranged to be aligned with the opening in the eye whereby the sleeve and shackle are simultaneously placed over the stay. The sleeve and shackle having cooperating means adapted to open and close the bolt of the shackle on movement of the shackle along the sleeve.

3,811,159
METHOD AND APPARATUS FOR SPREADING TUBULAR KNITTED FABRIC
Andrew P. Cecere, Valley Stream, N.Y., assignor to Samcoe Holding Corporation, Woodside, N.Y.
Division of Ser. No. 101,312, Dec. 24, 1970, Pat. No. 3,685,108. This application July 19, 1972, Ser. No. 273,026
Int. Cl. D06c *5/00*
U.S. Cl. 26—55 R **6 Claims**

The invention is directed to a new spreader-propeller arrangement for handling tubular knitted fabrics in a manner to eliminate marking of the fabric or at least to effect a significant reduction in fabric marking. The new apparatus includes a spreader frame which is received internally of a tube of knitted fabric and is arranged to distend the tube laterally to a flat, two-layered form having a predetermined width. The spreader frame includes belts and pulleys which engage the internal edge walls of the fabric and cause it to be advanced in the desired direction. Driving of these belts and pulleys is effected through edge drive rolls located on the exterior of the fabric and acting through the fabric edge walls. The invention resides in the provision of an arrangement for supporting the weight of the spreader frame and fabric by means of a small upward vertical component of the driving force of the edge drive rolls, rather than by physical confinement of the spreader frame as has been conventional heretofore, thereby eliminating an important cause of fabric marking. The edge drive rolls of the new apparatus are of cylindrical configuration, as are the spreader frame pulleys with which they cooperate, and the invention provides for vertical supporting of the spreader frame by effecting a controlled misalignment of the rotational axes of the edge drive rolls relative to the spreader pulleys. The desired misalignment is effected by tilting of the spreader frame relative to the edge drive rolls, with

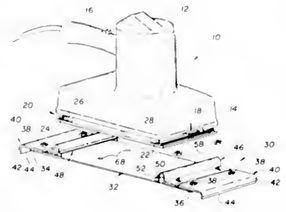


the result that, when the edge drive rolls are operated, a slight upward force component is imparted to the spreader frame, sufficient to support the weight of the frame and the fabric passing thereover.

The spreader frame of the invention also incorporates a special combination of hard, cylindrical rolls, selected ones of which are provided with a patterned surface configuration, with the surprising and highly advantageous result of greatly minimizing fabric marking.

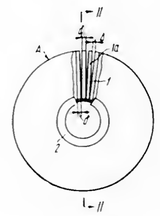
The invention includes other significant features, such as low-friction surfacing at critical points, all to the end that delicate and sensitive fabrics may be processed with a practical minimum of process marking from the spreading stage.

3,811,160
SANDER SCRAPING ATTACHMENT
Alfred P. MacDonald, 601 Montauk Hwy., Bay Shore, N.Y.
Filed Mar. 29, 1973, Ser. No. 345,897
Int. Cl. B23d *67/00, 71/00*
U.S. Cl. 29—76 A **2 Claims**



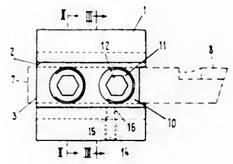
A vibrating-type sander on which an attachment is mounted which advantageously uses the vibratory motion thereof to provide surface-scraping service in addition to usual sanding operation of the unit.

3,811,161
ROTARY CUTTING TOOL
Viktor Samsonovich Salukvadze, 5 Parkovaya, 42, kv. 53, Moscow, U.S.S.R.
Continuation of Ser. No. 239,507, March 30, 1972, abandoned. This application Apr. 9, 1973, Ser. No. 349,081
Claims priority, application U.S.S.R., May 10, 1971, 1662886
Int. Cl. B23p *25/00*
U.S. Cl. 29—81.H **26 Claims**



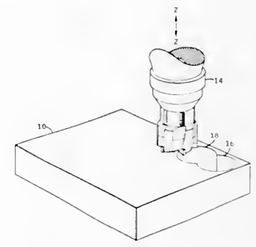
Radially arranged clastic cutting elements of the tool are fixed to one another with one of their ends, in a close proximity to which said cutting elements are forced against one another with their side surfaces, while with their opposite free ends said cutting elements adjoin the tool common cutting surface which is shaped as a surface of revolution; said free ends of the cutting elements, when in free state, are spaced on said common cutting surface some distance apart so that within the zone where the adjacent free ends of the cutting elements come in contact with each other due to one of them being deflected at the moment of cutting, said distance has the value which, when taken as the average one for all such distances in the tool, is less than the thickness of the cutting element nearby the fixed end thereof.

3,811,162
CLAMPING HOLDER FOR A CUTTING TOOL
Otto Bay, Luzernstrasse 351, CH-4553 Subingen, Switzerland
Filed Mar. 14, 1972, Ser. No. 234,569
Claims priority, application Switzerland, Mar. 16, 1971, 3847/71
Int. Cl. B26d *1/02*
U.S. Cl. 29—96 **1 Claim**



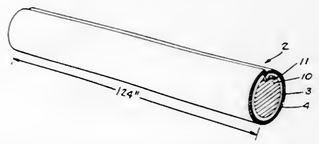
A clamping holder comprising an elongated groove of dovetailed cross-section for lengthwise accommodation of the square steel bar of a cutting tool to be clamped therein, and comprising a wedge-like liner of U-shaped cross-section placed with transversal play in the groove and adapted to embrace the tool bar on three longitudinal sides and pressing screws screwed in the liner for engaging the middle side among the embraced sides of the tool bar and urging the latter with its opposite longitudinal side into clamping engagement with the base surface of the groove, whereby the wedge-like flanks of the liner are adapted to press upon the two other longitudinal sides of the tool bar.

3,811,163
PLUNGE MILLING TOOL
Norman L. Frederick, San Diego, and Charles L. Bennett, Poway, both of Calif., assignors to General Dynamics Corporation, San Diego, Calif.
Filed Dec. 7, 1972, Ser. No. 313,035
Int. Cl. B26d *1/12*
U.S. Cl. 29—103 A **2 Claims**



A mill for deep removal of stock from a workpiece, such as machining pockets, wherein the mill cuts only in a Z direction. After reaching the desired depth, the mill is raised from the pocket and moved in an X or Y direction prior to plunging in for the next cut. A plurality of cutting blades is located on the face of the mill in such a way as to provide chip escape chambers up the inside of the mill, said chambers also serving to carry off the cutting fluid which is introduced to the pocket via a center bore in the mill, terminating at the face of the mill.

3,811,164
IRONER ROLL COVER AND METHOD
Sidney M. Faress, and Dallas C. Thomas, both of Hogansville, Ga., assignors to Uniroyal Inc., New York, N.Y.
Continuation-in-part of Ser. No. 220,947, Jan. 26, 1972, abandoned, Continuation-in-part of Ser. No. 293,966, Oct. 2, 1972, abandoned. This application May 16, 1973, Ser. No. 360,877
Int. Cl. B21b *31/08*
U.S. Cl. 29—128 **10 Claims**

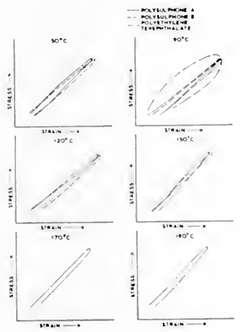


Disclosed is a cover for an ironer roll comprising a fabric one portion of which is impregnated with thermosetting resinous material, such as a phenolic resin, subsequently converted to thermoset form and another portion of which is unimpregnated. The unimpregnated portion of the fabric acts as a liner or padding for the impregnated portion while the impregnated portion serves as the work-contacting surface. Because the liner portion and the work-engaging portion of the cover are integrally formed from a single sheet of fabric, no seam or stitching is required for joining the two portions. Thus, the unevenness caused by a seam is eliminated and manufacturing costs are reduced.

Also disclosed is a method of making such a cover.

In a preferred embodiment, the cover embodies a narrow portion which is located between the unimpregnated liner or padding portion and the impregnated work-engaging portion and impregnated to a considerably less extent than the work-engaging portion whereby it provides a transitional zone between the unimpregnated portion and the work-contacting portion.

3,811,165
CALENDER ROLLS
Kenneth Irwin Sherrard-Smith, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England
Filed July 24, 1972, Ser. No. 274,426
Claims priority, application Great Britain, July 30, 1971, 35974/71
Int. Cl. B21b *31/08*
U.S. Cl. 29—132 **9 Claims**



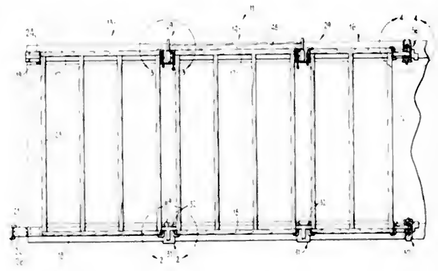
Calender roll made from a rigid core on to which are assembled a plurality of discs of an aromatic polysulphone film held together in axial compression.

3,811,166
METHOD OF MAKING SPLIT METAL PACKING RINGS
Grigory Mikhailovich Zabolotsky, Karamyshevdksya naberezhnaya, 24, kv. 27; Vladimir Mikhailovich Rakovsky, Ulitsa petrozavodskaya, 15, Korpus 1, kv. 65, both of Moscow; Sergei Alexandrovich Shuster, Krasnogorodsky raion, poselok Opalikha, ulitsa Leninskaya, 13, kv. 5, Moskovskaya Oblast, and Mikhail Vsevolodovich Boldyrev, Ulitsa putevoi proezd, 38, kv. 77, Moscow, all of U.S.S.R.
Filed Nov. 3, 1971, Ser. No. 195,190
Int. Cl. B23p *15/06*
U.S. Cl. 29—156.6 **2 Claims**



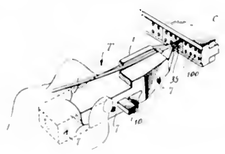
A circular ring blank is strained to impart radial springiness or resiliency thereto by way of a reduction (compression) of the opposite outer flat surfaces thereof on the sections adjacent to the cylindrical surface opposite to its cylindrical sealing surface. Maximum reduction force is applied to the outer flat surfaces that lie against the split and as far as half the width of the ring width, with the same being gradually decreased to zero on the outer flat surfaces adjacent to the ring split.

3,811,167
APPARATUS FOR SIMULTANEOUSLY FABRICATING PLURALITY OF WALL FRAMES
Fredric H. Schneider, 4521 Merrill Ave., Oakland, Calif.
Filed Dec. 5, 1972, Ser. No. 312,302
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 P **16 Claims**



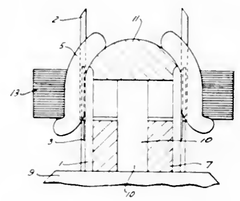
An apparatus for simultaneously fabricating more than one wall frame at a time is described. An assembly table defines a layout area having a length sufficient to accommodate a plurality of wall frames placed widthwise therealong. A pair of spaced guide rails extend longitudinally of the layout area respectively underneath the locations on the layout area for the top and bottom wall plates of the wall frames. Stops are provided at one end of the guides to define the first end of a first wall frame to be constructed on the layout area. Corner locating members ride on the guide and are positionable therealong at locations determined by the top and bottom plates of such first wall frame. Such corner elements also define corners for the first end of the next wall frame and thereby properly locate such wall frame on the layout area. Additional corner locating elements are also positionable on the guide rails to define the corners of the desired number of succeeding wall frames. The free corners of the last wall frame are defined by end wall corner locating members which are positionable by the plates of the last wall frame. Each of the end corner locating members includes a locking arrangement for securance of the same in place on its associated guide to thereby provide on the layout area a rigid assembly of wall frames for nailing.

3,811,168
POSITIVE LOCKING CONTACT INSERTION AND TESTING TOOL
James D. Anderson, Norwalk, and Ernest L. Cheh, Darien, both of Conn., assignors to Burndy Corporation, Norwalk, Conn.
Filed Dec. 29, 1972, Ser. No. 319,148
Int. Cl. H01r *43/00*
U.S. Cl. 29—203 H **10 Claims**



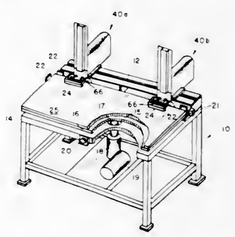
A tool for inserting a contact into a connector and for testing if the insertion is successful. The tool has first and second holding devices. The first holding device is active to test if the insertion of the contact into the connector is successful. The second holding member is for inserting the contact into the connector. A positive locking device is provided so that an operator cannot unintentionally release the first holding device, thereby insuring that the proper testing procedure is followed on each test cycle. The positive locking function results from forming keyways and keys on the first holding device and the positive locking device which interact to prevent release of the first holding device until a predetermined stress level is reached. The yielding stress level is maintained by a resilient device acting on the first holding device which releases a gripped object at an appropriate stress level. A gate device limits entry to the first holding device to insure the integrity of the testing cycle.

3,811,169
ARRANGEMENT FOR INSERTING PREFABRICATED COILS OF WIRE INTO THE SLOT OF ELECTRICAL MACHINES
Guenther Werner, Dresden, Germany, assignor to VEB Elektromat, Dresden, Germany
Filed Nov. 21, 1972, Ser. No. 308,471
Int. Cl. H02k *15/06*
U.S. Cl. 29—205 D **6 Claims**



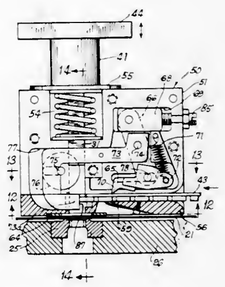
The arrangement includes a supporting structure and a plurality of elongated insertion guide units mounted on the supporting structure and arranged along the periphery of a circle for guiding prefabricated coils. The insertion guide units are spaced from each other in circumferential direction. Adjacent ones of the insertion guide units define between themselves elongated insertion guide slots adapted to receive prefabricated coils and adapted to register with the slots of the electrical machine into which the prefabricated coils are to be inserted. A stripper is mounted on the support structure for movement relative to the elongated insertion guide units, in the direction of elongation of the elongated insertion guide units, and is operative for pushing prefabricated coils in the insertion guide slots along the length of the insertion guide slots into the slots of the electrical machine into which the prefabricated coils are to be inserted. Adjacent insertion guide units comprise facing side wall portions together defining one of the aforementioned elongated insertion guide slots. The facing side wall portions are mounted for sliding movement relative to the supporting structure and also relative to the stripper in the direction of the elongation of the elongated guide slots. Thus, as the stripper pushes a prefabricated coil along the length of an insertion guide slot, wedging of the coil in the insertion guide slot will result in travel of the aforementioned side wall portions with the coil, thereby avoiding the damage which can result to a tightly wedged coil, particularly to the insulation thereof, when pushed by a stripper along the length of the respective insertion guide slot.

3,811,170
METHOD FOR SCREW-MOUNTING OBJECTS TO A WORK PIECE
Edward O. Klukos, 2855 E. Judson, Spring Lake, Mich.
Filed Sept. 21, 1972, Ser. No. 290,876
Int. Cl. B23p *19/00*
U.S. Cl. 29—429 **2 Claims**



A method for screw-mounting clips or other objects to the edge of a panel is practiced by a machine which includes a fixed housing in which is slidably mounted a main slide assembly including actuatable screw holding jaws at one end thereof. The main slide assembly further includes a screwdriver slide subassembly slidably positioned on the main slide assembly and to which is mounted a pair of powered screwdrivers. The machine includes clip dispensing means aligned with screw positioning means for receiving screws from supply chutes and positioning them for insertion. Means are provided for sequentially actuating the main slide, the screwdriver slide and the jaws for gripping the screws held by the screw positioning means and moving the jaws toward the panel. As the screws are advanced toward the panel, the screwdriver slide moves to preload the spring-loaded screwdriver shafts and the advancing screws capture a clip from the dispensing means and engage pilot holes in the panel. The screw holding jaws are then opened to permit the powered screwdrivers to drive the screws into the panel thereby mounting the clip thereto.

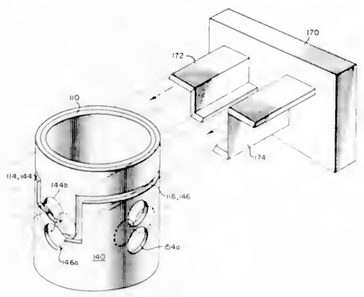
3,811,171
PIERCE NUT APPLYING TOOL
William L. Grube, Lake Bluff, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.
Division of Ser. No. 83,408, Oct. 23, 1970, abandoned. This application Feb. 23, 1973, Ser. No. 335,234
Int. Cl. B23p *19/04*
U.S. Cl. 29—208 D **10 Claims**



An apparatus for rapidly attaching pierce nuts to a sheet or panel which does not require completely new tooling for different designs of panels. The nuts are made from a strip of metal and are complete except that they are left attached to

one another and are thus predictably oriented. They are supplied to the attaching mechanism in rolled strip form. The attaching mechanism is a standardized unit enclosed in a single housing which automatically locates the end nut of the strip over the workpiece panel, severs the nut from the strip, pierces the panel with the nut and clinches the nut to the sheet while, if desired, embossing the sheet at the opening made therein by the nut. As many such standardized nut attaching units may be used simultaneously in a single punch press as are required, the tooling to be used comprising mainly means for locating the units relative to the panel in the punch press.

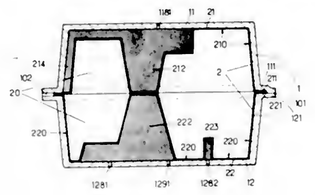
3,811,172
METHOD OF MANUFACTURING FLEXURE HINGE ASSEMBLY
Donald J. Bilinski, Randolph Township, Dover, N.J., and Leon Weisbord, New York, N.Y., assignors to The Singer Company, New York, N.Y.
Division of Ser. No. 28,592, April 15, 1970, Pat. No. 3,700,289. This application July 28, 1972, Ser. No. 276,024
Int. Cl. B23p *9/00*
U.S. Cl. 29—445 **4 Claims**

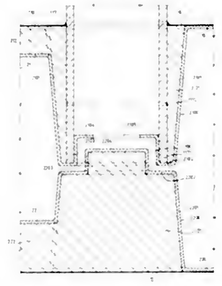


A flexure hinge assembly wherein a pair of fixed telescoped tubular members are provided, each having one or more pairs of axially spaced slots extending through their walls, the ends of one slot of each pair terminating a predetermined circumferential distance from the corresponding ends of the other slot of the same pair to form at least two flexure portions between the ends. The flexure portions of one of the tubular members extend parallel to the axes of the members, and the flexure portions of the other tubular member extend perpendicular to the axes of the members. A method of manufacturing a flexure hinge assembly.

3,811,173
METHOD OF MANUFACTURING TANKS FOR LIQUIDS
Bernard Baumann, 15 Avenue de Friedland, Paris 8e, France
Filed Apr. 24, 1972, Ser. No. 246,856
Claims priority, application France, Apr. 26, 1971, 71.14842
Int. Cl. B23p *3/00, 19/04*
U.S. Cl. 29—460 **3 Claims**

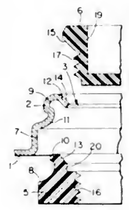
This invention is addressed to a method for the manufacture of mobile tanks for liquids wherein the tanks are equipped with at least one stabilizer or baffle and the tanks are formed of a metal outer wall, a plastic inner wall and a core of plastic foam in which the metal outer wall and a pre-formed plastic inner wall having a portion corresponding to the inner surface of the outer wall and a portion defining at least one baffle are positioned such that the portion of the inner wall corresponding to the inner surface of the outer wall is in surface contact therewith whereby the portion of the inner wall defining the





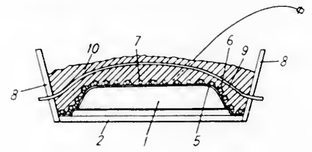
baffle defines a substantially closed space between the inner and outer walls, and a foamable plastic material is supplied to the space to substantially fill the space with a plastic foam.

3,811,174
METHOD OF ASSEMBLING CLOSURE MEMBER FOR METAL CONTAINERS
John W. Eichinger, Sharpsville, Pa., assignor to Buckeye Forge Division - Gulf & Western Industrial Products Company, Grand Rapids, Mich.
Division of Ser. No. 107,165, Jan. 18, 1971, Pat. No. 3,757,986. This application Feb. 1, 1973, Ser. No. 328,533
Int. Cl. B23p *11/02*
U.S. Cl. 29—453 **3 Claims**



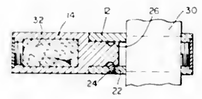
A closure member for a metal container comprising a plastic sleeve member or spud snapped into an opening in the metal container and a plastic plug removably received within the sleeve member. The sleeve member or flange has a radially projecting shoulder at one end which extends into an annular groove in an embossment on the metal container surrounding the opening therein. During insertion of the sleeve member or flange into the container opening, the radial shoulder is bent radially inwardly by the smaller diameter surface of the embossment adjacent the annular groove therein to permit movement of the radial shoulder therepast, after which the radial shoulder returns to its original shape where it is confined within the annular groove, locking the sleeve member in place. An axially and radially inwardly tapered lip on the embossment overlies the radial shoulder on the sleeve member providing a tapered bearing and sealing surface for sealing engagement by an annular shoulder on the plug when tightened in the sleeve member.

3,811,175
METHOD OF MAKING A SPLIT MOLD
Paul Johnson Garner, Thorpe Bay, and Thomas Robert Stephen Collins, Letchworth, both of England, assignors to Imperial Chemical Industries Limited, London, England
Continuation-in-part of Ser. No. 886,690, Dec. 15, 1969, abandoned. This application Oct. 30, 1972, Ser. No. 301,711
Int. Cl. B29c *1/02*
U.S. Cl. 29—464 **11 Claims**



A method of making a split mould having two halves for use in injection moulding. The first mold half is made by applying reinforcing material in the space between a metal shell insert and a positioned locating means. The second mould half is made by positioning a second locating means in engagement with the first locating means, engaging the metal shell of the first mould half with a positioned second metal shell insert so that a mould cavity is defined, filling the mould cavity with liquid reinforcing material, and curing the reinforcing material.

3,811,176
METHOD FOR ASSEMBLING POSTS AND RAILS
William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.
Division of Ser. No. 229,264, Feb. 25, 1972, Pat. No. 3,741,595. This application Nov. 13, 1972, Ser. No. 306,373
Int. Cl. B23p *21/00*
U.S. Cl. 29—469 **3 Claims**

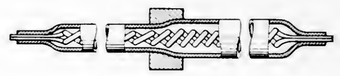


Handrails and posts are adjustably assembled by means of a rotatably adjustable pierced fitting having a general shape longest in a direction that is perpendicular to both the handrail and post at the same time. The fitting permits adjustment both for height and pitch and has separate means to allow the longitudinally extending posts and handrails to be slid to various positions and then fixed with respect to a portion of the fitting. Means are also disclosed for temporarily fixing the relative position of the posts, handrails and fitting pieces and then rotatably adjusting them, and then permanently fixing their position.

3,811,177
PROCESS FOR BRAZING WORKPIECES OF ALUMINUM CONTAINING MATERIAL
Heinz Schoer, Alfter, and Werner Schultze, Bonn, both of Germany, assignors to Vereinigte Aluminium-Werke Aktiengesellschaft, Bonn, Germany
Continuation-in-part of Ser. No. 98,173, Dec. 14, 1970, abandoned. This application Aug. 29, 1972, Ser. No. 285,100
Claims priority, application Germany, Dec. 15, 1969, 1962760; June 11, 1970, 2028683; Sept. 2, 1971, 2143965
Int. Cl. B23k *31/02, 35/38*
U.S. Cl. 29—494 **14 Claims**

A process for brazing aluminum-containing work-pieces wherein the brazing filler metal contains components which lower the surface tension and the viscosity of the molten brazing filler metal, and which lower the interfacial tension between the brazing filler metal and the aluminum-containing work-pieces. Useful components are Bi, Sr, Ba, Sb and Be. The brazing filler metal may be used with or without flux.

3,811,178
METHOD FOR THE MANUFACTURE OF CORED WIRE
Abram Lvovich Tarnavsky, ulitsa Mayakovskogo, 21-a, kv. 87, and Nail Khabibrakhmanovich Goloveev, prospekt Lenina, 1, kv. 101, both of Magnitogorsk, U.S.S.R.
Filed Apr. 8, 1971, Ser. No. 132,540
Int. Cl. B21d *39/00;* **B23p** *11/00*
U.S. Cl. 29—517 **7 Claims**

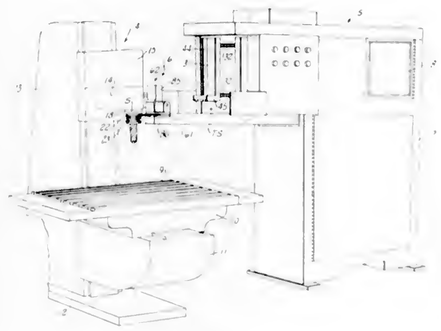


A method of manufacturing cored wire using materials of different plasticity for the core and its surrounding wire, in which blanks which are to be drawn are produced in the process, the blanks being formed of an outer tubular sheath of the material of which the surrounding wire is to be formed, and a coaxially placed elongated center core in the form of a helical core member; the method is characterised in that the helical core outer diameter-to-tubular sheath internal diameter ratio is not greater than 1:3.

3,811,179
TOOL CHANGER
William T. Anderson, Arlington Heights, Ill., assignor to Do All Company, Des Plaines, Ill.
Filed July 16, 1971, Ser. No. 163,268
Claims priority, application Great Britain, Aug. 14, 1970, 39348/70
Int. Cl. B23q *3/157*
U.S. Cl. 29—568 **19 Claims**

An automatic tool changer in which tools carried by an indexable magazine are brought to a tool transfer station, from which a first one of two indepentently pivoted transfer arms of a tool transfer mechanism takes the tool from the magazine and — by X axis translation of the transfer mechanism — carries that tool to a tool-ready position close to the spindle, but held in an inverted position. Upon completion of the operation being performed by the tool in the spindle, and stopping of the spindle, the transfer mechanism is given Y axis translation and additional X axis translation, to bring the pivot axis of the two transfer arms to a spindle transfer position in which the second transfer arm is in position to swing in an arc tangent to the spindle axis, so that — upon 180° of such swinging motion — this second transfer arm is brought into position to grasp the tool in the spindle and, by swinging in the opposite direction, withdraw the tool from the spindle and hold it in an inverted position. Upon movement of the transfer mechanism

back to its tool ready position, it undergoes Y axis translation to bring the first transfer arm into alignment with the spindle, so that — upon X axis translation of the transfer mechanism



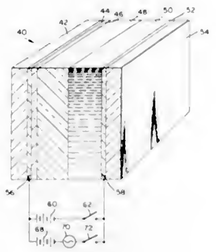
toward the spindle to the spindle transfer position — the first transfer arm carrying the tool it had removed from the magazine can be swung about its pivot axis to insert the tool in its grasp into the spindle.

3,811,180

METHOD OF MANUFACTURE OF LIQUID CRYSTAL DEVICE

Morris Braunstein, Marina Del Rey, and William P. Bleha, Jr., Pacific Palisades, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 198,281, Nov. 12, 1971, Pat. No. 3,732,429. This application Jan. 22, 1973, Ser. No. 325,281
Int. Cl. B01j *17/00*
U.S. Cl. 29—572 **10 Claims**



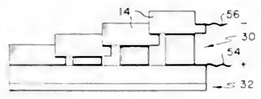
The process for producing the liquid crystal device includes the steps of coating a high impedance material, such as evaporated zinc sulfide, onto a conductive coating supported upon the glass cover plate of the liquid crystal device. Next, the photoconductor layer of e.g. cadmium sulfide is vacuum-deposited. These layers are subjected to post-deposition thermal processing in the form of heat-treating in a substantially hydrogen sulfide atmosphere. Following thermal processing, the liquid crystal layer and the second cover plate are installed to complete the device.

3,811,181

NEW APPROACH TO SHINGLING OF SOLAR CELLS

Charles Z. Leinkram, Bowie, Md., and William D. Oaks, Midland, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 239,869, March 31, 1972, Pat. No. 3,769,091. This application Aug. 27, 1973, Ser. No. 391,101
Int. Cl. B01j *17/00*
U.S. Cl. 29—572 **2 Claims**



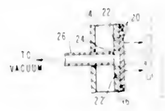
A method of mounting solar cells in an array in which the cells are arranged on thermally conductive but electrically insulative wafer and promiences so that they overlap each other in a shingled structure but their bottom surfaces are supported and remain parallel to the top surface of the mounting wafer, the array structure permitting series wiring of the cells and providing a rugged structure having a thermally conductive path from the solar cells through the mounting elements.

3,811,182

OBJECT HANDLING FIXTURE, SYSTEM, AND PROCESS

William J. Ryan, Sr., Jericho; Edward F. Schirmer, South Burlington; Nandor G. Thoma, Jericho; James H. Tolley, Essex Center, and Donald L. Wilder, Colchester, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1972, Ser. No. 240,018
Int. Cl. B01j *17/00*
U.S. Cl. 29—574 **9 Claims**



A system for handling an oriented array of objects, such as integrated circuit chips, includes a fixture in which the chips are held in place by vacuum means. A chip placement tube is capable of reciprocal motion normal to the plane of the fixture to move a chip unidirectionally from its position in the array for placement on a substrate. The system further includes means for positioning a substrate precisely with respect to a chip in the array to allow its direct placement from the array. This fixture and system allows the precise orientation and alignment of semiconductor chips in a wafer to be maintained for laser dicing and chip positioning on a substrate without requiring reorientation. When combined with testing and inspection apparatus and a suitable memory, the system further allows handling and processing of chips to be minimized.

3,811,183

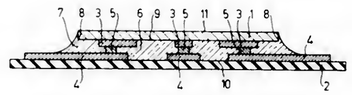
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE AND SEMICONDUCTOR DEVICE MANUFACTURED BY THE METHOD

Wolter Geppienus Celling, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 27, 1972, Ser. No. 221,164
Claims priority, application Netherlands, Feb. 5, 1971, 7101601
Int. Cl. B01j *17/00*
U.S. Cl. 29—588 **3 Claims**

The invention relates to a method of manufacturing a semiconductor device in which a conductive pattern of a semiconductor body which is, for example, reinforced, is connected to a conductive pattern of a substrate by so-called "face-down-bonding."

According to the invention, this connection can be mechanically reinforced by introducing a liquid in the aperture between the semiconductor body and the substrate, after having connected the latter together. The liquid is then hardened. The hardening of the liquid and the passivation of the semiconductor body are then obtained simultaneously by the use of certain silanes.

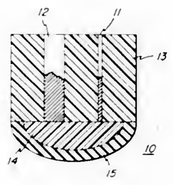


3,811,184

SENSOR AND METHOD OF MANUFACTURE

Leonard W. Niedrach, and William H. Stoddard, Jr., both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 80,902, Oct. 15, 1970, Pat. No. 3,703,457. This application July 21, 1972, Ser. No. 273,844
Int. Cl. H01m *9/04*
U.S. Cl. 29—592 **6 Claims**



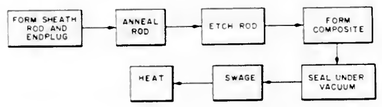
A sensor has a rigid electrically insulating matrix, at least a pair of generally parallel, elongated electrodes embedded in the matrix, the electrodes electrically insulated from each other by the matrix material and opposite ends exposed, an anion exchange resin electrolyte contacting the exposed ends of the electrodes at one end of the matrix and an outer sheath of diffusion barrier material encapsulating at least the electrodes and the electrolyte. Methods of manufacturing such sensors are also described.

3,811,185

METHOD FOR ENHANCING V_3 GA THIN FILM GROWTH

David G. Howe, Greenbelt, Md., and Russell A. Meussner, Washington, D.C., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 23, 1973, Ser. No. 344,402
Int. Cl. H01v *11/14*
U.S. Cl. 29—599 **7 Claims**



A process for enhancing the growth of A15 intermetallic superconductors which removes impurities that are likely to form diffusion barriers impeding growth.

3,811,186

METHOD OF ALIGNING AND ATTACHING CIRCUIT DEVICES ON A SUBSTRATE

John D. Larnerd, Vestal; Donald M. McGarigle, Binghamton, and Carl E. Samuelson, Johnson City, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 11, 1972, Ser. No. 314,056
Int. Cl. H05k *3/30*
U.S. Cl. 29—626 **14 Claims**



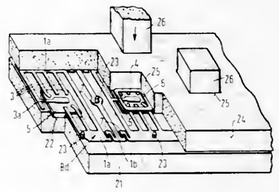
Method for aligning and supporting micro-circuit devices on substrate conductors during attachment thereto in which shaped, flexible, insulative material is placed between the devices and their respective conductors to support heat fusible terminals of the devices in alignment with mating heat-fusible conductor lands during formation of the respective fused connections. The insulative material can be of selected thickness to support the non-attached terminals either in contact or out of contact with their mating lands. When the circuit devices are held out of contact with their lands, the supporting material, being of plastic character, softens during heating to allow contact during the joining of the fusible connections and, upon cooling, returns to a thicker state to elongate the fused connections.

3,811,187

METHOD FOR MASS PRODUCTION OF HOUSINGS FOR SEMICONDUCTOR DEVICES PROVIDED WITH REQUIRED CONNECTING TERMINALS

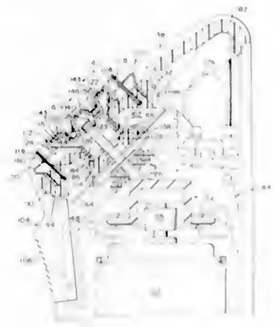
Burkhart Diel; Kurt Gregor, and Walther Huber, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Division of Ser. No. 67,079, Aug. 26, 1970. This application June 22, 1972, Ser. No. 265,169
Int. Cl. H01r *9/00*
U.S. Cl. 29—630 R **10 Claims**



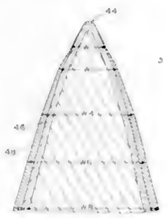
A sheet of electrical contact metal having a pair of substantially planar surfaces is perforated with perforations forming a pattern of spaced individual tongues extending inwardly toward a central area of the pattern in the plane of the sheet. A housing bottom of sinterable insulating material is positioned on one planar surface of the perforated sheet over the pattern of tongues in the central area of the pattern. A lower housing frame portion of insulating material is positioned on the other planar surface of the perforated sheet directly opposite the housing bottom over the pattern of tongues in the central area of the pattern. The housing bottom and the housing frame portion are sintered to hermetically seal the pattern of tongues between the housing bottom and the housing frame thereby forming a box-like lower housing portion with the free ends of the tongues in the central area of the pattern positioned in mutually insulated relation at the bottom of the housing portion.

3,811,188
SHAVER WITH REMOVABLE HEAD
J. Edward Brenneman, and Robert S. Waters, both of Lancaster, Pa., assignors to Schick Incorporated, Lancaster, Pa.
Filed Oct. 10, 1972, Ser. No. 295,893
Int. Cl. B26b *19/46, 19/42, 19/06*
U.S. Cl. 30—34 R 18 Claims



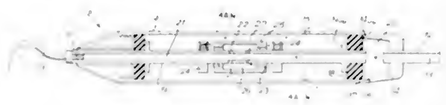
An electric shaver particularly adaptable for use as a lady's shaver, having a detachable pop-out shaving head which is snugly positioned between fixed end walls. The detachable shaving head includes an integral base having a slot into which an outer cutter is releasably secured. The entire head assembly is pivotally released from between the end walls by a user operated head ejector which causes the head to pivot about axes perpendicular to said end walls. In a preferred embodiment, the shaving head includes rows of brushes extending along both sides of the cutter. Also, in a preferred embodiment, the head portion of the shaver includes a special lighting assembly adjacent the shaving head for illuminating the skin adjacent the shaver.

3,811,189
PROCESS FOR PRODUCING AN IMPROVED CUTTING TOOL
Aiyaswami S. Sastri, Stow, Mass., assignor to The Gillete Company, Boston, Mass.
Division of Ser. No. 161,159, July 9, 1971, Pat. No. 3,761,373.
This application Mar. 19, 1973, Ser. No. 342,754
Int. Cl. B26b *21/54*
U.S. Cl. 30—346.53 5 Claims



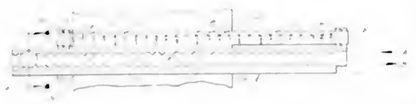
The sharpened edge of a cutting implement such as a razor blade is modified by depositing a layer of dielectric material on the cutting edge and then depositing a layer of electrically conductive material on the dielectric layer and then subjecting the cutting edge to DC ion bombardment so that a portion of the deposited electrically conductive material is removed and the dielectric material is exposed at the tip of the implement.

3,811,190
AIR-VIBRATOR DENTAL SCALER
Anthony T. Sertich, 345 86th St., Brooklyn, N.Y.
Filed May 29, 1973, Ser. No. 364,348
Int. Cl. A61c *3/08*
U.S. Cl. 32—56 17 Claims



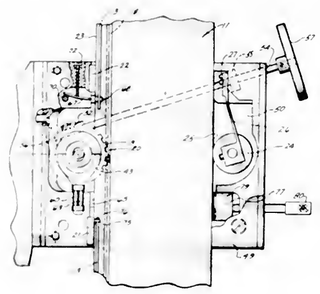
In a preferred embodiment of the invention, a dental scaler for the cleaning of teeth in which the scraper is an air-driven vibrator having a scraper mounted on a distal end of a rigid tubular device, with the rigid tubular device being mounted within a resilient support permissive of vibrations of the rigid tubular device and the vibrations of the tubular device being brought about by the exiting of air onto an air-cushioned rotary wheel mounted around the tubular device rotatably, the rotation thereof resulting from the force of the air from preferably a plurality of ports permitting the air to air to exit from the ports against the inner surface of the air rotary wheel, and the rotation of the rotary wheel being about the vibrations which are imparted to the rigid shaft, while the firmly supported tubular shaft within the resilient support structure thereof itself amplifies the magnitude of the vibrations by itself vibrating and transmitting its vibrations back to the rotary wheel, the outlet ports from the tubular device being angled laterally sidewardly in a direction transverse to the longitudinal axis of the tubular device in a preferred embodiment, as well as the ports being angled in an axial direction relative to the longitudinal axis of the tubular device thereby enhancing the optimal flow of air from within the tubular device into the space between the exterior surface of the tubular device and the inner radius surface of the air wheel and preferably also there being similar angular passages between the tubular device and the outlet portions of the air wheel at end-points of the air wheel axially.

3,811,191
ELASTIC SCALE INSTRUMENT
Michael J. Kelly, P.O. Box 36195, Cincinnati, Ohio
Filed Jan. 22, 1973, Ser. No. 325,314
Int. Cl. G01b *3/08*
U.S. Cl. 33—137 L 8 Claims



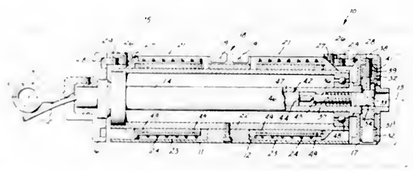
An elastic scale instrument for dividing the distance between two points on an object into a desired number of equal length subdivisions. The instrument comprises an elongated base capable of being placed along the object with its long axis in parallel relationship to a straight line between the above mentioned two points. An elongated slide is slidably mounted on the base and is shiftable axially and longitudinally of the base long axis between a retracted position and an extended position with respect to the base. An elastic scale is affixed at one end to a mounting post on the base and at its other end to a mounting post on the slide and is adapted to lie along the straight line between the above mentioned two points. Indicia marks are equally spaced along the elastic scale. The elastic scale is stretchable between a normal condition when the slide is in its retracted position and a fully stretched condition when the slide is in its extended position. Means are provided to lock the slide with respect to the base at any desired condition of the elastic scale between and including its normal and fully stretched conditions.

3,811,192
HEIGHT GAUGE
Wynn L. Christensen, Yorba Linda, Calif., assignor to Readx Inc., Garden Grove, Calif.
Filed Apr. 26, 1972, Ser. No. 247,646
Int. Cl. G01b *5/00*
U.S. Cl. 33—170 15 Claims



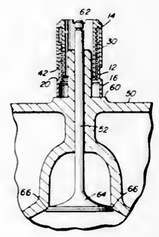
A height gauge has a slide mounted on a staff for vertical travel. A continuous band is driven by the slide and yields a direction and magnitude signal to a read-out circuit. A rack gear on the staff engaged by a pinion on the slide provides for fine adjustment of the slide. Coarse adjustment is facilitated and effected by releasing the pinion from its drive so that it idles along the rack during vertical movement of the slide.

3,811,193
TUBE RADIUS MEASURING METHOD AND DEVICE
Willard Emanuel Rapp, Franklin Township, Somerset County, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Apr. 21, 1972, Ser. No. 246,209
Int. Cl. G01b *5/12, 19/72*
U.S. Cl. 33—178 R 19 Claims



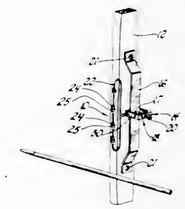
A new gauge provides a direct reading of the radial distance between the axis of a tube and a point of interest on the inner wall of the tube. A first position indicator member, in the form of a probe carrier, is centered within the tube by an exertion of spring forces of substantially equal spring constant radially outwardly from the probe carrier against the inner wall of the tube at a number of positions spaced angularly about the axis of the tube. A balancing of reaction forces, thus, locates the probe carrier coaxially with the tube. Meanwhile, a reference point on a second member, in the form of a probe supported by the probe carrier, is contacted with the point of interest on the inner wall of the tube. An electrical signal, having a voltage proportional to the displacement of the reference point on the probe from the axis of the probe carrier, is generated, the signal voltage thereby indicating the radial dimension of interest.

3,811,194
VALVE STEM HEIGHT GAUGE
Frank C. Swift, deceased, late of Uvalde, Tex., and Viola Swift, executrix, Uvalde, Tex., assignors to Viola Swift, Uvalde, Tex.
Filed Jan. 6, 1972, Ser. No. 215,799
Int. Cl. G01b *5/02*
U.S. Cl. 33—181 AT 14 Claims



A valve stem height gauge adapted to seat on the engine head and to circumferentially surround a valve stem projecting through the head includes a hollow cylindrical sleeve element having an internally threaded reduced external diameter end portion, a hollow cylindrical jacket element having an externally threaded cylindrical member adapted to be threadably received within the reduced diameter portion and a shirt member circumferentially enclosing and depending from the upper end portion of the cylindrical member to define therewith an open bottom annular space for receiving the reduced diameter portion therein, and diametrically opposed, axially extending slots in the periphery of the upper end portion of the jacket element for aligning the end of the valve stem therewith. The elements of the gauge are adapted to be threadably movable in an axial plane to and away from each other thereby adjusting the overall length of the gauge. Indicia are provided on the elements to indicate the gauge length.

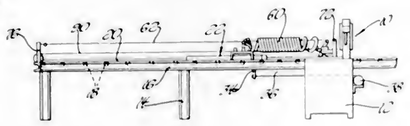
3,811,195
ARCHERY BOWSIGHT
Richard F. Carella, 35572 Strathcona, Mount Clemens, Mich.
Filed Nov. 16, 1972, Ser. No. 307,329
Int. Cl. F41g *1/46*
U.S. Cl. 33—265 7 Claims



An archery bow sight assembly constructed with sections of heat shrinkable tubing mounted on a wire filament. The use of heat shrinkable tubing as sighting indicators enables the indicators to be firmly secured to the wire at any position with the applicaiton of heat. Once secured, however, the indicators

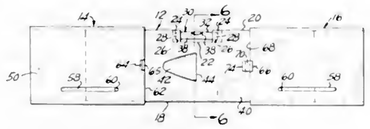
can be moved by grasping the section of tubing and applying sufficient force to break the bond for subsequent adjustment. After adjustment the section of tubing can again be heated and thereby firmly secured to the wire.

3,811,196
APPARATUS FOR MEASURING A WORK MATERIAL FOR CUTTING TO DESIRED LENGTHS
Henry G. Smith, 2944 Sundridge Dr., Troy, Mich.
Filed June 29, 1972, Ser. No. 267,666
Int. Cl. B27g *23/00*
U.S. Cl. 33—185 R **1 Claim**



A measuring stop guided for straight line reciprocal and biased movement towards a work tool, means for clamping the stop in a given position apart from the work tool, and a measuring tape having its starting end connected to the reciprocal stop and being extendable and retractable relative to the work tool and set to measure at the work tool the relative distance of the stop, in its clamped position, apart from the work tool.

3,811,197
CONTRACTIBLE LEVEL FOR ARTIFICIAL BREAST ALIGNMENT
Romayne T. Moore, 6988 Ready, Lot 8, and Lilliam E. Powelson, 21442 Audrey, both of Warren, Mich.
Filed Feb. 1, 1973, Ser. No. 328,759
Int. Cl. G01c *9/00*
U.S. Cl. 33—374 **6 Claims**



Mounted in a recess in the top of a horizontal elongated plate is a horizontal spirit level, the bubble of which is central when the upper face of the plate is horizontal. Slidably mounted upon the plate for extensibility relatively thereto are two tubular extension covers which are movable outward away from one another to increase the effective length of the device and movable inward toward one another to decrease its length for compactness of storage or carrying, as in a lady's purse and for protection of the spirit level from damage. The middle portion of the plate on one side thereof has a cavity therein and the two slidable extension covers are provided with a detent device which holds them together unless it is released by pressing the wall of the detent catch into the cavity to release it from the groove of the coacting detent latch. The extension covers are slotted to receive stop pins seated in the plate to limit their outward sliding and to prevent them from sliding off the plate.

3,811,198
METHOD AND DRYING CLOSET FOR DRYING LAUNDRY AND THE LIKE
Hans Baltes, Heideweg 21 a, 5841 Holzen, Germany
Filed May 22, 1972, Ser. No. 255,832
Claims priority, application Germany, May 21, 1971, 2125369; Oct. 6, 1971, 2149875
Int. Cl. F23b *3/50*
U.S. Cl. 34—24 **9 Claims**

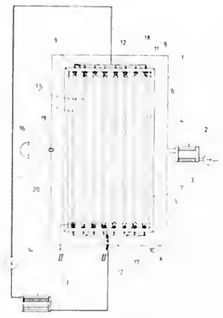


A method and apparatus for drying laundry or the like is provided with a cross flow of heated air issuing generally parallel to the laundry from a first vertical wall in planes generally parallel to the hanger rods for the laundry. A plurality of vertically spaced hanger rods are provided with the heated air being discharged from the plurality of air discharge means located vertically at the level of the respective hanger rods to direct the air substantially parallel across the tops of the rods with the air outlet means being at the lower end of the opposite vertical wall for moving air from the enclosed interior of the closet. In the preferred embodiment of the invention, the air is discharged from a back wall and the air is collected at the bottom of the front wall and then the collected air flows upwardly through a door of the closet to discharge at the top of the door. The hanger rods are preferably in the form of hanger grids which may be pivoted downwardly and which may be removed in order to provide space for large pieces of laundry hanging down from the uppermost hanger rods. Because of the large air throughput with the cross flow principle, the humidity of the exhausting air is kept sufficiently low to avoid annoyance to the environment surrounding the closet.

3,811,199
FREEZE-DRYING APPARATUS
Jean-Pierre Bouldoires, La Tour-De-Peilz, Switzerland, assignor to Societe D'Assistance Technique Pour Produits Nestle S.A., Lousanne, Switzerland
Filed Sept. 27, 1972, Ser. No. 292,828
Claims priority, application Switzerland, Sept. 30, 1971, 14196/71
Int. Cl. F26b *13/30*
U.S. Cl. 34—92 **13 Claims**

Freeze-drying apparatus comprising a chamber, means for maintaining a reduced pressure in the chamber, at least one tray defining a receptacle for product to be dried and including a plurality of electrically insulated parallel metallic partitions dividing the receptacle into compartments, means for supplying heat to the product to be dried, and at least one

device, for measuring the capacitance and/or the associated resistance of a condenser, connected to at least two of the partitions so as to measure the capacity and/or the associated resistance of a condenser the electrodes of which are constituted by the said partitions.



3,811,200
DRYING OF WOOD
Bror Olof Hager, Djursholm, Sweden, assignor to Hager Aktiebolag, Stockholm, Sweden
Filed Feb. 22, 1973, Ser. No. 334,938
Claims priority, application Sweden, Feb. 22, 1972, 2189/72
Int. Cl. F26b *3/00*
U.S. Cl. 34—9.5 **9 Claims**

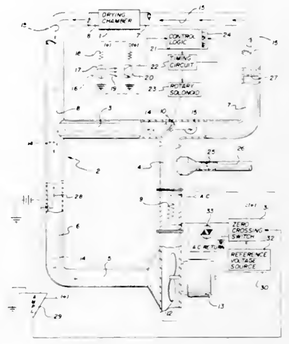
Wood in the piece, initially containing an undesirable amount of water (moisture) may rapidly yet safely be dried as follows: The wood is heated, in a closed container, under reduced pressure at a temperature not exceeding 90°C., in a bath of a water-immiscible drying medium having a boiling point above 150°C. but not above 250°C., for a period of some hours. In the operation, the extent of the partial pressure is adjusted to minimize distillation of drying medium whilst promoting evaporation of water from the wood.

To minimize "loss" of drying medium left in and on the treated wood, the wood may, after removal of the bath of medium from the container, be held for some time, under vacuum, in the container.

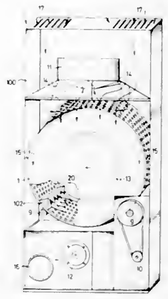
Steam-medium so driven off is conducted to a separate space where medium is separated from water and returned to the drying process.

3,811,201
APPARATUS FOR DRYING A PHOTOGRAPHIC MATERIAL
Dale S. Endter, and Edwin E. Miller, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 17, 1972, Ser. No. 307,754
Int. Cl. F26b *21/02*
U.S. Cl. 34—54 **6 Claims**

A drying apparatus is provided with a holding chamber, in which a heated gas is stored at a substantially constant temperature, and with a drying chamber, in which a photographic material can be located for drying by the heated gas. Gas supply and return ducts separately connect the holding and drying chambers. A blower is disposed for circulating the heated gas in the holding chamber and, alternately, for urging the heated gas from the holding chamber, along the supply duct, to the drying chamber and from the drying chamber, along the return duct, to the holding chamber. A valve is effective in a closed mode to cause such circulation of the heated gas by the blower and is effective in an open mode to cause such urging of the heated gas by the blower. A detector senses the presence of a photographic material in the drying chamber and, in response thereto, effects the open mode of the valve. After a sufficient period of time has elapsed to dry the photographic material in the drying chamber, a timing circuit effects the closed mode of the valve.

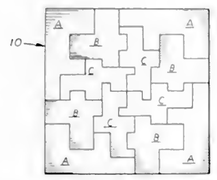


3,811,202
DRYER FOR TEXTILES
Hans F. Arendt, Bietigheim, Germany, assignor to Hans F. Arendt Maschinenbau, Bietigheim, Germany
Continuation of Ser. No. 163,389, July 16, 1971, abandoned. This application Apr. 9, 1973, Ser. No. 349,297
Claims priority, application Germany, July 18, 1970, 2035825
Int. Cl. F23b *11/02*
U.S. Cl. 34—133 **9 Claims**



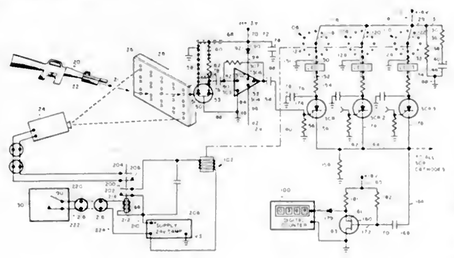
This disclosure teaches a dryer for textiles, particularly laundry from which a preliminary removal of water has been effected. A conventional perforated drum, through which heated air is passed and which is arranged for rotation about a horizontal axis, is provided with ribs on its inner cylindrical wall for tumbling and conveying axially the textiles being dried. The ribs have leading flanks engaging the textiles with angles α_1 preferably at least 20° formed with radii of the drum going through the apexes of the ribs. The ribs have slide plates on their lagging flanks, which slide plates are inclined by acute angles from the apexes of the ribs, so that they convey the goods axially. Rotation of the drum can be in a single sense or it may be reversible.

3,811,203
PUZZLE FOR PSYCHOLOGICAL TESTING
Susan Mayfield, 825 Crane Dr., Apt.103, De Kalb, Ill.
Filed Apr. 12, 1973, Ser. No. 350,310
Int. Cl. G09b *1/36*; A63f *9/10*
U.S. Cl. 35—22 R 7 Claims



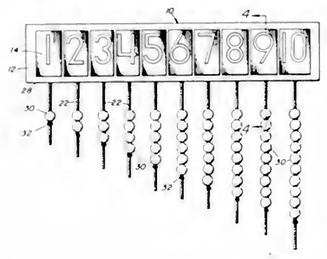
A psychological testing device in the form of a puzzle having a plurality of interrelated substantially flat jigsaw puzzle elements, the elements divided into a minimum of three sets with each set including a total of four puzzle pieces of an identical shape and size, the puzzle pieces of any one set being different from the puzzle pieces of any other set, and with the puzzle pieces within each set being interchangeable amongst themselves with each adapted to occupy any one of the number of preset positions intended for anyone of the puzzle pieces of the particular set, and to occupy only such positions so that when the puzzle pieces of all of the sets are properly placed together a square is formed. The number of possible solutions of the puzzle is equal to 4^n where the numeral 4 represents the total number of puzzle pieces in any one set, and the letter n represents the total number of sets in the puzzle.

3,811,204
PROGRAMMABLE LASER MARKSMANSHIP TRAINER
Albert H. Marshall, Maitland, and George A. Siragusa, Winter Park, both of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Mar. 22, 1973, Ser. No. 343,775
Int. Cl. A63f *9/02*
U.S. Cl. 35—25 8 Claims



A marksmanship training system employing a screen for viewing a program of slides of different battle scenes each with a target portion in the projected image oriented in relation to one or more of a plurality of light detectors supported behind the screen in a matrix and each capable of being actuated by a laser attached to a weapon being fired to actuate an associated hit indicating lamp and cumulative hit counter. A slide projector and a sequential detector switching means are simultaneously actuated from a common programming means to vary projected images and target areas located therein by sequentially projecting slides and sequentially varying connected light detectors.

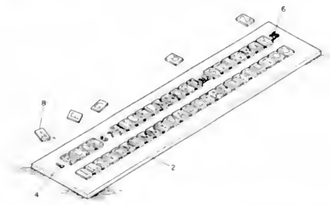
3,811,205
SENSORIAL COUNTING BOARD
Mary Ann Pitzler, 114 157th Ave., N.E., Bellevue, Wash.
Filed Jan. 22, 1973, Ser. No. 325,960
Int. Cl. G09b *19/02*
U.S. Cl. 35—32 3 Claims



A sensorial counting board or educational toy having an elongated board having vertically arranged, longitudinally spaced, areas of various colors on which are respective numbers from 1 – 10. These numbers are raised.

Depending from the board and below each number is a cord with beads slidably disposed thereon and prevented from removal by respective knots. The beads are variously colored and are all of the same size. The size of the hole through the beads are such that the beads will slide on the cords but the fit is snug enough so that the beads will be held on the cords to wherever they are moved.

3,811,206
DEVICE FOR TEACHING ALPHABETIC ORDER
Richard Gaccetta, 6646 E. 17th Ave., Denver, Colo.
Filed Mar. 5, 1973, Ser. No. 338,175
Int. Cl. G09b *1/06*
U.S. Cl. 35—35 H 2 Claims

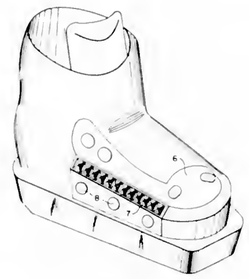


A device designed to provide the elements of learning techniques, while affording the added benefits of holding the attention of small children, is disclosed herein.

The "Funzie game," by means of pre-determined positions of each of the movable blocks in the game, allows small children to rapidly absorb the basics of counting and spelling, as it becomes apparent to the child that each block in both rows of the board will fit on only one position (the correct one), thus reducing errors and uncertainty, while allowing the child to learn by trial and error methods.

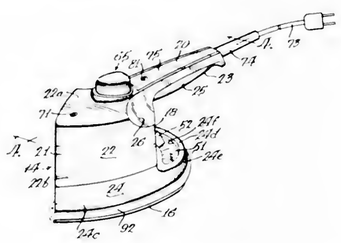
3,811,207
DEVICE FOR CLEANING SOLES OF SHOES
Gunter Peis, Heigelstrasse 4, 8000 Munich 90, Germany
Filed Aug. 10, 1972, Ser. No. 279,358
Int. Cl. A43b; A47l *13/12*
U.S. Cl. 36—2.5 AL 11 Claims

A shoe, particularly a ski boot, work shoe or the like, has a scraper mounted on or integral with the upper part of the shoe extending between the ankle and large toe and has a length corresponding substantially to the width of the sole of the



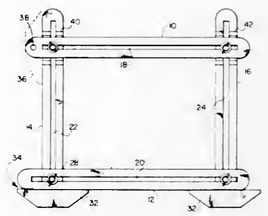
shoe. The scraper may comprise a metallic insert, a synthetic plastic material or comprise a blade which constitutes the scraping edge.

3,811,208
ELECTRIC STEAMING AND PRESSING APPLIANCE
Joseph L. Vieceli, La Grange, and James T. Williams, Downers Grove, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Nov. 7, 1972, Ser. No. 304,441
Int. Cl. D06f *75/06*, *75/36*; D06c *1/00*
U.S. Cl. 38—77.8 24 Claims



An electric pressing iron adapted for operation in a horizontal plane for pressing fabrics or usable in a vertical plane to steam hanging clothes, drapes and the like. The iron includes a small compact soleplate above which is superimposed an all plastic reservoir and handle assembly having the handle extending outwardly from the reservoir and a housing portion positioned between the reservoir and the soleplate enclosing a thermostat and a temperature control arm. The means for delivering water from the reservoir to a steam chamber on the upper surface of the soleplate comprises a compact pump having a diaphragm which is operable by direct finger pressure to deliver water from the reservoir to the steam chamber. The pump which is mounted in an opening for the reservoir is removable to permit the pouring of water into the reservoir. The reservoir and handle include a one piece injection molded plastic member which includes a downwardly facing cup-shaped portion which is closed by the housing member to form the reservoir. The pump permits the iron to be operated in any position while delivering substantial quantities of steam from the orifices disposed in the soleplate.

3,811,209
EMBROIDERY FRAME
Hope Hanley, P.O. Box 537, Purcellville, Va.
Filed May 14, 1973, Ser. No. 359,820
Int. Cl. D06c *3/08*
U.S. Cl. 38—102.6 6 Claims



An adjustable frame for embroidery, quilting, needlepoint and the like, having interconnected side members relatively adjustable with respect to one another for size and configuration adjustment, to hold a piece of material in a taut condition, with braces in the nature of chucks being provided at selected points of side member interconnections for strength, rigidity and user comfort and adaptability.

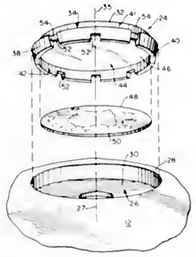
3,811,210
MILD CURE FINISHING PROCESS INCORPORATING IMPROVED CATALYST SYSTEMS TO PRODUCE WRINKLE RESISTANT, DURABLY PRESSED AND CREASED CELLULOSIC TEXTILE PRODUCTS
Norton A. Cashen; Russell M. H. Kullman, both of Metairie, and Robert M. Reinhardt, New Orleans, all of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.
Filed Jan. 26, 1972, Ser. No. 221,079
Int. Cl. D06m *13/12*, *13/34*
U.S. Cl. 38—144 20 Claims

Improved catalyst systems have been found that can be used in place of the strong mineral acid catalysts previously required in the mild cure finishing process for cellulosic textiles. These improved catalyst systems consist of mixtures of ammonium chloride and an acid selected from the group, phosphoric acid, citric acid, oxalic acid, tartaric acid, and trichloroacetic acid. Unlike cellulosic fabrics treated by the mild cure finishing process with strong mineral acid catalysis, fabrics similarly processed with the improved catalyst systems need not be neutralized and washed immediately after curing to prevent strength loss during subsequent storage. The wrinkle resistant fabric thus produced may be used as a precured product or may be additionally processed to impart shape and creases by a combination of steam pressing and dry pressing.

3,811,211
BOWLING BALL INDICIA DISPLAY MEANS AND METHOD OF ASSEMBLYING SAME
Donald F. Morgan, Bloomingdale, N.J., assignor to Amerace Esna Corporation, New York, N.Y.
Filed June 3, 1971, Ser. No. 149,494
Int. Cl. G09f *3/02*; A63b *37/00*
U.S. Cl. 40—2.2 8 Claims

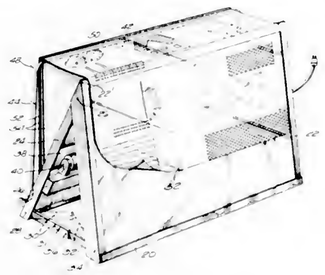
A one-piece rigid insert which may be of transparent, plastic material is adapted to be fixedly secured within a recess formed in the outer surface of a bowling ball or the like. The insert's outwardly facing surface is convex so as to conform to the outside curvature of the bowling ball and is flush-mounted with respect thereto when secured in place within the recess. The insert further includes means axially displaced below its outer convex surface for supporting a display member having indicia disposed thereon. Thus, when the insert is fixedly

secured within the bowling ball recess the display member is completely protected by the insert with the indicia being



plainly visible through the insert's transparent convex outer face portion. A method for assembling the insert and installing it in the bowling ball is also disclosed.

3,811,212
TRANSPARENCY DISPLAY DEVICES
John S. Wright, 6115 North Lake Dr. Ct., Milwaukee, Wis.
Filed Jan. 31, 1972, Ser. No. 222,060
Int. Cl. G09f *13/10*
U.S. Cl. 40—106.1 **1 Claim**

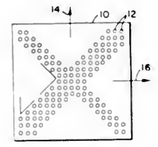


Transparency display devices to display bound books of transparencies include a translucent screen mounted in a frame which is at a substantial angle to the horizontal plane when the translucent screen is arranged for viewing. A light source is provided behind the translucent screen and a transparency book support is arranged to oscillate to and from proximity with a margin of the screen to facilitate the removal of transparencies from viewing position to storage position. Two modifications of this support are shown, which respectively oscillate and reciprocate. Two support cabinets include one capable of being folded into a relatively flat package for transportation, and one permanent cabinet having storage for the transparencies in the form of tracks to receive the ring binder portion of the book while allowing the transparencies to hang in a protected place.

One version of the transparencies has an aperture at each corner of its free margin. The support cabinet has a stud which supports the transparency when the aperture is placed over the stud, the stud being removable automatically when the support is reciprocated to simultaneously release the free margin of the transparency and to pull the support away from the translucent screen to permit the transparency to return of its own weight to its storage position.

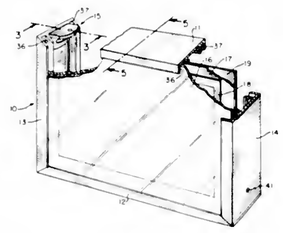
A method of changing displayed transparencies by moving a support for a binder of transparencies away from a translucent display screen, returning the support to the vicinity of the screen margin and inverting another transparency about the binding to overlie the translucent display screen is also disclosed.

3,811,213
MOIRE MOTION ILLUSION APPARATUS AND METHOD
Robert B. Eaves, Wayne, Pa., assignor to Photo-Motion Corporation, King of Prussia, Pa.
Continuation-in-part of Ser. No. 877,298, Nov. 17, 1968, Pat. No. 3,643,361. This application Feb. 16, 1972, Ser. No. 226,846The portion of the term of this paten' subsequent to Feb. 22, 1989, has been disclaimed.
Int. Cl. G09f *13/34*
U.S. Cl. 40—106.53 **14 Claims**



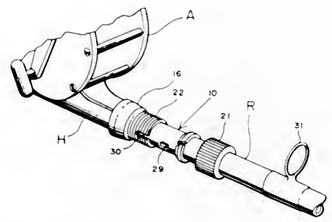
Apparatus and methods are presented for the simulation of motion through the use of moire patterning. Motion simulation is accomplished with two overlay transparent sheets imprinted with dot patterns of different frequencies. One of the sheets, having a plurality of sections of dot patterns of different frequencies, is held stationary and the other sheet, having a uniform dot pattern, is moved relative to the stationary sheet, and an illusion of motion is created on the stationary sheet by movement of moire patterns resulting from the interaction of the dot patterns on the two sheets. The sections on the stationary sheet may be scraped or otherwise burnished to remove some of the dot patterns in the section to generate open areas whereby both uniformity of light transmission and motion illusion may be enhanced.

3,811,214
MULTI-PURPOSE PICTURE FRAME
Raymond F. Tate, 21423 Pacific Coast Hwy., Malibu, Calif.
Filed Nov. 16, 1971, Ser. No. 199,139
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **5 Claims**



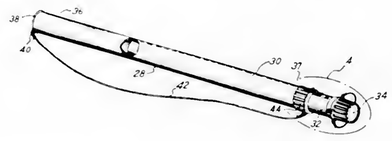
There is disclosed a picture frame which may be assembled without the aid of tools and whose internal configuration provides various slots or grooves to secure a picture therein in several positions, e.g., front or rear floated, front or rear matted; combinations of these; shadow boxed etc. Corner pieces are disclosed which include sliding bar means and snap-in means for quick assembly of the sides of the frame.

3,811,215
LOCKING DEVICE FOR FISHING RODS
Oscar Fleischer, deceased, late of Century Towers, 100 Kings Point Dr., North Miami Beach, Fla. (Helen Krohn Fleischer, executrix)
Filed Sept. 5, 1972, Ser. No. 286,598
Int. Cl. A01k *87/02*
U.S. Cl. 43—18 R **1 Claim**



A device for locking a fishing rod to the handle tubular member having telescoping members whereby the end of the rod is received by a socket formed in the tubular member. The latter which is threaded receives a lock nut slidably positioned on the rod, the lock nut being provided with an annular shoulder for engaging a compression ring. The ring is split having an inclined front edge which engages an oppositely inclined edge of the tubular member so that as the lock nut is threaded on the tubular member, the compression ring is compressed to engage the rod tightly as the ring is forced into tight engagement with the end of the tubular member whereby the handle member and rod are fastened securely together.

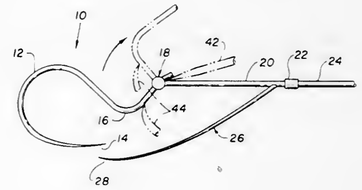
3,811,216
ADJUSTABLE FISHING ROD CASE
Lawrence K. Sauey; Leroy W. Mason, and Gerald A. Rau, all of Baraboo, Wis., assignors to Flambeau Products Corporation, Baraboo, Wis.
Filed Nov. 3, 1972, Ser. No. 303,622
Int. Cl. A01k *97/08*
U.S. Cl. 43—26 **3 Claims**



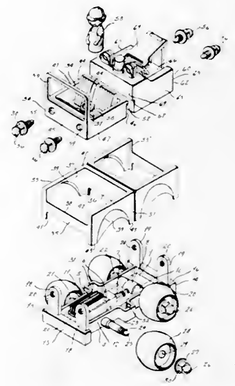
An adjustable fishing rod case is provided with an outer member, an inner member, and means for securing the members together. The outer member and inner member are telescopically engaged. A plastic hinge lever, including a pin, is mounted on a collar at one end of the outer member. The pin engages one of a series of well-shaped cups in the inner member to lock the members together. A longitudinal groove in the inner member receives a projection on the collar of the outer member to guide the well-shaped cups to the pin.

3,811,217
FISH HOOK RELEASING DEVICE
Bernard Watkins, P.O. Box 223 Culver Lake, Branchville, N.J.
Filed May 21, 1973, Ser. No. 362,460
Int. Cl. A01k *83/00*
U.S. Cl. 43—44.82 **5 Claims**

An improved fish hook, devoid of any barbs or barblike structure, the absence of which greatly facilitates both the hooking and disengaging of any hooked fish therefrom is pivotally mounted to an elongated body. Cooperating therewith and mounted to extend from the body is a spur, the pointed end of which is taken into the fish's mouth along with the hook during the hooking of a fish. The free end of the spur extends beyond the hook point in facing relation thereto and both hook and spur engage the fish internally and prevent its inadvertent release from the hook and also from swallowing the hook down into its stomach. The shallow depth of intake contributes to the facilitated release of the hooked fish. A tong-type implement is used with the device to withdraw the hook from its engagement with the hooked fish.



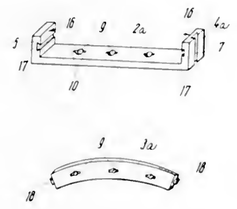
3,811,218
MODULAR TOY VEHICLE
Robert W. Salmon, Huntington Beach, and Barry S. Herstein, Spring Valley, both of N.Y., assignors to Buddy L Corporation, New York, N.Y.
Filed Mar. 16, 1972, Ser. No. 235,358
Int. Cl. A63h *33/10*
U.S. Cl. 46—17 **9 Claims**



A toy vehicle of modular construction, commonly referred to as a together take-apart toy, having a chassis, and front and rear body subassemblies detachably mountable upon said chassis in tandem relationship. Each subassembly comprises a frame and a component supportable thereon; said frames being identical for interchangeability and said components being secured, by headed and threaded fasteners, to posts

which extend up through the frames from the chassis. A figurine having a hexagonal socket in its base may be detachably mounted as the vehicle driver and also used as a wrench to turn the fasteners.

3,811,219
FLEXIBLE MEMBER AND ARCUATE MEMBER ATTACHABLE THERETO FOR IMPARTING CURVATURE
Artur Fischer, Altheimer Str., D-7241 Tumlingen, Germany
Division of Ser. No. 51,951, July 2, 1970, abandoned. This application Mar. 2, 1972, Ser. No. 231,254
Claims priority, application Germany, July 31, 1969, 1938946; Aug. 16, 1969, 1941725
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 **8 Claims**



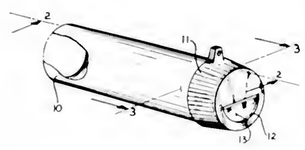
At least two elongated structural elements are provided. They are of open-profiled cross-section, that is of T-shaped, U-shaped or similar cross-section, and have spaced opposite ends each of which has a flange extending transversely to the elongation of the respective element. Connecting means is provided at least on the axially outer sides of the respective flanges.

3,811,220
RAG DOLL WITH CHANGEABLE FEATURES
Marvin I. Glass, and Kathy A. Dunn, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Continuation-in-part of Ser. No. 119,121, Feb. 26, 1971, abandoned. This application July 6, 1972, Ser. No. 269,459
Int. Cl. A63h *3/12*
U.S. Cl. 46—135 R **4 Claims**



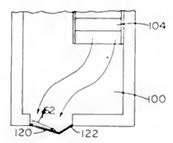
A child's rag doll characterized by the provision of a plurality of panels with different simulated facial expressions thereon, with the panels being hingedly connected to the doll and, further characterized by the provision of a means for holding the panels in an upper position, overlying the doll face, and a lower position, overlying the doll torso.

3,811,221
WILD FOWL DECOY DEVICE
John E. Wilt, 825 Green Hill Rd., West Chester, Pa.
Filed Feb. 2, 1973, Ser. No. 329,039
Int. Cl. A63h *5/00*
U.S. Cl. 46—180 **3 Claims**



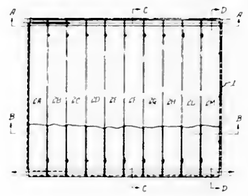
An improved wild fowl decoy device comprises a hollow tube having a transverse opening at one end and an opening remote therefrom for the free escape of air passing through the tube from the said one end, a wall extending across the transverse opening and having a substantially straight free edge substantially bisecting the opening, the wall covering approximately one-half of the opening, and an elastic member mounted under tension across the other approximately one-half of the opening not covered by said wall, the member having a substantially straight free edge extending substantially parallel to the free edge of the wall and approximately bisecting the opening whereby the free edge of the wall approaches but does not overlap the free edge of the elastic member, permitting the latter to flex inwardly and outwardly of said opening. This decoy device may be also characterized by a pair of concentric rings used to retain the elastic member under proper tension, so that when activated a sound is emitted, imitative of the call of a wild fowl.

3,811,222
SWINGING DOORS
George J. Economou, 8 Elm St., Norton, Mass.
Continuation-in-part of Ser. No. 109,788, Jan. 26, 1971, Pat. No. 3,726,044. This application Dec. 8, 1971, Ser. No. 205,947
Int. Cl. E01f *13/00*
U.S. Cl. 49—9 **25 Claims**



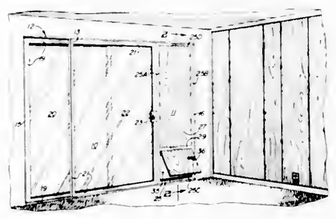
A swinging door comprising a vane supported about an axis, wherein the vane comprises a first portion of predetermined width and a second portion of greater predetermined width. The first portion is attached to the second portion so as to make a predetermined angle therewith of between 90° and 175° and the axis is adjoined within the first portion or is in the region of the plane of the second portion.

3,811,223
HATCH COVERS
Yuko Ito, Tokyo, Japan, assignor to Kabushiki Kaisha Nihon Hatch Cover Kenkyusho, Tokyo, Japan
Filed Feb. 28, 1972, Ser. No. 229,684
Claims priority, application Japan, Mar. 12, 1972, 47-13076
Int. Cl. E05d *15/26*
U.S. Cl. 49—127 **2 Claims**



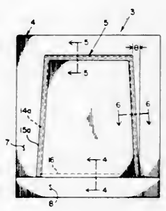
A hatch cover including a multiplicity of relatively narrow cover panels of L-shaped cross-section which are laid over a hatch coaming having a panel storing station at one end thereof, with their longer legs placed side by side horizontally thereon and with their shorter legs depending as skirt portions in hatch closing position. A scooping support carriage is provided for supporting the weight of all cover panels loaded thereon in superposed manner while scooping up one panel after the other progressively during a movement of the carriage so as to bring them from a hatch closing position to a panel storing position during hatch opening operation, and vice versa. The carriage is provided with cam means for actuating push rod members slidably mounted on each cover panel upwardly so as to elevate an adjoining cover panel at a level higher than that of the former panel as a first move for bringing the latter panel into superposed condition over the former panel, in addition to another cam means for holding all of the cover panels loaded thereon in superposed condition one above the other.

3,811,224
PET DOOR PANEL
Elbert W. Garrison, P.O. Box 536, Cave Creek, Ariz.
Filed June 7, 1973, Ser. No. 367,773
Int. Cl. E05d *15/48*
U.S. Cl. 49—168 **4 Claims**



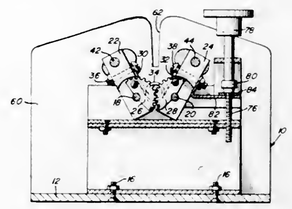
An ornamental pet door panel which may be utilized in association with a conventional sliding glass or arcadia type door having a normally covered opening to provide egress and ingress facilities for the family pet.

3,811,225
SLIDABLE DOOR FASTENER FOR WEATHERPROOF HOUSING
James R. Stewart, San Jose, Calif., assignor to GTE Lenkurt Incorporated, San Carlos, Calif.
Filed Nov. 1, 1972, Ser. No. 302,965
Int. Cl. E06b *3/32*
U.S. Cl. 49—463 **3 Claims**



Similarly shaped curved surfaces on projecting edges of the top and sides of a door and an opening in a housing mate together to form an essentially watertight seal around the top and sides of the opening when the door is slidably mounted on the housing. The spacings between the side edges at the bottom of the door and opening are less than those at the tops thereof to facilitate slidably removing the door from the housing without raising the door to its full height.

3,811,226
KNIFE GRINDING AND HONING MACHINE
Fred R. Gangelhoff, 1691 Lake Ave., Largo, Fla., and Harry A. Beyer, 2096 U.S. 19 S., Lot 1423, Clearwater, both of Fla.
Filed Dec. 19, 1972, Ser. No. 316,554
Int. Cl. B24b *3/00, 9/00*
U.S. Cl. 51—80 R **9 Claims**

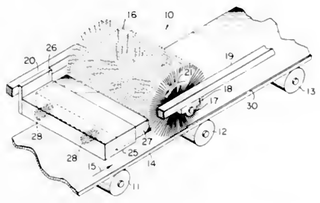


A pair of generally parallel shafts are supported from a base for simultaneous and equal inverse lateral shifting toward and away from each other and the shafts each include a plurality of grinding wheels mounted thereon for rotation therewith. The grinding wheels of one shaft may be overlapped in relation to the grinding wheels of the other shaft as the shafts are shifted toward each other and spring structure is provided and yieldingly urges the shafts toward each other. Adjustable abutment structure is provided for limiting movement of one of the shafts toward the other and a rotary motor is drivingly connected to the shafts for equally rotating the latter in opposite directions.

3,811,227
METHOD AND APPARATUS FOR CLEANING

Albert V. Petrik, 2866 Joyce Rd., Roslyn, Pa.

Continuation-in-part of Ser. No. 160,761, July 8, 1971, abandoned. This application May 16, 1973, Ser. No. 360,731
Int. Cl. B24b 1/00, 57/00
U.S. Cl. 51—16 8 Claims

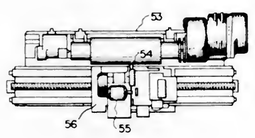


A method and apparatus wherein workpiece is cleaned with a metallic material by abrading the cleaning material from the source, collecting the abraded material, and abrading the workpiece with the collected material.

3,811,228
METHOD AND APPARATUS FOR CONTROLLING THE ACCURACY OF MACHINING OF A MACHINE TOOL

Kazuo Nagashima, and Tadahiro Ono, both of Numazu, Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan

Filed Dec. 28, 1971, Ser. No. 213,112
Claims priority, application Japan, Dec. 29, 1970, 45-130284; Dec. 29, 1970, 45-130285
Int. Cl. B24b 5/00
U.S. Cl. 51—49 6 Claims

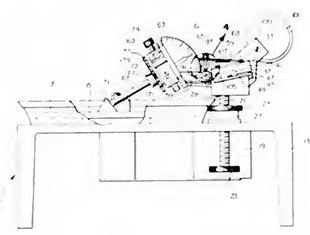


A method of controlling a machine tone to improve the accuracy of machining which has the steps of detecting the cutting power of a machine tool, comparing the value of the detecting cutting power with a predetermined value of a in-feed power, and controlling the cutting speed of the tool driven by an electric motor so that the in-feed speed is hastened when the difference of both the values of the detected cutting power and a predetermined cutting power is within a predetermined range and the value of the detected cutting power is larger than that of the predetermined cutting power, while the in-feed speed is lessened when the value of the detected cutting power is smaller than that of the predetermined cutting power so as to compensate the wear of the tool. This method is performed by an automatic grinding machine of a roll grinding machine which has a mechanism for compensating the wear of a grinding wheel, a mechanism for compensating the resilient deformations of a grinding wheel, wheel station and roll for controlling the position of the wheel station, means for rotating an electric motor for in-feeding the grinding wheel to cut in normal or reverse direction so as to increase or decrease the cutting, and means for controlling the rotation of the electric motor so as to be proportional to the amplitude of a signal obtained by the in-feed speed of the grinding wheel for compensating the resilient deformation of the grinding wheel, wheel station and roll.

3,811,229
GEM FACETER

Earl D. Montgomery, Warrington, Pa., assignor to The American Standard Corporation, Trevose, Pa.

Filed Mar. 5, 1973, Ser. No. 338,406
Int. Cl. B24b 7/22, 9/16
U.S. Cl. 51—125 10 Claims

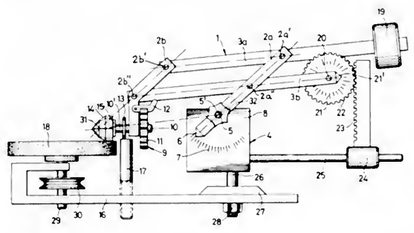


A gem faceter comprising a pivot block which is vertically movable to various positions, a pivot arm pivotally mounted at one end to the pivot block, a head mounted to the other end of the pivot arm and adapted for movement to various positions about a pivot pin, a dop mounted in said head and adapted to be rotated about its axis to various positions, an index plate fixedly mounted on said dop and having markings thereon which indicate the number and position of desired facets to be ground on a gem held by the dop, an index plate clamp for locking the index plate successively in said desired marked positions relative to the head for grinding the desired facets, a lapping table adapted to be contacted by the dopped gem, a protractor for continuously indicating the angular position of the dop relative to the vertical, an adjustable stop for limiting the movement of the head toward the lapping table, a sensor mounted on the stop for sensing the degree of movement of the head toward the lapping table, an electronic circuit for translating the degree of movement sensed by the sensor into an electronic signal, and a visual indicator for indicating the value of the electronic signal and the degree of said movement, whereby the faceting angle may be detected and duplicated with great precision.

3,811,230
FACET GRINDING APPARATUS

Alexander Beck, Forrigel CH-8113, Boppelsen, Switzerland

Filed June 16, 1972, Ser. No. 263,428
Claims priority, application Switzerland, June 30, 1971, 9586/71
Int. Cl. B24b 9/16
U.S. Cl. 51—127 19 Claims

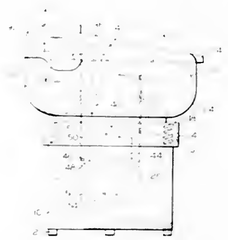


An apparatus for grinding facets in a workpiece has a parallelogram lever arrangement. The workpiece is mounted on one arm of a parallel set of arms of the lever arrangement, while the other arm of the set is pivotally mounted on a stationary support member. Means are provided for selectively adjusting the angular position of the workpiece about its support arm, and further means are provided for selectively adjusting the angular position of the other parallel arm about the pivot on the support member.

3,811,231
SELF-SEPARATING VIBRATORY FINISHING APPARATUS

Hisamine Kobayashi, Nagoya, Japan, assignor to Kabushiki Kaisha Shikishima Tipton, Nagoya, Aichi, Japan

Continuation-in-part of Ser. No. 787,534, Dec. 27, 1968. This application Nov. 2, 1970, Ser. No. 86,161
Claims priority, application Japan, Dec. 28, 1967, 42-84917; Apr. 20, 1968, 43-32278; May 10, 1968, 43-38696
Int. Cl. B24b 31/06
U.S. Cl. 51—163 7 Claims



A self-separating vibratory finishing apparatus has an annular trough which is vibrated by a reversible motor having two eccentric weights, one of which leads or lags the other weight by a controlled angle automatically during rotation in each sense of rotation. A mass made up of workpieces and abrasive material effects a helical shifting motion in the direction opposite to the direction of motor rotation so that workpieces are surface finished. For separation purposes, a flap is moved downwardly into the mass in a direction so that the mass pushes it down. The mass overflows the flap onto a sieve, being aided by a flash gate having a special shape vertically positioned in the flowing mass upstream of the flap. The trough can also be helical and have a plurality of such gates disposed at intervals along the helical trough to permit the mass to ascend the trough for separation purposes.

3,811,232
KNIFE EDGE GRINDER FOR ROTARY REEL TYPE CUTTER HEAD

Floyd W. Reuter, Dearborn Heights, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.

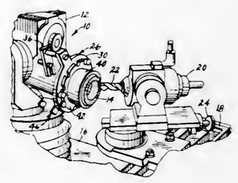
Filed July 10, 1972, Ser. No. 270,410
Int. Cl. B24b 3/42, 19/00, 5/18
U.S. Cl. 51—249 4 Claims

A knife edge sharpener is permanently mounted on a harvester implement having a reel type cutter head for selective sharpening of the knife edges of the cutter head. The sharpener unit is mounted for longitudinal movement along the cutter head and an indexing mechanism is incorporated for engagement with the rotary drive means of the cutter head in correspondence with longitudinal movement of the sharpener along the cutter head.

3,811,233
QUICK CHANGE GUARD FOR TOOL AND CUTTER GRINDER

Clyde Richard Eby, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Nov. 2, 1972, Ser. No. 303,005
Int. Cl. B24b 55/04
U.S. Cl. 51—269 4 Claims



A quick-change guard for a machine tool supporting a rotating tool the guard having a backplate located perpendicular to the axis of and to the rear of the rotating tool and a ring releasably secured to the backplate, the ring encircling the tool and containing a shield extending therefrom to enclose a substantial portion of the rotating tool.

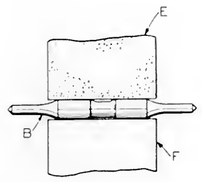
3,811,234
METHOD OF FORMING WORKPIECES BY ABRADING

Edward W. Soares, Jr., New Bedford, Mass., assignor to Gulf & Western Precision Engineering Company, Manchester, Mass.

Filed Oct. 19, 1972, Ser. No. 298,940
Int. Cl. B24b 3/06, 5/22
U.S. Cl. 51—323 6 Claims

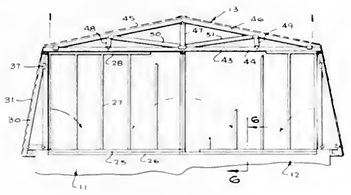
A peripheral recess is formed in a cylindrical mounting portion of a metal workpiece. A flat is then formed in the

peripheral recess. A set screw is adapted to bear against the flat when the mounting portion is positioned in a chuck. The



workpiece is then hardened. The cylindrical mounting portion is then finished to a predetermined diameter by centerless grinding.

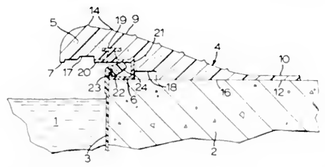
3,811,235
PREFABRICATED MULTI-STORY STRUCTURE
John Dillard Powell, Ridgeway, Va., assignor to Continental Homes Incorporated, Boones Mill, Va.
Filed Jan. 26, 1971, Ser. No. 109,836
Int. Cl. E04b *1/344, 1/348, 1/36*
U.S. Cl. 52—69 **1 Claim**



A prefabricated building structure generally consisting of at least two modular units rigidly secured together to provide an integral structure, each of the modular units including a permanently constructed lower story section, and a collapsible upper story section mounted on the lower story section, the upper story section including at least one interior junction wall hingedly connected to the lower story section and movable between an inoperative, substantially horizontally disposed position, and an operative, substantially vertically disposed position, in abutting relation with an interior junction wall of the upper story section of the other modular unit, disposed in its operative position, and exterior walls hingedly connected to the lower story section and movable between inoperative, substantially horizontally disposed positions, and operative, substantially vertically disposed positions, and a roof section mounted on the upper story sections when the interior and exterior wall thereof are disposed in their operative positions.

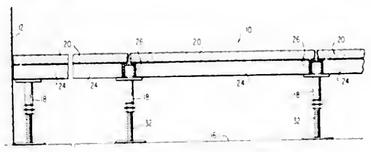
3,811,236
SWIMMING POOL COPING
Derek Edward Fiddes, Willowdale, Ontario, Canada, assignor to Protective Plastics Limited, Don Mills, Ontario, Canada
Filed Sept. 5, 1972, Ser. No. 286,062
Int. Cl. E04h *3/16*
U.S. Cl. 52—102 **6 Claims**

A protective coping member for a swimming pool is of composite construction, comprising a rigid moulded body of fibre-reinforced plastic material, having an outer skin defining a wear surface, and a retainer member constituted by an aluminum extrusion having a keyed upper portion which is em-



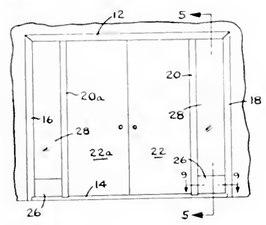
bedded in the moulded body and a flanged lower portion defining a longitudinally extending channel to retain a swimming pool liner.

3,811,237
RAISED FLOOR PANEL AND ASSEMBLY
James H. Bettinger, Elkridge, Md., assignor to United Fabricating Company, Inc., Elkridge, Md.
Continuation-in-part of Ser. No. 23,531, March 30, 1970, Pat. No. 3,681,882. This application Aug. 7, 1972, Ser. No. 278,465. The portion of the term of this patent subsequent to Aug. 8, 1989, has been disclaimed.
Int. Cl. E04b *5/43*
U.S. Cl. 52—126 **13 Claims**



Disclosed is a raised floor panel and panel assembly for computer and similar installations. The panels are supported above a subfloor on pedestals and are easily installed and removed for later access to the space beneath the floor. Each panel comprises a core with or without strengthening metal sheets about which is wrapped a flexible and at least partially resilient floor covering, such as carpet or flexible tile material. In one form, the floor covering extends over the edges and for a short distance beneath each panel. In another form, a sheet metal pan underlies the core and has upturned flanges in contact with the outer face of the floor covering extending over the edges of the core.

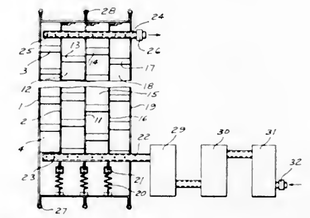
3,811,238
STEEL SIDELIGHT FRAME
John H. Brinker, Cincinnati, Ohio, assignor to American Standard Inc., New York, N.Y.
Filed July 11, 1972, Ser. No. 270,788
Int. Cl. E06b *1/22*
U.S. Cl. 52—204 **7 Claims**



A knockdown entrance door unit, especially for residential installation, wherein sidelight panels are arranged at one or

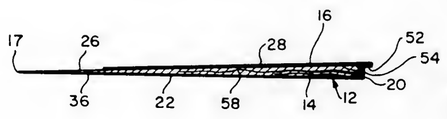
both sides of the door. The entrance unit includes a low profile sill that spans the entire space between the side jambs. The unit is made as a knockdown structure to reduce shipping expense and possibility of damage during transit to the job site.

3,811,239
INSULATING FLEXIBLE COMPOSITE ELEMENT
Otto Alfred Becker, Robert-Koch-Strasse 59, Saarbruecken, 66/6 Germany
Filed Mar. 18, 1971, Ser. No. 125,549
Claims priority, application Germany, Mar. 19, 1970, 2013115; Feb. 19, 1971, 2108110
Int. Cl. E04b *2/28;* **E04c** *2/34*
U.S. Cl. 52—406 **4 Claims**



An improved heat and cold insulating flexible composite element comprises at least one radiation chamber with walls of flexible material having reflecting surfaces. Opposite walls of said chamber are resiliently spaced from each other by suitable spacing elements. Preferably the chambers are enclosed by an envelope which may also be formed of flexible reflecting sheets.

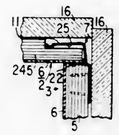
3,811,240
REINFORCED ALUMINUM SHINGLE
Armand J. Horny, 7518 Tabor Rd., Philadelphia, Pa.
Filed May 30, 1972, Ser. No. 257,815
Int. Cl. E04d *1/06, 1/28*
U.S. Cl. 52—560 **1 Claim**



A reinforced aluminum shingle which comprises in combination a tapered cedar wood backing and a covering of reinforced aluminum sheet which is cemented to a portion of the surface of the cedar backing. The reinforced aluminum sheet overhangs the thicker edge of the backing in a lip to provide an air gap upon installation which acts to prevent the entrance of water under the shingle.

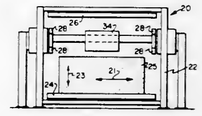
3,811,241
CONCEALED CORNER LOCKING CLIP
Jacob M. Mattix, 341 N. Hennessy, New Orleans, La.
Division of Ser. No. 61,194, Aug. 5, 1970, Pat. No. 3,688,459. This application Sept. 1, 1972, Ser. No. 285,620
Int. Cl. F16b *5/06*
U.S. Cl. 52—760 **8 Claims**

A concealed corner lock clip system for installing and securing sheet material such as laminated plastic wallboards, plywood and the like for finishing off bathtub and/or shower walls and the like; the locking system includes a vertically extending resilient clip attached to one wallboard and into which



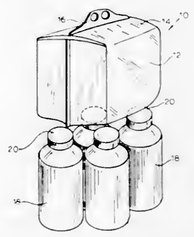
the other, adjacent wallboard can be easily and quickly inserted and locked into place; the clip is unobstrusive and compact and is completely invisible after installation.

3,811,242
METHOD AND APPARATUS FOR COMPRESSING FOAM BLOCKS FOR STORAGE AND/OR SHIPMENT
William H. Hayford, Jr., Summit Point, Ringwood, N.J.; Theodore Hayford, 204 Boulevard, Glen Rock, N.J., and Donald S. Hayford, 26 Park Pl., Paramus, N.J.
Filed Dec. 15, 1972, Ser. No. 315,614
Int. Cl. B65b *63/02*
U.S. Cl. 53—24 **12 Claims**



Method and apparatus for the compression and restraint of blocks of polyurethane foam or similar material to a small percentage of their original volume to reduce shipping and storage space. The blocks are compressed initially in the direction of at least one of the axes and are restrained in the direction of one of the other axes. Then, a restraining sleeve or a plurality of restraining bands holds the block in the compressed condition in the direction of the compressed axis and also prevents rebound or expansion in all directions of compression.

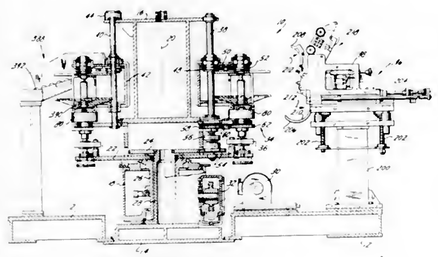
3,811,243
METHOD OF ASSEMBLING MULTI-PACKAGING DEVICES TO ARTICLES
Ernest R. Cunningham, Libertyville, Ill., assignor to Grip-Pak Inc., St. Louis, Mo.
Filed Mar. 31, 1972, Ser. No. 240,041
Int. Cl. B65b *53/00*
U.S. Cl. 53—30 **5 Claims**



A method for assembling stretchable and elastic multi-packaging devices to articles is disclosed wherein the stretchable and elastic multi-packaging device is positioned over at

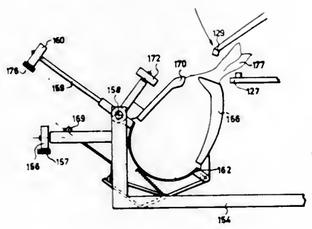
least one pair of adjacent articles, the articles are moved apart from one another to stretch the multi-packaging device and allow at least one other article to be inserted therebetween, and the spaced apart articles are then released to allow the multi-packaging device to grip the articles together as a group.

3,811,244
HOSE WINDING AND PACKAGING MACHINE
Richard J. Killen, Manchester, Mo.; Boyce Brandom, Ridgewood, and Lyman S. Howard, Bergenfield, both of N.J., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Dec. 22, 1971, Ser. No. 210,736
Int. Cl. B65b *13/14, 63/04*; **B65h** *54/28*
U.S. Cl. 53—116 **19 Claims**



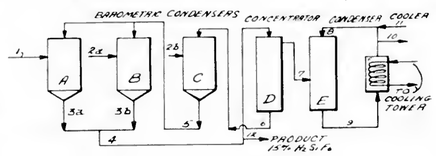
A wholly automated hose winding and packaging machine that severs a predetermined running length of elongate material into a neat package, ties the package and strips same from the machine proper.

3,811,245
DEVICE FOR CLOSING A BAG
Jacob Hendrik Mosterd, En Merkenbureau De Wit N. V., 11 Surinamestraat, The Hague, Netherlands
Filed Sept. 11, 1972, Ser. No. 287,791
Claims priority, application Netherlands, Sept. 10, 1971, 7112520
Int. Cl. B65b *63/00, 63/02*
U.S. Cl. 53—124 A **3 Claims**



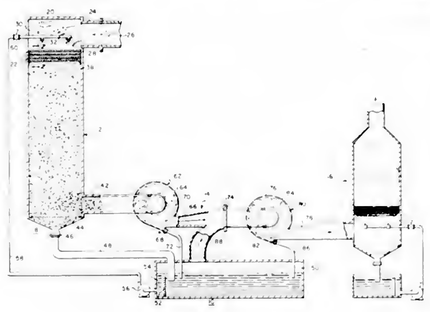
The invention provides an apparatus for automatically retaining a filled bag by means of controlled flaps. The retaining apparatus is further pivotably mounted, enabling cooperating with closure means which preferably consists of a twisting device. The advantages of the invention are that a better modelling of the closed bag is possible, that the controlled flap not only retains the bag, but in many instances maintains the shape of the filled bag in a desired way and that the bag closure may be located at a desired location of the bag.

3,811,246
CLOSED LOOP SYSTEM FOR THE ELIMINATION OF FLUORINE POLLUTION FROM PHOSPHORIC PLANTS
William R. Erickson, P.O. Dwr. 1496, Bartow, Fla.
Filed Jan. 16, 1973, Ser. No. 324,227
Int. Cl. B01d *53/00*
U.S. Cl. 55—71 **7 Claims**



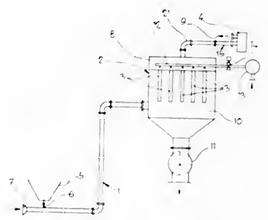
A process for recovering fluorine compounds from the evaporative concentration of aqueous phosphoric acid, without atmospheric pollution, is disclosed, wherein the vapors produced by concentrating aqueous phosphoric acid solution are condensed by contacting same in a system closed to the atmosphere with an aqueous fluorine-compound-absorbing liquid, with said aqueous liquid being cooled by indirect heat exchange and then recycled to condense additional vapors. The prior art required cooling water ponds or the like and such ponds are eliminated by the present process, with the consequential elimination of fluorine pollution of the atmosphere.

3,811,247
FOAM TYPE GAS SCRUBBER
Glen P. Huppke, Land O' Lakes, Fla.
Continuation-in-part of Ser. No. 190,893, Oct. 20, 1971. This application May 8, 1972, Ser. No. 251,440
Int. Cl. B01d *19/02*
U.S. Cl. 55—178 **10 Claims**



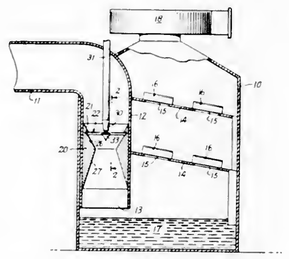
A wet foam type gas scrubber for cleaning industrial gases and the like comprising foam generating means including a chamber having an inlet for gas and an outlet for foam. Grid means is provided in said chamber between said inlet and outlet and extending transverse to the gas flow therebetween for dividing the gas flow into a pluraltiy of separate streams. Said grid means comprises a plurality of elongated strips interconnected to form a plurality of discrete flow passages and the strips have thin, knife-like edges facing into the direction of gas flow for dividing the same into separate streams. Means is included for wetting said grid means with liquid foaming agent to generate a mass of moving, liquid film, foam bubbles enveloping small discrete volumes of said gas therein. Foam breaker means using gravity and centrifugal force is provided to collapse and break down the foam bubbles into liquid and release the cleansed gas therefrom.

3,811,248
APPARATUS FOR REVERSING THE CONVEYING-AIR IN PNEUMATIC SUCTION-CONVEYING INSTALLATIONS
Adolf Lesk, Osterburken; Rudolf Baumann, Rosenberg, and Otmar Link, Osterburken, all of Germany, assignors to Adolf Zimmermann Maschinenbau, Osterburken, Germany
Filed Apr. 7, 1972, Ser. No. 242,075
Claims priority, application Germany, Apr. 24, 1971, 2120189; Apr. 24, 1971, 7115943
Int. Cl. B01d *19/00*; **F16k** *11/00*
U.S. Cl. 55—272 **7 Claims**



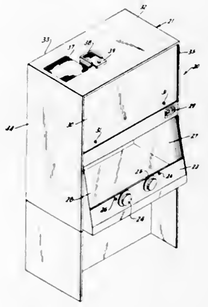
Pneumatic suction-conveying installations for reversing the air flowing through a separator for the conveyed material, in which a hose switch is arranged between a conduit leading from the separator to the blower providing the suction effect and a suction union and delivery union of the blower.

3,811,249
GAS WASHING DEVICE WITH REVERSING SPRAY PATHS
Orlan M. Arnold, Norwalk, and Carlo A. Vancini, Stamford, both of Conn., assignors to Peabody Engineering Corporation, New York, N.Y.
Filed Dec. 26, 1972, Ser. No. 318,692
Int. Cl. B01d *47/06*
U.S. Cl. 55—84 **10 Claims**



Gas washing apparatus including a gas duct and an axial spray nozzle adapted to produce a radial spray. The duct includes a ring having an annular recess shaped to receive and reverse the direction of the spray particles with a minimum loss in kinetic energy. The spray particles are reversed in direction a plurality of times to pass repeatedly through the gas stream until their kinetic energy becomes expended. The spray may or may not be used in conjunction with a venturi throat in the duct.

3,811,250
CONTAMINATION CONTROL APPARATUS
James McFarland Fowler, Jr., Albuquerque, N. Mex., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Division of Ser. No. 208,454, Dec. 15, 1971, which is a continuation of Ser. No. 839,967, July 8, 1969, abandoned. This application Apr. 25, 1973, Ser. No. 354,217
Int. Cl. B01d *31/00*
U.S. Cl. 55—274 **8 Claims**

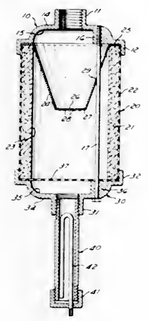


The contamination control apparatus of this invention includes a hollow cabinet having a work area in one portion thereof and an opening therein permitting access to the work area from the exterior of the cabinet. Decontamination and air supply means are in the cabinet and positioned so that air discharge therefrom will be decontaminated and then passed into the work area. Diffusion means are mounted in the cabinet and positioned between the decontamination and supply means and the work area to facilitate the diffusion of the air as it enters the work area. Consequently, the air flows uniformly through the work area and assist in providing a clean air curtain over the access opening to the work area to facilitate the prevention of contaminated air from leaving or entering the work area through the access opening. A series of interconnected air plenum chambers are in the cabinet in communication with the work area, decontamination and air supply means, and the opening to the exterior of the cabinet to permit the air passing through the work area and a portion of air from outside of the cabinet to be directed to the decontamination and air supply means. Negative pressure reducing means are in the cabinet to direct a predetermined amount of decontaminated air out of the cabinet sufficient to maintain a lesser pressure within the cabinet and exteriorly thereof and, finally, air velocity indicator and control means are mounted on the cabinet to facilitate the control of air flow within the cabinet.

3,811,251
CLASSIFYING MUFFLER
Stephen J. Gibel, 5846 Edgerton Rd., North Royalton, Ohio
Filed Aug. 25, 1971, Ser. No. 174,860
Int. Cl. B01d *50/00*
U.S. Cl. 55—276 **10 Claims**

Muffler for classifying and separating entrained oil and water from exhaust air of pneumatic devices. Exhaust air is led into a relatively unrestricted expansion chamber and passes into a silencing chamber through a collector against which droplets of entrained liquid and condensed vapors impinge.

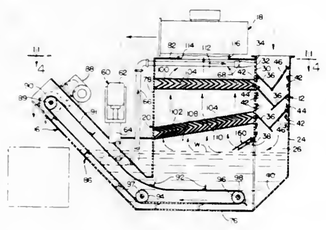
The relatively liquid-free air is diffused through the porous side of the silencing chamber. Impinged droplets collect to allow liquid to fall to base of silencing chamber in drops sufficiently large to prevent re-entrainment. Base of silencing chamber provided with means to permit draining, which may be automatic.



3,811,252
AIR CLEANING DEVICE

Dewey M. Evans, Farmington, and Willard L. Johnson, Huntington Woods, both of Mich., assignors to Devansco, Inc., Huntington Woods, Mich.

Filed Apr. 12, 1972, Ser. No. 243,323
Int. Cl. B01d *47/02*
U.S. Cl. 55—228 **63 Claims**

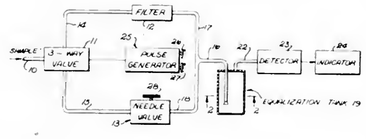


The air-cleaning device of this invention removes particulate matter from an input air stream, and includes a wash section in which spaced apart air stream baffle members are removably adjustably and pivotally secured to supporting walls, a settling tank, a moisture eliminator section, and a suction fan section. The air stream is damped in the wash section by the baffle members so that when it passes through the moisture eliminator section, its velocity is of an order that will no longer carry particulate matter except of an extremely fine size, i.e., the particulate matter has been substantially entirely removed by the device when the air stream has cleared through the moisture eliminator section. By baffle damping the air stream flow in the wash section, the suction fan operates at full capacity and without dampering.

3,811,253
APPARATUS FOR THE CONCENTRATION REDUCTION OF A GAS STREAM

Robert R. Austin, Pasadena, and David M. Creighton, Hacienda Heights, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 26, 1970, Ser. No. 40,671
Int. Cl. B01d *53/04*; **G01n** *31/00*
U.S. Cl. 55—270 **10 Claims**

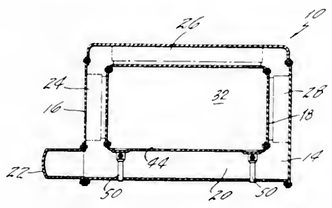


An apparatus for reducing the concentration of a constituent in a fluid. A portion or all of the constituent is removed from a portion of the fluid and the constituent free portion is remixed with constituent containing portion. In a flowing system, a limited range electrolytic titrator may analyze the mixed output when the input concentration varies over a very large range. The apparatus of the invention may include a three way valve to pass the input thereto either through a filter or through a bypass. The three way valve may be a solenoid valve operated by a pulse generator. A needle valve may be employed in the bypass, but need not be employed at all in many cases. If a single conduit from where the filter and bypass outputs join is not fairly large or long, preferably a mixing tank or other mixing device is provided.

3,811,254
ENGINE AIR PARTICLE SEPARATOR WITH FLUID SCAVENGE PUMP

Armand F. Amelio, Yonkers, N.Y., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed May 8, 1972, Ser. No. 251,490
Int. Cl. B01d *45/12*
U.S. Cl. 55—306 **8 Claims**

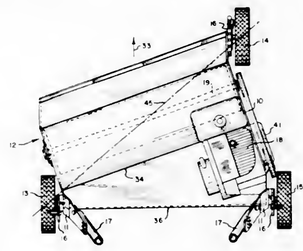


A scavenge pump in the form of tubular member is connected to the bottom wall of the housing of an engine air particle separator and is shaped to define an annular ejector so that as heated fluid is passed through the annular ejector the portion of the scavenge pump nearest the separator is heated by convection to prevent ice formation and the heated air from the ejector is discharged to form a low pressure region in the tubular member and is passed along the inner wall of the tubular member to prevent ice formation thereagainst, thereby permitting the scavenge of liquid and gases, which may be below the freezing temperature in the low pressure region of the separator, to be discharged through said tubular member due to the operation of the scavenge pump.

3,811,255
CROSS-FLOW MOWER WITH CANTED REEL AND THREE-WHEEL SUSPENSION

Hugo S. Ferguson, Averill Park, N.Y., assignor to Reel Vortex, Inc., Poestenkill, N.Y.

Continuation-in-part of Ser. No. 783,192, Dec. 12, 1968, Pat. No. 3,673,773. This application June 30, 1972, Ser. No. 268,072
Int. Cl. A01d *55/20*
U.S. Cl. 56—13.3 **6 Claims**

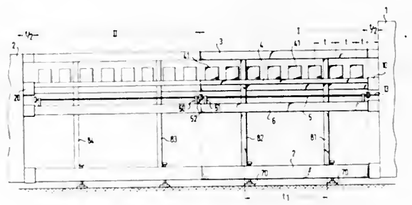


In a lawn mower of the cross-flow blower type, employing a cylindrical reel with helically curved cutting blades in a blower conduit, the reel and adjacent portions of the conduit are mounted with the reel axis canted in the horizontal plane at an angle with respect to a perpendicular to the normal direction of travel of the mower which is approximately equal to the helix angle of the blades and in a direction such that tangents to the helix of the blades in the lowermost positions thereof are approximately perpendicular to the normal direction of travel of the mower. The mower carriage is provided with three wheels, one of which is mounted behind the rearward end of the canted reel and at least partially laterally inside the lateral position of the rearward end of the reel. The other two wheels are mounted in forward and rearward positions on the other side of the carriage.

3,811,256
SPINNING MACHINE

Bruno Bystron; Eberhard Grimm, both of 8070 Ingolstadt, and Rudolf Oexler, 8071 Oberbrunnenreuth, all of Germany, assignors to Schubert & Salzer Machinenfabrik Aktiengesellschaft, Ingolstadt, West Germany

Filed Apr. 18, 1973, Ser. No. 352,130
Claims priority, application Germany, Apr. 25, 1972, 2220228
Int. Cl. D01h *7/10*
U.S. Cl. 57—1 R **5 Claims**

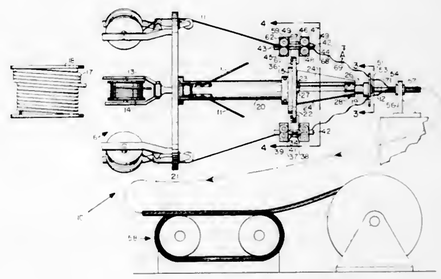


A rigid frame for a composite spinning machine having a plurality of equal longitudinal sections, each section having a plurality of spinning stations, is formed by providing in each section a pair of upright walls spaced apart a distance equal to one-half the section length and spaced inward from the section ends a distance equal to one-fourth of such length. To the outer edges of such walls are connected longitudinal members spaced elevationally and extending the full machine length, which members also form benches for supporting bobbins, spool containers and other spinning apparatus. Common drive shafts for spinning station elements extending the full machine length are formed by section length shafts being connected together by rigid couplings and mounted in a plurality of spaced bearings supported on the longitudinal members.

3,811,257
METHOD AND APPARATUS FOR APPLYING ARMOR TAPE

Harvey Burr, Bronxville, N.Y., assignor to The Anaconda Company, New York, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,637
Int. Cl. H01b *13/26*, *13/08*
U.S. Cl. 57—9 **12 Claims**

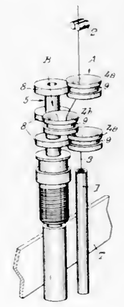


Stiff armor strip for a cable core is pretwisted between two pairs of heavy rolls on the armoring machine and bent sharply at the downstream roll. Double bending of the strip is avoided.

3,811,258
TWISTING DEVICES FOR FILAMENTS, ESPECIALLY FOR TEXTILE FILAMENTS

Guy Batsch, Aubenas, France, assignor to Societe Civile Textile dite Socitex, Lyon, France

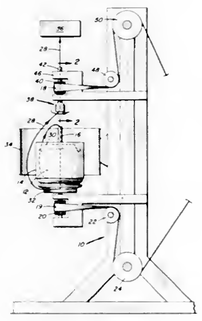
Filed Sept. 24, 1971, Ser. No. 183,503
Claims priority, application France, Oct. 1, 1970, 70.35548
Int. Cl. D02g *1/04*; **D01h** *7/92*
U.S. Cl. 57—34 HS **7 Claims**



The device has several rotary rings against which the filament must be applied so as to be driven in rotation by the inner edge of the said rotary rings to undergo twisting. These rotary rings, being staggered along a rectilinear path and distributed in two groups, which overlap so that in following the rectilinear path there is encountered alternately a ring of one

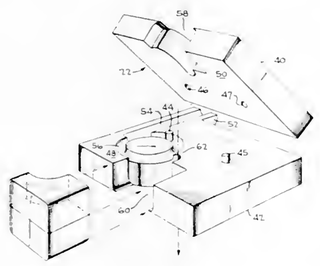
group and a ring of the other group. These two groups can undergo relative displacement in a plane perpendicular to the rectilinear path. The rings of the two groups are urged against a single drive roller driving the said rings, and the relative displacement of the two groups is effected by pivoting around the axis of this single drive roller.

3,811,259
GUIDE MEANS FOR TWO FOR ONE TWISTING DEVICE
Philip R. Petersen, 1427 Hartford Ave., Charlotte, N.C.
Filed June 21, 1971, Ser. No. 154,978
Int. Cl. D01h *1/10*
U.S. Cl. 57—58.83 **6 Claims**



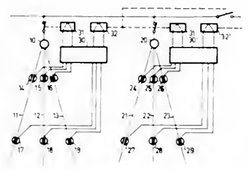
An improved two for one yarn twisting machine having a guide means rotatably mounted between the yarn package and the take-up means. The guide means has a pin or pins and a roller or rollers around which the yarn is looped and is rotated in the same direction and at the same speed as the twister balloon to control friction in the yarn linear movement, consequently decreasing yarn tension and enabling the use of higher linear speeds.

3,811,260
DEVICE FOR THE PRODUCTION OF FALSE TWISTED YARNS
Gabriel Ohayon, Lyons, France, assignor to Rhone-Poulenc Textile, Paris, France
Continuation-in-part of Ser. No. 152,733, June 14, 1971, Pat. No. 3,724,040. This application Dec. 7, 1971, Ser. No. 205,553
Int. Cl. D02g *1/04*
U.S. Cl. 57—77.3 **11 Claims**



A device for the production of false twisted yarns which includes a first plate having a passage for the yarn therethrough; a second plate having a passage for the yarn therethrough aligned with the passage of the first plate and a surface in abutting relation to a surface of the first plate; and at least one curved conduit defined by recesses in at least one of the abutting surfaces of the first and second plates, such conduit communicating with the passages through the first and second plates. Means is provided to hold the yarn in a substantially constant position when traveling through the passages of the first and second plates and the curved conduit converges substantially tangentially toward such means to hold the yarn in place. When a rapidly moving fluid, e.g., air, is passed through the curved conduit, the same impinges upon the yarn and a false twisting effect occurs.

3,811,261
SYSTEMS FOR MONITORING YARNS IN MULTICOIL PRODUCTION TEXTILE MACHINES
Ernst Felix, Uster, Switzerland, assignor to Zellweger, Ltd., Uster Factories for Apparatus and Machines, Uster, Switzerland
Filed June 9, 1972, Ser. No. 261,409
Claims priority, application Switzerland, June 10, 1971, 8437/70
Int. Cl. D01h *13/16*
U.S. Cl. 57—81 **7 Claims**

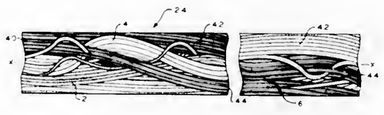


A circuit for monitoring yarns in multicoil production machines in the textile industry wherein the outputs of a plurality of feelers associated with respective yarns are logically analyzed to detect respective yarn break conditions and suitably control the operation of individual coils or the entire machine.

3,811,262
PRODUCTION OF ASBESTOS YARNS
Robert J. Clarkson, Winnsboro, S.C., assignor to Uniroyal, Inc., New York, N.Y.
Filed Oct. 29, 1971, Ser. No. 193,979
Int. Cl. D02g *3/04, 3/20*
U.S. Cl. 57—140 BY **23 Claims**

In the production of drafted lightweight, high strength asbestos yarn with good strength, uniformity and weaving properties, the occurrence of breaks during drafting and the resultant waste of materials, labor and time are minimized by incorporating an undrawn continuous filament yarn, made of a drawable synthetic polymeric fiber, in each narrow strand or sliver of blended asbestos and staple textile fibers formed from the web thereof emanating from the card and just prior to the entry of the strands into the rub apron system where each strand is compacted and formed into a roving. The filament yarn thus constitutes a base for the asbestos and textile fibers and, by virtue of its drawability, can stretch with the roving during the subsequent drafting thereof and hold the fibers together. The draw ratio of the filament yarn should be approximately the same as, and preferably is slightly greater than, the draft ratio of the asbestos fiber roving. This abstract is not to be taken as either a complete exposition or as a limitation of the present invention, however, the full nature and extent of the invention being discernible only by reference to and from the entire disclosure.

3,811,263
NON-TWISTED, HEATHER YARN AND METHOD FOR PRODUCING SAME
Richard C. Newton, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Feb. 23, 1972, Ser. No. 228,626
Int. Cl. D02g *3/22, 1/16, 1/20*
U.S. Cl. 57—140 R **15 Claims**



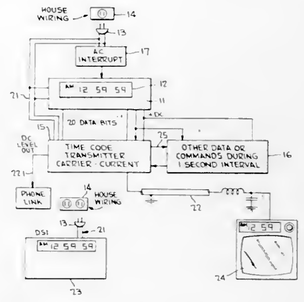
A non-twisted, heather yarn is formed of a plurality of major yarn bundles at least one of which is of a substantially different color from the remaining bundles. Each major yarn bundle is formed of a multiplicity of continuous filaments and has from about 10 to about 90 percent of its filaments cohering to form secondary bundles with the remaining filaments of each major bundle varying in number along the length of the yarn, being interlaced with other major bundles of the yarn, and being randomly located about the yarn axis. Each of the secondary bundles in each unit length of the yarn of about 6 inches has a secondary bundle portion formed of greater than about 30 percent of the filaments of its major bundle and each of the secondary bundles in each unit length of yarn of about 8 inches is non-uniformly, differently oriented relative to the yarn axis.

3,811,264
YARN CREELING AND TRANSFERRING PROCESS
Charles Alonzo Jones; Jerry Joe Lawson, and William Carl Mayrose, all of Shelby, N.C., assignors to Fiber Industries, Inc., Charlotte, N.C.
Filed Apr. 10, 1972, Ser. No. 242,775
Int. Cl. D01h *1/22, 1/30, 15/00*
U.S. Cl. 57—159 **5 Claims**

Process for creeling and transferring (joining the terminal portion of yarn from a first yarn package to the leading end of yarn from a second yarn package) in order to continuously draw and texture undrawn yarn.

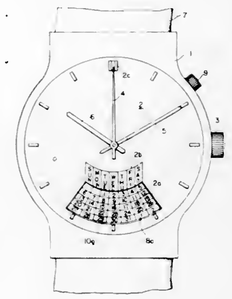
3,811,265
CODED TIME INDICATING TRANSMISSION SYSTEM
John P. Cater, 3519 Fallen Leaf Ln., San Antonio, Tex.
Filed Jan. 17, 1973, Ser. No. 324,397
Int. Cl. G04c *13/02*
U.S. Cl. 58—24 R **19 Claims**

Time indicating signals are transmitted from a master clock at a central station to a slave clock at a peripheral station via a two-wire line as binary values represented by pulsed duration modulated signals. Clock, coding and transmitting circuitry at the central station are normally energized by an a.c. power line source. In the event of failure of the a.c. power source, the clock is energized by a battery and transmission from the central station to the remote station ceases. On resumption of power, the first transmission from the central station to the peripheral station enables the slave clock to provide a correct time indication. Transmission can be over any existing lines in-



terconnecting the central and peripheral stations, such as a 60-cycle power line, television cable, or a telephone link. If television cable or 60-cycle line is employed, the presence and absence of voltage is indicated by frequency shift keying transmission. Transmission of the time indication requires only a fraction of the total transmission time, and is constant for all time indications, whereby other data signals can be transmitted between the central and peripheral stations.

3,811,266
CALENDAR TIMEPIECE
Hiroyoshi Samura, Tokyo, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan
Filed Apr. 23, 1973, Ser. No. 353,366
Claims priority, application Japan, Apr. 22, 1972, 47-40721
Int. Cl. G04b *19/24*
U.S. Cl. 58—58 **4 Claims**



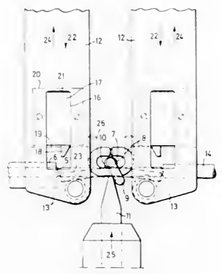
A calendar timepiece, wherein a seven day calendar display having each day of the week arranged on a line with a plurality of calendar date representations arranged in several rows to form a lattice work, positioned in close proximity to said day calendar display. Also provided are a plurality of indicating members, adapted to be commonly driven by movement of the timepiece to advance a step each complete day.

3,811,267
WATCH MOVEMENT AUTOMATIC REWINDING ASSEMBLY WITH ROTATING MASS
Roland Zaugg, and Josef Fluck, both of Grenchen, Switzerland, assignors to A. Schild S.A., Grenchen, Switzerland
Filed Sept. 5, 1973, Ser. No. 394,527
Claims priority, application Switzerland, Sept. 14, 1972, 13487/72; June 15, 1973, 8738/73
Int. Cl. G04b *5/02*
U.S. Cl. 58—82 A **16 Claims**



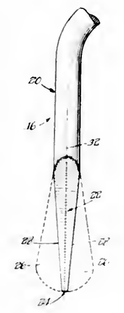
An automatic rewinding device with a rotating mass for use in watch movement, wherein the pinion of the rewinding mass meshes with a setting-wheel mounted on a lever capable of moving in such manner as to cause the setting-wheel to mesh with or free the first wheel-and-pinion of the rewinding gear-train depending on the direction of rotation of the mass, this first setting-wheel being subjected to the action of a pawl, and including a single spring acting on the lever and on the pawl and a movable energizing component which may move from a release position to an engaging position in which latter it will keep the spring energized, the energizing component being movable from outside the movement following the latter's assembly.

3,811,268
APPARATUS FOR FORMING CHAIN-LINKS
Paul Rahn, Cologne, Germany, assignor to Meyer, Roth & Pastor Maschinenfabrik GmbH, Cologne, Germany
Filed Aug. 23, 1972, Ser. No. 282,955
Int. Cl. B21l *11/02*
U.S. Cl. 59—27 **5 Claims**



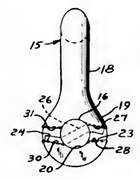
Apparatus for forming chain links with minimum stress on the forming mandrel and dies in which a rod to be bent into a chain link of succeeding links of a chain is oriented into a longitudinal groove of a fixed mandrel by a feeder; a rod holder engages the rod medially while a pair of flanking dies engage the rod at one side move it toward the holder and form the back-curve (or initiate a portion of it) as the dies are moved in one direction; the flanking dies then move in an opposite direction simultaneously with the work holder, completing the back curve, where after the flanking dies move a distance substantially equal to the arc of the side curves being formed (corresponding to the outer configuration of the fixed mandrel) to form the rod into a substantial U-shape whereafter terminal ends of the rod are bent toward each other to complete the link.

3,811,269
METHOD OF FORMING A DRIVE FASTENER DEVICE
Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson Co., Sterling, Ill.
Division of Ser. No. 46,397, June 15, 1970, abandoned. This application Sept. 11, 1972, Ser. No. 288,055
Int. Cl. B21d *53/46;* **B21g** *3/00*
U.S. Cl. 59—77 **8 Claims**



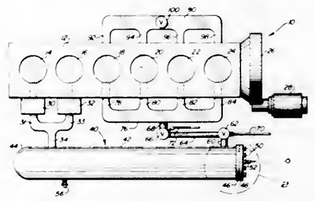
The present disclosure relates generally to improvements in staples and spikes and in methods for producing the same. The work engaging extremities of the staple or spike tines are formed with oppositely disposed converging swaged surfaces. Each tine extremity also present opposed longitudinal surfaces disposed at substantially 90° with respect to the converging swage surfaces, and terminate at opposite ends of a complemental arcuate or curved work engaging edge. The invention also contemplates a novel method of producing the above-mentioned structure by shearing and swaging the opposite extremities of a pre-determined length of metallic rod stock.

3,811,270
SHACKLE FOR KILN CHAIN
Floyd O. Smith, Portland, Oreg., assignor to Esco Corporation, Portland, Oreg.
Filed June 7, 1972, Ser. No. 260,411
Int. Cl. F16g *15/00*
U.S. Cl. 59—86 **5 Claims**



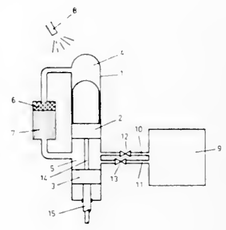
A shackle is disclosed for a kiln chain including a U-shaped unitary body having a pair of legs equipped with eyes for the receipt of a shackle pin. Diametrically aligned slots are associated with one of the eyes. The shackle pin extending through the eyes and has a bore at one end thereof. A locking pin is in said bore and extends into the slots whereby rotation of the shackle pin causes distortion of the locking pin to provide a secure support for suspending kiln chain.

3,811,271
COMBUSTION ENGINE APPARATUS HAVING COMPRESSION CYLINDERS AND POWER CYLINDERS
Edward F. Sprain, 1070 N. 99th Ave., Space 16, Sun City, Ariz.
Filed Sept. 20, 1973, Ser. No. 398,949
Int. Cl. F02g *3/02*
U.S. Cl. 60—39.6 **6 Claims**



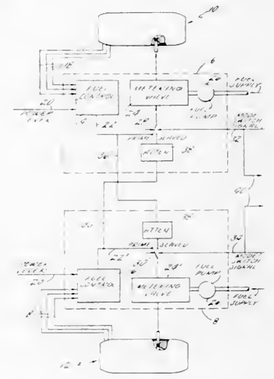
External combustion engine apparatus is disclosed which includes compression cylinders for compressing a fuel-air mixture from a carburetor and separate power cylinders which receive combustion gases under relatively high pressure and derive power therefrom. Between the compression cylinders and the power cylinders are combustion chambers, which receive the compressed fuel air mixture and in which ignition and combustion takes place, and a pressure accumulator which receives the combusted gases from the combustion chambers. From the pressure accumulator the gases flow into the power cylinders.

3,811,272
STIRLING CYCLE ENGINE POWER CONTROL MEANS
Sven Anders Samuel Hakansson, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden
Filed Nov. 9, 1972, Ser. No. 305,074
Claims priority, application Great Britain, Nov. 9, 1971, 51865/71
Int. Cl. F03g *7/06*
U.S. Cl. 60—518 **5 Claims**



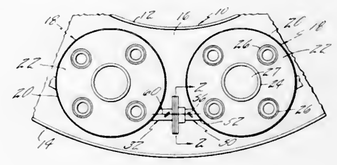
To control the power of a hot gas Stirling cycle engine a dead volume chamber is connected with the low temperature working chamber by two valves. The first valve has a smaller opening thereby operating the engine to absorb power acting as a brake. The second valve has a larger opening which permits the engine to idle at reduced power.

3,811,273
SLAVED FUEL CONTROL FOR MULTI-ENGINED AIRCRAFT
Anthony N. Martin, Simsbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 8, 1973, Ser. No. 339,479
Int. Cl. F02c *7/02;* **F02g** *3/00;* **F02c** *9/04*
U.S. Cl. 60—39.15 **8 Claims**



When a failure occurs in a fuel control for a turbine engine in a multi-engine aircraft, the fuel metering valve for the engine with the failed fuel control is connected to operate in a slaved mode in response to the control signal produced by the prime fuel control of one of the other aircraft engines. For slaved mode operation, the control signal produced by the prime fuel control is slightly attenuated and lag compensation is applied thereto before the control signal is fed to the fuel metering valve of the slaved engine in order to compensate for variations in engine characteristics and to provide additional safety margin.

3,811,274
CROSSOVER TUBE CONSTRUCTION
Henry A. Calderon, Newington, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Aug. 30, 1972, Ser. No. 284,828
Int. Cl. F02c *7/20*
U.S. Cl. 60—39.32 **11 Claims**

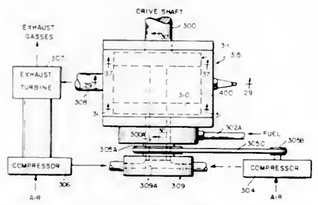


In a burner can for a combustion chamber for a gas turbine engine, a crossover tube interconnecting adjacent burner cans comprises a cylindrical outer wall extending laterally from a side opening in the burner can wall and a cylindrical inner wall radially spaced from the outer wall forming an annular passageway therebetween, the passageway having one end in communication with and terminating substantially at the combustion zone of the burner can. The outer wall has an opening for admitting cooling fluid into the annular passageway, whereupon cooling fluid entering the annular passageway is discharged from the annular passageway into the combustion zone and is carried downstream by currents within the com-

bustion zone thereby cooling the downstream portion of the outer wall where it joins the side opening of the burner can wall.

The invention described herein was made under or during the course of a contract with the Department of the Navy.

3,811,275
ROTARY TURBINE ENGINE
Antonio C. Mastrobuono, 25 Woodland, Belmont, Mass.
Continuation-in-part of Ser. No. 8,918, Feb. 5, 1970, abandoned, which is a continuation-in-part of Ser. No. 870,615, Oct. 27, 1969, abandoned, which is a continuation-in-part of Ser. No. 812,667, April 2, 1969, abandoned. This application Apr. 23, 1973, Ser. No. 353,524
Int. Cl. F02c *5/02*
U.S. Cl. 60—39.34 **19 Claims**

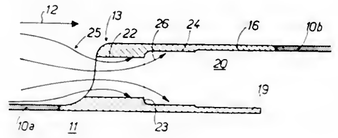


A rotary turbine engine comprising a drive shaft, a rotor integral with the drive shaft, and a substantially cylindrical stationary casing surrounding the rotor, the rotor comprising a plurality of combustion chambers spaced radially with respect to the drive shaft. Each combustion chamber comprises spaced end walls substantially normal to the axis of the drive shaft and has a nozzle extending outwardly from the chamber with its axis directed towards peripheral wall of the casing. Each combustion chamber also comprises a substantially arcuate wall extending between said end walls formed by a substantially arcuate plane which is generated about a line which is substantially at the intersection of a plane which coincides with the longitudinal axis of the nozzle and a plane which substantially coincides with a radius of the rotor which is substantially normal to the second plane. The engine also comprises means for supercharging the combustion chambers comprising a centrifugal air compressor driven by the drive shaft at a substantially higher speed than the drive shaft and means for providing communication between said centrifugal air compressor and said combustion chambers for at least initially supercharging the combustion chambers, means for injecting ignitable gas to the combustion chambers and means for igniting the gas in the chambers to cause expansion thereof and the expanded gases to emerge from the nozzles thereby causing rotation of the rotor.

The engine is capable of many uses for example in vehicles such as automobiles, tractors, trains and airplanes and also in electric power generators, power tools, outboard motors, helicopters, lawn mowers, etc.

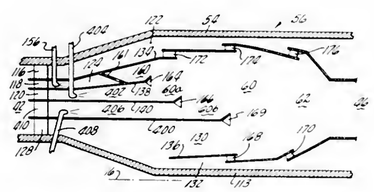
3,811,276
COOLING OF COMBUSTION CHAMBER WALLS
Jacques Emile Jules Caruel, Dammarie-les-Lys; Herve Alain Quillevere, Issy-les-Moulineaux; Jean-Pierre Jules Emile Castellant, Chartrettes, and Armand Jean-Baptiste Lacroix, Itteville, all of France, assignors to Societe Nationale D'Etude et de Construction de Moteurs d'Aviation, Paris, France
Filed Oct. 6, 1972, Ser. No. 295,585
Claims priority, application France, Oct. 8, 1971, 71.36330
Int. Cl. F02c *7/18*
U.S. Cl. 60—39.65 **6 Claims**

Means for providing a connection between an upstream element and a downstream element, offset towards the outside in relation to the latter, in a flame tube of a combustion chamber which is intended to function in an external flow of pressurized air. The connecting means comprise an annular solid body adapted to connect the said upstream element to the said downstream element and a thin tongue which is located in the extension of the upstream element and defines, with the downstream element, an annular duct into which there emerges a plurality of regularly spaced passages which pass



through the said solid body in the general direction of the external flow in such a way as to take, from the latter, a current of air which is adapted to form, downstream of the annular duct, a film of cooling air on the inner surface of the downstream element. Each passage comprises an upstream bore which emerges coaxially, via an abrupt widened portion, into a downstream bore having a greater cross-section and an appreciable length which itself emerges into the annular duct.

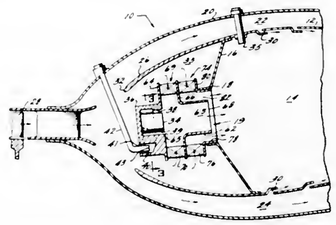
3,811,277
ANNULAR COMBUSTION CHAMBER FOR DISSIMILAR FLUIDS IN SWIRLING FLOW RELATIONSHIP
Stanley J. Markowski, East Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Division of Ser. No. 84,086, Oct. 26, 1970. This application Apr. 18, 1973, Ser. No. 352,138
Int. Cl. F02c *3/00*
U.S. Cl. 60—39.65 **19 Claims**



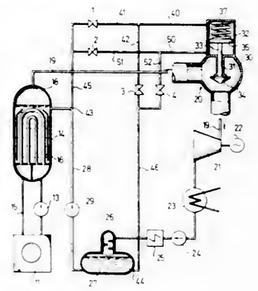
The characteristics of thermodynamically and aerodynamically dissimilar fluids in swirling flow relationship are established and/or varied to accelerate mixing and hence combustion in the combustion zone and mixing and hence cooling of the products of combustion, in the dilution zone of an annular burner.

3,811,278
FUEL INJECTION APPARATUS
Jack Rogers Taylor, Cincinnati, and Thomas Loyd Du Bell, Maineville, both of Ohio, assignors to General Electric Company, Lynn, Mass.
Filed Feb. 1, 1973, Ser. No. 328,641
Int. Cl. F02c *7/22*
U.S. Cl. 60—39.74 R **8 Claims**

An improved fuel injection apparatus of the type employing a system of counter-rotating primary and secondary air swirl vanes is provided. Fuel from a low pressure source is first accelerated through an involute swirl passage by an inflow of high velocity pressurized air. The pre-swirled fuel-air mixture is then discharged into a centrifuging air stream where it is atomized and circumferentially dispersed in a uniform manner. An additional counter-rotating air stream in cooperation with the initial centrifuging air stream develops high shear stresses to further atomize and uniformly disperse the fuel-air mixture for burning in a combustion chamber.



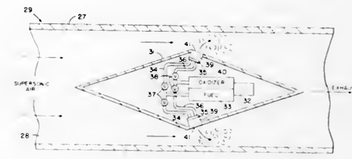
3,811,279
SHUT-OFF VALVE FOR A WORKING MEDIUM CIRCUIT
Ernst Vogeli, Wiesendangen/Zurich, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland
Filed May 21, 1971, Ser. No. 145,705
Claims priority, application Switzerland, May 26, 1970, 7809/70
Int. Cl. F01k *7/20*
U.S. Cl. 60—660 **9 Claims**



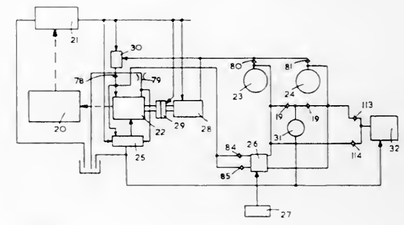
The shut-off valve is operated via a servo-motor under the influence of the working medium in the circuit. One side of the servo-piston is connected to a first pressure point in the circuit while the opposite side is connected to a second pressure point in the circuit of different pressure. Control valves are also provided to reverse the connections of the pressure points to the servo-motor and to supply the working medium to the servo-motor. Depending on the valve condition required, the control valves are manipulated to permit opening or closing of the valve.

3,811,280
PROCESS OF USING STORABLE PROPELLANT FUELS IN SUPERSONIC COMBUSTION RAMJETS
Walter W. Wharton, and Joseph W. Connaughton, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 6, 1967, Ser. No. 674,064
Int. Cl. C06d *5/08, 5/04*
U.S. Cl. 60—207 **6 Claims**

Liquid propellant fuels such as liquid hydrazines, amine fuels, and blends thereof with hydrocarbons used as storable fuels for supersonic combustion in ramjets. The storable liquid fuel is decomposed in flight into a hot hydrogen-containing gas which is then injected into a supersonic air stream and subsequently oxidized in a supersonic combustion mode.



3,811,281
HYDRAULIC ENGINE STARTING SYSTEMS
John Arthur Wise, Dudley; Raymond Joseph Wellings, Oxley, and Eric Williams, Codsall, all of England, assignors to Lucas Aerospace Limited, Birmingham, England
Filed July 12, 1972, Ser. No. 271,188
Int. Cl. F15b *1/02*; **F02n** *17/00*
U.S. Cl. 60—413 **10 Claims**

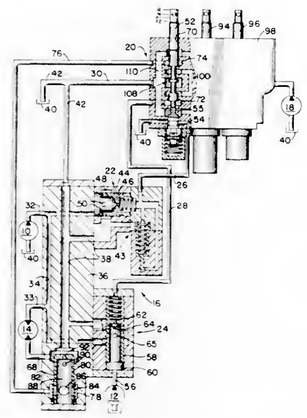


An hydraulic engine starting system includes a motor which is used both for engine starting and for driving a pump for charging accumulators for storing liquid under pressure. For engine starting the motor is connected to one accumulator to receive liquid therefrom. For charging the accumulators the motor is connected to an hydraulic circuit powered by the engine and a clutch connects the motor to the pump. The clutch is operated by pressure in the circuit so that it is disengaged during engine starting. The motor has a constant flow servo-system which has means for varying the displacement of the motor according to whether the motor is receiving liquid from the accumulator or the circuit.

3,811,282
HYDRAULIC CONTROL CIRCUIT FOR A REVERSIBLE HYDRAULIC MOTOR
Lawrence F. Schexnayder, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Jan. 26, 1973, Ser. No. 327,240
Int. Cl. F15b *13/09*
U.S. Cl. 60—421 **10 Claims**

There is disclosed a hydraulic control system for selectively operating a remote hydraulic motor in at least two forward operating speeds and at least one reverse operating speed. The system includes first and second pumps and pilot controlled valve means to control communication of the pumps with the motor. The pilot controlled valve means are responsive to a main control valve to selectively communicate the first and

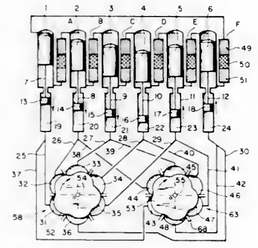
second pumps to the motor and to drain, thus providing for variable speed operation of the motor. A third pump operatively communicates by way of the main control valve and a reverse check valve to provide fluid pressure for reverse operation of the motor.



3,811,283
MULTI-CYLINDER STIRLING GAS MOTOR WITH DOUBLE-ACTING PISTONS

Rudolf Hartmann, Karlsbad-Auerbach, and Horst Zimmermann, Mammolshain Taunus, both of Germany, assignors to Battelle-Institut e.V., Frankfurt Main, Germany

Filed Feb. 8, 1973, Ser. No. 330,665
Claims priority, application Germany, Feb. 11, 1972, 2206488
Int. Cl. F02g *1/04*
U.S. Cl. 60—484 **8 Claims**

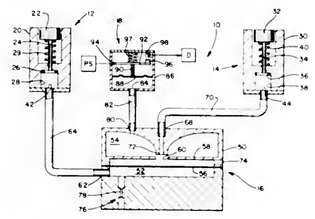


Multi-cylinder Stirling gas motor with double acting pistons which are rigidly coupled with hydraulic pump pistons by piston rods. The hydraulic pumps provide pressure fluid driving two identical hydrostatic transmissions having multiple lobed rotatable disc pistons with their outer edges lying sealed within respective housings having a number of chambers which corresponds with the number of hydraulic pumps, each pair of corresponding chambers of the two hydraulic motors being connected in parallel and to the respective hydraulic pump. The disc pistons of the hydraulic motors are mounted upon respective eccentric members which can be angularly adjusted relative to each other. The rate of delivery of hydraulic fluid by the respective pumps to the chambers of both hydraulic motors is varied by relative rotation of the eccentric shafts mounting the rotatable disc pistons of the hydraulic motors to change the phase position of the rotatable disc pistons relative to each other.

3,811,284
CONTROL SYSTEM

Donald H. Trussell, 23 Princeton Rd., Burlington, Mass., and Philip A. Surette, Reading, Mass., assignors to said Trussel, by said Surette

Filed July 6, 1972, Ser. No. 269,416
Int. Cl. F15b *13/04*
U.S. Cl. 60—533 **18 Claims**

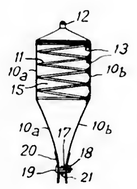


A control system, suitable for use as a two-hand safety control system, for producing an output signal to operate a device comprising a first fluid pulse generator generating a first fluid pulse in response to a manual force (e.g., depressing a first push-button), a second fluid pulse generator generating a second fluid pulse in response to another manual force (e.g., depressing a second push-button), and a fluid-responsive switch responsive only to substantially simultaneous receipt of these pulses to produce the output signal.

3,811,285
FLOATING ANTI-POLLUTION BARRIER DEVICE

Louis Ballu, Colombes, France, assignor to Pneumatiques Caoutchouc Manufacture et Plastiques Kleber-Colombes, Paris, France

Filed June 9, 1972, Ser. No. 261,410
Int. Cl. E02b *15/04*
U.S. Cl. 61—1 F **24 Claims**



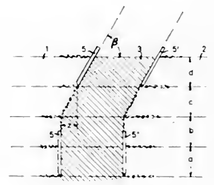
A floating anti-pollution barrier for use in water which is constituted by a skirt-like element immersed in the water and supported by floating elements which are constituted by air-tight pockets whose openings face in the downward direction when installed in the water; the pockets are thereby connected with one another by bands of flexible fabric.

3,811,286
DAM HAVING CONTOURED INTERNAL APRON

Alfred Feiner, Porz-Westhoven, Germany, assignor to Strabag Beu-AG, Koln-Deutz, Germany

Filed Nov. 17, 1972, Ser. No. 307,662
Claims priority, application Germany, Dec. 8, 1971, 2160874
Int. Cl. E02b *7/10*
U.S. Cl. 61—31 **20 Claims**

In a dam comprising an upright core packing providing a sealing apron, upstream and downstream embankments intimately interengaged with and supporting the core packing, said embankments having different individual settling rates tending to lessen engagement thereof with the core packing, the improvement which comprises the angle of inclination

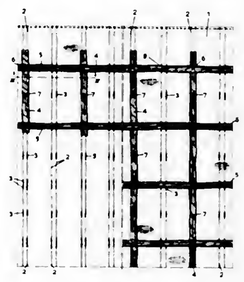


with respect to the horizontal on the downstream side, being less in the upper portion of the core packing than in the lower portion thereof for counteracting the different settling rates and the tendency thereof to lessen said engagement.

3,811,287
BOTTOM AND BANK FACING

Jan Gerrit De Winter, Lijsterstraat 18, Enschede, Netherlands

Continuation-in-part of Ser. No. 721,784, April 16, 1968, abandoned. This application Aug. 10, 1971, Ser. No. 170,607
Claims priority, application Netherlands, Apr. 17, 1967, 6705380; Nov. 2, 1967, 6714909
Int. Cl. E02b *3/12*
U.S. Cl. 61—38 **11 Claims**



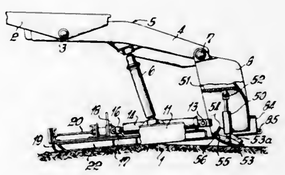
A bottom and bank facing for preventing erosion of subaqueous soil structures comprising a lattice of fascines fastened to a mat of synthetic resin material, wherein the resin material comprises a fabric sheet having means attached thereto for use in securing the fascines to the fabric, such means including transversely spaced groups of threads, each group being woven into the fabric at spaced portions along their length to provide resultant loops or floating portions in each group of threads to which the fascines are attached; or separate strips of fabric fastened to the fabric sheet for being tied to the fascines.

3,811,288
TRAVELING FACE SUPPORT WITH AN ATTACHED EXTENSIBLE SHIELD

Karl-Heinz Wehner, Castrop-Rauxel; Gunter Bell, Horenburg, and Willy Watermann, Dortmund, all of Germany, assignors to Klockner-Werke AG, Duisburg, Germany

Filed May 15, 1972, Ser. No. 253,574
Int. Cl. E21d *15/44*
U.S. Cl. 61—45 D **11 Claims**

A travelling face support has an attached extensible shield which, besides providing the means of shoring up the roof of the seam and providing a connected coal cutting shield, has both a packing shield to protect the coal cutting area and a floor beam. One or more pull-back cylinders act upon a supporting frame divided into sections along its length. A continuous recess, transverse to the direction of the prop conveyor, is provided in each section of the supporting frame to receive a forward longitudinal section of the corresponding floor beam.

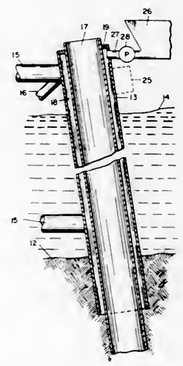


A lifting device, which is supported on the prop floor, is fixed in a recess of a section of the supporting frame in the rear part of the extensible shield beneath the coal cutting shield. The lifting mechanism of this device is used to control the position of the forward longitudinal position of a heel plate of the supporting frame section.

3,811,289
METHODS OF GROUTING OFFSHORE STRUCTURES

Max Bassett, South Houston, Tex., assignor to C. Nelson Shields, Jr., trustee, Houston, Tex.

Continuation of Ser. No. 175,184, Aug. 16, 1971, abandoned, which is a continuation-in-part of Ser. No. 858,951, Sept. 18, 1969, Pat. No. 3,601,999. This application Apr. 16, 1973, Ser. No. 351,261
Int. Cl. E02b *17/00;* **E02d** *5/24;* **E02b** *17/00*
U.S. Cl. 61—46 **5 Claims**

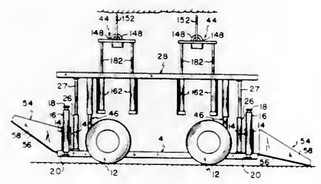


A predetermined amount of grouting material is introduced from the top into an annular space between a piling and a jacket of a supporting leg of an offshore structure. The amount of the material is sufficient to displace water from the space through the lower end of the jacket, and when the material sets, it forms a plug in the bottom portion of the annular space. Additional grouting material is then introduced to fill the upper portion of the annular space and is allowed to set.

3,811,290
MULTI-PURPOSE VEHICLE FOR USE UNDERGROUND

Jon R. Swoager, Imperial, Pa., assignor to Automation Equipment, Inc., Imperial, Pa.

Continuation-in-part of Ser. No. 241,975, April 7, 1972. This application Oct. 20, 1972, Ser. No. 299,354
Int. Cl. E21d *15/44*
U.S. Cl. 61—63 **4 Claims**

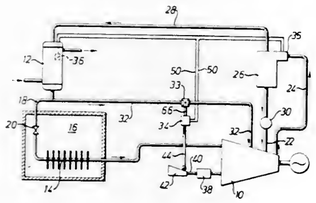


A self-propelled vehicle having independently steerable and suspended wheel assemblies for use in underground excavations. The vehicle includes means for temporarily supporting the roof of an excavation, drilling holes in the roof, and inserting bolts therein. The vehicle also includes scoops mounted at each end with a conveyor joining the scoops, thus giving the machine a self-loading capacity. The application also discloses a method for systematically installing roof bolts.

3,811,291
METHOD OF OPERATING A REFRIGERATION PLANT AND A PLANT FOR PERFORMING THE METHOD

Laurtiz Benedictus Schibbye, Algvagen, Sweden, assignor to Svenska Rotor Maskiner Aktiebolag, Nacka, Sweden

Filed Dec. 14, 1972, Ser. No. 314,993
Claims priority, application Great Britain, Dec. 28, 1971, 60274/71
Int. Cl. F25b *43/02*
U.S. Cl. 62—84 **15 Claims**



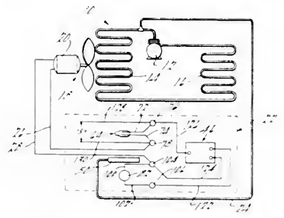
A refrigeration plant including an oil-injected compressor, an oil separator, a condenser and an evaporator. The plant comprises means to introduce liquid refrigerant to the compression phase of the cycle ahead of the oil separator. The plant further comprises means to adjust the amount of liquid refrigerant introduced in response to the temperature difference between the condenser and the oil separator, in order to keep the difference on a constant level of 5°C to 15°C.

3,811,292
REFRIGERATION FAN CONTROL SYSTEM

Walter Harold Hoenisch, Albert Lea, Minn., assignor to King-Seeley Thermos Co., Ann Arbor, Mich.

Filed Apr. 9, 1973, Ser. No. 349,023
Int. Cl. F25b *39/04*
U.S. Cl. 62—183 **20 Claims**

A control for a refrigeration system including a compressor, a condensor, an evaporator and an electrically energized fan for passing air in heat exchange relation with respect to the compressor, the control including a light source, fan control means responsive to the light source for varying the operating

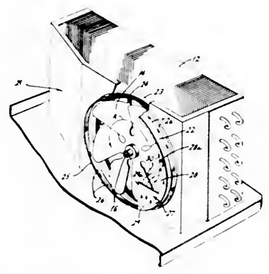


speed of the fan, and means for varying the magnitude of light transmitted to the fan control means from the light source in response to the refrigerant pressure in the refrigeration system.

3,811,293
AIR CONDITIONER CONDENSATE DISPOSAL APPARATUS

James P. Flynn, Connersville, Ind., assignor to Philco-Ford Corporation, Blue Bell, Pa.

Filed Mar. 19, 1973, Ser. No. 342,719
Int. Cl. F25b *47/00*
U.S. Cl. 62—280 **6 Claims**



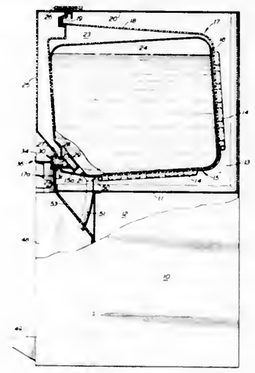
A window type air conditioner in which moisture derived from the evaporator is conveyed to a condenser-containing chamber for disposal therein, said chamber including a wall having an inlet ring which confronts a condenser fan and around the interior surface of which ring moisture circulates during operation of the apparatus. A retaining wall impedes flow of moisture out of the inlet ring in a direction upstream of the condenser fan, and an aspirator baffle means confronts the fan and projects radially inwardly of the inlet ring to establish a reduced pressure zone on the fan side of the baffle means. Moisture circulating in the inlet ring flows to the outer edge of said baffle means and thence across the baffle means to an inner edge thereof from which it is discharged and entrained in the condenser cooling air stream.

3,811,294
COOLER FOR FAUCET-EQUIPPED BEVERAGE CONTAINERS

William Taylor, Columbus, Ohio, assignor to Ebco Manufacturing Company, Columbus, Ohio

Filed Feb. 23, 1973, Ser. No. 335,041
Int. Cl. B67d *5/62*
U.S. Cl. 62—390 **2 Claims**

A refrigerated cooler-dispenser for drinking water or other beverage which is packaged in a rigid or semi-rigid, faucet equipped container. The cooler-dispenser features a thermally insulated cabinet having a cooling compartment to receive and support one or more cubicle beverage containers in forwardly and downwardly tilted positions with the faucets of the beverage containers extending forwardly outwardly through a

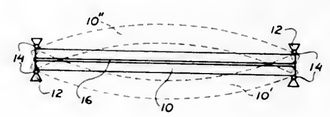


recessed closure for the cooling compartment, and wherein the cabinet is equipped with exteriorly accessible, manually operable faucet actuators adapted to engage and manipulate the faucet of the beverage containers between open and closed positions.

3,811,295
MEANS FOR FATIGUE PROOFING A SOLID ROTARY SHAFT

Hrista Stamenkovic, 4426 12th St., Riverside, Calif.

Continuation-in-part of Ser. No. 25,733, April 6, 1970, abandoned. This application June 12, 1972, Ser. No. 261,784
Int. Cl. F16d *1/00*
U.S. Cl. 64—1 V **10 Claims**



Fatigue is prevented in a solid rotary shaft by maintaining it devoid of inflection points and operating it in a pair of bearings to prevent buckling of the shaft because of the bending or vibrating action of applied loads which tend to induce tensile forces in the shaft leading to fatigue failure. This is accomplished by providing at least one longitudinal bore in the shaft and anchoring a closely fitted tensioned tendon in the bore in a manner placing the shaft solely in compression to a degree sufficient to neutralize substantially the tensile stresses induced in the shaft during rotation for maintaining the shaft devoid of reversals of curvature and preventing the creation of an inflection point, the close fit of the tendon in the bore confining the tendon against lateral movement relative to the bore and preventing an inflection point in the tendon. Preferably, there are several bores in the shaft arranged adjacent the periphery thereof, each bore having a closely fitted tensioned tendon anchored therein, the tendons being collectively effective for maintaining the shaft in compression and preventing the creation of an inflection point in the shaft. The tension of the tendons can be varied for controlling the oscillation of the shaft.

3,811,296
CIRCULAR KNITTING MACHINE WITH JACK REMOVAL SLOTS

Massimo Bianchi, and Gianni Conti, both of Firenze, Italy, assignors to G. Billi & C.S.P.A., Firenze, Italy

Filed Sept. 13, 1971, Ser. No. 179,789
Claims priority, application Italy, Sept. 14, 1970, 11775/70
Int. Cl. D04b *15/32*
U.S. Cl. 66—8 **2 Claims**

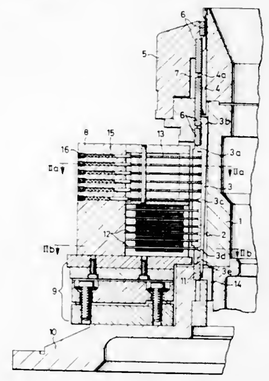


At least one through recess extends through the cam shell surrounding the rotary needle cylinder of a circular knitting machine at a predetermined position in line with the cam track therein to allow for withdrawal of the needles jacks therethrough. The upper and lower edges of the recess are chamfered to permit inclination of the jacks with respect to the needle cylinder to facilitate said withdrawal operation.

3,811,297
CONTROL MECHANISM FOR CIRCULAR KNITTING MACHINES WITH ROTATING NEEDLE CARRIER

Gerhard Hamma, Spaichingen-Wurttemberg Hofwies, Germany, assignor to Maschinenfabrik Spaichingen GmbH, Spaichingen, Wurttemberg, Germany

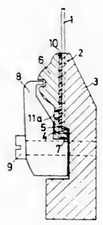
Filed Oct. 1, 1970, Ser. No. 77,226
Claims priority, application Germany, Oct. 9, 1969, 1950846
Int. Cl. D04b *15/78*
U.S. Cl. 66—50 R **2 Claims**



A pattern control mechanism for a circular knitting machine with a rotating needle carrier, in which the needles are controlled at a pattern position by means of a plurality of

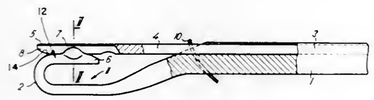
electromagnetic pattern devices, each needle being provided with an associated needle jack having control feet which follow each other in sequence in a stepwise manner, the needle jacks being slidable in the needle carrier and being selectively swingable, at the pattern selection point all of the needle jacks with their control feet are carried past a ramp-like cam which swings the needle jacks into a first position, in which they are in a position to cooperate with their jack-advancing cam. A plurality of selectively energizable electromagnetic stopping means are provided for holding the jacks into a second position wherein they do not cooperate with such cam. Every stopping magnet is provided with a movable returning mechanism; the stopping magnets work upon selected jacks at the pattern selecting station, the returning force which opposes the magnets being less than the strength of the magnets.

3,811,298
MOUNTING SUPPORT FOR THE KNITTING NEEDLE OF A WARP KNITTING MACHINE
Karl Kohl, Chlorodontstrabe 10, Obertshausen, Germany
Filed Apr. 10, 1972, Ser. No. 242,359
Int. Cl. D04b *23/00, 27/00*
U.S. Cl. 66—86 **1 Claim**



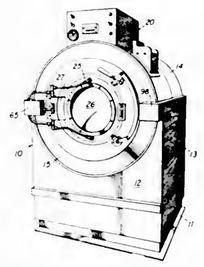
The knitting needles of a warp knitting machine are received and held in grooves of a needle bar and a clamping plate is removably mounted on the needle bar for holding the knitting needles on the needle bar. A resilient synthetic resin sheet, which conforms to the clamping plate, is removably arranged between the needle bar and the clamping plate.

3,811,299
TWO PART KNITTING NEEDLE
Ervin Peschl, Brna; Josef Zmatlik; Jaromir Sedlecky, both of Praha, and Vladimir Kolar, Brno, all of Czechoslovakia, assignors to Statnis vyzkumny ustav textilni, Liberec, Czechoslovakia
Filed Dec. 21, 1971, Ser. No. 210,367
Claims priority, application Czechoslovakia, Dec. 22, 1970, 8694-70
Int. Cl. D04b *35/04*
U.S. Cl. 66—120 **2 Claims**



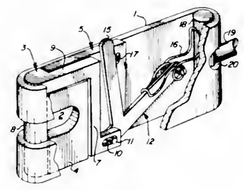
A two-part knitting needle comprising a hook part formed with a stem and a hook, and a sliding latch part to reciprocate in a longitudinal guideway provided in said stem, the free end portion of the hook being terminated in an onrun portion to be engaged by said sliding latch part in order to prevent the latch from being deflected towards the interior of the hook part.

3,811,300
SPRAY RINSE DEVICE FOR WASHER-EXTRACTOR
Henry W. Barton, and Robert Cloud, both of Wichita, Kans., assignors to Unimac Company, Inc., Marianna, Fla.
Filed June 26, 1972, Ser. No. 266,255
Int. Cl. D06f *33/02, 39/08*
U.S. Cl. 68—12 R **10 Claims**



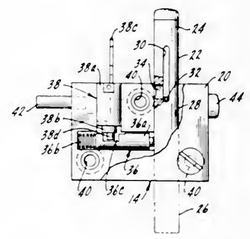
A washing machine having a housing structure with a pivotally mounted closure means and including a power driven basket rotatably supported for tumbling clothes during a washing cycle and spinning clothes during a rinsing and spin-drying cycle. The washing machine includes automatic control means for effecting washing, rinsing and spin-drying cycles of operation. Electrically controlled locking means is operatively associated with the closure means for maintaining the closure means in a locked position during cyclic operation of the washing machine, with the locking means being automatically releasable after a washing cycle of operation is completed. Spraying means is supported on the closure means for spraying a liquid rinsing medium radially outward through the rotatable clothes supporting basket during a rinsing cycle. The spraying means includes valve means cyclically controlled for continuously dispensing rinsing liquid during a rinsing cycle, with the valve being operable for stopping the flow of liquid through the dispensing nozzles in response to the closure being moved to an open position.

3,811,301
MULTIPLE PURPOSE LATCH MECHANISM
Louis E. Woodcock, Turf Paradise c/o Stable Gate, Bell Rd. & 19th Ave., Phoenix, Ariz.
Filed Jan. 29, 1973, Ser. No. 327,475
Int. Cl. E05b *65/48*; **E05c** *19/08*
U.S. Cl. 70—12 **3 Claims**



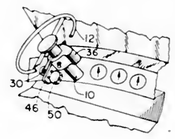
A latch mechanism is disclosed which includes a generally rectangular housing having a U-shaped notch in one end thereof for receiving a chain link or other element to be restrained. The outer portion of the notch is selectively closed off by a laterally translating bolt such that the element to be contained is completely surrounded. The bolt is generally U-shaped and is provided with a rearwardly extending tag at the outer end of one of its legs. The tag is slotted to receive a pin fixed to a pivot member upon which spring bias may be applied to urge the bolt normally open or normally closed, as may be desired. Appropriate finger operated lock means are preferably included in both the normally open and normally closed variants. Optionally, a key operated lock mechanism may be provided at the housing end remote from the element receiving notch. To the extent possible, the entire mechanism, as well as the housing, is fabricated from stainless steel or a similar alloy whereby the unit is extremely sturdy and longlasting, even under adverse environmental conditions.

3,811,302
LOCK FOR SLIDING DOORS
Donald E. Sorensen, 401 N. Rust Trail, Willow Springs, Ill.
Filed July 26, 1972, Ser. No. 275,185
Int. Cl. E05b *65/08*
U.S. Cl. 70—100 **3 Claims**



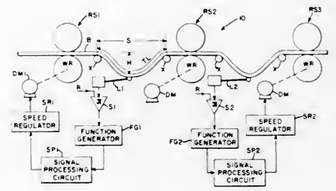
A lock for sliding doors that is adapted to be easily installed on the lower left, lower right, upper left or upper right-hand corner of the sliding door. The lock prevents the sliding door from being moved in a horizontal or vertical position. The lock includes a housing with a movable plunger mounted therein which has a retracted and locking position. Locking means within the housing lock the plunger in its locking position. Key actuated means activate the locking means to release the plunger so that the plunger may be moved from its locking position to its retracted position.

3,811,303
PROTECTIVE GUARD FOR THE IGNITION SWITCH OF A MOTOR VEHICLE
Glynn C. Robertson, 4555 S. Federal St., Apt. 306, Chicago, Ill.
Filed Jan. 12, 1973, Ser. No. 323,106
Int. Cl. B60r *25/00*; **H01h** *9/28*
U.S. Cl. 70—237 **3 Claims**



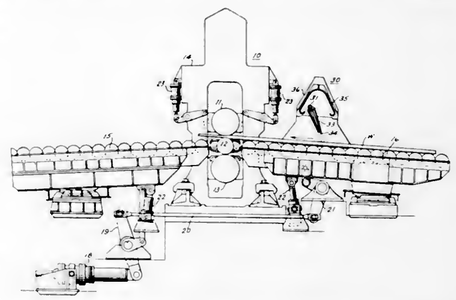
A protective guard for the ignition switch of a motor vehicle comprising a pair of members which are hingedly secured together so that they may be opened and closed with respect to the steering column of a motor vehicle and positioned around the steering column adjacent the ignition switch with one of said members having a housing surrounding the ignition switch, and means for locking the pair of members around said steering column to provide a protective guard and prevent unauthorized access to the ignition switch.

3,811,304
LOOPER CONTROLLED ROLLING MILL
George E. Gorker, Schenectady, N.Y., assignor to General Electric Company, Salem, Va.
Filed Sept. 20, 1972, Ser. No. 290,613
Int. Cl. B21b *37/04*
U.S. Cl. 72—17 **13 Claims**



A Rod and Bar Merchant mill is described wherein the output signals from the loopers measuring the loop depth between stands is amplified by increasing factors with increased loop depth beyond a predetermined amount. The amplified signals from the loopers then are utilized to control the speed regulator supervising the motor drive of the adjacent stand to return the loop to the desired configuration. For decreasing loop depths, a constant amplification factor preferably is utilized to adjust the signals prior to feeding the signals to the speed regulators of the adjacent stands.

3,811,305
MOVABLE DESCALER SPRAY HEADER
William H. Saylor, Jr., Davidsville, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.
Filed Oct. 10, 1972, Ser. No. 296,480
Int. Cl. B21b *45/08*; **B21c** *43/00*
U.S. Cl. 72—39 **12 Claims**

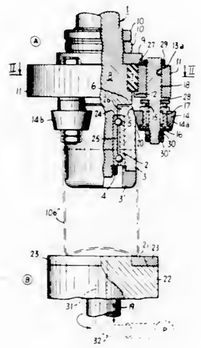


Apparatus for applying a high pressure fluid spray to descale a workpiece in a rolling mill in which the supply of fluid is controlled by the movement of various elements of the rolling mill.

3,811,306
METHOD OF MANUFACTURING THE BODY OF A NECK-IN CAN AND AN APPARATUS USED THEREFOR
Takayuki Yoshimura, No. 22-11, 2-chome, Matsubara, Setagaya-ku, Tokyo, Japan
Division of Ser. No. 269,275, July 5, 1972, Division of Ser. No. 269,275, July 5, 1972. This application Aug. 6, 1973, Ser. No. 386,003
Int. Cl. B21d *19/02*
U.S. Cl. 72—126 **12 Claims**

In the manufacture of the body of an ordinary neck-in can, the metal blank obtained from the metal sheet is subjected to drawing and ironing to form a cylindrical body with a bottom end, which is then subjected to trimming along the peripheral

edge of the upper opening whereby the burr projected from the edge by trimming is broken down before said cylindrical body is passed to the subsequent step. An apparatus for breaking down the burr is also provided.



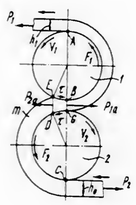
In this apparatus the burr is broken down by means of the relative rotary movement between said cylindrical body having the burr formed and a roller provided for breaking down said burr.

3,811,307

METHOD OF ROLLING METAL SHEET ARTICLES

Vladimir Nikolaevich Vydrin, ulitsa Svobody, 139, kv. 7; Leonid Matveevich Ageev, ploschad MOPRA, 2, kv. 33, and Vladimir Georgievich Sosjurko, ulitsa Teatralnaya, 21, kv. 13, all of Chelyabinsk, U.S.S.R.

Filed June 28, 1971, Ser. No. 157,256
Int. Cl. B21b *1/00*
U.S. Cl. 72—205 **1 Claim**



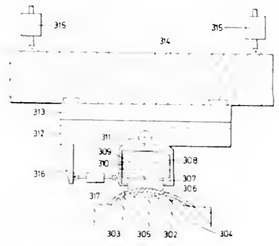
A method of rolling metal sheet articles in which the rolls in an adjacent pair are rotated in opposite directions at different peripheral speeds under conditions of a rigid mechanical characteristic of the drive of the roll rotating at a higher peripheral speed and such a mechanical characteristic of the drive of the roll rotating at a lower peripheral speed that in the process of rolling the ratio of the peripheral speeds of the rolls is equal to the ratio of the thicknesses of the articles at input and output portions thereof before and after the rolling in the adjacent pair of rolls at a constant thickness of the output portion of the article and at a speed of movement of the output portion of the article equal to the peripheral speed of the roll rotating at a higher peripheral speed.

3,811,308

PROFILING OF WORKPIECES

Jacob Marcovitch, Johannesburg, South Africa, assignor to Rotary Profile Anstalt, Vaduz, Liechtenstein

Continuation of Ser. No. 80,043, Oct. 12, 1970, abandoned, Continuation-in-part of Ser. No. 615,613, Feb. 13, 1967, Pat. No. 3,533,259. This application Sept. 20, 1972, Ser. No. 290,751
Claims priority, application South Africa, Feb. 14, 1966, 66/804
Int. Cl. B21h *7/00*; **B21b** *1/00*
U.S. Cl. 72—210 **4 Claims**



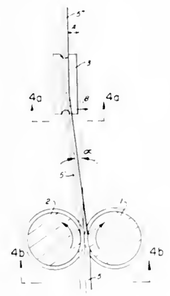
Workpieces of materials highly resistant to deformation or compaction but capable of plastic deformation under high pressure are subjected to transient, very high pressure applied to elements of the workpiece progressively, until the whole workpiece has been traversed. The pressure may be applied by a patterned formation which imposes its profile on the workpiece, or the workpiece may be kneaded into intimate contact with the pattern to receive its impress.

3,811,309

METHOD AND APPARATUS FOR COLD DRAWING OR ROLLING OF METAL WIRE ROD

Knut Lennart Nordstrom, 11, Solhemsvagen, Smedjebacken, Sweden

Filed Sept. 8, 1972, Ser. No. 287,227
Claims priority, application Switzerland, Sept. 10, 1971, 11495/71
Int. Cl. B21b *41/00, 13/12*
U.S. Cl. 72—235 **6 Claims**



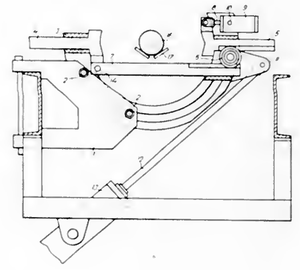
A method and apparatus for wire drawing using the oval-round series in which wire rod is fed through the round groove rolls in a manner such that axially directed forces having the same direction are imposed on both round groove rolls thereby preventing displacement of the rolls in opposite directions and stabilizing the wire rod in the round groove.

3,811,310

APPARATUS FOR TURNING PIPES BETWEEN ROLLING PASSES

Oldrich Stefek; Vojtech Triska, and Ladislav Bednar, all of Ostrava-Hrabuvka, Czechoslovakia, assignors to Nova Hut Klementa Gottwalda, narodni podnik, Ostrava-Kuncice, Czechoslovakia

Filed Feb. 17, 1972, Ser. No. 227,228
Int. Cl. B21b *39/20*
U.S. Cl. 72—252 **6 Claims**



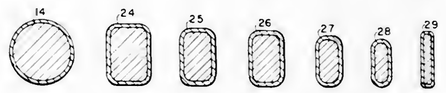
Apparatus for turning of pipes between rolling passes, as in rolling according to the Stiefel process. The apparatus includes a support for the pipe intermediate rolling passes, a frame, a toroidal segment mounted on the frame for rotation about the axis of the segment, the segment having opposed jaws reciprocable toward and away from each other along a diameter of the segment which passes through the axis of the tube when the latter rests upon the support. The opposed jaws are connected to a single prime mover so as to be selectively driven in opposite directions through the same distance so as to grip the tube; with the tube thus gripped, the toroidal segment is rotated about its axis, as for instance, through an angle of 90°, and the jaws are then released from the tube, so that the tube in its new angular position may be presented to the rolling mill for a further pass therethrough.

3,811,311

MAKING FLAT COPPER-CLAD STEEL WIRE

Angelo P. Barone, Sycamore, Ill.; Ralph G. D'Ascoli, Yonkers, N.Y., and Charles W. Bechle, Sycamore, Ill., assignors to The Anaconda Company, New York, N.Y.

Filed Apr. 7, 1972, Ser. No. 242,173
Int. Cl. B21c *1/00*; **B21h** *8/00*
U.S. Cl. 72—278 **6 Claims**



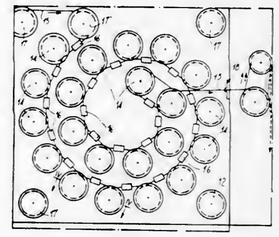
A more uniform cladding thickness is retained on flat copper-clad steel wire by drawing the first rectangular sections, rather than rolling them, from round wire, and then rolling the final flat wire.

3,811,312

DRAWING-PULLEY GROUP FOR A WIRE-DRAWING MACHINE FOR THIN METAL WIRES

Piero Pietroni, Ascoli Piceno, Italy, assignor to Technofil S.p.A., Ascoli Piceno, Italy

Filed Dec. 29, 1972, Ser. No. 319,185
Claims priority, application Italy, Dec. 31, 1971, 33197/71
Int. Cl. B21c *1/04*
U.S. Cl. 72—278 **5 Claims**



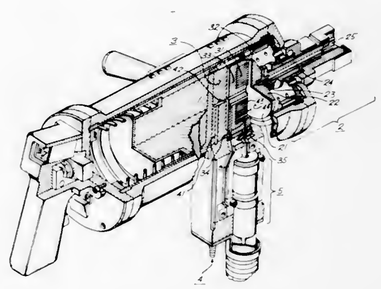
A group of drawing pulleys arranged in a spiral path and having between the successive pulleys individual dies for progressively reducing the cross section of a wire drawn by the pulleys through the dies. The axes of the pulleys are disposed spaced along the spiral path and in parallel relationship. The pulleys are rotatably driven with the speed of rotation such that the speed of each pulley is higher than the preceding pulley and proportional to the elongation of the wire being drawn because of reduction of its diameter.

3,811,313

ELECTROMAGNETIC HIGH ENERGY IMPACT APPARATUS

Hendrik P. Schut, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash.

Division of Ser. No. 133,090, April 12, 1971, Pat. No. 3,737,990. This application Dec. 18, 1972, Ser. No. 316,306
Int. Cl. B21j *7/30*
U.S. Cl. 72—430 **16 Claims**

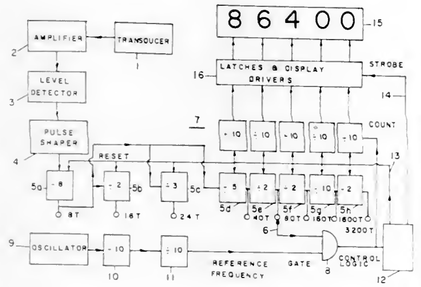


An apparatus utilizing electromagnetic energy for producing high impact forces by means of a ram propelled against a work piece. A specific utilization of the apparatus is in the installation of fasteners such as rivets in structural assemblies. The apparatus described herein is the work center of an electromagnetic impact tool and comprises the following components: electromagnetic high energy pulse coil, ram means, aerostatic bearing means and connector means.

3,811,314
TIME-INTERVAL RATE METER FOR TIME MEASURING DEVICES AND METHOD FOR CHECKING TIME PIECES

Abraham Y. Anouchi, 83 Oak Hill St., Newton, Mass.

Filed Sept. 6, 1972, Ser. No. 286,624
Int. Cl. G04b 17/00
U.S. Cl. 73—6 9 Claims

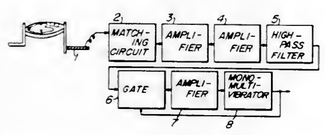


A rate meter for checking the accuracy of time measuring devices such as watches and clocks and accurately determining the deviation thereof from a time standard includes a digital readout or display counter indicating in terms of seconds or tenth of seconds per day whether a time measuring device is fast, slow, or exactly on time. The read-out or display counter is controlled by electronic circuitry predicated upon the measurement of time elapsed between two non-consecutive mechanical vibrations, or pulses, of a time measuring device.

3,811,315
APPARATUS FOR AUTOMATIC DIGITAL MEASUREMENT OF WATCH PERFORMANCE BY UTILIZING TICKS

Yoshio Kunitomi, Tokyo, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Feb. 15, 1972, Ser. No. 226,438
Claims priority, application Japan, Feb. 22, 1971, 46-10282; Mar. 5, 1971, 46-12084
Int. Cl. G04d 7/00
U.S. Cl. 73—6 3 Claims

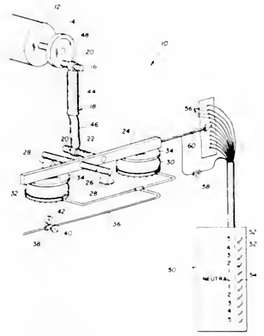


An apparatus for performing automatic digital measurement of the performance of a watch by utilizing a component of the ticks thereof, in which a frequency band of the ticks of the watch is selected, the ratio of signal to noise is improved in that frequency band thereby amplifying the ticks with high fidelity.

3,811,316
TESTING DEVICE FOR SHOCK ABSORBERS AND THE LIKE

Pasquale J. Amendolia, St. James, N.Y., assignor to Motor Devices Corporation, Brooklyn, N.Y.

Filed Oct. 20, 1972, Ser. No. 299,581
Int. Cl. G01m 17/04
U.S. Cl. 73—11 6 Claims

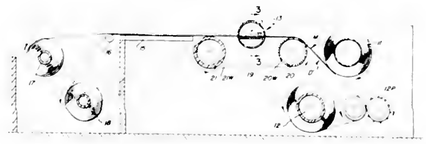


The invention provides a device for testing shock absorbers and the like to indicate the load that is actually being transmitted through the same in the compression and rebound modes by applying a cycling force to the test article, measuring its resistance to movement, and displaying the same through a visual indicator.

3,811,317
METHOD FOR TESTING MEMBRANOUS DEVICES FOR LEAKS

Ronald J. Leonard, Elk Grove, and James M. Ahrens, Niles, both of Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Mar. 6, 1972, Ser. No. 232,062
Int. Cl. G01m 3/04, 3/20
U.S. Cl. 73—40 12 Claims



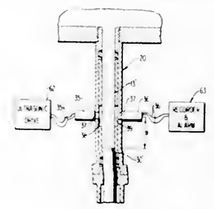
A method and apparatus for testing transport membranes provides for advancing a membrane and an indicator medium in unison along a test path while applying a detector fluid to the membrane to produce marks on the indicator medium representative of leaks in the membrane.

3,811,318
METHOD AND APPARATUS FOR DETERMINING PROGRESS OF A CHEMICAL REACTION OCCURING WITHIN BEADS IN A LIQUID SUSPENSION

Charles R. Killian, Baton Rouge, La., assignor to Foster Grant Co., Inc., Leominster, Mass.

Filed Mar. 2, 1971, Ser. No. 120,240
Int. Cl. G01n 15/04
U.S. Cl. 73—61 R 13 Claims

Polymerization reactions requiring suspension of the reactants as small particles within a suspending medium are examined for stability of the suspension by isolating samples at intervals during the process and determining rising or settling times for the suspended particles and correlating the separation time with the stability of the suspension system. A sample is obtained as by drawing it from a reaction chamber into a narrow tube which receives a transverse beam of ultra high frequency sonic waves and the transparency of the suspension

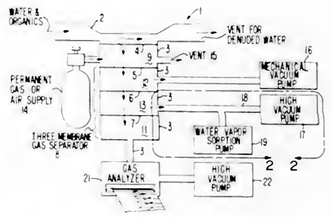


is then measured at a correspondingly placed receiver for the ultrasonic waves. The interface between the dispersed phase and the dispersing medium moves up the tube at a rate which, when compared to a calculated safe rate, will indicate the stability of the suspension system and an automated rise time indicator and alarm effects a read-out corresponding to suspension stability varying as polymerization progresses.

3,811,319
MEMBRANE, GAS SEPARATOR WITH MEANS FOR REMOVING WATER VAPOR

James T. Arnold, Los Gatos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Continuation of Ser. No. 12,560, Feb. 19, 1970, abandoned.
This application Dec. 1, 1971, Ser. No. 203,894
Int. Cl. G01n 31/08; B01d 13/00, 53/22
U.S. Cl. 73—23 7 Claims



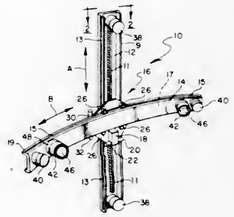
A portable three membrane type gas separator including an input region, and output region and two interstage regions defined between adjacent membranes. The second interstage region, closest to the output region, includes a pump or trap for pumping water vapor from the second interstage at a pumping speed which substantially exceeds the pumping speed of the pump or trap for nitrogen, whereby water vapor is prevented from overloading the high vacuum pump connected in gas communication with the output stage of the separator and any additional vacuum pump connected into the second interstage region of the separator. A suitable pump for pumping water vapor includes a desicant material such as zeolite, alumina or phosphorous pentozide.

3,811,320
SURFACE SCALER APPARATUS

Thomas E. Cowell, Woodland Hills, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Mar. 12, 1973, Ser. No. 340,149
Int. Cl. G01n 29/04; B25b 11/00
U.S. Cl. 73—67.8 S 10 Claims

A surface scaler apparatus for servicing various areas of a tank or the like, particularly remote limited access areas, is comprised of a pair of independently driven cross-members mounting one or more inspection or work tools, each limb of the cross-members riding on tracks in the adjoining limb so that as one cross-member is attached to the wall of the tank by electromagnets or the like, connected to the ends of the limbs,

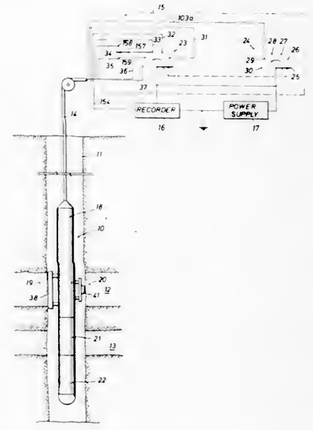


the other is free to move along the tracks on the attached limb. By energizing magnets on the just moved limb and releasing magnets on the attached limb, the previously attached limb now may be moved to a different position, thus enabling the apparatus to be moved remotely to any position for inspection purposes or the like.

3,811,321
METHODS AND APPARATUS FOR TESTING EARTH FORMATIONS

Harold J. Urbanosky, Pearland, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 8, 1972, Ser. No. 313,236
Int. Cl. E21b 49/00
U.S. Cl. 73—155 36 Claims



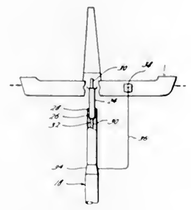
In the representative embodiments of the new and improved methods and apparatus for testing earth formations disclosed herein, fluid-admitting means are placed into sealing engagement with a potentially-producible earth formation and selectively-operable valve means are rapidly opened to place a low-pressure chamber and a flow line in the tool into communication with the isolated formation to remove plugging materials from a filtering medium ahead of the flow line before connate fluids are inducted into the tool as well as to obtain one or more preliminary pressure measurements which are indicative of the potential success of the testing operation and the possible nature of the earth formation.

3,811,322

METHOD AND APPARATUS FOR MONITORING MUD FLOW RETURN RATE

William J. Swenson, Houston, Tex., assignor to The Offshore Company, Houston, Tex.

Filed Sept. 25, 1972, Ser. No. 291,907
Int. Cl. E21b 47/10
U.S. Cl. 73—155 8 Claims



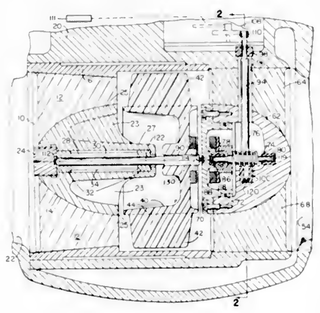
A method and apparatus for monitoring steady state mud flow return rate through a marine riser extending between a floating drill ship and the ocean floor, and including a telescopic joint wherein the mud flow return rate is measured at a point below the telescoping joint where the flow rate is essentially unaffected by the pumping action of the telescoping joint and the measurements are then transmitted to the drill ship.

3,811,323

LIQUID METER

George H. Swenson, Medfield, Mass., assignor to Hersey Products Inc., Dedham, Mass.

Filed Sept. 8, 1971, Ser. No. 178,678
Int. Cl. G01f 1/10
U.S. Cl. 73—231 R 6 Claims



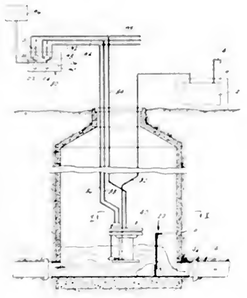
Liquid flow rate meter of the turbine type in which rotor thrust bearing unloading is achieved by downstream increase of effective flow rate area to produce a Bernoulli's effect upstream force on the rotor.

3,811,324

METHOD

Alex J. Doncer, Burbank, and Harold R. White, New Lenox, both of Ill., assignors to Alar Engineering Corporation, Burbank, Calif.

Filed June 5, 1972, Ser. No. 259,497
Int. Cl. G01n 1/14
U.S. Cl. 73—421 B 7 Claims



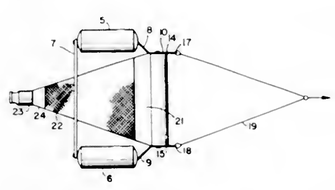
A proportional sampling system automatically obtains selected samples at selected intervals in a quantity directly proportionate to the volume of flow in a stream and removes the samples for cumulation in a collection receptacle at a remote point.

3,811,325

APPARATUS FOR COLLECTING SURFACE PARTICLES ON BODY OF WATER

Lyle Carter, 1903-33rd Ave., Oakland, Calif.

Filed Oct. 30, 1972, Ser. No. 302,215
Int. Cl. G01n 1/10
U.S. Cl. 73—425.4 R 11 Claims



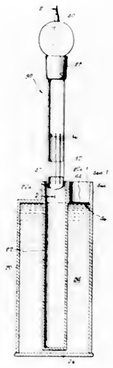
An apparatus for sampling and collecting floating particulate matter on the surface of a body of water has parallel spaced apart longitudinal floats supporting a rigid tubular frame. Secured to the frame are two parallel, horizontal hydrofoil bodies spaced apart from each other to form an intake opening. A funnel-shaped net with its wide end secured to the intake opening and its narrow end terminating in a collecting screen collects surface particulate matter which is caused to flow into the intake opening as the apparatus is towed on a body of water. The lower hydrofoil body maintains the intake opening at a predetermined depth below the water surface, while the upper hydrofoil body enables the apparatus to ride over swells.

3,811,326

DISPOSABLE DILUTION SYSTEM

Vincent G. Sokol, 93 Sunnyside Dr., Yonkers, N.Y.

Filed Feb. 10, 1972, Ser. No. 225,246
Int. Cl. B01l 3/02
U.S. Cl. 73—425.4 P 18 Claims



A disposable dilution system particularly suited for blood testing. A container for containing a diluent includes a capillary tubing assembly holder therein that is sealed from the diluent. The holder terminates in an upper portion thereof that is adapted to engage the upper portion of a capillary tubing assembly which is stored within the holder. An access opening to the container is provided adjacent to the holder. The access opening is closed by a penetrable membrane which may be pierced by an end of the capillary tubing assembly when the latter is withdrawn from the holder. The capillary tubing assembly includes a neck portion that engages the upper portion of the holder prior to usage of the device. A collar is positioned below the neck portion and provides the sole means for containing one or more capillary tubes. The tubes may be separately formed, in which case they are detachably held by the collar, or the tubes may be formed integrally within the collar. The upper ends of the capillary tubes are spaced below the neck portion of the capillary tubing assembly. The neck portion includes a passage therethrough and also an inspection port for colorimeter testing. A volume-occupying plug may be employed at the lower end of the container, the plug including a cut-out portion to permit it to be positioned about the lower part of the capillary tubing assembly holder and the lower portion of the capillary tubing assembly when the latter is positioned in the diluent upon its removal from the holder.

3,811,327

BALANCING APPARATUS WITH AN OPTICAL UNBALANCE INDICATOR

Heinrich Hack, Spachbruecken, Germany, assignor to Carl Schenck Maschinenfabrik GmbH, Darmstadt, Germany

Filed Apr. 3, 1973, Ser. No. 347,463
Claims priority, application Germany, Apr. 11, 1972, 2217264
Int. Cl. G01m 1/08
U.S. Cl. 73—465 17 Claims

The present balancing apparatus includes an optical indicator which enables the operator to balance a workpiece, for example an impeller wheel of a super charger, in two balancing planes, even simultaneously, if desired. Two vector meters with respective display screens are used one for each balancing plane. A light spot providing an unbalance indication and further optical markings are projected onto the respective screen to provide direct information regarding the unbalance aid of selsyn driven diaphragms having slots therein which are shaped to correspond to the shape of the markings. Due to the



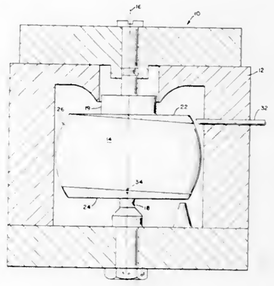
selsyn drive the workpiece rotation and the diaphragm rotation are synchronized with each other whereby the operator may read off all the information from the two screens for balancing the workpiece without any extra calculations.

3,811,328

PULSE DURATION MODULATION PICKOFF

Aubrey Rodgers, Huntsville, and Rayburn K. Widner, Arab, both of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 3, 1973, Ser. No. 320,795
Int. Cl. G01c 19/28
U.S. Cl. 74—5.6 B 4 Claims



A pulse duration modulation pickoff is capable of sensing variations in the boundary layer of gas adjacent the rotor surface of a gyro. A gas collector probe senses the variation in boundary layer thickness and couples the signals to the sensor load circuit for responding to gyro changes in attitude. This pickoff method of sensing rotor displacement allows displacement signals to be obtained with no external excitation of the pickoff.

3,811,329

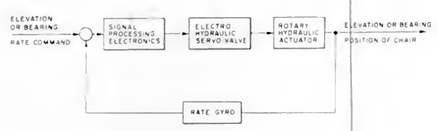
STABILIZED PLATFORM

Frederick W. White, North Franklin, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 4, 1972, Ser. No. 312,166
Int. Cl. G01c 19/52
U.S. Cl. 74—5.41 5 Claims

A gyroscopically stabilized platform is provided with servo controls to eliminate gross pitch and roll motions of a ship on which the platform is mounted. The platform is fitted with

gyroscopes which generate a voltage signal when the platform moves from its stabilized position. The voltage signal so produced is processed electronically in a control box wherefrom a signal is sent to servo valves which change

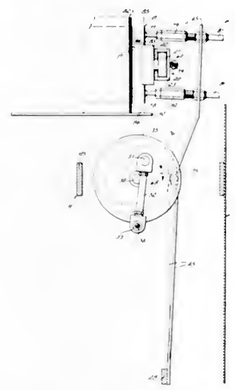


hydraulic flow in an electro-hydraulic system of the platform. This change in hydraulic flow is such as to energize a group of actuators which command the platform back to the commanded stabilized position.

3,811,330
PACKAGING MACHINE HAVING RECIPROCATING TRANSPORT CONVEYOR

Robert J. Weichhand, Fort Wright; Ralph J. Schuler, Fort Mitchell, both of Ky., and Julian A. Dieter, Cincinnati, Ohio, assignors to R. A. Jones and Company, Incorporated, Covington, Ky.

Filed Aug. 18, 1972, Ser. No. 281,933
Int. Cl. F16h *25/08*
U.S. Cl. 74—53 **3 Claims**



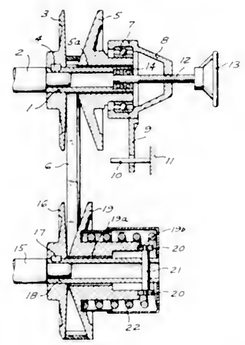
A packaging machine having a plurality of work stations longitudinally spaced in a line, a longitudinal reciprocating transport bar for moving packages intermittently through said work stations, a plurality of reciprocable work station elements, a plurality of leaf springs connected at one end to a support and at their other ends respectively to the transport bar and work elements, and cams on a common drive shaft cooperating with the leaf springs to swing the leaf springs back and forth to operate the work station elements and transversely reciprocate the transport bar.

3,811,331
V-BELT DRIVING DEVICE

Friedrich Moogk, Sinn, Germany, assignor to E. & A. Becker KG, Maschinen-und Getriebebau, Sinn/Dillkreis, Germany

Filed Oct. 5, 1972, Ser. No. 295,291
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.17 A **4 Claims**

There is disclosed a variable speed drive for use with an asymmetric V-belt. The V-belt drive comprises a drive shaft and a driven shaft disposed in spaced apart parallel relationship. Each of the shafts seats a sheave consisting of two halves; one half of each sheave being seated on its shaft secured against rotation and axial displacement and the other half of each sheave being rotatable and axially displaceable on its shaft. The facing sides of the sheaves have different angles relative to the shafts thereby constituting asymmetric running

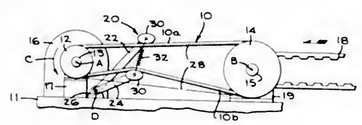


surfaces for the V-belt used for transmitting the rotation of the drive shaft to the driven shaft. The axially displaceable half of each sheave is biased by a spring assembly toward the respective other half. The spring pressure can be adjusted by setting means thereby correspondingly varying the transmission ratio between the two shafts.

3,811,332
AUTOMATIC TENSIONING DEVICE

Martin S. Brown, Plainfield, and Stellios A. Avramidis, Greenfield, both of Ind., assignors to FMC Corporation, San Jose, Calif.

Filed Aug. 22, 1972, Ser. No. 282,826
Int. Cl. F16h *7/12*
U.S. Cl. 74—242.11 S **6 Claims**



A dual tensioning device is provided to take up the slack on an endless belt or chain regardless of the direction of drive. A pair of arms are pivoted at a common point outside the loop defined by the endless belt or chain. Each arm has a friction pad pivotally mounted at the outer end, and the ends of the arms, which are of unequal length, are connected by a tension spring. The longitudinal axis of the spring is inclined at different angles to the arms when the endless belt or chain is driven in a normal operating direction so that a greater tensioning force is applied to the slack side of the belt or chain.

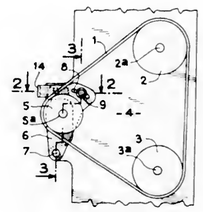
3,811,333
DRIVE BELT TENSIONING DEVICE

Armand Castarede, Meudon-la-Foret, France, assignor to Regie National Des Usines Renault, Boulogne-Billancourt and Automobiles Peugeot, Paris, both of, France

Filed Apr. 12, 1973, Ser. No. 350,652
Claims priority, application France, May 4, 1972, 72.15836
Int. Cl. F16h *7/10*
U.S. Cl. 74—242.15 R **4 Claims**

Comprises a sheet metal support pivotably mounted on a first face of a structure which defines a right-angled corner

with a second face of the structure. A tab portion, bent at an angle to the plane of the support, extends around the corner and engages an abutment movably mounted in a blind aper-

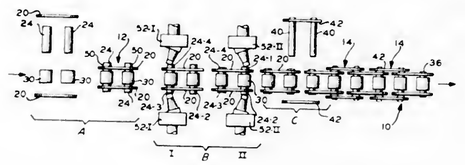


ture in said second face. A spring interposed between the abutment and the end of the aperture biases the abutment and the support for tensioning the belt. Fixing means fix the support in the required position.

3,811,334
CHAIN CONSTRUCTION

Fred J. Kuenzig, Weatogue, and Joseph V. Montano, West Hartford, both of Conn., assignors to Jeffrey Galion Inc., Columbus, Ohio

Filed June 8, 1972, Ser. No. 261,087
Int. Cl. F16g *13/02*
U.S. Cl. 74—251 R **18 Claims**



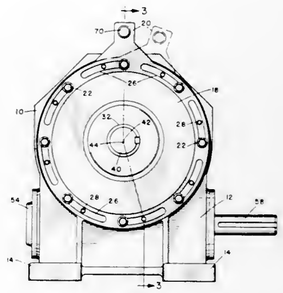
The chain, and its method of construction, involves the insertion of a bushing in the opposed apertures of a pair of opposed chain link plates such that there is not only an interference fit between the bushing and the link plate, but also so that the bushing extends outwardly of the link plate. It may be flanged over thereabout, as by spinning, to thereby form a 360° rim. Links are thus formed, by a pair of link plates and a pair of bushings. When such links are interconnected into a continuous chain, by additional link plates and pins which pass through the bushings the rims and/or the bushing extensions automatically provide a space between the adjacent and overlapping link plates.

3,811,335
ADJUSTABLE WORM DRIVE UNIT

Arnold Hunsberger, Dellzura, Calif., assignor to U.S. Elevator Manufacturing Corporation, Spring Valley, Calif.

Filed Apr. 25, 1973, Ser. No. 354,328
Int. Cl. F16h *55/18, 1/16*
U.S. Cl. 74—409 **6 Claims**

A worm drive unit, particularly for heavy duty use, with means for adjusting the worm gear to take up play or wear in the drive. The worm gear shaft is supported at both ends in bearings which are eccentrically adjustable simultaneously by externally coupled linkage to ensure alignment. Adjustment

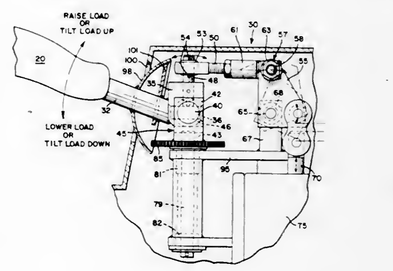


over a wide range can be made rapidly without dismantling any portion of the unit and, in most instances, without disconnecting the drive couplings to the unit.

3,811,336
MULTI-FUNCTION CONTROLLER

Gerald Steven Pulskamp, New Bremen, Ohio, assignor to Crown Controls Corporation, New Bremen, Ohio

Filed Sept. 1, 1972, Ser. No. 285,755
Int. Cl. G05g *9/04*; **B66f** *9/06*
U.S. Cl. 74—471 XY **11 Claims**



A single multi-function controller for an industrial self-propelled materials handling truck incorporates all desired control functions except steering.

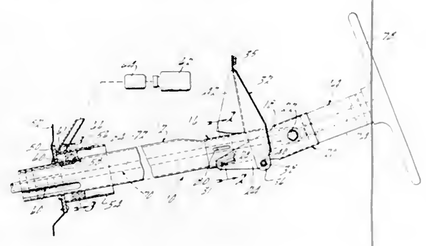
3,811,337
ENERGY ABSORBING STEERING COLUMN FOR MOTOR VEHICLES

William D. Allison, Grosse Pointe Farms, Mich., assignor to Ford Motor Company, Dearborn, Mich.

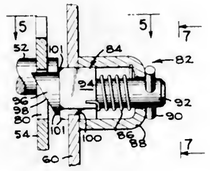
Filed Apr. 4, 1973, Ser. No. 347,963
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **7 Claims**

This disclosure relates to an energy absorbing steering column for a motor vehicle, and more particularly to a column that is constructed to collapse in a controlled manner under an impact load against the steering wheel and thereby absorb the kinetic energy of the impact. According to a preferred embodiment, the steering column includes a piston device that is constructed to displace the steering column and steering wheel rearwardly when subjected to a compressed gas. A compressed gas source is connected through an inertia sensitive valve to the steering column whereby the compressed gas is conveyed to the column in response to extreme vehicle

deceleration such as might occur in a collision. Thus, when the vehicle strikes an object, the compressed gas released to the steering column will extend the column rearwardly and increase the distance through which the column may collapse to absorb the kinetic energy of an object striking the steering wheel.

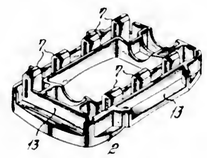


3,811,338
LATCH MECHANISM
Joseph A. Federspiel, Port Washington, Wis., assignor to FMC Corporation, San Jose, Calif.
Filed Nov. 20, 1972, Ser. No. 307,918
Int. Cl. G05g *5/08, 5/06*
U.S. Cl. 74—527 **5 Claims**



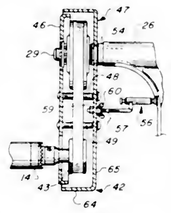
A vehicle mounted lift assembly having latch mechanisms for latching pivoted lift arms in an uplift position whereby an implement, particularly a powered rotary mower, connected to the lift arms can be automatically latched in an elevated position while other implements are being raised or lowered by the lift assembly. The latch mechanisms each include a pivotal and an axially translatable bolt having a non-circular end portion which is slidably received in a complementary non-circular opening when in an arm latching position. The bolt is manually movable to an unlatched position with the non-circular portion moved axially out of engagement with the non-circular opening, and with the bolt then being pivoted about its axis to preclude registration of the non-circular portion with the non-circular opening. A combination torsion-compression spring is prestressed to normally exert a compressive force tending to hold the bolt in latching position, and to normally exert a torsional force tending to pivot and maintain the bolt in its unlatched position. A cam face on the latch bolt automatically locks the associated lift arm in raised position in response to movement of the lift arm into its raised position only if the bolt has been pivoted to its latching position.

3,811,339
PEDAL FOR BICYCLES AND SIMILAR VEHICLES
Hubert Konzorr, Unna, Germany, assignor to Union Sils, van de Loo & Co., Frondenberg, Germany
Filed Aug. 14, 1973, Ser. No. 388,227
Claims priority, application Germany, Aug. 17, 1972, 2240484
Int. Cl. B62m *3/12*
U.S. Cl. 74—594.4 **14 Claims**



A pedal, especially for a bicycle or the like, having a spindle and two block-like members adapted to be placed in face to face engagement in surrounding relation to the spindle and having tread surfaces facing away from the spindle. The members have protrusions formed thereon on the sides facing each other with the protrusions in overlapping relation and apertured, and elongated connecting means extending through the apertures and connecting said members together.

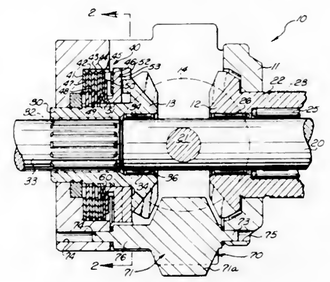
3,811,340
BELT GUARD
Glenn B. Morse, 321 Fountain St., N.E., Grand Rapids, Mich.
Filed Nov. 13, 1972, Ser. No. 306,421
Int. Cl. F16p *1/02*
U.S. Cl. 74—611 **5 Claims**



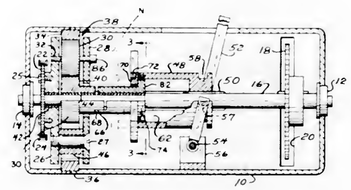
A belt Guard is supported by the spindle carrying one sheave engaged with the belt being guarded, and is also supported by an adjustable strut assembly interconnecting the guard with the machine frame supporting the spindle. This arrangement provides for angular adjustment of the guard about the spindle axis to accomodate various positions of a second sheave engaging the belt.

3,811,341
DIFFERENTIAL GEAR MECHANISM
Edward J. Goscenski, Jr., Battle Creek, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Nov. 8, 1972, Ser. No. 304,617
Int. Cl. F16h *1/44*
U.S. Cl. 74—711 **13 Claims**

A locking differential mechanism comprises a differential gear means including an input gear and a pair of output gears. A locking mechanism locks up the differential in response to a predetermined amount of differentiating action occurring. The locking mechanism functions to lock one of the output gears to the case of the differential. The actuator for actuating the locking mechanism to effect the lockup comprises an oscillating weight actuator mechanism.



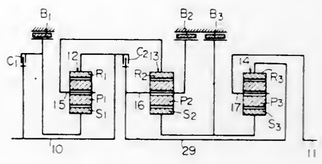
3,811,342
A MINI-BIKE TWO-SPEED PLANETARY TRANSMISSION WITH STATIONERY RING, CARRIER OUTPUT AND NOVEL CLUTCHING MEANS
Ray L. Barthel, 11017 S. Parkside, Chicago Ridge, Ill.
Filed Aug. 25, 1972, Ser. No. 283,747
Int. Cl. F16h *3/44*
U.S. Cl. 74—750 R **6 Claims**



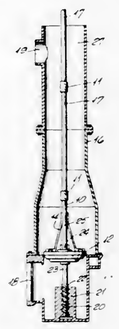
A mini-bike transmission or the like embodies a planetary gear structure in which the sun gear and a carrier for the planet gears freely rotate on a driven shaft. A clutch element keyed to said shaft is shiftable axially thereof to selectively clutch the sun gear and planet gear carrier to the shaft such that an output sprocket which is fixed to the carrier turns with rotation of the driven shaft, the clutch having an intermediate neutral position where neither the sun gear nor the carrier is clutched and the driven shaft rotates free thereof.

3,811,343
GEAR TRAIN ARRANGEMENTS
Yoichi Mori, Yokohama; Nobuo Okazaki, Chigasaki; Kunio Ohtsuka, and Tetsuya Iijima, both of Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan
Division of Ser. No. 30,496, April 21, 1970. This application Sept. 13, 1972, Ser. No. 288,495
Claims priority, application Japan, June 4, 1969, 44-43275
Int. Cl. F16h *57/10*
U.S. Cl. 74—759 **2 Claims**

Gear train arrangements for transmitting a power from a driving source to a driven member at more than three speeds in one direction and another speed in the opposite direction, the gear train arrangements using basically three planetary gear sets and at least five friction elements such as clutches and brakes which are selectively actuated to selectively engage the rotary members of the three planetary gear sets to deliver an output power at the above said speeds. The gear train arrangements are specifically adapted for use in an automatic transmission system of a motor vehicle using a torque converter or fluid coupling.



3,811,344
HYDRANT REPAIR TOOL
Robert G. Hand, Sauk Village, Ill., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed July 18, 1972, Ser. No. 272,792
Int. Cl. B25b *13/00, 13/02, 13/56*
U.S. Cl. 81—90 E **1 Claim**

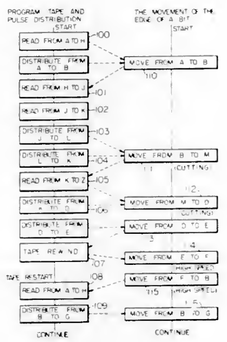


A tool for the removal and replacement of the stem and valve seat of a hydrant, consisting of a drive member which is designed to latch into the upper surface of an otherwise disconnected hydrant lower valve stem. The tool may be fastened to the conventional upper hydrant valve stem, and serve to rotate the disconnected lower valve stem free of its mating threads. The lower valve stem, after being freed of threaded engagement is brought to the top of the hydrant by the application of water pressure from the hydrant supply pipe.

3,811,345
ADAPTIVE CONTROL SYSTEM FOR NUMERICAL CONTROL
Kengo Kobayashi, Kawasaki; Seiichi Hattori, Tokyo, and Masaharu Tamura, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki-shi, Japan
Filed Dec. 27, 1971, Ser. No. 211,891
Claims priority, application Japan, Dec. 31, 1970, 45-123266
Int. Cl. B23b *3/00*
U.S. Cl. 82—2 B **5 Claims**

Adaptive control system for a numerical control machine tool like a lathe with a control program which contains the information about the outline of raw workpiece prior to blocks commanding the desired outline of the manufactured work-

piece. The length of movements of the bit of said machine towards the direction of the center of said workpiece at the beginning of the cutting is controlled in a manner such that the cutting depth of said bit is shorter than the length of the cutting edge of said bit, and the load of said machine in the



cutting operation is controlled so as to be equal to the upper limit of the allowable load. The system of the present invention provides prevention of damage to the bit, a shorter manufacturing time and improved operation efficiency of said machine.

3,811,346

BOX-SHAPED GUIDE BUSHING AND DRIVING CONTROL UNIT FOR CUTTING TOOLS FOR HEAD STOCK MOVING TYPE SCREW MACHINES ENCASING CUTTING TOOL DRIVING SYSTEM

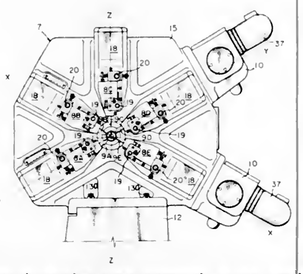
Takayuki Nomura, Tanazaua 437 Okutamamchi, Nishitamagun, Tokyo, Japan

Filed Dec. 17, 1971, Ser. No. 209,153

Claims priority, application Japan, Dec. 23, 1970, 45-117990

Int. Cl. B23b *21/00*

U.S. Cl. 82—25 2 Claims



In a head stock moving type automatic screw machine, a guide bushing including a frame therefor made in a hollow box shape, cutting tool rests disposed radially on the frame with work centrally positioned, a power source for the driving cutting tool rests being directly mounted on the frame for the guide bushing and means to permit at least two cutting rests opposedly disposed with the work centrally positioned to be driven in common with utilization of normal and inverse revolution of the motor and at the same time providing that several other cutting tool rests be driven in common by the motor output into another system encased in the same box-shaped frame; the automatic screw machine including numerical control arrangements for driving of the cutting tool rests.

3,811,347

DEVICE FOR STRIPPING HOSES

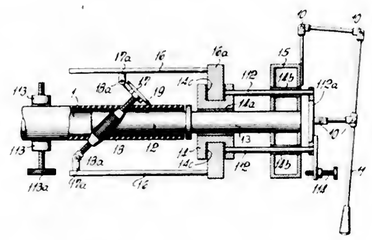
Hans Heckhausen, Rubensweg, Germany, assignor to Firma E. & F. Horster, Solingen, Germany

Filed Jan. 7, 1972, Ser. No. 216,051

Claims priority, application Germany, Aug. 4, 1971, 2138914

Int. Cl. B26d *3/00*; B23b *3/22*

U.S. Cl. 83—1 4 Claims



A device for stripping the covering layer off hoses, particularly near the end of the hose for accommodating a union, said device using a cutting mechanism acting on the periphery of the hose and a feed mechanism for displacing the cutting mechanism with respect to the hose along a longitudinal direction, and a drive mechanism for producing rotary displacement between the cutting elements and the hose surface to be stripped.

3,811,348

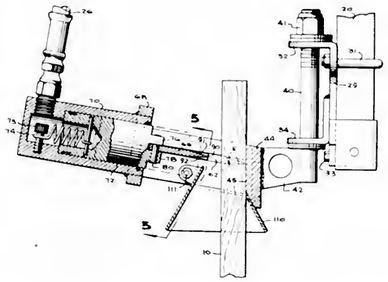
SURVEYING APPARATUS WITH CUTTER

Robert L. Brown, 881 George Washington Hwy. Lot 28, Chesapeake, Va.

Filed June 5, 1973, Ser. No. 367,187

Int. Cl. B26d *5/12*

U.S. Cl. 83—13 12 Claims



An apparatus and method of providing surveyor stakes having a top end termination indicative of a desired elevation is disclosed comprising a hydraulic cylinder connected to a cutting blade supported on the lower end of a levelling rod movable adjacent a surveyor's stake while being monitored through a transit with the hydraulic cutting means being actuated by a manual hydraulic pump carried by the user when the blade is observed to be positioned at a desired elevation to cut the top of the stake and provide a resultant stake having a top end termination of the desired elevation.

3,811,349

METHOD OF SHAVING

Joseph W. Jennings, Box 208, Star Rt.1, Spring Branch, Tex.

Continuation-in-part of Ser. No. 143,261, May 13, 1971. This application May 2, 1973, Ser. No. 356,506

Int. Cl. B26d *7/08*

U.S. Cl. 83—14 4 Claims

A method of shaving which comprises applying to the skin, a solid aqueous solution of a selected high molecular weight water soluble polymer and thereafter passing a blade type razor over the skin to shave off unwanted hair.

3,811,350

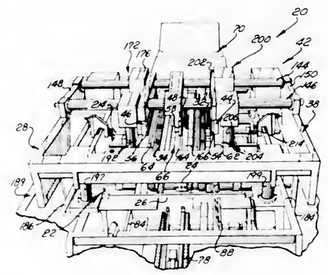
SHEET MATERIAL TRIMMING METHOD AND APPARATUS

John J. Marciniak, Berea, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed July 12, 1972, Ser. No. 270,980

Int. Cl. B23d *31/00*

U.S. Cl. 83—39 15 Claims



An improved apparatus for trimming sheet material assemblages along face, head and foot edge portions includes a face knife located at a first trimming station and head and tail or foot knives located at a second trimming station which is spaced from the first trimming station. After a sheet material assemblage has been registered in a predetermined orientation relative to the knives at the first trimming station, the sheet material assemblage is clampingly gripped adjacent to its head and foot portions by two parallel sets of positively driven conveyor belts, i.e., timing belts, which extend from the first trimming station through the second trimming station toward a delivery station. After a sheet material assemblage has been gripped at the first trimming station by upper and lower belts of each set of conveyor belts, the face knife trims the face edge portion of the sheet material assemblage. An intermittent drive mechanism is then activated to drive the conveyor belts through a feed stroke to move the sheet material assemblage from the first trimming station to the second trimming station. At the same time, a next succeeding sheet material assemblage enters the first trimming station and is registered in a predetermined orientation relative to the knives. All three of the trim knives are then simultaneously moved through trimming strokes to trim the head and trail or foot edge portions of the leading sheet material assemblage at the second trimming station and to trim the face edge portion of the trailing sheet material assemblage at the first trimming station. The conveyor belts clampingly hold the leading sheet material assemblage in registered orientation relative to the knives as it is moved from the first trimming station to the second trimming station and as it is trimmed at the second trimming station. Each set of the conveyor belts is mounted in a fixed spatial relationship with the associated one of the head and foot trim knives and can be moved transversely to the path of travel of the sheet material assemblages with the associated trim knife to adjust the distance between the head and foot trim knives to accommodate sheet material assemblages of different sizes. A center trim knife is mounted intermediate the head and foot trim knives for two-up cutting.

3,811,351

METHOD AND APPARATUS FOR CUTTING SAW-TEETH FROM THE WEBS OF STRUCTURAL SHAPES

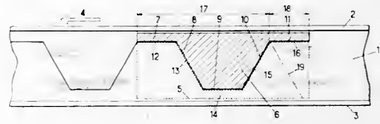
Gabriel Henri Connac, 10, rue Grenet, Vichy, France

Filed Mar. 21, 1973, Ser. No. 343,209

Claims priority, application France, Mar. 24, 1972, 72.10398

Int. Cl. B23d *15/08*, *23/00*

U.S. Cl. 83—49 3 Claims



Saw-teeth are cut from webs of structural shapes which are to be reconnected in a conventional manner at the tips of the teeth so as to form light beams having a high moment of inertia. The method consists in cutting the web of the shape step-by-step between two tools, each comprising two zones, one of which is a shearing zone proper extending along the length equal to one pitch of the saw-teeth and in which each cutting edge of a tool is substantially parallel to the corresponding edge of the other tool and the other of which is a transition zone immediately preceeding the cutting zone and in which the corresponding cutting edges diverge.

3,811,352

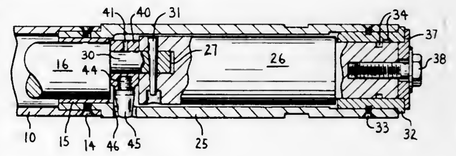
MUFFLER AND MUFFLER CORE PUNCHER

Lawrence D. McFadden, 3915 N.E. Stanton, Portland, Oreg.

Filed Apr. 26, 1973, Ser. No. 354,678

Int. Cl. B26d *3/00*; B23d *21/14*

U.S. Cl. 83—54 7 Claims



The muffler has an outer shell filled with fiberglass wool around a central core tube which conveys the exhaust gases. The core tube is punched from the inside to form a spiral pattern of holes having gas deflecting tongues which project outward in circumferential directions opposed to the direction of the spiral. When the muffler is to be used on an engine producing a stream of exhaust gas having clockwise rotation in the core tube, the spiral pattern of holes is clockwise and the gas is discharged from the holes in counterclockwise directions. For a counterclockwise rotating gas stream the spiral pattern of holes is formed in counterclockwise direction and the tongues deflect the gas from the holes in clockwise directions.

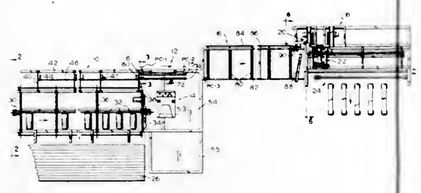
The holes are punched and the deflecting tongues are formed by a radial punch which reciprocates through a guide hole in a support tube. The punch is mounted on a crankshaft which rocks the punch back and forth as it is projected and retracted. When a core tube is placed on the support tube the rocking motion of the punch rotates the core tube to properly

space the holes circumferentially. By slowly moving the core tube axially, the desired spiral pattern of holes is produced. The direction of the spiral, as a right-hand or left-hand thread, is determined by the direction of rotation of the crankshaft.

3,811,353
APPARATUS FOR CUTTING LUMBER TO SPECIFIED CLEAR LENGTHS

Thomas R. Miles, Portland, Oreg., assignor to Edward Hines Lumber Co., Hines, Oreg.

Division of Ser. No. 214,011, Dec. 30, 1971. This application Jan. 8, 1973, Ser. No. 321,847
Int. Cl. B27b *27/10, 5/06*
U.S. Cl. 83—71 **7 Claims**



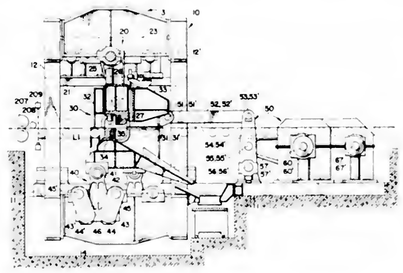
A piece of lumber is fed flat to the infeed end of a marking station, tilted on edge and driven endwise into the marking station where defects in the piece are detected and marked with a retroreflective material. The marked piece moves to a defect-cutting station where it is driven endwise past a pair of defect-cutting saws until a marked defect is sensed between the saws to stop movement of the piece and actuate the saws to remove the defective section. The clear piece downstream of the saws is measured and, if longer than a minimum length range, diverted to a cut-to-length saw station. If within the minimum length range, it is diverted to a "core block" sort. If shorter than the minimum range, it is diverted to junk. The piece upstream of the saws is measured and diverted in the same manner as the downstream piece except that upstream pieces longer than the minimum length range resume travel past the defect saws. Long-length sensors at the defect station determine if a piece contains any one of several specified defect-free long lengths and if so, set a stop downstream of the defect saws corresponding to the longest specified clear length sensed and then actuate only one of the defect saws to cut the piece to such length when the piece reaches the set stop. Such piece is then diverted directly to a sorting station. Random length clear pieces transferred to the cut-to-length station are pressed against a series of depressible stop-sensors determining various specified lengths, driven endwise over the stop-sensors past a length saw until one of the stop-sensors is released, then driven in reverse against the released stop. The length saw then strokes to cut the piece to specified length, after which the piece is sorted according to length as determined by the released stop-sensor.

3,811,354
FLYING SHEAR FOR CUTTING STOCK INTO DESIRED SECTIONAL LENGTHS

Junihiro Ito, Kobe, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kyogo, Japan

Filed Jan. 3, 1972, Ser. No. 214,991
Claims priority, application Japan, Dec. 31, 1970, 45-126374
Int. Cl. B23d *25/04*
U.S. Cl. 83—320 **2 Claims**

A flying shear, adapted to be installed in the shearing line at the finished end of the heavy plate rolling mill plant for shearing metal plates in various lengths, having a stationary outer housing mounted on the bed plates, a pair of upper knife holder drives which are mounted on the outer housing and drive an eccentric cam shaft journaled on the outer housing for lifting and lowering an upper knife holder, a shiftable inner shear housing moving parallel to the traveling stock and being disposed inside of the outer housing, the inner shear housing guiding the liftable upper knife holder and carrying a lower knife holder to effect a shearing action between the upper knife holder, a pair of shifting supports bearing on the outer housing for supporting the inner shear housing, and a pair of

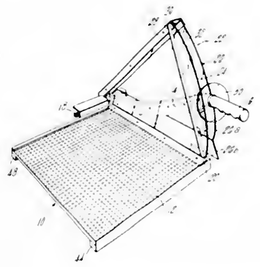


shifting drives mounted on the bed plates for reciprocating the inner shear housing in synchronism with the traveling stock at the time of cutting. The upper knife holder is adapted to reciprocate both elevationally and laterally, and is connected to the eccentric cam shaft for rotating the output shaft of the upper knife holder driving device that is arranged in a stationary manner by a connecting rod. Thus, the desired sectional length of stock is provided by the simple structure of the flying shear.

3,811,355
PAPER CUTTER GUARD

Richard D. Cole, Gay Street, Sharon, Conn.

Filed Nov. 10, 1972, Ser. No. 305,484
Int. Cl. B26d *7/22*
U.S. Cl. 83—520 **10 Claims**

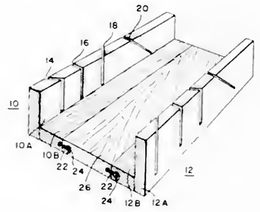


A protective guard is presented for attachment to and use with cutting boards of the type having a blade pivotally mounted at the side of the cutting board. The guard is a transparent sleeve extending along both the inboard and outboard sides of the blade to form a pocket in which the blade travels. The inboard part of the sleeve is spaced above the cutting board to allow passage of the material to be cut, and the outboard part of the sleeve has a hinged lower portion to allow passage of the material to be cut. A disc guard also surrounds the blade handle at the location where the blade handle extends from the protective sleeve.

3,811,356
MITER BOX OF VARIABLE WIDTH

Mark Wyler, New York, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Apr. 23, 1973, Ser. No. 353,892
Int. Cl. B27g *5/02*
U.S. Cl. 83—762 **4 Claims**



A miter box having parallel vertical horizontally elongated side members having spaced saw kerfs arranged in aligned pairs and having a horizontal bottom portion formed by two mating horizontally elongated horizontal members detachably engagable in abutting coplanar relationship wherein means are provided for detachable insertion between said horizontal members to enlarge the width of the box.

3,811,357
MUSICAL INSTRUMENT SUPPORT

Merlin D. Stewart, 429 Beechwood Ave., Haddonfield, N.J.

Filed Jan. 26, 1973, Ser. No. 327,138
Int. Cl. G01d *3/00*
U.S. Cl. 84—327 **1 Claim**

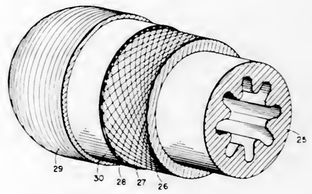


A device for supporting a musical instrument on a chair upon which a musician is sitting. The instrument supporting device includes an extended rod having channels formed therein and passing around a peripheral boundary of the rod. A first instrument grasping mechanism is mounted to the rod member and an appendage of the musical instrument. A second instrument grasping mechanism is mounted to the instrument and the rod member and threadedly engages a thumbscrew. The thumbscrew passes through a clamp of the second grasping mechanism and is insertable within a channel formed on the rod for fixedly positioning the support device with respect to the instrument.

3,811,358
SOLID PROPELLANTS CONTAINING REINFORCING FILAMENT AND PROCESS OF MAKING

Charles P. Morse, Pacific Palisades, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Oct. 10, 1961, Ser. No. 144,265
Int. Cl. C06d *5/06;* **F42b** *1/00*
U.S. Cl. 86—20 R **10 Claims**

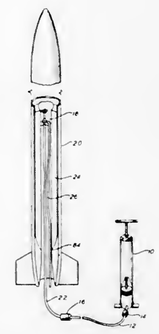


1. A propellant grain comprising a solid decomposable polymeric matrix and a reinforcing metal filament lattice supported in said matrix to improve the tensile strength thereof, said lattice comprising at least one continuous metal filament element wherein each filament primarily traverses a direction which is not parallel to any plane of symmetry in said matrix, said lattice selected from the class consisting of metals of Group II-A through Group IV-A, Group I-B through VII-B, and Group VIII of the Periodic Table.

3,811,359
APPARATUS FOR REMOTE IGNITION OF EXPLOSIVES

Vincent P. Marchese, Lake Hiawatha, and Edward L. Rakowsky, Kinnelon, both of N.J., assignors to The Singer Company, Little Falls, N.J.

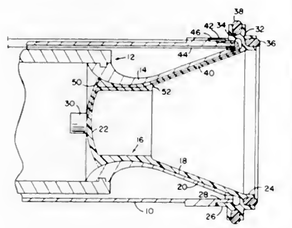
Filed Dec. 18, 1972, Ser. No. 316,132
Int. Cl. F41f *3/04*
U.S. Cl. 89—1.813 **11 Claims**



Disclosed herein is a unique non-electric ignition device for sounding rockets, explosives or the like which involves energization of a fluidic conversion device embedded in the explosive charge to be ignited. The fluidic device, consisting essentially of a convergent nozzle and resonance tube, is connected through pneumatic tubing to a remotely located pump, valve, filter network. When operated, this network develops a pre-ignition pressure level which eventually reaches a threshold level sufficient to open a relief valve. At threshold the pressurized gas is applied to the convergent nozzle, which directs the gas toward the opening of the resonance tube. A system of self-sustaining oscillations of the gas particles is created in the tube which causes the closed end of the tube to rise in tem-

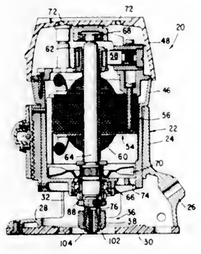
perature. The end of the tube is surrounded by a pyrotechnic-ignition interface which ignites when the tube end temperature reaches a predetermined level. This interface then ignites the main propellant resulting in the firing of the sounding rocket, detonation of the explosive, or the like.

3,811,360
ROCKET HOLD BACK AND TUBE CLOSURE
Earl C. Ricks, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of The Army, Washington, D.C.
Filed Nov. 28, 1972, Ser. No. 310,065
Int. Cl. F41f *3/04*
U.S. Cl. 89—1.807 **1 Claim**



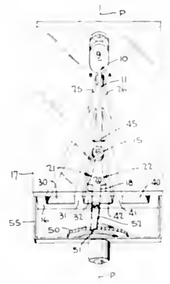
This invention comprises a plastic insert which is inserted into the rear end of a missile and acts as a detent to retain the missile in the launch tube as well as a protective end closure for both the missile and launch tube.

3,811,361
COLLET FOR A POWER TOOL
Robert W. Seely, Easley, and William A. Batson, Pickens, both of S.C., assignors to The Singer Company, New York, N.Y.
Filed Nov. 13, 1972, Ser. No. 306,090
Int. Cl. B23b *31/20*; **B23c** *1/20*
U.S. Cl. 90—12 D **1 Claim**



A collet for a power tool such as a router which has a lockable armature shaft, the lower end of which is externally threaded and internally bored so that it may be fitted with an interconnected nut and split sleeve combination. The split sleeve fits within the internal bore of the shaft whereby on turning of the nut in one direction the sleeve will be compressed to lock the shank of a bit within its central aperture. To remove the bit the nut is turned in the opposite direction to jack the sleeve away from the shaft.

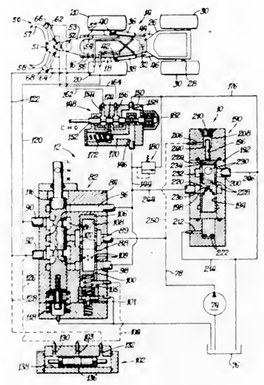
3,811,362
MOVING SPLITTER FLUIDIC DEVICE
Kenneth E. Woodward, Vienna, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed June 14, 1972, Ser. No. 262,901
Int. Cl. F01l *21/02*; **F01c** *9/00*
U.S. Cl. 91—232 **9 Claims**



A Moving Splitter Fluidic Device for converting linear fluidic motion into angular mechanical motions comprising a power orifice for projecting a jet of fluid into a channel having two side bleed channels and a moving pivoted splitter located thereinbetween. The splitter, the two bleed channels, and the channel itself are bilaterally and symetrically disposed about the central longitudinal axis of the main channel. The moving splitter oscillates about its pivot axis and this oscillatory motion is converted into angular mechanical motions by means of a rachet wheel assembly wherein a pair of tangs, pi radians apart, engage said wheel and are connected respectively at the top base and at the bottom base of the splitter. The jet issuing from the power orifice moves alternatively through a channel formed by a side of the splitter and the inner surface of an inside wall next to the splitter. The momentum of the jet moving into the associated channel is transferred to the splitter, due to the configuration of the splitter beyond the pivot, causing the splitter to move to its alternate position. The above sequence of the events occur alternatively on each side of the splitter causing it to oscillate.

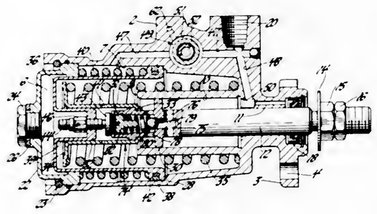
3,811,363
PRIORITY SYSTEM FOR SERIES-TYPE HYDRAULIC CIRCUITS
John R. Cryder, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed May 10, 1973, Ser. No. 359,195
Int. Cl. F15b *11/00*; **F01b** *21/02*
U.S. Cl. 91—412 **11 Claims**

A priority system for series-type hydraulic circuits including a plurality of hydraulic work systems disposed in serial fluid communication with a source of fluid under pressure and a priority valve operatively associated with a supply line between two of the work systems operatively dividing them into upstream and downstream work systems and responsive to fluid pressure between the source and the upstream system in excess of a predetermined pressure level automatically to reduce pressure in the downstream work system and maintain a predetermined minimum pressure differential between the



downstream and upstream systems when they are operated simultaneously to insure positive actuation of the upstream system.

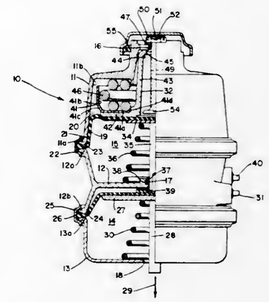
3,811,364
HYDRAULIC ACTUATOR
Ronald L. Harkrader, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 27, 1972, Ser. No. 301,671
Int. Cl. F01b *7/02*, *31/00*
U.S. Cl. 91—422 **5 Claims**



A hydraulic actuator has two cylinder and piston motors of different area with the smaller piston connected to a piston rod and the larger piston capable of abutting the smaller piston. Preloaded springs bias the pistons toward each other. Servo fluid delivered between the pistons first moves both pistons a limited distance in one direction and then moves the smaller piston a larger distance in the other direction. The device may be double-acting, in which case servo fluid may be applied to drive the pistons on the return stroke.

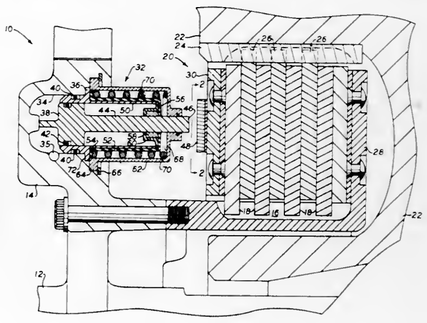
3,811,365
BRAKE MECHANISM
Douglas M. Gordon, Allentown, Pa., and Thomas H. Phimister, Dearborn, Mich., assignors to Indian Head, Inc., New York, N.Y.
Continuation of Ser. No. 180,014, Sept. 13, 1971, abandoned.
This application Mar. 2, 1973, Ser. No. 337,363
Int. Cl. F01b *7/00*
U.S. Cl. 92—63 **2 Claims**

A brake-actuating mechanism for use in a pneumatic brake system is disclosed. The mechanism includes an emergency chamber having an upper actuating chamber with a narrowed neck portion and a service chamber with diaphragms sealed in each chamber. A push rod engages both diaphragms and the mechanism includes an axially mounted brake-operating rod and suitable fluid conduits communicating with the chambers. An actuating spring is disposed in the emergency chamber for urging a piston therein having a flat bearing plate portion and an integral upstanding pilot boss and the emergency



diaphragm in contact therewith from a cocked position toward a wall separating the chambers. Means are associated with the spring and the emergency chamber for shielding the emergency diaphragm from contact with the spring while axially guiding and aligning the piston and actuating spring while the actuating spring moves the piston from the cocked position toward the wall and compressed air moves the piston toward the cocked position away from the wall.

3,811,366
COMBINED PISTON-RETURN MECHANISM
William J. Angelis; Robert E. Berger, both of North Canton, and Robert E. Conkey, Barberton, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Summit, Ohio
Filed Mar. 31, 1972, Ser. No. 240,183
Int. Cl. F01b *31/00*; **F15b** *15/26*
U.S. Cl. 92—130 **3 Claims**

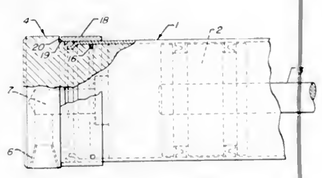


A brake actuating piston which includes a return mechanism for moving the piston to its at rest position when brake pressure is released. The piston moves in a cylindrical sleeve. A cylindrical spring holder surrounds the sleeve and is connected to the piston stem by a friction grip. A coil spring carried by the holder is compressed when the piston is moved toward the applied position and expands upon release of brake pressure to move the holder and the piston back to their at rest positions.

3,811,367
FLUID POWER CYLINDER CONSTRUCTION

Charles W. Bimba, 101 Main St., Crete, Ill.

Filed May 1, 1972, Ser. No. 249,346
Int. Cl. F16j 15/18
U.S. Cl. 92—165 2 Claims



A non-loosening, high pressure resistant system for connecting an end cap member of a fluid power cylinder to the tubular body section by providing a special flat-bottomed and sloping wall groove in the periphery of each end cap and then rolling the end portion of the tubular body section down into the groove to make an assembled connection. The rolled end of the body section is subsequently locked into the groove of the end cap to provide longitudinal strength by rolling a narrow shoulder portion of the end cap down thereover, while still further circumferential and longitudinal strength is provided by having a press-fit band encompass the rolled and engaged portions of the tubular body section and the end cap.

3,811,368
MACHINE FOR FORMING CONTAINERS, TRAYS AND THE LIKE OUT OF CORRUGATED CARDBOARD OR SIMILAR

Giorgio Bragaglia, 33/2 Via Pelagio Palagi, and Francesco Grossi, 75 Via S. Stefano, both of Bologna, Italy

Filed May 3, 1972, Ser. No. 249,888
Claims priority, application Italy, May 5, 1971, 3421/71
Int. Cl. B31b 17/00, 1/76
U.S. Cl. 93—55 10 Claims

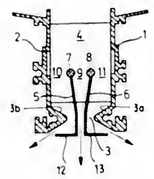
A machine for forming trays and the like, which comprises a device for removing blank sheets of cardboard from a magazine, another device for inserting the sheets individually into a hopper for forming the sides, a further device for folding the sides inwardly, doubling the thickness of the cardboard, and a still further device to compress the folds inside the container folding tray.

3,811,369
AIR OUTLET FOR VENTILATION EQUIPMENT

Max Ruegg, Ruti, Switzerland, assignor to Hess & Cie Metallwarenfabrik

Filed Sept. 5, 1972, Ser. No. 286,425
Int. Cl. F24f 13/06
U.S. Cl. 98—40 D 3 Claims

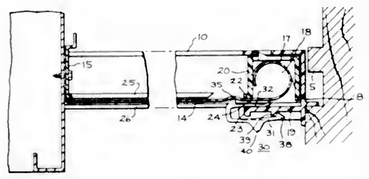
An air outlet or diffuser includes a duct having an air inlet, rigid walls and an open outlet side. At least two guide plates having an L-shape are mounted to pivot on axes which are within the duct. The plates extend toward and through the outlet, dividing the air flow into three flows. By pivotal adjustment of the plates, the spacing between the plates and between the plates and the sidewalls is altered, adjusting the direction and relative volumes of the three partial flows. A constriction at the mouth of the outlet cooperates with the plates. The plates are provided with angled portions which have a deflecting effect. In a second embodiment the pivotal axes are mounted on slidable blocks so that the axes can be moved toward and away from the outlet to adjust total flow volume.



3,811,370
ROOM AIR CONDITIONER MOUNTING ARRANGEMENT

Ray W. Boston, Jr., Louisville, and Larry D. Potts, Jeffersontown, both of Ky., assignors to General Electric Company, Louisville, Ky.

Filed Feb. 14, 1973, Ser. No. 332,282
Int. Cl. E06b 7/02
U.S. Cl. 98—94 10 Claims

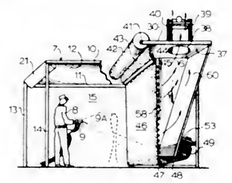


A room air conditioner window mounting arrangement provided with an extendable frame carrying a self-coiling sheet material includes sheet-engaging latching means for preventing the sheet material from recoiling when the frame is extended.

3,811,371
PAINT SPRAY BOOTH

Sheila Hardy, 400 North Ave., Bartlett, Ill.

Division of Ser. No. 75,843, Sept. 28, 1970, abandoned. This application May 8, 1972, Ser. No. 251,087
Int. Cl. F23j 11/00
U.S. Cl. 98—115 SB 6 Claims

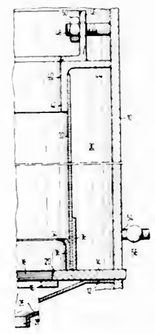


A paint spray booth, including side and top walls, the top wall having a vent opening, means for supporting a roll of curtain material, consisting of a layer of non-woven fabric and a scrim of woven material, outside and above said booth, a portion of the said material of said roll, extending downwardly to form one wall of said booth, another portion of said material extending rearwardly and away from said first roll to a collapsible recovery shaft positioned outside of the paint spray area.

3,811,372
STRAINING VAT AND PROCESS

Conrad Lenz, Annenhofstrabe 2, 805 Freising, Germany

Division of Ser. No. 162,802, July 15, 1971, abandoned. This application Dec. 8, 1972, Ser. No. 313,580
Int. Cl. C12c 7/10
U.S. Cl. 99—277.1 17 Claims

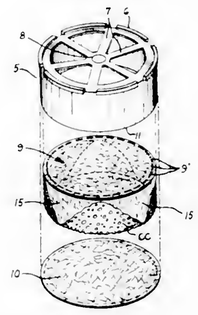


In a straining vat there is provided a perforated bottom and a wort outlet below said bottom. In a straining vat of this type the cooked mash is brought into the vat and is separated in the vat in its two constituents, i.e., draff and wort. The draff are solid constituents which remain on the perforated bottom, whereas the wort passes through the perforated bottom and is withdrawn through the outlet.

3,811,373
BEVERAGE MAKING DEVICE

Paul Telco, Hatfield, Hertfordshire, England, assignor to Telco (Group Management) Limited, Hertfordshire, England

Filed Oct. 22, 1971, Ser. No. 191,876
Claims priority, application Great Britain, Oct. 28, 1970, 51219/70; Dec. 21, 1970, 60572/70
Int. Cl. A23f 1/00; B65b 29/02
U.S. Cl. 99—295 12 Claims



A beverage producing device comprising a receptacle for liquid and an envelope containing a predetermined quantity of finely divided beverage producing material e.g., coffee grounds sufficient for a single cup of coffee, the envelope being arranged in press fit sealing engagement with an envelope supporting portion of the receptacle and having a wick to assist in conveying liquid through the envelope. A dished lid serves as a tray for the receptacle after use.

3,811,374
COOKING APPARATUS

Douglas G. Mann, Boston, Mass., assignor to Clambake International, Incorporated, Cambridge, Mass.

Filed Feb. 16, 1973, Ser. No. 333,303
Int. Cl. A47j 27/04
U.S. Cl. 99—341 16 Claims

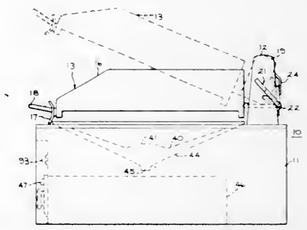


A cooking apparatus designed for a large clambake. The cooking apparatus includes a large bowl-shaped cooking vessel, supporting legs, a burner to heat the cooking vessel, and a flexible inflatable hood affixed to the cooking vessel rim. As the heated broth liquid in the bottom of the vessel changes to steam, the hood inflates to confine and thereby slightly pressurize the broth steam so that it permeates the entire stack of food being cooked.

3,811,375
ELECTRIC BROILER

Donald E. Fritzsche, Chicago Heights, Ill., assignor to General Electric Company, Indianapolis, Ind.

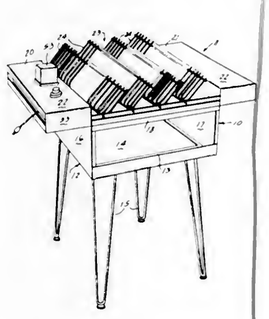
Filed May 16, 1972, Ser. No. 253,803
Int. Cl. A47j 37/06
U.S. Cl. 99—425 10 Claims



A broiler includes a grill assembly which is rotatably mounted for movement between a cooking position and a cleaning position. There is a latching arm which moves into interferring relationship with the grill assembly when the grill assembly is moved to its cleaning position for holding the grill assembly in this position. The latching arm is manually movea-

ble out of the interferring relationship to allow return of the grill assembly to its cooking position. Electrically energized heating elements for heating the grill are connected to a source of electric energy through a control circuit. A first branch of the control circuit, including a regulator for limiting the effective, amount of electric energy provided to the heating elements, is used during cooking. A second branch circuit allows full available electric energy to be provided to the heating elements and includes a position sensitive switch mounted from the grill assembly. The position sensitive switch is closed only when the grill assembly is in its cleaning position. The grill assembly is rotatably mounted to the top portion of a housing which has a grease receptacle in its lower portion. A heat reflector, in the form of a dished sheet, is mounted in the open top of the housing below the grill. A similarly dished shaped grease guide is positioned between the heat reflector and the grease receptacle. The heat reflector and grease guide have mutually offset openings and the opening in the grease guide is in direct communication with the grease receptacle.

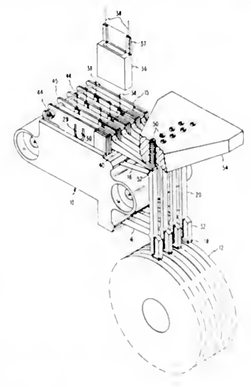
3,811,376
AUTOMATIC FOOD HOLDING AND TURNING APPARATUS
Archie W. Mills, 2941 S. Michigan Ave., Chicago, Ill.
Filed Mar. 13, 1972, Ser. No. 233,964
Int. Cl. A47j *37/00*
U.S. Cl. 99—427 **1 Claim**



A barbecue rack for holding and turning foods to be cooked over a heat source, the rack having a plurality of parallel ranked U-shaped cross-section racks which are normally positioned above the fire pit at an angle of approximately 45°. The racks are pivotably mounted on slide bars with projections held in fixed pivots. The slide bars are longitudinally movable in response to an electric motor to pivot the racks approximately 90° so that the top side in one position becomes the lower side in another position. The electric motor is actuated by a timer control and turned off by a slide actuated switch.

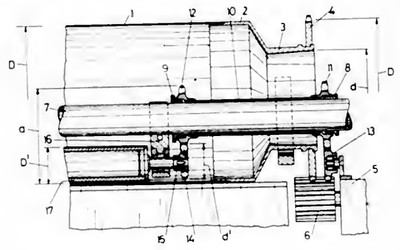
3,811,377
IMPACT PRINTER
Paul Marlin Charlson; Karel den Tex, both of Rochester, and Conrad Ferdinand Fingerson, Chatfield, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,249
Int. Cl. B41f *9/06*
U.S. Cl. 101—93 C **7 Claims**

An impact printer has hammer banks formed in a single plastic molding operation wherein hammer mounting flexures, hammer wear plates, magnet cores and shields are inserts in a single molding. Cooperating cantilevered snap in armatures



are retained by elastomer pivot members and an adjustment bar carries individual adjustment screws which are locked against undesired rotation by a single wire element.

3,811,378
ROTARY SCREEN PRINTING WITH INTERNALLY DRIVEN ROLLER SQUEEGEE
Walter Bohm, Kirchbichl, Austria, assignor to Peter Zimmer, Kufstein, Austria
Filed June 21, 1972, Ser. No. 264,988
Claims priority, application Austria, June 22, 1971, 5381/71
Int. Cl. B41f *15/42*, *15/44*
U.S. Cl. 101—120 **3 Claims**

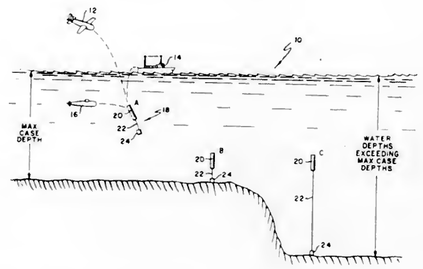


A screen printing machine has two end pieces with a rotary screen attached thereto. A color tube extends axially inside the screen. A shaft positioned around the color tube drives a roller squeegee within the screen.

3,811,379
ENCAPSULATED TORPEDO MINE WEAPON SYSTEM
Allen J. Sondheimer, Chevy Chase, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 23, 1972, Ser. No. 265,936
Int. Cl. B63f *3/02*
U.S. Cl. 102—13 **11 Claims**

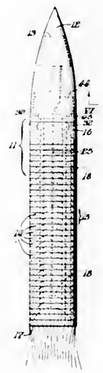
An underwater weapons system having an encapsulated torpedo and an anchor assembly which may be planted in the water by a submarine, aircraft, or surface ship. Shortly after water-entry the anchor separates, leaving the encapsulated

torpedo vertically moored at a predetermined depth. Detection equipment on the casing listens passively for a target, and upon target detection, an active transducer is activated to



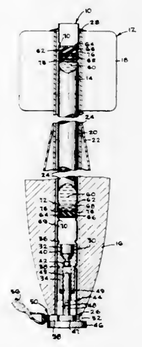
classify the potential target. Upon classification, the casing opens, releasing and activating a homing torpedo having self-contained target-seeking capabilities.

3,811,380
ROCKET AND PROPELLANT THEREFOR
John P. Glass, c/o Cava Industries, 79 La Grange Ave., Essington, Pa.
Continuation-in-part of Ser. Nos. 712,260, Jan. 30, 1958, abandoned, and Ser. No. 300,479, Aug. 7, 1963, abandoned, and Ser. No. 508,640, Oct. 23, 1965, abandoned. This application Jan. 23, 1968, Ser. No. 720,429
Int. Cl. F42b *15/00*
U.S. Cl. 102—49.7 **15 Claims**



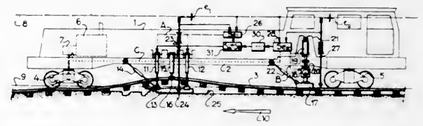
A rocket and propellant therefor comprising a body portion formed of a plurality of rings arranged in abutting relationship to form an enclosing wall having a nose and a tail end, a rocket motor positioned within the wall and including a solid propellant arranged in layers with each layer connected to one of the rings, a series of foraminous screens embedded in the propellant and presenting a concave surface to the tail end of the rocket and focusing the propellant gases on the tail end which is adapted to have a burning surface that travels toward the nose end when the rocket is in flight, said screens also controlling the shape of the burning surface by spreading it laterally. The rocket also includes means for controlling the distance of travel by extinguishing the burning surface, means for re-igniting the extinguished rocket including an electrical circuit having wires which connect with a slow-burning fuse layer, and steering means which includes an auxiliary propellant that is discharged through clusters of pipes to change the mass or energy at one side of the rocket tail to swing the tail around and change the direction of rocket travel.

3,811,381
SMOKE SPOTTING CARTRIDGE
Arthur A. Fichter, Jr., Saratoga; Ronald D. Danks; Farrell G. Larsen, both of San Jose, and Guy C. Throner, Jr., Saratoga, all of Calif., assignors to FMC Corporation, San Jose, Calif.
Filed Mar. 16, 1972, Ser. No. 235,274
Int. Cl. F42b *13/14*, *13/44*
U.S. Cl. 102—66 **3 Claims**



A smoke spotting cartridge adapted upon ejection to propel a smoke forming chemical or the like high into the air for ease in spotting.

3,811,382
PROCESS FOR PACKING AND LEVELING RAILWAY TRACKS AND DEVICE FOR PERFORMING THE SAME
Jean-Edouard Buchter, Paverne, and Hans-Peter Jaeggi, Prilly, both of Switzerland, assignors to Matisa Material Industriel S.A., Crissier, Switzerland
Filed June 19, 1972, Ser. No. 263,974
Claims priority, application Switzerland, July 7, 1971, 9953/71
Int. Cl. E01b *27/17*
U.S. Cl. 104—7 R **13 Claims**

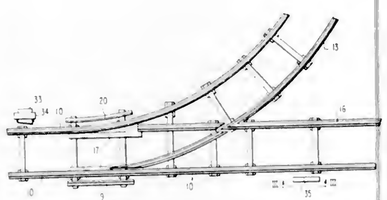


This invention is for a highly efficient process and device for packing railway tracks by compacting ballast beneath the sleepers by a continuous forward movement along the section of the track to be packed, and comprises simultaneously performing two interdependent operations in two different zones, namely in a first zone introducing ballast beneath the sleepers and forming for said sleepers a new support surface, and in a second zone vertically tamping this support surface by applying to the rails and sleepers a vertical pulsating force.

3,811,383
CAR SWITCHING SYSTEM

Neil William Butzow, Greendale, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Nov. 14, 1972, Ser. No. 306,487
Int. Cl. E01b 25/06
U.S. Cl. 104—130 5 Claims

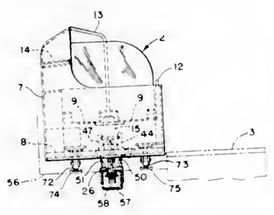


A car switching system for an operator-less railway transportation system in which the track is stationary and the switching is accomplished by a mechanism mounted on the cars. This mechanism may consist of oppositely disposed cam followers mounted for vertical displacement on each side of the car and interconnected so that the cam follower or followers on one side are up, out of engagement with the track, when the cam follower or followers on the other side are down, in engagement with the track.

3,811,384
VEHICLE DRIVE

Newton D. Brown, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 10, 1972, Ser. No. 242,633
Int. Cl. B61b 13/00
U.S. Cl. 104—147 10 Claims



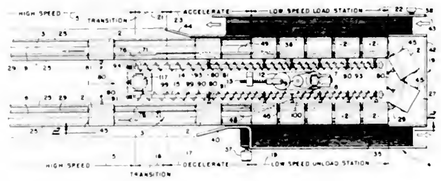
A variable speed drive mechanism in which the drive wheel has a radially extending driving surface and propels a vehicle at different speeds or changes the speed of the vehicle in response to the radial position at which a supporting rail engages the wheel. A moving cable in a raceway below the vehicle drives a pulley on the vehicle which rotates the drive wheel. The direction in which the vehicle is propelled is controlled by guide pulleys in engagement with the cable and by a guide wheel movable in the raceway slot.

3,811,385
TRANSPORTATION SYSTEM

Ernest D. Johnson, Tallmadge; Gerald D. Kirschner, Akron; Edward Kondrajian, Akron, and Gerald L. Woodling, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 29, 1973, Ser. No. 345,999
Int. Cl. B61b 13/00
U.S. Cl. 104—167 22 Claims

A vehicle drive system in which the vehicle is driven by a moving cable in a high speed portion of the system and by a rotating screw in a variable speed portion of the system. A spread groove configuration of the screw cooperating with a rotatable follower wheel supported by a spring-loaded arm pivotally mounted on the vehicle provides a smooth drive transition at the interface between the cable drive and the screw drive. A guide rail with a variable contour extending

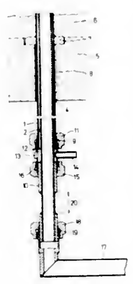


along the pathway of the system is engaged by fore and aft guide rollers on the vehicle for maintaining the position of the vehicle on the pathway and, in addition, actuating a cable clamping and releasing apparatus on the vehicle in the transition portion of the system. The guide rail also maintains the position of the vehicle at the turnaround where adjacent vehicles are connected at the radially inner corners of the vehicle.

3,811,386
TUYERE FOR INTRODUCING OXYGEN AND A PROTECTIVE MEDIUM INTO CONVERTER VESSELS

Helmut Knuppel; Karl Brotzmann, and Hans Georg Fassbinder, all of Sulzbach Rosenberg, Germany, assignors to Eisenwerke Gesellschaft Maximilianshutte m.b.H., Sulzbach Rosenberg, Germany

Filed Dec. 8, 1972, Ser. No. 313,377
Claims priority, application Germany, Dec. 9, 1971, 2160999
Int. Cl. F23i 1/00
U.S. Cl. 110—182.5 7 Claims



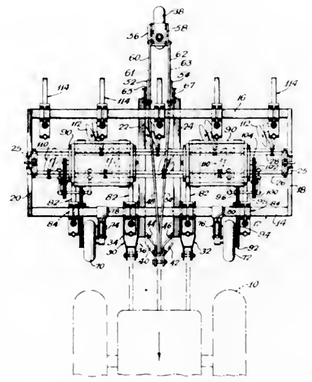
An improved system for supplying oxygen and a protective fluid to metal, below the surface of the metal, in refining vessels in which the tuyeres are connected separately to the supply of oxygen and the supply of protective fluid.

3,811,387
METHOD AND APPARATUS FOR MINIMUM TILLAGE FARMING

Elmo R. Meiners, Anchor, Ill., assignor to M & W Gear Company, Gibson City, Ill.

Continuation-in-part of Ser. No. 1,691, Jan. 9, 1970, abandoned. This application Jan. 9, 1973, Ser. No. 322,224
Int. Cl. A01c 19/00
U.S. Cl. 111—1 8 Claims

Tillage required and fertilizer and herbicide consumption is minimized by placing fertilizer deep in the soil in the fall without thoroughly mixing the fertilizer and soil. The fertilizer is placed by first forming a deep channel, placing the fertilizer in the channel and forming a mound of dirt over the imbedded fertilizer. In the spring, seeds are planted in the top portion of the same mound. This method results in diminished weed growth and increased crop growth while using less amounts of

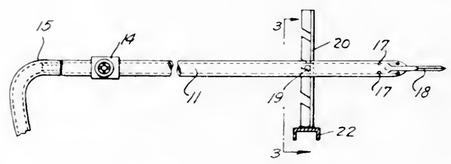


fertilizer and herbicides. The same basic mound structure is then maintained from year to year. The tillage, fertilization and cultivation are performed with a single, combination farm implement comprising a platform having a number of plows, bedders and fertilizer applicators mounted thereon in the fall. In the spring, the same platform has spreaders, planters and bedders for planting mounted thereon.

3,811,388
SUB SOIL IRRIGATOR AND TREE LIFT

William L. Campbell, Box 85, Whitewood, S. Dak.

Filed Aug. 15, 1972, Ser. No. 280,750
Int. Cl. A01c 23/02
U.S. Cl. 111—7.1 2 Claims

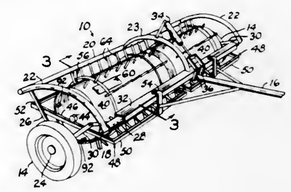


A sub soil irrigator and tree lift comprising an elongate hollow lever member having a piercing blade on one end thereof and a plurality of openings through the tubular lever adjacent the piercing blade. A water connection is provided at the opposite end of the lever to provide a flow of water through the lever and out the openings adjacent the piercing blade. A ground engaging fulcrum member adjustably and pivotally supports the lever at a point spaced from but adjacent the piercing blade. The piercing blade is engaged under the root system of the plant, tree or the like and water is provided through the tubular lever and simultaneously the lever is pressed downwardly at its opposite end to raise the plant to give greater penetration of the water for removing the plant or for properly watering the plant.

3,811,389
GRAIN DRILL

William L. Rother, deceased, late of Rt. 1, Cyril, Okla. (by Lucille S. Rother, administratrix)

Filed Apr. 27, 1973, Ser. No. 355,236
Int. Cl. A01c 5/04
U.S. Cl. 111—91 6 Claims

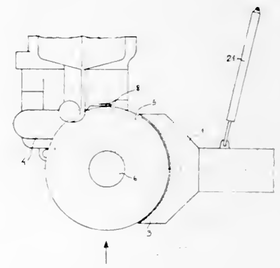


A grain drill-type mobile frame supports a plurality of coaxially aligned hollow cylinders, each containing a quantity of seed to be planted. Each cylinder is provided with a plurality of rows of circumferentially spaced spikes projecting radially outward of its periphery forming a soil penetrating punch having a passageway for depositing seeds in soil penetrated when the cylinders are lowered toward the surface of the earth and rotated about their longitudinal axis by forward movement of the frame. Gravity seed filled and emptied hoppers, secured to the inner periphery of each cylinder wall and communicating with the respective punch, are seed filled and emptied during each revolution of the cylinders. Adjustable gate means regulates the quantity of seed discharged from the cylinders to the respective punch during revolution of the cylinders.

3,811,390
APPARATUS FOR THE CLOSING OF THE TOE OF A CIRCULARLY KNIT STOCKING ALONG A LOOPER-LINE

Eckhardt Hahne, Skibby, Denmark, assignor to Hans Christian Andersen, Kastanienbaum, Switzerland

Filed Mar. 17, 1972, Ser. No. 235,734
Claims priority, application Denmark, Mar. 18, 1971, 1304/71
Int. Cl. D05b 7/00
U.S. Cl. 112—27 5 Claims

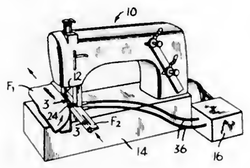


In an apparatus for the closing of the toe of a circularly knit stocking along a looper-line, a pair of jaws are provided which between them form a guiding slot into which the juxtaposed halves of the bead along the non-closed opening of the stocking may be pushed, the apparatus further comprising gripping means to grip the stocking as held between the jaws whereupon the latter are spread apart and withdrawn and the gripping means move the stocking past a working position in which trimming and stitching means are provided.

3,811,391
SEWING GUIDE APPARATUS

Arthur R. Conforti, Lynbrook, N.Y., assignor to Melco Industries Inc., Brooklyn, N.Y.

Filed June 11, 1973, Ser. No. 368,853
Int. Cl. D05b 35/06
U.S. Cl. 112—147 13 Claims

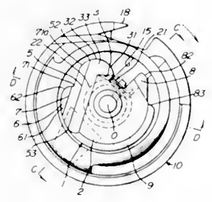


Apparatus for use in conjunction with a conventional sewing machine particularly adapted for guiding the edge of a first fabric and the closed tubular end of a second fabric to the sewing needle in a manner such that the first fabric edge is overlapped on both sides thereof by double layers of the folded tubular end of the second fabric. This is accomplished by feeding the closed tubular end of the second fabric over an elongated first guide member that is floatingly positioned therein and on or adjacent to the sewing machine in front of the presser foot and needle of the sewing machine. The first guide member comprises an enlarged tapered head portion and a pair of rearwardly extending prongs defining an elongated opening therebetween. A second guide member extends through the elongated opening between the prongs of the first guide member, and serves to fold inwardly the closed tubular end of the second fabric and to guide the edge of the first fabric so that the first fabric edge is overlapped on both sides by double layers of the closed tubular end of the second fabric prior to being advanced to the presser foot and needle of the machine.

3,811,392
DOUBLE CHAIN STITCHING METHOD AND DEVICE FOR SEWING MACHINE

Noboru Kasuga, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Oct. 17, 1972, Ser. No. 298,076
Claims priority, application Japan, Oct. 20, 1971, 46-82394
Int. Cl. D05b 1/14, 1/06
U.S. Cl. 112—168 5 Claims

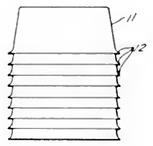


In place of the bobbin case containing a lower thread for lock stitching, a double chain stitching element of simple structure is attached to the rotary shuttle of a sewing machine for rotation therewith to provide double chain stitches with an upper thread and a lower thread which is provided in an appropriate position, instead of being provided in the rotary shuttle.

3,811,393
MANUFACTURE OF CANS AND THE LIKE

Frederick J. Close, North Madison, Ohio, assignor to The Stolle Company, Sidney, Ohio

Filed Jan. 12, 1973, Ser. No. 323,052
Int. Cl. B21d 51/26
U.S. Cl. 113—120 R 1 Claim

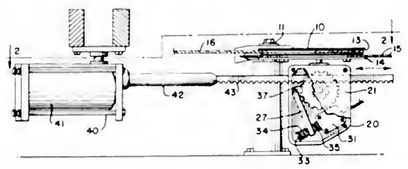


This application discloses a novel process in the manufacture of two-piece metal cans and the like wherein a predrawn cup is produced at the mill rather than by the can manufacturer. The predrawn cup is flanged and tapered. The predrawn cups are stacked in nested relation and a plurality of stacks are packaged at the mill for shipment to the can manufacturer. The can manufacturer then need only redraw and wall-iron the cups and trim, flange, wash and decorate them in order to complete the manufacture of the can. By this procedure scrap loss to the can manufacturer is avoided, making it also easier for a manufacturer to enter the can manufacturing business with less capital investment.

3,811,394
CONTROL UNIT

Paul Anthony Lathers, North Scituate, R.I., assignor to Unipas, Inc., Cranston, R.I.

Filed Mar. 23, 1972, Ser. No. 237,456
Int. Cl. B63h 25/34
U.S. Cl. 114—144 R 9 Claims

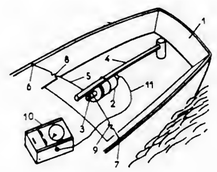


A control unit with means to provide a positive connection between a rudder and a power driving motor for automatic pilot steering. The control unit is normally attached to a steering means, such as a quandrant, which is keyed to a rudder post. The control unit has rotatable means responsive to a shaft extending from the power motor, including a sprocket which engages a detent carried by a pivotal braking arm. The arm is movable between either a release or set position. A solenoid having a plunger element is provided which extends through the distal end of the arm to effect movement of the braking arm into set position. Resilient means, such as springs, surround the plunger on either side of the brake arm and bias it either into set position when the solenoid is activated or release position when inactivated. Provision is also made for manual override of the automatic control. When the unit is in set position, the reciprocating movement of the shaft from the power motor will cause a corresponding movement of the quadrant and, ultimately, the rudder. In release position, the movement of the shaft will not affect the quadrant.

3,811,395
AUTOMATIC PILOT DEVICE

Mario Decis, 800 Rue de la Roguette, Paris 11eme, France

Filed Feb. 27, 1973, Ser. No. 336,257
Int. Cl. B63h 25/04, 25/06
U.S. Cl. 114—144 R 5 Claims

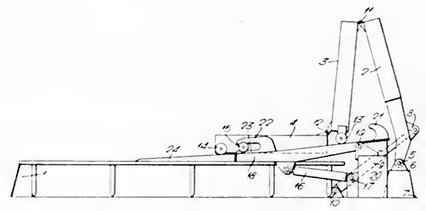


An automatic pilot device of uncomplicated construction is disclosed. The device includes an electric motor, mounted on a tiller or other component mechanically connected to a rudder, and a line having a limited degree of flexibility for coupling a pulley on the motor output shaft to at least a first fixed point on the apparatus to be steered. The automatic steering device also includes electronics for controlling the direction of rotation of the motor whereby the line may be wound on the pulley so as to cause the tiller to be pulled in the direction commensurate with correcting a steering error.

3,811,396
FOLDING COVER SYSTEM FOR HATCHES

Per Christian Wessel, Oslo, and Eldby, Per, Skarer, both of Norway, assignors to Kvaerner Brug A/S, Oslo, Norway

Filed Apr. 18, 1973, Ser. No. 352,328
Int. Cl. B63b 19/12
U.S. Cl. 114—201 R 1 Claim

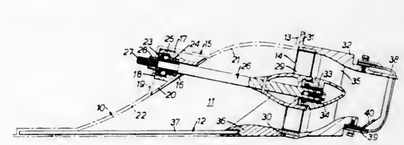


The invention relates to a hatch cover system of the type wherein cover sections are hingedly interconnected, with a first section hinged at a point which is hingedly mounted to the ship's deck so that this first section together with the adjacent second section may be pivoted into a vertical position with the lower faces of the two sections facing each other, and a third section which is hingedly connected to the second section may be pivoted to a vertical position with its top face facing the top face of the second section, all movements being effected by hydraulic means mounted between the deck and the first and levers for the third section, respectively, pivotable about a fixed pivot point by a hydraulic means and is provided near its free end with a claw adapted to receive a pin on the third cover section when the first and the second sections are approaching their vertical position, whereby the entire opening and closing operations are under positive guidance of all parts relative to each other and to the deck and the parts are positively held when in open position, all without any noise producing play, and with no part preventing the movements of the remaining parts.

3,811,397
PROPULSION DEVICES

Andrew Charles Usborne, Sheffield, England, assignor to UA Engineering Limited, Sheffield, England

Filed Nov. 15, 1971, Ser. No. 198,562
Claims priority, application Great Britain, Nov. 13, 1970, 54281/70
Int. Cl. B63h 11/02
U.S. Cl. 115—14 4 Claims

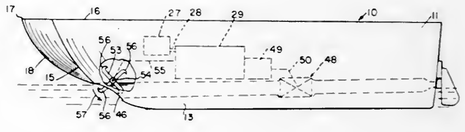


The intake duct of a propulsion device for a water-borne vessel is defined by first and second members, one of which provides the major portion of the wall of the intake duct and the other of which extends between an inlet opening and an outlet of the intake duct.

3,811,398
TWIN KEEL JET BOAT

Kermit H. Burgin, R.R. No. 1, Whitestown, Ind.

Filed Feb. 2, 1973, Ser. No. 329,061
Int. Cl. B63h 11/02; B63b 1/34
U.S. Cl. 115—16 11 Claims



A boat having a bottom, twin longitudinal depending keels adjacent the lateral edges of the bottom and extending substantially throughout the length of said bottom, each keel being formed to provide a passageway extending longitudinally therethrough and having an intake port adjacent its bow end and an exhaust port adjacent its stern end. A pump is disposed in each passageway intermediate its ends to draw water into its intake port and force it out through its exhaust port. An engine is disposed in the boat, and a drive train, including a reversible transmission, is provided for drivingly connecting each pump to the engine. Also drivingly connected to the engine are rotary beaters which keep trash out of the intake ports. The bottom of the boat is formed with a well having closed top, sides and ends. A compressor driven by the engine is provided for delivering continuously a flow of primarily gaseous substance under pressure to the well. The well is covered by a panel or panels arranged to vent the gaseous substance downwardly and rearwardly.

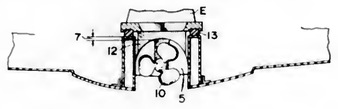
3,811,399
INBOARD MOTOR BOAT

Torao Kobayashi, and Hisashi Inaga, both of Tokyo, Japan, assignors to Kioritz Corporation, Tokyo, Japan

Filed Oct. 6, 1972, Ser. No. 295,526
Int. Cl. B63h 5/16
U.S. Cl. 115—39 1 Claim

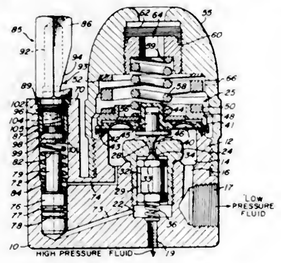
An inboard motorboat having, located in the rear half of the bottom of the boat and extending to the stern longitudinally, an upwardly recessed water passageway, an engine detachably provided on the inside of the boat at the upper wall of said water-passageway, said engine having a screw propeller cou-

pled thereto, said screw propeller protruding into said water-passageway, whereby accommodating said propeller within



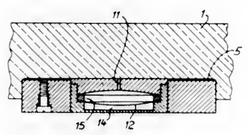
the bottom contour of the hull without protruding beyond this bottom.

3,811,400
FLUID OPERATED ALARM SYSTEM
Benjamin Smilg, Dayton, Ohio, assignor to Globe Safety Products, Inc., Dayton, Ohio
Continuation-in-part of Ser. No. 164,240, July 20, 1971, abandoned. This application July 21, 1972, Ser. No. 273,688
Int. Cl. G01l 19/12
U.S. Cl. 116—70 **15 Claims**



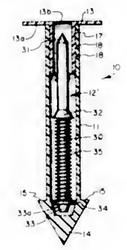
A whistle is actuated by a substantially constant low pressure gas supply which is also used for breathing equipment and which is obtained through a regulator connected to a high pressure gas supply. The actuation of the whistle is controlled by a valve system which opens to supply low pressure gas to the whistle when the pressure of the high pressure gas supply decreases to a predetermined level. In accordance with modifications of the invention, the whistle is also controlled in response to the demand for low pressure gas and is operated by either high or low pressure gas.

3,811,401
SEALED EVACUATED AND PRESSURIZED WATCH CASES
Pierre Michel Piquerez, Bassecourt, Switzerland, assignor to Ervin Piquerez S.A., Bassecourt, Switzerland
Filed Mar. 15, 1973, Ser. No. 341,758
Claims priority, application Switzerland, Mar. 29, 1972, 4643/72
Int. Cl. G01l 19/12
U.S. Cl. 116—70 **6 Claims**



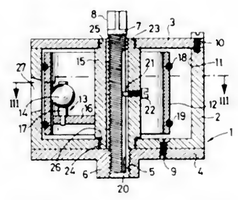
A device for indicating the maintenance of a given vacuum or over-pressure in a sealed watch case comprises a hollow piston slidably mounted in a bore of a support member, one end of said bore communicating with a primary enclosure of the case and the other end of said bore being fluidtightly sealed off from said primary enclosure by means including a watch glass. A bistable metallic membrane is disposed within said hollow interior of the piston so as to define and fluid-tightly separate two compartments, one of which contains a gas and the other of which includes an opening communicating the hollow interior with an outer face of said piston adjacent to said other end of the bore, said other compartment containing an opaque liquid, for example a brightly colored oil. The membrane is movable between two positions according to whether the pressure in the primary enclosure is above or below a limiting value, a first position in which the volume of said other compartment is such that no liquid is located between said outer face of the piston and said glass whereby said piston is visible through said glass, and a second position in which the volume of said other compartment is such that a quantity of liquid is disposed between said outer face of the piston and said glass whereby said piston is concealed.

3,811,402
TEMPERATURE RESPONSIVE GAUGE
Robert A. Keeley, P.O. Box 1529, Salt Lake City, Utah, and A. Rae McFarland, 3485 Kingshill Dr., Salt Lake City, Utah
Filed Dec. 26, 1972, Ser. No. 318,117
Int. Cl. G01k 11/06
U.S. Cl. 116—114.5 **6 Claims**



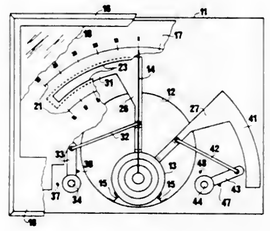
An improved, easily produced, low-cost but reliable pop-out-type gauge adapted to be inserted in poultry, meats, etc., and to indicate when a predetermined temperature has been reached within the object in which the gauge is inserted. The gauge has a pointed housing, a membrane forming flotation cap and a thermally responsive unit held in the housing by the cap. The thermally responsive unit is pre-assembled before being placed in the housing and includes a shaft with an end pointed to rupture the membrane, and a spring held in a compressed condition around the shaft by a fusible member, such that release of the spring by the fusible member will force the shaft through the membrane.

3,811,403
INDICATOR DEVICE FOR ROTARY ELEMENTS
Heinrich Braukmann, 8 Drosselweg, Mosbach, Germany
Filed Sept. 11, 1972, Ser. No. 288,151
Claims priority, application Germany, Sept. 21, 1971, 2147000
Int. Cl. F16k 37/00
U.S. Cl. 116—125 **11 Claims**



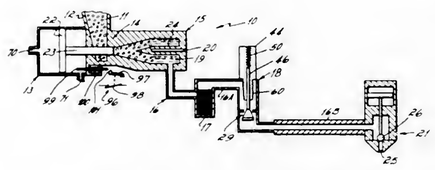
An indicator device for a rotatable component such as a valve spindle. The device includes a housing having a cylindrical bore, a roller element mounted for rotatable movement relative to the housing, a pressure mechanism mounted within the roller element for pressing the element against the wall of the bore to locate the element eccentrically of the bore and an indicating device for indicating the relative position between the housing and the roller element. The pressure mechanism is non-rotatably mounted with the rotatable component and relative position between the housing and roller element is indicated by the indicating device.

3,811,404
MEASUREMENT INSTRUMENT WITH DEVICE FOR INDICATING THE LIMITS OF TOLERANCE
Mario Possati, Viale Carducci 23, 40125 Bologna, Italy
Filed June 28, 1971, Ser. No. 157,549
Claims priority, application Italy, July 10, 1970, 3484/70
Int. Cl. G09f 9/00
U.S. Cl. 116—129 R **2 Claims**



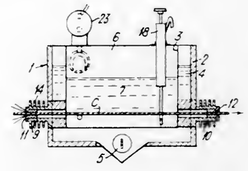
A measuring instrument including means for indicating tolerance limits, having a measurement pointer which moves over a scale provided on a panel of the instrument from a position of rest to a position indicating the value of the measurement being made, the scale of the instrument being divided into at least two fields by said tolerance-limit indicating means, at least one of said fields being within the limits of tolerance and at least one being outside said limits.

3,811,405
THERMOPLASTIC DISPENSER SYSTEM
Robert G. Baker, Avon, and Alan B. Reighard, Bay Village, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio
Continuation-in-part of Ser. No. 194,862, Nov. 2, 1971. This application July 7, 1972, Ser. No. 269,595
Int. Cl. B31b 1/62
U.S. Cl. 118—2 **14 Claims**



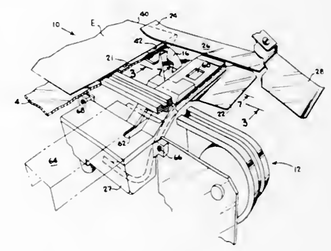
A reciprocating ram type of thermoplastic material dispensing system which includes a hopper from which solid material is fed in small batches into a pressure chamber in front of a reciprocating ram. On the forward stroke of the ram, the solid material is forced through a melting chamber and subsequently supplied in molten form to a dispensing gun. The system includes a pressure regulator in the molten material flow stream to maintain an even pressure of the material at the dispensing gun. It also includes a control circuit for cycling the ram in synchronization with insertion and removal of workpieces or products adjacent the nozzle of the gun. An interlock switch is provided in the control circuit to prevent too frequent recycling of the ram and consequent choking of the system.

3,811,406
APPARATUS FOR IMPREGNATING AND COATING STRANDED BODIES
Roy Tomlinson, Manchester, England, assignor to Connollys (Blackley) Ltd., Manchester, England
Division of Ser. No. 8,298, Feb. 3, 1970, Pat. No. 3,672,974. This application Nov. 29, 1971, Ser. No. 202,934
Claims priority, application Great Britain, Feb. 6, 1969, 6450/69
Int. Cl. B05c 3/12
U.S. Cl. 118—6 **11 Claims**



In order to coat and fill the interstices between the elements of an elongated flexible body, for instance a multi-conductor cable core, formed by stranding or bunching a plurality of the elements together, the body is impregnated and coated with a filling material by passing it into a bath of filling material, in a liquid state, through an inlet die, through the liquid in the bath, and then out of the bath through an outlet die. The dies are wholly situated below the level of the liquid and are maintained at a temperature such that there is no substantial leakage of the liquid from the bath therethrough while the body is passing continuously through the bath. Preferably the dies are each mounted at the free end of a metal tube projecting from the wall of the bath and are maintained at the said temperature by means of external cooling fins on the tubes.

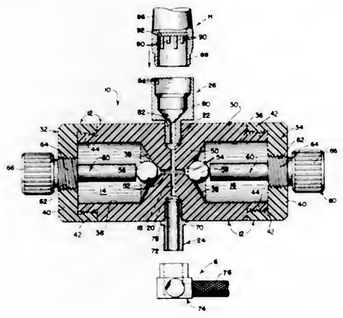
3,811,407
FLAP TURNING AND SEALING SYSTEM FOR POSTAGE METER MAILING MACHINE
Raymond R. Lupkas, Trumbull, and Dominick L. Grimaldi, Stamford, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.
Filed May 12, 1972, Ser. No. 252,849
Int. Cl. B05c 1/02
U.S. Cl. 118—32 **18 Claims**



A moistening device for a postage meter mailing machine comprising a water reservoir and a wick support arm. The wick support arm extends from an upper section of the reser-

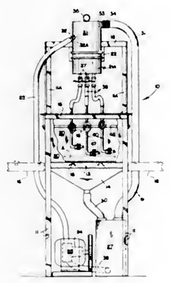
voir in a direction which is at least at a slight angle with respect to a horizontal plane, such as the deck of the mailing machine. At least a portion of the lower section of the arm and an adjacent vertical section of the arm are open so as to expose an extended edge of the wick and provide a region for contact with the gummed region of an envelope. A spring like member is provided around the wick in the exposed region so as to apply a downward pressure on the wick, thereby forcing the wick against the envelope which is simultaneously being forced upwardly by a spring like member positioned below the envelope.

3,811,408
PENUMATIC CLEANING, DISINFECTING AND OILING DEVICE FOR A TUBE-TYPE DENTAL HANDPIECE
Arnold M. Thompson, Box 172A Gay Ave., Wheaton, Ill.
Filed Nov. 6, 1972, Ser. No. 304,337
Int. Cl. B05c *7/02*
U.S. Cl. 118--73 **9 Claims**



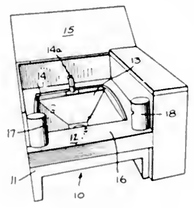
A device in the form of a small compact portable reservoir and valve arrangement designed for attachment to a source of pressurized air and by means of which measured charges of a cleansing, disinfecting and oiling liquid may be successively and forcibly projected in an atomized condition through the small bore passages of a dentist's handpiece.

3,811,409
LOW PRESSURE PAINT SPRAY APPARATUS FOR CONVEYOR CARRIED ARTICLES
John A. Porter, 3497 Hawthorne Ave., Eugene, Oreg.
Filed May 4, 1972, Ser. No. 250,414
Int. Cl. B05c *11/16, 5/00*
U.S. Cl. 118—314 **1 Claim**



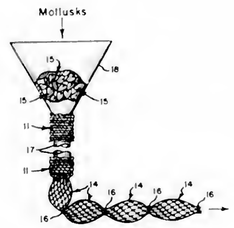
An apparatus for low pressure spraying of passing articles and having a series of adjustable spray assemblies located along the articles path. Multiple adjustments provided enable convenient setting of the spray pattern size and inclination to best treat the passing articles. A surge tank receives a directional incoming flow with each spray assembly being fed from the remote end of the surge tank. Large orifice nozzles advantageously are not susceptible to damage from fluid contaminants.

3,811,410
ANIMAL WATER-CLOSET
Dolly A. Roberts, 161 Flaming Dr., Clearwater, Fla.
Filed Aug. 24, 1972, Ser. No. 283,401
Int. Cl. A01k *29/00*
U.S. Cl. 119—1 **1 Claim**



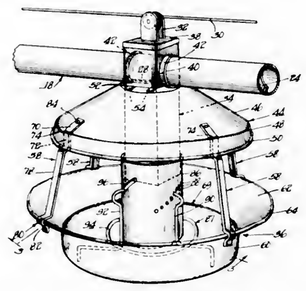
A water-closet for household pets, such as cats and dogs, includes a receptacle, a platform for supporting the animal, and a water flushing system for the receptacle which is activated by an electromechanical control valve. Photoelectric means are provided at the entry end of the platform for sensing the presence of an animal in the water-closet. A signal is generated by the photoelectric means when the animal interrupts the light beam, which signal activates the water flushing system. A time delay circuit is provided between the photoelectric means and control valve so as to delay actuation of water flushing for a predetermined and adjustable period of time and thereby avoid flushing while the animal is in the presence of the water-closet.

3,811,411
METHOD OF CULTIVATING MOLLUSKS
Henry W. Moeller, 45 St. Andrews Rd., South Hampton, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,656
Int. Cl. A01k *61/00*
U.S. Cl. 119—4 **6 Claims**



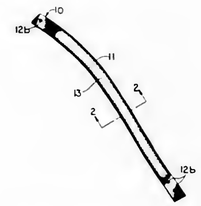
Mollusks are cultivated by enclosing discrete groups of seed mollusks lengthwise of the interior of the tube of netting material, lowering the resulting tube into an aqueous mollusk growth-inducing environment, and thereafter harvesting the grown mollusks.

3,811,412
POULTRY FEEDER
Robert A. Murto, Goshen, and Eldon Hostetler, Middlebury, both of Ind., assignors to Chore-Time Equipment, Inc., Milford, Ind.
Continuation of Ser. No. 74,381, Sept. 22, 1970, abandoned. This application Sept. 27, 1972, Ser. No. 292,614
Int. Cl. A01k *05/00*
U.S. Cl. 119—53 **5 Claims**



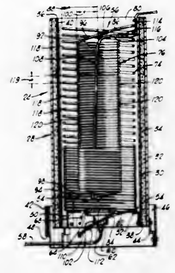
A poultry feeding apparatus is disclosed herein and includes a central feed conveyance tube for directing feed to a plurality of feed dispensing assemblies which are suspended at spaced intervals along the feed conveyance tube. Each dispensing assembly comprises a hollow feed distributing member adapted to be rotatably secured to and depend from the conveyance tube for receiving feed therefrom, a pan disposed beneath the distributing member for receiving the feed therefrom, a hood disposed around and connected to the distributing member, and a plurality of spoke elements securing the pan to the hood.

3,811,413
HORSE FLY COLLAR
Arnold H. Scherpenborg, 4721 Orange Knoll, La Canada, Calif.
Filed Oct. 10, 1972, Ser. No. 296,263
Int. Cl. A01k *27/00*
U.S. Cl. 119—106 **6 Claims**



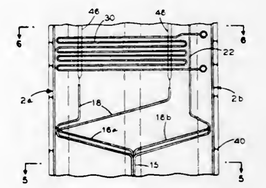
A band or strap for encircling the neck of a horse or pony carrying an elongated pocket having the upper surface perforated. Contained within the pocket is a mixture constituting a low volatility insecticide material on a granular carrier having an attractive characteristic for flies. A disagreeable taste material is also deposited on the granular material which is merely unpleasant to the taste of horses or humans who might come in contact with the collar and also controls the vaporization of this active ingredient. Also is disclosed a process for producing the insecticide combination and a novel insecticide combination.

3,811,414
HEAT EXCHANGER APPARATUS FOR PRODUCING STEAM OR THE LIKE
Richard L. Minton, Norman, Okla., assignor to Bantam Steam Company, Norman, Okla.
Filed Nov. 13, 1972, Ser. No. 306,371
Int. Cl. F22b *27/08*
U.S. Cl. 122—250 R **9 Claims**



An improved heat exchanger apparatus for producing steam or the like wherein a fluid is heated via a burner assembly as the fluid passes through a coil assembly to an outlet steam nozzle, the coil assembly including an outer helically wound coil and an inner helically wound coil generally disposed within the outer helically wound coil and having one end thereof disposed generally near the burner assembly. The coil layers of the outer coil are separated so that the fluid passing therethrough is maintained at a relatively low temperature level with respect to the fluid passing from the inner coil to facilitate the insulation of the coil assembly and to enhance the heat transfer efficiency of the heat exchanger apparatus.

3,811,415
VAPOUR HEATING AND VAPOUR GENERATING UNITS
Arthur Charles Lawrence, 31 Quinton Ave., London, S.W. 20, and Milovan Grgich, 10 Woodstock Ave., London, N.W. 11, both of England
Filed Feb. 1, 1972, Ser. No. 222,471
Int. Cl. F22g *7/14*
U.S. Cl. 122—478 **8 Claims**

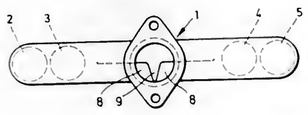


A vapor generating and superheating unit having its components arranged to support it in both horizontal and vertical position and including a plurality of headers disposed adjacent one of the sidewalls, said sidewall being lowermost when the unit is in horizontal position.

3,811,416
INDUCTION PIPE FOR INTERNAL COMBUSTION ENGINES

Reinhard Gospodar; Kurt Reichel, both of Wolfsburg; Gustav Vogelsang, Braunschweig, and Peter Thauer, Neuhaus, all of Germany, assignors to Volkswagen Werk AG, Wolfsburg, Germany

Filed Dec. 8, 1970, Ser. No. 96,037
Claims priority, application Germany, Dec. 11, 1969, 1962113
Int. Cl. F02b *75/20*
U.S. Cl. 123—52 M **6 Claims**

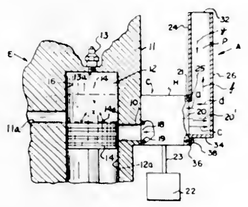


An induction pipe for internal combustion engines having a distributor section and supply lines for the mixture with the deflector having means therein to even the distribution of the mixture and the deflector being formed by a wall between the branch off points and also provided with recesses.

3,811,417
FUEL SPRAYBACK INHIBITOR FOR TWO CYCLE ENGINES

Daniel J. Keenan, Merrill, and Norman F. Welzein, Saginaw, both of Mich, assignors to Samuel C. Adams, Reese, Mich., by said Welzein.

Filed Sept. 23, 1970, Ser. No. 74,543
Int. Cl. F02b *33/04, 33/12*; **F02m** *17/00*
U.S. Cl. 123—73 A **12 Claims**



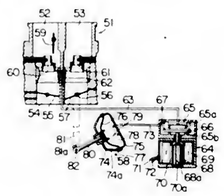
A fuel sprayback inhibitor for use with the carburetor of a two cycle internal combustion engine comprising an air intake duct having walls defining a longitudinally extending air passage terminating at one end in an inlet and terminating at the other end in an outlet communicating with the intake of the carburetor, the air passage extending vertically and normal to the carburetor intake.

3,811,418
VEHICLE SPEED LIMITING DEVICE

Naoji Sakakibara, Kariva, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed May 3, 1971, Ser. No. 139,461
Int. Cl. F02d *11/08*; **F02m** *13/04*; **F02d** *9/00*
U.S. Cl. 123—103 R **8 Claims**

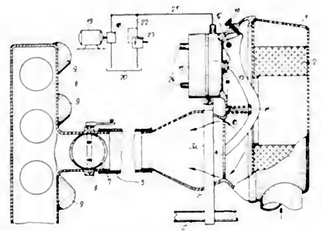
A speed-responsive switch coupled to a moving part of a vehicle is closed when the vehicle speed exceeds a predetermined limit to pass a current through an activating circuit including the coil of a solenoid thereby to activate the solenoid, which thereby operates to close a high-speed valve in the high-speed venturi (throat or barrel) of the carburetor of the vehicle engine and thereby to reduce the vehicle speed. When absolutely necessary, as in an emergency, the activating circuit is rendered temporarily inoperative by another switch, thereby permitting the vehicle to be driven at speeds above the limit.



3,811,419
CONTROL DEVICE FOR A FUEL INJECTION SYSTEM

Konrad Eckert, Stuttgart, and Heinrich Knapp, Leonberg, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Continuation of Ser. No. 80,685, Oct. 14, 1970, abandoned.
This application Nov. 2, 1972, Ser. No. 303,206
Int. Cl. F02m *7/00*
U.S. Cl. 123—119 R **7 Claims**

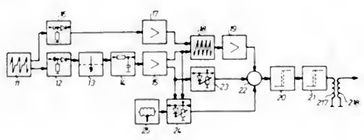


In an internal combustion engine having a throttle in the suction duct a disc is mounted in the duct airstream on the end of a pivotable arm for controlling the fuel valve in proportion to the rate of air intake. A section of the duct between the throttle and the disc is formed by an elastic hose. The disc is mounted in an enlarged section housing the air filter and is of appreciably larger diameter than the throttle.

3,811,420
IGNITION SYSTEM FROM AN INTERNAL COMBUSTION ENGINE

Wilhelm Vogel, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 14, 1972, Ser. No. 217,779
Claims priority, application Germany, Jan. 21, 1971, 2102688
Int. Cl. F02p *5/02*
U.S. Cl. 123—148 E **11 Claims**

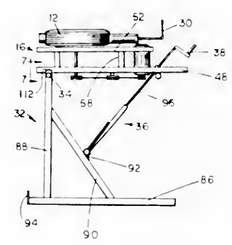


An ignition system regulates the ignition timing of a combustion engine by first generating a series of pulses in synchronism with the position of the rotating crankshaft which are utilized to trigger a monostable multivibrator to generate a series of uniform pulses. The average value of these uniform pulses is obtained by passing these through low pass filters and utilized to drive a constant DC current source which charges a storage capacitor to form part of a saw-tooth generator. The resulting slopes of the leading edges thus formed are a function of the crankshaft rotation speed. An independent set of impulses, also synchronously timed with the position of rotation of the crankshaft, is used to discharge the storage capacitor. The saw-tooth wave-form is applied to a Schmidt-trigger which is adjusted to sense a predetermined level of the leading edges. When the leading edge reaches this threshold value, the Schmidt-trigger activates an amplifier which transmits a control signal to the ignition coil of the combustion engine to ignite the combustible mixture in the cylinders. By regulating the level of the saw-tooth wave-form as a function of the rotational speed of the crankshaft and the intake manifold pressure, the ignition timing can be regulated in response to changes in these parameters.

3,811,421
BASEBALL PROJECTING MACHINE

John R. Betten, 4285 Burton, S.E., Grand Rapids, Mich.

Filed Mar. 27, 1972, Ser. No. 238,310
Int. Cl. F41b *3/04*
U.S. Cl. 124—1 **7 Claims**

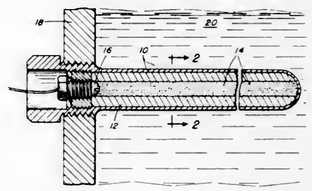


A baseball training machine having a frame and a ball propelling assembly mounted on the frame for projecting balls therefrom. The frame is pivotably mounted at a front portion on a supporting base member. An adjustable brace releasably couples the rear portion of the base to the frame. The brace includes a threaded rod which, when rotated, changes the effective length of the brace to raise or lower the rear portion of the frame to adjust the angle of projection of the balls. Further, the base has a plurality of spaced retaining devices for receiving a lower portion of the brace in various adjusted positions so that the rear portion of the frame can be adjusted through a wide angle with respect to the base for projecting ground balls batting practise, fly balls, and pop flies. The propelling assembly includes a pair of wheels, each of which is independently driven by a constant speed motor through a variable drive mechanism including an idler pulley and a drive belt. The idler pulley is supported on the frame and adjusted by an adjusting rod to vary the tension of the belt and the speed of the wheel. A variable diameter pulley is also employed on the motor drive shaft or on the propelling wheel to change the speed of the belt as the tension of the belt is changed.

3,811,422
CHEMICAL HEATER TUBE

Donald R. Olson, State College, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 5, 1972, Ser. No. 296,361
Int. Cl. F24j *1/04*
U.S. Cl. 126—263 **8 Claims**

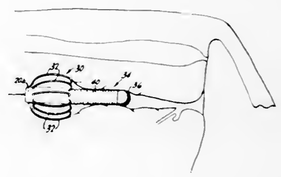


A chemical heater-cartridge for producing high amounts of heat without excessive pressure rises. A sealed, thin-walled, steel tube filled with solid lithium surrounding a core of Teflon powder forms the portable heater-cartridge. The exothermic reaction of this mixture, initiated by a pyrotechnic fuze, results in a high heat output and a reduction of pressure within the cartridge. This reduction of pressure permits the use of a small-mass tube which increases the rate of heat transfer. Sulfur hexafluoride vapor (SF_6) or Freon may be added under pressure to enhance the reaction rate. Alkali metals, other than lithium, and fluorocarbons, other than Teflon, may be used and are equivalent reactants.

3,811,423
DEVICE FOR INSERTION INTO THE REPRODUCTIVE TRACT AND METHOD OF USING SAME

Ben Wade Oakes Dickinson, III, San Francisco, and Robert Wayne Dickinson, San Rafael, both of Calif., assignors to Agrophysics, Inc., San Francisco, Calif.

Filed Jan. 22, 1971, Ser. No. 108,889
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R **17 Claims**



A device for detection of fluid precursive to ovulation such as estrus in animals of the type having a tubular reproductive tract including an ovary (e.g., a cow). The device includes a mechanically operated sensing assembly including a water-soluble sensing element and formed to release in response to contact and dissolution of the element by ovulation precursive fluids to perform a function such as providing visual indication external of the animal by projection of a solid sighting member or by release of a dye.

A time delay assembly (e.g., a blocking plug or timed closing of a sensing element bypass valve) is provided to prevent reproductive tract fluids from contacting the sensing element until a predetermined time after insertion of the device to avoid triggering by a preliminary fluid flow.

The device is prevented from spontaneous expulsion from the animal by an anchor assembly adapted to engage and

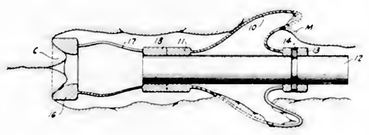
anchor the device into the reproductive tract wall. This anchor assembly serves also to stimulate the tract wall by altering the normal cross-sectional configuration. An effective anchor assembly includes a plurality of resilient spring-like strands each in a hoop configuration around a housing mounted into rings movable with respect to each other to collapse the hoops and project the anchor into a sensitive area for expulsion from the animal by peristaltic movement. The rings may be retained in a proximate position by an element which disintegrates after a predetermined time or in response to ovulation precursive flow.

3,811,424

ARTIFICIAL METHOD FOR MODIFYING THE REPRODUCTIVE CYCLE IN ANIMALS

Ben W. O. Dickinson, III, San Francisco; Robert W. Dickinson, San Rafael, both of Calif., and Cecil R. Miller, Westchester, Pa., assignors to Smith, Kline & French Laboratories, Philadelphia, Pa., by said Miller and Agrophysics, Inc., San Francisco, Calif., by said Ben W. O. Dickinson, III and Robert W. Dickinson

Filed Jan. 22, 1971, Ser. No. 108,922
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R **7 Claims**



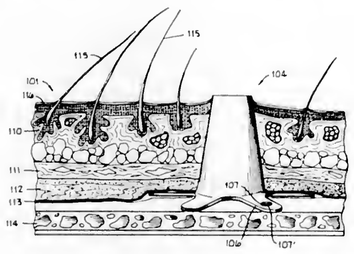
A method for changing and resetting the starting time of the estrus or reproductive cycle in female animals (e.g. a cow) including the steps of inserting a mechanical device therein, engaging the device with the reproductive tract wall to prevent expulsion by the animal straining and exerting pressure sufficient to alter the cross-sectional configuration of the tract wall for a substantial period of time. This pressure causes alteration or stimulation of the reproductive or estrus cycle regulatory mechanism of the animal to reset the beginning of the reproductive cycle, and under certain conditions, to cause a shortening of the cycle. A typical device includes a number of radially projecting resilient hoops.

3,811,425

METHOD AND APPARATUS FOR MOUNTING HAIR

Garth E. Widdifield, 532 Turtle Creek, North Dr., Indianapolis, Ind.

Continuation-in-part of Ser. No. 60,382, Aug. 3, 1970, abandoned. This application July 31, 1972, Ser. No. 276,328
Int. Cl. A61b *17/00, 17/18*; **A61d** *1/00*
U.S. Cl. 128—1 **3 Claims**



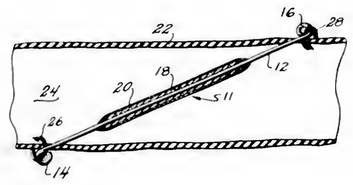
A method and apparatus for mounting hair to a human head. In one embodiment, holes are formed in the scalp and U-shaped anchors are surgically embedded into the scalp with the ends of each anchor protruding out of the scalp. A mesh screen having hair mounted thereto is then attached to the anchors. In another embodiment, an incision is made through the skin and subcutaneous tissues of the scalp down to and through the periosteum. The periosteum is then separated from the skull and the base of an implant is positioned between the periosteum and skull. The body of the implant tapers from the base to the top — which protrudes from the scalp to which connection with a hair piece may be made.

3,811,426

METHOD AND APPARATUS FOR THE IN-VESSEL RADIATION TREATMENT OF BLOOD

Gordon G. Culver, Klamath Falls, Oreg., and William F. Riemath, Pasco, Wash., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed May 21, 1973, Ser. No. 362,613
Int. Cl. A61n *5/10*
U.S. Cl. 128—1.2 **7 Claims**



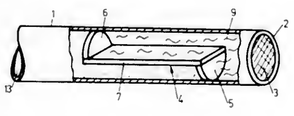
An apparatus and a corresponding method for the in-vivo radio-therapy of blood by irradiation of the blood within the blood vessel. The device includes a wire which has a straight section and small oppositely facing loops at each of its two ends. An active radioisotope-layer is deposited over the center portion of the straight section of the wire and this radioisotope-layer is sealingly covered with a coating-layer to prevent any leaking of the radioisotope into the blood. The wire is adapted for surgical implantation diagonally transverse a blood vessel in a manner so that the active radioisotope-layer lies fully within the blood vessel, while the end of the wire projects such that the two loops lie fully exterior to the blood vessel. Following the depositing of the radioisotope-layer and the coating-layer on the wire and sterilization of the wire, the device is surgically implanted diagonally transverse the blood vessel and is anchored in place with respect to the blood vessel by suturing through the loops.

3,811,427

PRESSURE RECEIVER

Heinz Kresse, Erlangen, Germany, assignor to Siemens A.G., Erlangen, Germany

Filed Sept. 7, 1972, Ser. No. 287,125
Claims priority, application Germany, Sept. 9, 1971, 2145198
Int. Cl. A61b *5/02*; **G01l** *9/02*
U.S. Cl. 128—2.05 D **4 Claims**



A pressure receiver for intracorporal pressure measurements, for example, intracardial or intravasal blood pressure

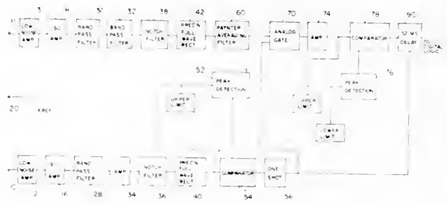
measurements, includes a substantially elongated hollow body, preferably a tube, the interior of which is divided by an at least partly elastic separating wall into a first section which is subjected to presssure which is to be measured and a second section having the comparing pressure, whereby changes in the shape of the elastic wall portion are used for measuring the pressure. The invention is particularly characterized in that the separating wall within the hollow body extends between two opposed locations which however, are shifted in the longitudinal direction of the hollow body. According to another construction the separating wall extends tongue-like into the hollow body and consists of two interconnected strips. The hollow space between the two strips being connected with the second section.

3,811,428

BIOLOGICAL SIGNALS MONITOR

Joseph M. VanHorn, Cambridge; Paul Epstein, Brookline, and Patrick G. Phillipps, Framingham, all of Mass., assignors to Brattle Instrument Corporation, Cambridge, Mass.

Filed Dec. 30, 1971, Ser. No. 214,287
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 F **46 Claims**



Biological signals (especially, e.g., fetal QRS complexes) are monitored with signal processing circuitry featuring, in various aspects, in the fetal heart rate monitor, automatic thresholding of maternal and fetal signals; a digital phase lock loop for generating fetal heart rate signals related to the loop frequency, the loop including means for estimating the rate during occurrences of blank spaces caused by removal of signals representing merged maternal and fetal heart beats; counter controlled means for disabling readout; low impedance preamplification of signals received from the body; and a low Q filter with significant useful output energy in the 50–100Hz range, 60Hz noise being removed by a notch filter.

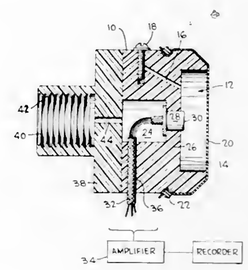
3,811,429

ARTERIAL PULSE WAVE PRESSURE TRANSDUCER

James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Chung Kim, Detroit, Mich.; Donald Gorelick, and Wayne Chen, both of Silver Spring, Md.

Filed Sept. 25, 1972, Ser. No. 291,845
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 E **7 Claims**

A novel arterial pulse wave pressure transducer is disclosed, the transducer comprising a fluid-filled cavity having a flexible membrane member disposed over the cavity and adapted to be placed on the skin over an artery. An arterial pulse wave creates pressure pulses in the fluid which are transduced by a pressure-sensitive transistor disposed in direct contact with the fluid into an electric signal. The electrical signal is



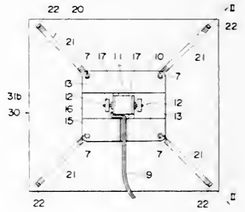
representative of the pulse waves and can be recorded so as to monitor changes in the elasticity of the arterial walls, and the like.

3,811,430

MASSAGING DEVICE

Shinya Kawakami, 1-4, Hirano Shinohachi 2-chome, Higashi, Sumigoshi-ku, Osaka-shi, Japan

Filed Sept. 25, 1972, Ser. No. 292,097
Claims priority, application Japan, May 25, 1972, 47-61173
Int. Cl. A61h *1/00*
U.S. Cl. 128—33 **25 Claims**



A compact, portable massaging device for providing, by vibrating, gentle massage for remedial or hygienic purpose, which is fabricated in the form of a cushion and which comprises a motor, a pair of eccentrically rotatable vibrator elements for producing vibrations through a housing structure, and a plurality of coil springs for amplifying the vibration. These motor, vibrator elements and housing structure are covered with sponge material to enable the device to be used as a cushion.

3,811,431

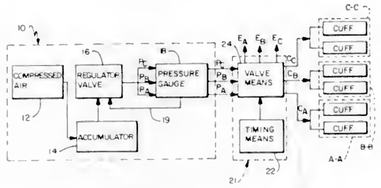
PROGRAMMED VENOUS ASSIST PUMP

Maurice Apstein, 4611 Maple Ave., Bethesda, Md.

Filed Jan. 17, 1973, Ser. No. 324,266
Int. Cl. A61h *7/00*
U.S. Cl. 128—64 **5 Claims**

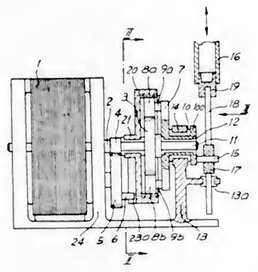
An apparatus for providing circulatory assistance to a bed patient to preclude the pooling or clotting of venous blood in the legs or other extremities. A plurality of pairs of pressure cuffs are disposed along the legs of a patient needing circula-

tory assistance. Programming means are provided to facilitate the sequential inflation of said pressure cuffs, in such a



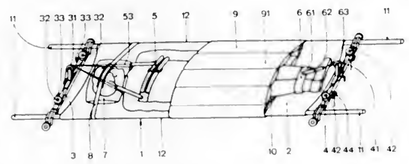
manner that a progressive pressure wave travels up the patient's legs pushing the venous blood ahead of it.

3,811,432
DEVICE FOR OPERATING A PUMP SO AS TO PRODUCE THEREFROM A PULSATING JET OF LIQUID
Michel A. Moret, 39, Peillonnex, /1225 Chene Bourg, Switzerland
Continuation-in-part of Ser. No. 100,755, Dec. 22, 1970, abandoned. This application Jan. 15, 1973, Ser. No. 323,742
Claims priority, application Switzerland, Dec. 24, 1969, 19302/69
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **15 Claims**



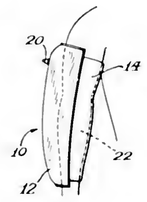
Device for operating a pump so as to produce therefrom a pulsating jet of liquid for feeding to a hand-piece for medical care, in particular for tooth and mouth care, in which the frequency of the liquid impulses, are capable of being modulated while maintaining a nearly constant amplitude of the liquid pressure.

3,811,433
TRACTION APPARATUS FOR A STRETCHER
Jacques Brachet, 34 Rue de Charenton, Paris, France
Filed Feb. 28, 1972, Ser. No. 229,734
Claims priority, application France, Mar. 10, 1971, 71.08341
Int. Cl. A61f *5/04*
U.S. Cl. 128—84 C **4 Claims**



Traction apparatus for a prone patient on a stretcher includes a chest belt and a harness secured thereto, and a belt for the feet and a harness secured thereto. Pulley means are supported on the stretcher frame whereby cords on the harnesses may be tensioned to apply traction to the patient.

3,811,434
INFLATABLE SPLINT
Harold D. Jacobson, Chicago, and Arthur F. Jacobson, Highland Park, both of Ill., assignors to S. I. Jacobson Mfg. Co., Chicago, Ill.
Filed Oct. 26, 1972, Ser. No. 301,174
Int. Cl. A61f *5/04*
U.S. Cl. 128—89 R **7 Claims**



An inflatable splint, and method of making same, comprising a flexible, inflatable body portion to one side of which is joined a panel of a flexible material. The panel forms an open ended sleeve with the body portion for admitting a limb, or the like, and enables the splint to be quickly and properly positioned thereon prior to inflation.

3,811,435
INTRAUTERINE DEVICE AND INJECTION MECHANISM
Samuel Soichet, 4 E. 95th St., New York, N.Y.
Continuation-in-part of Ser. No. 5,466, Jan. 26, 1970, Pat. No. 3,678,927, which is a continuation-in-part of Ser. No. 713,825, March 18, 1969, Pat. No. 3,507,274. This application Oct. 20, 1971, Ser. No. 190,769The portion of the term of this patent subsequent to Apr. 21, 1987, has been disclaimed.
Int. Cl. A61f *5/46*
U.S. Cl. 128—130 **11 Claims**

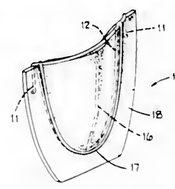


An improved intrauterine device that may be injected into the uterine cavity without puncturing the uterus and without subsequent expulsion therefrom. The improved injector mechanism used to introduce the device into the uterus is applied only in the cervical canal, towards but not beyond the internal os. Regardless of the conformation of the uterus the device automatically expands in the endometrial cavity.

3,811,436
STOMA FILTER GUARD
Robert G. Ferrell, 1055 E. 52nd St., Indianapolis, Ind.
Filed May 31, 1972, Ser. No. 258,454
Int. Cl. A61f *13/00, 15/00;* **A61m** *15/00*
U.S. Cl. 128—140 **2 Claims**

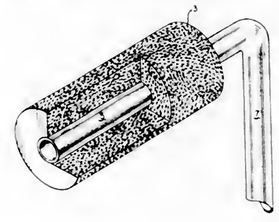
Disclosed is a filter and guard assembly for a trachea neck stoma as used, for example, by a laryngectomee. The assembly

comprises a frame and a foamed polyester urethane filter element or pad carried by the frame which is formed so as to



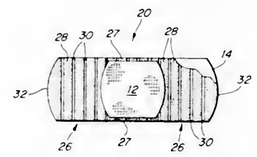
position the filter outwardly of the stoma, the frame lying against the neck area of the user which is adjacent the stoma.

3,811,437
EARPLUGS
Ross Gardner, Jr., Stoughton, Mass., assignor to Cabot Corporation, Cambridge, Mass.
Filed Oct. 26, 1971, Ser. No. 192,366
Int. Cl. A61f *11/02*
U.S. Cl. 128—152 **10 Claims**



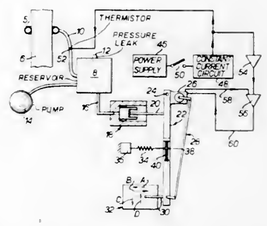
There are disclosed earplugs composed of certain polymeric foam materials. The earplugs are of generally cylindrical shape and of somewhat larger diameter than the human ear canal. The earplugs are composed of a foamed plasticised polymeric material having a sufficiently high concentration of plasticizer to provide the earplug with a reduced rate of recovery from compression.

3,811,438
ADHESIVE TAPES AND BANDAGES
George J. Economou, 8 Elm St., Norton, Mass.
Continuation-in-part of Ser. No. 239,688, March 30, 1972, abandoned. This application July 24, 1972, Ser. No. 274,449
Int. Cl. A61l *15/00*
U.S. Cl. 128—156 **13 Claims**



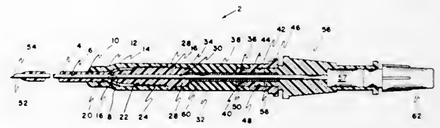
Adhesive tapes and bandages comprising a flexible backing with an adhesive portion distributed and adhered thereon in the form of adhesive layers alternately spaced with regions of lesser adhesiveness therebetween, each region of lesser adhesiveness generally of a width less than each adjacent layer of adhesive, with each region having a minimum width of about 0.02 inches.

3,811,439
APPARATUS FOR CLINICAL MEASUREMENT OF BLOOD PRESSURE IN A CARDIO-VASCULAR SYSTEM
Henry E. Brown, Slough, England, assignor to Wilkinson Sword Limited, London, England
Filed Aug. 28, 1972, Ser. No. 284,432
Claims priority, application Great Britain, Sept. 8, 1971, 41812/71
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 M **14 Claims**



Blood pressure measuring apparatus comprises a cuff arrangement for encircling the patient's limb, and a pump for pressurising the cuff above the systolic pressure. A pivotally mounted lever carries a pen moving over a chart, and the cuff pressure is allowed to leak away and is caused to pivot the lever so that the pen draws a line on the chart. The lever also carries a motor drivingly connected to oscillate the pen, transverse to this line, in response to pressure fluctuations in the cuff caused by the patient's blood flow pulsations. The motor is mounted either at the pivot axis of the lever or on the opposite side thereof to the pen. The lever may be driven, in response to the cuff pressure, by a bellows arrangement, or alternatively it may be servo-driven in response to this pressure.

3,811,440
CATHETER PLACEMENT UNIT WITH PRESSURE CLOSURE
Harvey Robert Moorehead, Salt Lake City, and George R. Reading, Sandy, both of Utah, assignors to Desert Pharmaceutical Company, Inc., Sandy, Utah
Filed Aug. 9, 1971, Ser. No. 170,157
Int. Cl. A61m *5/32*
U.S. Cl. 128—214.4 **2 Claims**

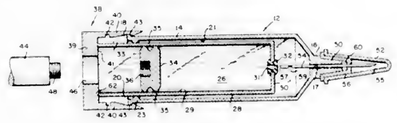


A catheter placement unit comprising an adapter assembly for coupling a catheter tube to a fluid infusion unit and including resilient means which are manually compressable to control the flow of fluid through the catheter tube. Two forms of the catheter placement unit are disclosed.

3,811,441
CARTRIDGE SYRINGE
Stanley J. Sarnoff, Bethesda, Md., assignor to Survival Technology Inc., Bethesda, Md.
Filed Feb. 10, 1972, Ser. No. 225,200
Int. Cl. A61m *5/24*
U.S. Cl. 128—218 DA **1 Claim**

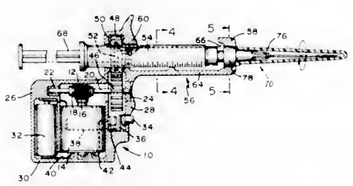
A syringe adapted to inject substantial amounts of medicament, the syringe comprising a cylindrical holder having a

tapered neck at one end with a central through-bore while the other end is open and provided with a peripheral flange. A cannula assembly is affixed to the tapered neck of the holder and the cannula needle extending through the bore in the holder so that one end of the needle is outside and the other within the holder. The needle has a through-bore with its outer end open and its inner end closed, the needle portion within the holder being provided with a side aperture for communication with the outside. An ampoule is slidably positioned in



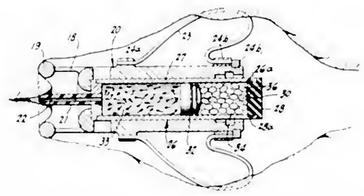
the holder with its end adjacent and spaced from the needle being provided with an aperture having a pierceable seal and its other end provided with a piston with the medication located therebetween. A latch cap having depending step-wise latches fits over the piston end of the ampoule to retain it within the holder by having the latches engage the holder flange. The latch cap has a central aperture to allow passage therethrough of a plunger threadedly secured to the piston for use in aspirating and injecting the medication.

3,811,442
HYPODERMIC SYRINGE HOLDER AND APPLICATOR
Arthur M. Maroth, Grumman Hill Rd., Wilton, Conn.
Filed Mar. 23, 1972, Ser. No. 237,440
Int. Cl. A61m *5/18;* **A61b** *17/32*
U.S. Cl. 128—218 R **6 Claims**



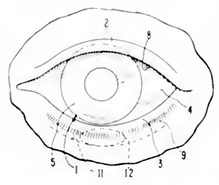
A holder-applicator device for a needle-carrying hypodermic syringe by which there is greatly facilitated the introduction of the hypodermic needle into animal tissue or flesh. The device has a motor for rotatably mounting the syringe body in such a way that the needle thereof projects at a forward location and can be conveniently applied to the desired area. The motor includes a battery supply for the same, by which a turning, driving force is supplied to the syringe and needle to effect a rapid turning of the same about their common axis. Such turning of the needle enables it to penetrate into animal tissue or flesh much more effectively than heretofore and with a minimum of axial force being required, thereby greatly reducing discomfort or pain. Upon penetration of the needle being effected, the motor is made inoperative. Thereafter the injection is effected by the usual operation of depressing the plunger of the syringe. Further, the hypodermic needle differs from existing needles in that it has a sharp, conical solid point, and in that the discharge openings of the needle are in the side walls thereof disposed immediately behind the solid conical point.

3,811,443
METHOD AND APPARATUS FOR ARTIFICIAL INSEMINATION
Ben Wade Oakes Dickinson, III, San Francisco, and Robert Wayne Dickinson, San Rafael, both of Calif., assignors to Agrophysic, Inc., San Francisco, Calif.
Filed Jan. 22, 1971, Ser. No. 108,891
Int. Cl. A61m *37/00*
U.S. Cl. 128—235 **19 Claims**



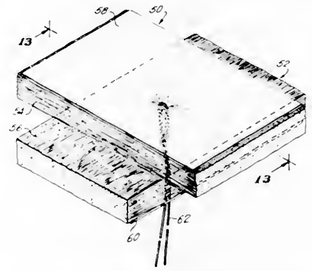
A semen container carrying an anchor assembly adapted to engage the reproductive tract wall of an animal to prevent expulson therefrom after insertion therein and including means to urge semen from the container into the tract toward the ovary a predetermined time after insertion of the container. In order to properly time the release of semen, the semen urging means may be actuated in response to means for sensing ovulation precursive fluid secretions including a soluble sensing element. Also, semen release may be delayed independent of any sensing means to begin until after a predetermined time selected to allow some semen flow during ovulation. In the latter case, the semen is capable of releasing semen over an extended period of time. Multiple semen containers adapted to release semen in sequence increase the duration of semen release.

3,811,444
BIOERODIBLE OCULAR DEVICE
Jorge Heller, Palo Alto, and Richard W. Baker, Mountain View, both of Calif., assignors to Alza Corporation, Palo Alto, Calif.
Filed Dec. 27, 1972, Ser. No. 318,891
Int. Cl. A61m *31/00*
U.S. Cl. 128—260 **11 Claims**



An ocular insert for the continuous controlled administration of a predetermined therapeutically effective dosage of drug to the eye over a prolonged period of time. The insert comprises a drug formulation dispersed through a body of selected hydrophobic polycarboxylic acids which erode in the environment of the eye over a prolonged period of time to dispense the desired amount of drug.

3,811,445
ABSORBENT MATERIAL AND METHODS OF MAKING THE SAME
Zdenek Denny Dostal, Ramsey, N.J., assignor to International Playtex Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 5,080, Jan. 22, 1970, Pat. No. 3,695,270. This application Sept. 29, 1972, Ser. No. 293,631
Int. Cl. A61f *13/20*
U.S. Cl. 128—285 **18 Claims**

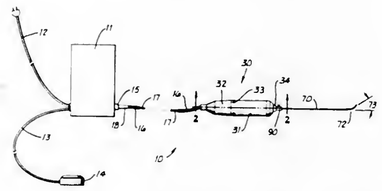


A disposable material and method of constructing such material is disclosed. The absorbent material includes at least two united constituents, one of which contains filaments with a portion of such filaments transferred through openings in the other constituent.

The transference may be effected through the use of transfer needles, which not only transfers filaments but additionally provides the openings through which the filaments extend.

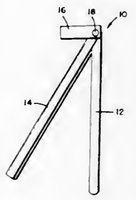
The absorbent material is particularly adapted for use in a tampon or other catamenial device. Other uses, such as in disposable diapers or in other products where a relatively high degree of absorbency in a relatively economical product is desirable are alsocontemplated.

3,811,446
ENDARTERECTOMY APPARATUS
Everett R. Lerwick, 35 North Ave., St. Louis, Mo., and William A. Cook, 925 South Curry Pike, Bloomington, Ind.
Filed Nov. 9, 1970, Ser. No. 87,902
Int. Cl. A61b *17/00*
U.S. Cl. 128—303 **3 Claims**



An apparatus and method for removing arteriosclerotic material from an artery. An electric motor is connected by flexible springs or torque shaft to a rotation oscillation converter. A rod having a bendable looped tip or loop at its distal end is removably connected to the oscillatory output of the converter. The loop or tip is inserted into the artery which has been cut to receive the tip. The tip is oscillated between the media layer and advantitia layer stretching the adventitia layer and causing separation of the two layers. The loosened arteriosclerotic core is then removed intact from the artery which is then surgically closed.

3,811,447
ORAL HYGIENE APPLIANCE
Alice Weber, 604 Ellis St., San Francisco, Calif.
Filed May 29, 1973, Ser. No. 364,600
Int. Cl. A61b *17/24;* **A61c** *15/00*
U.S. Cl. 128—304 **4 Claims**



An oral hygiene appliance for removing plaque from interior surfaces of the mouth not adequately cleaned by conventional tooth-brushing. The device comprises two V-shaped jackets pivotally joined at one end by a pin. A flat elongate tongue scraper blade is held by the pin at one end within a first jacket. The blade is angularly moveable between a storage position within the jacket and a use position exterior to the jacket. A flat spool swivels into and out of the other jacket in a similar manner.

3,811,448
URINARY DRAINAGE CATHETER
Albert W. Morton, 2241 Webster Ave., Apt. 1-N, Bronx, N.Y.
Filed Oct. 25, 1972, Ser. No. 300,761
Int. Cl. A61m *25/00*
U.S. Cl. 128—349 B **2 Claims**

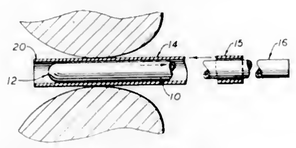


The catheter comprises a normally straight tube of resilient material adapted to be inserted into an opening of the bladder or other organ being drained of fluid. The tube has a main drainage passageway that communicates with at least one drainage opening formed in the wall of the tube, and an auxiliary inflator fluid passageway that communicates with the interior of a normally deflated inflatable balloon mounted on the exterior of the tube adjacent the forward end thereof. The balloon is disposed on one side only of the tube so that when the balloon is inflated the opposite side of the tube is unobstructed by the balloon and the normally straight tube is bowed in the vicinity of the balloon with the ends of the tube pointing away from the balloon. One of the drain openings formed in the tube wall is disposed on the side of the tube opposite the balloon in straddling relation to the level of the rearward or lower boundary of the balloon.

3,811,449
DILATING APPARATUS AND METHOD

Leland C. Gravlee, Mountain Brook, Ala., and Hulbert V. Barringer, Hohokus, N.J., assignors to Becton Dickinson and Company, East Rutherford, N.J.

Filed Mar. 8, 1972, Ser. No. 232,748
Int. Cl. A61m 29/00
U.S. Cl. 128—343 1 Claim

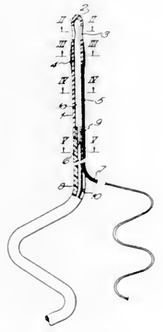


To accurately dilate tissue preparatory to introducing medical instruments therein, an elongated, flexible probe of uniform diameter having a rounded insertion tip is employed to sound the tissue. An elongated, hollow, flexible dilator is then slidably passed over the probe to coaxially abut the probe insertion tip. The probe is withdrawn through the dilator. A second, hollow, flexible dilator is coaxially inserted over the first dilator and the first dilator is withdrawn from the second dilator. Thereafter the procedure is repeated with dilators of successively larger internal diameter such that a final dilator is implanted which stretches the tissue to a desired degree. A medical instrument may thereafter be passed through the final dilator in proper alignment for treating purposes. The final dilator is thereafter withdrawn leaving the medical instrument to be utilized as needed. The apparatus provides for accurate insertion of subsequent dilators and the desired medical instrument with reduced patient trauma.

3,811,450
CATHETERS

Peter Herent Lord, Mayfield, 38 Burke's Rd., Beaconsfield, Buckinghamshire, England

Filed Oct. 25, 1972, Ser. No. 300,815
Claims priority, application Great Britain, Oct. 25, 1971, 49473/71
Int. Cl. A61m 25/00
U.S. Cl. 128—349 R 10 Claims

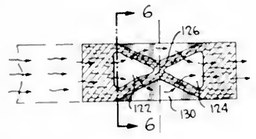


A catheter for removing urine from the bladder comprising a polymeric tube having a drainage lumen, the tube being dimensioned so that the lumen, in use, extends from the bladder only part way along the urethra, thereby leaving a substantial remaining part of the urethra at least substantially free for the normal passage of urine.

3,811,451
TOBACCO SMOKE FILTER

Richard M. Berger, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.

Filed Sept. 11, 1972, Ser. No. 287,803
Int. Cl. A24d 1/04
U.S. Cl. 131—10 R 3 Claims

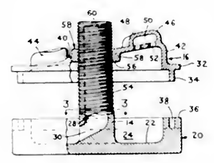


A method and apparatus for making tobacco smoke filter means having totally enclosed inner cavities surrounded completely by the filtering material. Selected cavities may be filled with a sorbent smoke-modifying additive or the like in order to provide both gas phase filtration and solid phase filtration to the resultant product. Filter rods are manufactured by utilizing a reciprocating mandrel which is timed to the movement of a filtering material, such as a continuous cellulose acetate filamentary tow, through processing stations, particularly a steam-treating bonding station, with an annular wall of smoke-permeable bonded fibrous members of the filtering material being formed when the mandrel is in its forward-most position extending at least to the point where the bonding agent contacts the filtering material. At the rearward-most portion of the stroke of the mandrel the filtering material is permitted to extended transversely completely across the bonding zone before being contacted with the steam so as to form a smoke-permeable plug of filtering material before and after the annular wall portions, thereby defining the internal cavities. Selected cavities may be partially or completely filled with an additive passing through the mandrel which can be hollow, as the mandrel is withdrawn during its rearward stroke.

3,811,452
CONVERTIBLE ASH TRAY-BANK

James E. Wells, 193 Woodworth Ave., Yonkers, N.Y.

Continuation-in-part of Ser. No. 87,849, Nov. 9, 1970, abandoned. This application Oct. 15, 1971, Ser. No. 189,581
Int. Cl. A24f 19/10
U.S. Cl. 131—170 A 12 Claims

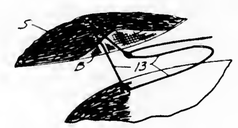


An ash tray having a base and a cover, the cover adapted to be fastened to the base to form a closed container adapted for saving coins. The cover can be mounted to the base by several different methods. In each method, the cover has a raised position which allows the base to be used as an ash tray. Smoke from an article in the ash tray will rise to the underside of the cover and cause changes in the appearance of the cover. The changes in the appearance of the cover indicate to the owner of the ash tray the quantity of smoking that he engages in.

3,811,453
METHOD AND MEANS FOR ATTACHING A HAIR SUPPLEMENT

Cal Bretton, Whitestone, N.Y., assignor to Allen Arthur Co., Inc., Minneapolis, Minn.

Filed Sept. 25, 1972, Ser. No. 291,711
Int. Cl. A41g 3/00
U.S. Cl. 132—53 5 Claims

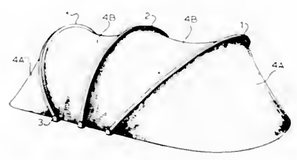


The method and means embodying this invention include fastening a hair supplement to a wearer's head in a semi-permanent manner by means of a plurality of spaced anchoring loops produced by joining together a plurality of strands of the wearer's own hair at a point in spaced relation to the wearer's head and passing an anchoring filament through each loop and an adjacent portion of the underside of the hair supplement thereby positively connecting the hair supplement to the wearer's head for relativley long periods of time. The joining together of the hair strands in the specific embodiment of the invention herein disclosed includes tying two sub-groups of hair strands together in the form of a knot and restricting relative movement of the hair strands forming the knot by applying thereto a free flowing, quick setting hypoallergenic liquid binding agent to prevent the knot from loosening or slipping thus providing substantially fixed anchor points for the anchoring filament attachment means.

3,811,454
STRUCTURAL MEMBRANE ATTACHMENT TO AN ARCH

Carl F. Huddle, Pleasant Ridge, Mich., assignor to Tension Structures Co., Royal Oak, Mich.

Filed Dec. 22, 1972, Ser. No. 317,509
Int. Cl. E04b 1/347
U.S. Cl. 135—1 R 5 Claims

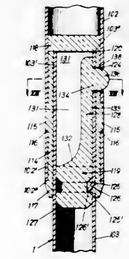


A lightweight tension structure having a multiplicity of arches, strong tensioned membranes attached to and supported by the arches which are anchored to and supported by a common base in such a manner to maintain tension in the membranes and on the attachment of the membranes to the arches. A continuous, structural, weather-tight attachment that can safely transfer the tension forces created in the membranes to the arches, is accomplished by providing a hard beaded membrane edge that is pushed through a continuous arch slot into a recess or cavity adjacent to, and connected to, the arch slot; a lock strip that is inserted into the arch slot to prevent the beaded membrane edge from emerging from the recess when the membrane is tensioned and a retainer at the edge of the slot, or a wedged shape lock strip, to prevent the lock strip from working out of the arch slot.

3,811,455
TELESCOPIC UMBRELLA STICK

Klaus Thur, Solingen, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada

Filed Oct. 18, 1972, Ser. No. 298,488
Claims priority, application Germany, Oct. 21, 1971, 2152459; Oct. 30, 1971, 7141188
Int. Cl. A45b 19/04
U.S. Cl. 135—46 T 4 Claims

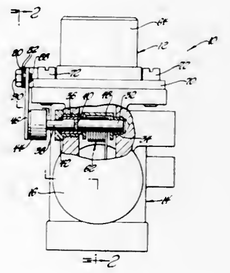


In a telescopic umbrella stick wherein there are at least two telescopic sections, there is provided a plug in the stick section of smaller diameter having a shoulder protruding laterally beyond the diameter of the stick section. In the end of the stick section of greater diameter, there is a sleeve fixed thereto and adapted to receive the smaller stick section. In one embodiment, ball spring means are provided for locking the stick sections in an extended position, while in another embodiment, a spring pawl is integral with the plug adapted to engage corresponding apertures in the inner stick section and the outer stick section to lock the stick sections together.

3,811,456
SHUT-OFF VALVE ASSEMBLY WITH CONDITION RESPONSIVE TRIP MEANS

Lowell F. Nelson, Muskegon, Mich., assignor to Enterprise Brass Works, Muskegon, Mich.

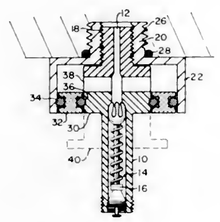
Filed Aug. 3, 1972, Ser. No. 277,692
Int. Cl. F16k 17/36
U.S. Cl. 137—39 9 Claims



A temperature and impact responsive shut-off valve assembly including a housing having an upper first section and a lower second section with the upper section having three ears through which bolts extend for securing the two sections together and including a circular O-ring seal groove adjacent the ears for establishing a weakened break-away means to allow a body portion of the upper first section of the assembly to separate from the ears and the lower second section of the valve. A valve is supported on a shaft in the lower second section of the assembly for movement between open and closed

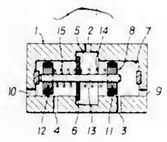
positions, the closed position being one wherein a plastic valve member engages a valve seat in the lower second section. The valve is held in the open position, by a metallic spring strip secured to the body portion of the upper first section and engaging an arm which is secured to a shaft which in turn rotates for moving the valve member between the open and closed positions. A pin extends from the metallic spring strip into a hole in the arm and the spring strip is inherently biased to move the pin out of the hole of the arm so that upon oscillating movement of the arm, the spring strip will disengage the arm allowing the valve member to move to the closed position under the biasing action of a coil spring disposed about the shaft which supports the valve member. Adjacent the spring strip are a pair of metallic strips having different coefficients of thermal expansion for moving the spring strip out of engagement with the arm to allow the valve member to move to the closed position in response to a predetermined temperature. Additionally, the valve seat has a periphery defined by a pointed edge with a recess immediately adjacent thereto for engaging the plastic material of the valve member preventing the extrusion thereof past the valve seat.

3,811,457
OVER PRESSURIZATION RELEASE DEVICE AND VALVE
Richard L. Crossman, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Sept. 30, 1971, Ser. No. 185,070
Int. Cl. F16k *17/38, 15/20*
U.S. Cl. 137—73 **8 Claims**



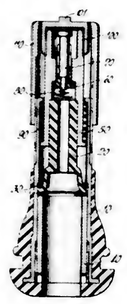
Mechanism for use with an inflation valve for any fluid pressure vessel, such as a pneumatic tire, and including a pressure-triggered release area concentric with the valve and comprising a rupture diaphragm or blow-out piston responsive to excessive fluid pressure and allowing the pressure to escape to the atmosphere at a rate sufficient so that the back pressure down stream in the vessel does not exceed that of the predetermined blow-out level.

3,811,458
PNEUMATIC PULSE DIVERTERS
Herbert F. Kuhnelt, Vienna IV., Austria, assignor to Hoerbiger Ventilwerke Aktiengesellschaft, Vienna, Austria
Filed Oct. 27, 1972, Ser. No. 301,515
Claims priority, application Austria, Oct. 29, 1971, 9341/71
Int. Cl. F16k *11/07*
U.S. Cl. 137—106 **4 Claims**



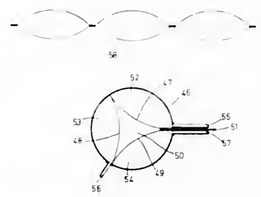
A pulse diverter for directing pneumatic pulses from an inlet alternately to a pair of outlets, the diverter including a piston which at the appearance of each pulse is moved from one terminal position to another to establish a flow path between the inlet and one of the outlets while a control member blocks communication between the inlet and the other outlet and at the termination of each pulse, a drive connection is established between the piston and the control element to move the control element into a position blocking communication between the inlet and the first outlet so that the next pulse will be transmitted to said other outlet after the piston is moved to establish communication between the inlet and said other outlet.

3,811,459
PRESSURE INDICATING VALVE
Helmut Schmidt, Pforzheim, Germany, assignor to Helmut Schmidt, Pforzheim and Erwin Fietz, Bassum, both of, Germany
Filed July 13, 1972, Ser. No. 271,521
Claims priority, application Germany, Mar. 13, 1972, 2212002; June 19, 1972, 2229822
Int. Cl. F16k *37/00*
U.S. Cl. 137—227 **8 Claims**



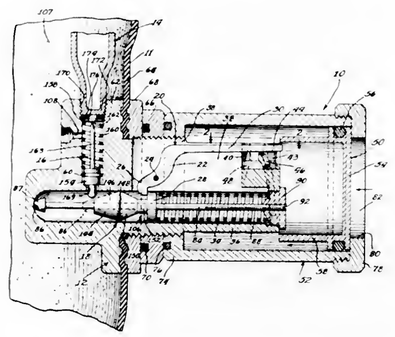
A composite tubular structure defines an internal cavity and consists of a tubular valve holder and a cylinder, which is fixed in said valve holder and formed with external screw threads disposed axially outwardly of said valve holder. A diaphragm is air-tightly fixed in said composite tubular structure and axially divides said cavity into an outer compartment and an inner compartment. A plunger is connected to said diaphragm and axially slidably mounted in said cylinder and formed with a central axial bore, which comprises an axially inwardly facing shoulder and which communicates through said diaphragm with said inner compartment. Said plunger has an outer portion protruding axially outwardly from said cylinder. An axially outwardly facing, tubular spring abutment is connected to said diaphragm and disposed in said bore and axially inwardly spaced from said shoulder. A valve member extends in said bore and comprises a sealing cone disposed between said shoulder and said abutment and tapering toward and adapted to sealingly engage said bore at said shoulder. A helical compression spring is held between said valve member and said abutment and urges said sealing cone toward said shoulder. An indicating cap has internal screw threads in threaded engagement with said external screw threads of said cylinder. Said cap is disposed axially outwardly of said valve holder and has an axial through bore which is larger in diameter than said outer portion of said plunger.

3,811,460
TANK STRUCTURE FOR THE STORAGE AND DISTRIBUTION OF SEVERAL FLUIDS, PARTICULARLY HYDROCARBONS
Pierre Capdevielle, Garches, and Francois Kermarrec, Reeil-Malmaison, both of France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants, Malmaison and Societe Anonyme pour Tous Appareillages Mecaniques (SATAM), La Courneuve, both of, France
Division of Ser. No. 107,740, Jan. 19, 1971, abandoned, and a continuation-in-part of Ser. No. 887,679, Dec. 23, 1969, abandoned. This application Jan. 8, 1973, Ser. No. 321,966
Int. Cl. B65d *25/00, 85/00*
U.S. Cl. 137—255 **2 Claims**



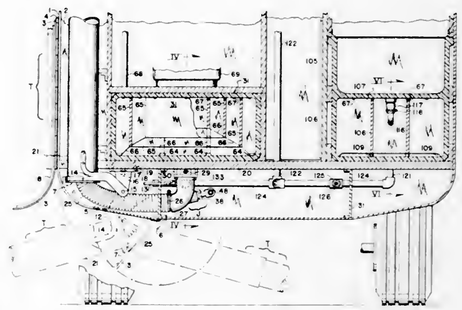
A tank for the storage and distribution of a plurality of fluids from several storage chambers located in an enclosure, wherein each of said chambers is limited by at least one fluid-tight wall made of a flexible material which, when unfolded, substantially fills the whole internal volume of the enclosure without being subjected to excessive stresses, and which is provided with inlet and outlet valves for fluid stored in said chambers, said storage chambers being surrounded by a housing of a volume greater than the overall volume of said chambers, the excess volume forming an auxiliary chamber fed with pressurized auxiliary fluid from a source outside said housing, said pressure being transmitted from said auxiliary fluid to said wall of flexible material of each storage chamber and thus to the fluid stored therein.

3,811,461
DUAL ACTION TRIGGERING VALVE DEVICE FOR INFLATABLE EQUIPMENT
Joseph F. Novak, 609 State St., Calumet City, Ill.
Filed Jan. 12, 1972, Ser. No. 217,331
Int. Cl. F16k *51/00*
U.S. Cl. 137—318 **7 Claims**



A dual action triggering valve device for effecting inflation of inflatable equipment, such as life preservers and the like, comprising a valve body that may be attached to the inflatable equipment and includes a compressed gas cartridge puncturing mechanism arranged to be triggered either manually, or alternately, automatically under predetermined ambient pressure conditions.

3,811,462
RECREATIONAL VEHICLE UTILITY STOWAGE AND TRANSFER SYSTEM
Jack M. Feliz, 34-808 Via Echo, Palm Springs, Calif.
Filed June 8, 1972, Ser. No. 260,997
Int. Cl. F16k *27/12*
U.S. Cl. 137—344 **4 Claims**

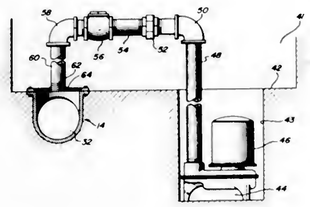


An improved utility transfer and stowage system for recreational vehicles and other passenger vehicles or the like, comprising a baffled toilet holding tank and respective permanently installed, self-supporting, telescopic drain line assembly, in which the latter is provided with the inherent flexibility to enable its transfer from a stowage to a drain position. The distal end of the above drain line is provided with a water tight plug-in coupling, for connecting to the park sewer receptor, and its upstream end is provided with a permanently installed water wash down jet; a bathtub and integral baffled holding tank, of which the latter is cross connected with the kitchen sink and lavatory drains through suitable piping and valves, thereby providing for the sanitary isolation and controlled diversion of the accumulated drains into either a catch bucket or into the above mentioned toilet holding tank drain line assembly as deemed appropriate; a baffled potable water holding tank and respective permanently installed, precoiled, self-supporting, potable water hose, in which the distal end of the latter is provided with a plug-in adapter coupling, for connecting to the park potable water valve; a precoiled self-supporting electrical entrance cable and a pair of hinged covered carrying tubes for retention of the above mentioned cable and water hose.

3,811,463
OVERHEAD BY-PASS FLOOD CONTROL MEANS
John Dickens, 1724 W. Superior, Chicago, Ill.
Filed Apr. 9, 1973, Ser. No. 349,027
Int. Cl. E03b *5/02*
U.S. Cl. 137—362 **3 Claims**

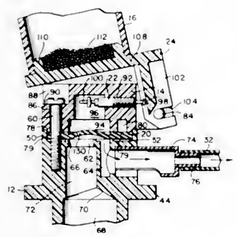
A flood control assembly and system having an improved by-pass pipeline for conveying waste fluids from a sump bottom substantially below the sewer line through an overhead portion of the pipeline which extends to a point substantially above the sewer line, and into the sewer line immediately adjacent a valve which is on the street side to help keep said valve closed against upstream flow. The sewer line has an open T which empties waste sewage on the floor of the chamber so that it can drop to a lowered sump for movement through the conveying pipe under urgings of a submersible

pump. Sections of the pipeline can be serviced and the pump can be serviced by disassembling the pipeline in an improved



way so that either one of these components can be serviced without disrupting the other of the components.

3,811,464
BALLCOCK
Harold Esten, 73 Messenger Ln., Willingboro, N.J.
Continuation of Ser. No. 25,060, April 2, 1970, abandoned.
This application July 10, 1972, Ser. No. 270,117
Int. Cl. F16k *31/18*
U.S. Cl. 137—414 **10 Claims**

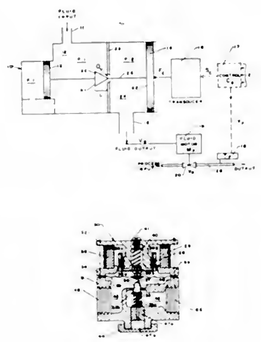


A ballcock for use in a toilet tank comprising a base that is adapted to be connected to a water supply, a cap that is attached to the top of the base with the cap having an opening to receive a pilot valve and the cap also having means to receive a hinge piece, a diaphragm which is received and held in place between the base and the cap with the diaphragm having a central opening, a weight tube having a hinge piece and a float tube being telescopically slidable on the weight tube.

When the water level within the toilet tank drops, the float pivots downwardly to depress the pilot valve which have the effect of venting the space above the diaphragm to atmosphere. In this condition the water pressure in the supply line urges the diaphragm upwardly, and water now flows in a flow passage within the base to an outlet containing a fitting which divides the flow, permitting the major part (approximately 90 percent) to go directly into the tank with the remainder going via a flexible tubing to an overflow tube (which is a part of the toilet tank).

When the desired liquid level is reached within the tank, the float tube is again upright, so that the pilot valve returns to its normally closed position. Fluid pressure quickly builds above the diaphragm until it equals the liquid line pressure below the diaphragm, and at this time the diaphragm returns to its original closed position, and water no longer flows.

3,811,465
ELECTRIC-FLUIDIC DIRECT PROPORTION CONVERTER
Harold George Abbey, 75 Prospect, East Orange, N.J.
Filed Feb. 16, 1972, Ser. No. 226,677
Int. Cl. F16k *31/06*
U.S. Cl. 137—487.5 **2 Claims**



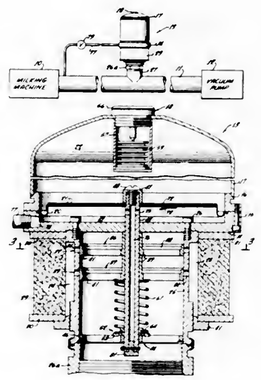
A direct proportion converter in which fluid pressure is directly proportioned in magnitude or quantity to an electric current, and broadly an electric to fluid proportioning device for gases or low viscosity liquids. A fluid pressure regulating valve is actuated by changes in equilibrium between an electrically generated force on one side of a diaphragm and the fluid output pressure on the opposite side of the diaphragm.

3,811,466
SLIT DIAPHRAGM VALVE
Jack G. Ohringer, 317 Via Hidalgo No. 24, Greenbrae, Calif.
Filed Apr. 6, 1972, Ser. No. 241,638
Int. Cl. F16k *15/14*
U.S. Cl. 137—493 **7 Claims**



A slit diaphragm valve having a slit diaphragm and a control plate retained in facial contact. The slit diaphragm is a circular sheet of rubber having a centrally positioned elongated slit. The control plate is a flat perforated circular metal plate with a centrally positioned control opening. Fluid flow in one direction is unrestricted whereas flow in the other direction is restricted by the size of the control opening in the control plate. Another embodiment includes a pair of control plates for controlled flow in both directions. Still another embodiment functions as a check valve by employing a perforated control plate having no central opening.

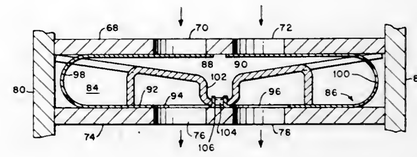
3,811,467
COW MILKING MACHINE SYSTEM, AND VACUUM REGULATOR INCORPORATED THEREIN
Leon Jones, 15081 Moran St., Los Alamitos, Calif.
Filed Feb. 27, 1973, Ser. No. 336,186
Int. Cl. F16k *15/00, 31/12*
U.S. Cl. 137—494 **39 Claims**



A large vacuum pump is connected through a vacuum line to the cow milking apparatus, and a vacuum regulator is employed to admit into the line the amount of ambient air necessary to maintain the line pressure (and thus the pressure at the milking apparatus) constant within very narrow limits. The vacuum regulator comprises an air valve to control the admission of ambient air, and which is itself controlled by a light bias spring (having a low spring rate) and an opposed diaphragm. One side of the diaphragm is subjected to pressure generally equal to line pressure, whereas the other side of the diaphragm is subjected to pressure of air within a stabilizing and regulating dome. Adjustable means responsive to the pressure differential between the dome and ambient are provided to admit into the dome sufficient air to maintain the dome pressure constant. Furthermore, means are provided to bleed air through the diaphragm, thus maintaining substantially constant the pressure drop thereacross. The air valve is constructed with large radial ports which admit air radially over the thin edge of a slide valve, and in response to only a small valve movement. The very stable and controlled dome pressure, the substantially constant pressure drop across the diaphragm, the light bias spring, and the described air valve construction cooperate to result in extreme sensitivity and low-inertia operation and thus in very close regulation of line pressure.

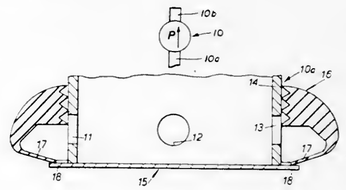
3,811,468
COMPRESSOR VALVE ASSEMBLY
Friedrich O. Bellmer, Stanhope, N.J., assignor to Fedders Corporation, Edison, N.J.
Continuation-in-part of Ser. No. 233,560, March 10, 1972, abandoned. This application June 8, 1973, Ser. No. 368,350
Int. Cl. F16k *15/14*
U.S. Cl. 137—512.15 **12 Claims**

A valve chamber in a compressor housing is formed by opposing walls, one of which has a port formed therein for allowing gas to enter the valve chamber. A resilient U-shaped reed is disposed between the opposed walls, said reed having a first end portion adapted to cover the port and a second end portion which is held stationary against the wall opposite the port.



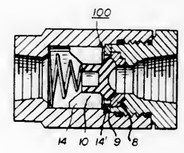
A backer plate is positioned between the first and second end portions to intercept the movement of the first end portion and limit the flexure of the reed.

3,811,469
CHECK VALVE FOR PUMP OR THE LIKE
Hjalmar Elias Fries, Spanga, Sweden, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Jan. 24, 1973, Ser. No. 326,437
Int. Cl. F16k *15/14*
U.S. Cl. 137—525.1 **6 Claims**



A check valve for a sump pump having a hollow cylindrical intake with ports therethrough, wherein a hollow half-toroid has one side sealed to the intake above or below the ports, a part of the half-toroid and/or an additional part forming an annular flexible lip to seal with the opposite side of the ports, the lip forming a check valve at its location to prevent fluid inside the cylinder from leaking out thereof through the ports.

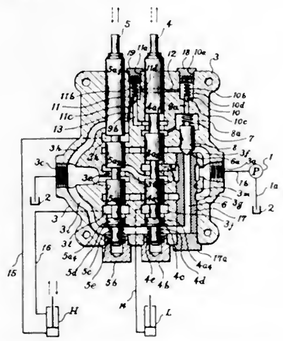
3,811,470
FLUID CONTROL DEVICE
John W. Schaefer, 1228 Manitou, McHenry, Ill.
Continuation-in-part of Ser. No. 148,400, June 1, 1971. This application Dec. 15, 1971, Ser. No. 208,101
Int. Cl. F16k *15/06*
U.S. Cl. 137—540 **7 Claims**



A fluid control valve for allowing free flow of fluid in one direction in a fluid line and the restriction or metering of the flow in the opposite direction. The control valve includes a low inertia poppet which is biased into contact with a deformable valve seat for selective movement relative thereto in accordance with the pressure condition within the fluid line in which the valve is connected. One form of the invention the check valve permits free flow in one direction with a minimum

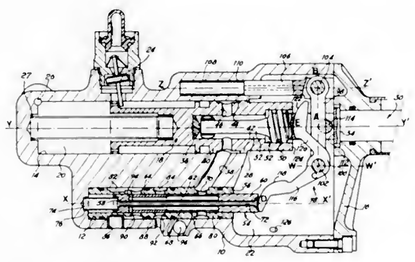
of pressure drop but which completely restrict the flow in the opposite direction. Other embodiments of the fluid control valve possess a return metering member which permits the free flow of liquid in one direction but meters the amount of flow in the opposite direction at a desired rate. The metering member is selectively controllable from the exterior of the control valve body.

3,811,471
DUAL PRESSURE RELIEF VALVE SYSTEM
Yasuo Murase, and Shizuka Takeuchi, both of Nagano, Japan, assignors to Toyoda Automatic Loom Works, Ltd., Aichi-ken, Japan
Filed Dec. 14, 1972, Ser. No. 315,006
Claims priority, application Japan, Dec. 16, 1971, 46-102381
Int. Cl. F16k *11/10*
U.S. Cl. 137—596.13 **6 Claims**



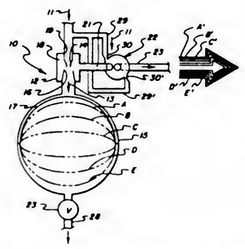
A dual pressure relief valve system comprises a main relief valve, pilot relief valves for controlling the main relief valve at different maximum pressures, and valve spool means for controlling the direction of fluid flow within the system. The device includes internal fluid passages which eliminate the need for external piping.

3,811,472
DISTRIBUTING VALVE
Alain LeMarchand, Domont, France, assignor to Societe Anonyme D.B.A., Paris, France
Filed May 25, 1973, Ser. No. 364,177
Claims priority, application France, June 12, 1972, 72.21054
Int. Cl. F15b *13/04*
U.S. Cl. 137—625.68 **3 Claims**



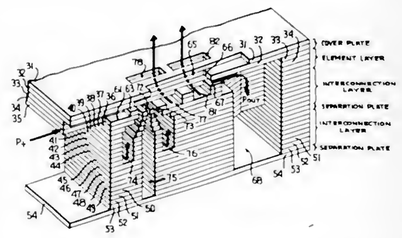
In a servomotor comprising a boost piston whose movements depend on the working pressure of fluid contained in an actuating chamber, a distributing valve connected to a pressure source and to a reservoir is provided to control said working pressure. The valve consists of a slider which cooperates with an input control linkage and which comprises two annular bearing members axially separated and connected by a spacer, a valve sleeve mounted between the two bearing members and capable of movement relative to the slider and a spring biasing said sleeve in abutment with one of the bearing members.

3,811,473
FLUIDIC PRESSURE REGULATOR
Robert Schwarz, Oakland, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Filed Apr. 14, 1969, Ser. No. 815,734
Int. Cl. F15c *1/12, 1/16*
U.S. Cl. 137—810 **6 Claims**



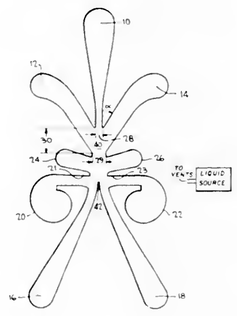
In a fluid system, an in-line vented jet is disclosed whose vent is controlled by a vortex valve. Since the control ports of the vortex valve are coupled to a constant upstream pressure any variance in downstream impedance effecting said vent cavity pressure is immediately counter-acted by the vortex valve which acts as a rough pressure regulator for the vented jet cavity, thus maintaining constant pressure recovery regardless of downstream flow changes.

3,811,474
MINIATURIZED FLUIDIC ELEMENT AND CIRCUIT CONSTRUCTION
Peter Bauer, Germantown, and Romald E. Bowles, Silver Spring, both of Md., assignors to Bowles Fluidics Corporation, Silver Spring, Md.
Filed Jan. 26, 1973, Ser. No. 327,128
Int. Cl. F15c *5/00*
U.S. Cl. 137—833 **15 Claims**



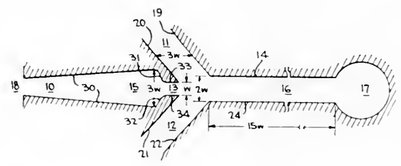
A miniaturized fluidic element is formed from a stack of thin laminations wherein passages and ports are defined as straight-edged through openings. A power stream is issued from a nozzle in a plane parallel to the laminations and is selectively deflected out of that plane. Critical element dimensions are defined by one or more lamination thicknesses and are repeatible from element to element. An integrated fluidic circuit includes a layer of multiple identical co-planar elements bonded to one or more interconnection layers. Each interconnection layer is a stack of multiple laminations through which passages are defined for interconnecting the elements. Multiple integrated circuits form a module with plug-in terminals which permit plural modules to be interconnected in a compact stack.

3,811,475
FLUERIC GAS-TO-LIQUID INTERFACE AMPLIFIER
Robert L. Woods, Kensington, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 31, 1972, Ser. No. 302,453
Int. Cl. F15c *1/14*
U.S. Cl. 137—840 **1 Claim**



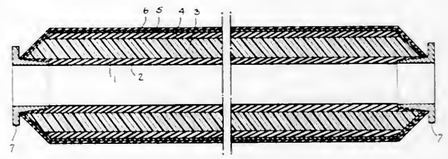
A flueric amplifier for controlling the flow of a liquid power jet by means of gaseous control pressure signals. The foregoing is accomplished without any moving parts. Substantially complete segregation of fluids is achieved. The amplifier operates with gaseous pressure-field deflection of a slightly turbulent liquid power jet. The amplifier has infinite input resistance and achieves single stage pressure gains in the neighboord of 25 along with extremely high power gains. The amplifier has a dynamic range and a bandwidth suitable for many applications.

3,811,476
PURE FLUIDIC DE-COUPLER
Tadeusz M. Drzewiecki, Gaithersburg, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Apr. 27, 1973, Ser. No. 355,126
Int. Cl. F15c *1/00*
U.S. Cl. 137—842 **7 Claims**



This invention relates to pure fluidic units and devices, and more particularly to impedance-matching in pure fluid devices. Accordingly a pure fluid device is provided for the purpose of de-coupling one fluidic unit from another when they are staged. The fluidic de-coupler of the instant invention utilizes a novel two-sided vent design in the receiver line of the fluidic unit. Specifically, a square velocity profile is obtained in the receiver line by passing the flow in the receiver through an expanded portion of the line, that is, a plenum, then through a moderate contraction having a specified width W. Vents are then provided to either side of the receiver line down stream from the contraction, the vents having a width of 3W. A catcher portion of the receiver line is disposed further down stream from the vents, the catcher portion having a width of 2W, or double the receiver nozzle or contraction width. The square profile jet issuing from the nozzle of the receiver entrains about 100 percent flow over a 3W distance. This velocity profile does not decay over the distance of the actual vents provided in the de-coupler. This de-coupler design incorporating 2W as a width of the catcher is such to entrain substantially all of the flow. The de-coupler is designed such that the catcher length is 15W. This catcher length maximizes the block load pressure recovery such that the flow distributes itself evenly in the catcher.

3,811,477
BUOYANT LIQUID-CONVEYING HOSE
Clive S. Thawley, Colinton, Scotland, assignor to Uniroyal Limited, Newbridge, Midlothian, Scotland
Filed Dec. 13, 1972, Ser. No. 314,900
Claims priority, application Great Britain, Dec. 16, 1971, 58460/71
Int. Cl. F16l *11/12*
U.S. Cl. 138—103 **6 Claims**

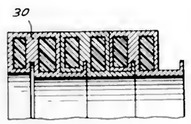


A buoyant liquid-conveying hose in which a hose body is surrounded by a first layer of buoyancy material with a second layer of different buoyancy material surrounding the first layer and a water-impermeable covering over the second layer. The compression modulus of the buoyancy material of the first layer is greater than that of the second layer.

3,811,478
TUBE WALL
Stein Alexander Marcel Ahlqvist, Sodra Kungsvagen 269, Lidingo, Sweden
Continuation of Ser. No. 872,207, Oct. 29, 1969. This application Nov. 11, 1971, Ser. No. 198,004
Int. Cl. F16l *9/16*
U.S. Cl. 138—154 **5 Claims**

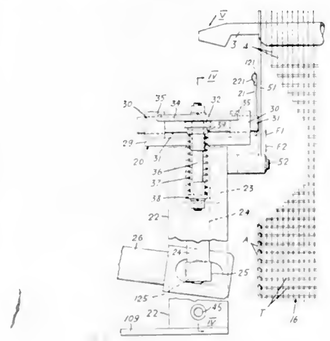
A tube wall is formed by spirally winding in abutting relationship a flexible hollow strip of substantially rectangular cross-sectional outline, the outside of the wound strip constituting the outer wall of the hose and the opposite the inner wall of the hose. The strip defines therein a continuous

chamber and the inside of the strip is extended to form an extension terminating in an upwardly turned lip. Each of these lips is engaged with a slot in the inside wall of the adjacent



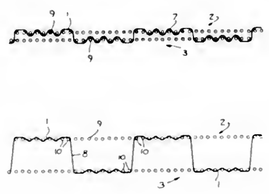
strip turn to lock the turns of the strip against axial separation. The continuous chamber in the strip is filled with a suitable hardened plastic material.

3,811,479
SELVEDGE FORMING APPARATUS IN SHUTTLELESS LOOMS
Adriano Gardella, 24B, Via Al Capo di Santa, Genoa, Italy
Filed June 12, 1972, Ser. No. 261,955
Claims priority, application Italy, June 21, 1971, 12761 A/71
Int. Cl. D03d 47/..
U.S. Cl. 139—124 A **2 Claims**



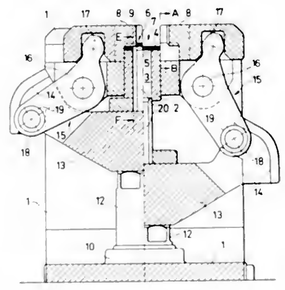
A method is disclosed for the formation of a selvedge in shuttle-less weaving looms, in which, at every one of its forward and backward runs through the warp shed, the weft inserter inserts a double weft thread, that is a twofold-bent weft thread, thus forming a continuous weft having loops on either side of the cloth which are formed by the weft inserter reversing its transverse motion, wherein the loops formed in the sequentially inserted double weft are engaged with one another, on the side of the fabric lying opposite to the entrance side of the weft inserter, in such a manner as to form at least one loop row or chain. Preferably the loop formed in each double weft thread is threaded through the loop of the preceding double weft thread. A device for performing this method is disclosed, wherein a selvedge-forming needle is arranged on the side of the cloth lying opposite to the entrance side of the weft inserter, and is automatically operable in synchronism with the weft inserter in such a manner as to pick up the loop of every new double weft thread which has been inserted by the weft inserter, and to slip them off the loop of the preceding double weft thread, which has been picked up and slipped on the needle shank at the time of the preceding weft insertion, thus causing the loop of the preceding double weft thread to be slipped through the loop of the preceding double weft thread and thus threading the loop of the new double weft thread onto the needle shank.

3,811,480
MULTI-LAYER FABRIC
Felix Villiger, Niederlenz, and Albert Gerber, Birrwil, both of Switzerland, assignors to Arova Schaffhausen AG, Schaffhausen and Losinger AG, Berne, both of, Switzerland
Continuation of Ser. No. 46,240, June 15, 1970, abandoned. This application May 22, 1972, Ser. No. 255,908
Int. Cl. D03d 3/00
U.S. Cl. 139—384 **6 Claims**



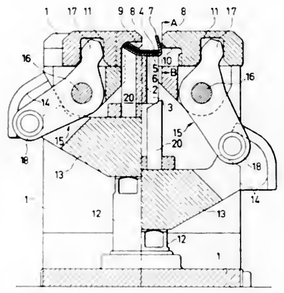
Multi-layer fabric in which the layers are joined by threads extending therebetween to connect the layers while allowing same to be spaced a limited distance apart.

3,811,481
SEALING TONGS
Karl Johan Back, Helsinki, Finland, assignor to Oy Cyklop AB, Helsinki, Finland
Filed Oct. 11, 1972, Ser. No. 296,613
Int. Cl. B21f 9/02
U.S. Cl. 140—93.2 **4 Claims**



For attaching the ends of a metallic strap to each other there is used sealing tongs having a base fixed to a frame structure and provided with notches; at least two jaw elements fitted to the frame structure so as to slide transversally in relation to the strap and linearly towards and away from each other essentially on the same level as the strap, the jaw parts being adapted to be placed on the strap ends which are on top of each other, and on the surfaces of the jaw elements which come against the strap there are several spaced notches in the longitudinal direction of the strap; several punches on the opposite side of the base in relation to the strap ends to be joined and which are adapted to be moved towards the band and away from it for punching the strap ends when the punches are pressed into the notches in the jaw elements through the notches in the base; and means fitted to the frame structure for guiding the jaw elements and the punches and for actuating them synchronically in relation to each other so that the punches punch the strap seal essentially only when the jaw elements are in a position closest to each other.

3,811,482
SEALING TONGS
Karl Johan Back, and Ragnar Ilmari Olof Walhelm, both of Helsinki, Finland, assignors to Oy Cyklop AB, Helsinki, Finland
Filed Oct. 11, 1972, Ser. No. 296,510
Int. Cl. B21f 9/02
U.S. Cl. 140—93.4 **6 Claims**

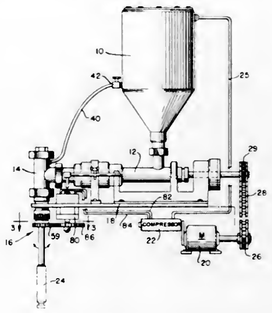


Sealing tongs for attaching the ends of a metallic or non-metallic strap to each other with a strap seal manufactured from a plate-like blank have having a base portion on a frame structure; at least two jaw means fitted to the frame structure and adapted for slidable movement transversally in relation to the strap and linearly towards and away from each other on the same plane to bend the collars of the strap seal blank against the strap as the jaw means approach each other; those surfaces of the jaw means which come against the collars being provided with several spaced notches in the longitudinal direction of the strap; several punches on the same level as the ends to be joined or on the opposite side of the base in relation to the ends, and adapted to be moved towards and away from the strap seal for corrugating and/or punching the strap ends and the strap seal parts surrounding them, when the punches are pressed into the notches in the jaw parts from both sides of the base or through the notches in the base; and means fitted to the frame structure for guiding the jaw parts and the punches and for actuating the same synchronically in relation to each other so that the punches corrugate and/or punch the strap seal essentially only when the jaw parts are closest to each other.

3,811,483
AUTOMATED SYSTEM AND METHOD FOR FILLING CONTAINERS WITH VISCOUS MATERIALS
David J. Morrison, Plainfield, N.J., assignor to Schering Corporation, Bloomfield, N.J.
Continuation-in-part of Ser. No. 142,270, May 11, 1971, abandoned. This application Apr. 26, 1972, Ser. No. 247,549
Int. Cl. B65b 3/04, 1/04
U.S. Cl. 141—1 **15 Claims**

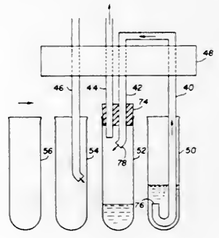
Automated filling system including a reservoir, a motor and a rotary actuator supplying power to the system, a filler head, means for advancing the viscous material from the reservoir to the filler head, a rotatable cutting head depending from the filler head to (1) discharge viscous materials therethrough into a series of containers, and (2) cleanly sever the viscous materials after each container has been filled. The cutting head includes a first hollow tube that is open at its upper end and has a semicircular opening and a semicircular planar surface at its lower end, and a second, slightly larger hollow tube that is open at its upper end and has a semicircular cutting blade and a semicircular opening at its lower end. The tubes are concentrically mounted, and the rotary actuator periodically drives the tubes relative to each other. A thrust washer and resilient O-ring absorb axial movement of the tubes.

During the filling phase, the semicircular openings in the tubes are aligned so that the viscous material is forced into the container which may be held in a telescoping relationship to



the tubes. At a predetermined point in the cycle of operation, the rotary actuator imparts relative rotation to the tubes so that the cutting blade cooperates with the planar surface to cleanly shear the viscous material.

3,811,484
METHOD AND APPARATUS FOR DELIVERING A PREDETERMINED VOLUME OF A LIQUID
Eduard Engelbrecht, Route de Saverny 83, 1290 Geneva, Switzerland
Continuation-in-part of Ser. No. 153,055, June 14, 1971, which is a continuation of Ser. No. 844,088, July 23, 1969, abandoned. This application Nov. 8, 1971, Ser. No. 196,649
Int. Cl. B65b 3/30; B67d 5/54; B65b 3/14
U.S. Cl. 141—7 **13 Claims**

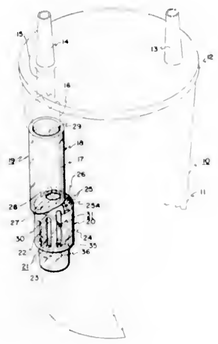


The present invention resides in a method and apparatus suitable for laboratory or like use for transferring from one container a measured quantity of a liquid into a second container, this being accomplished by establishing a pressure difference preferably by suction applied temporarily to the second container, the first container having in it a dip pipe extending down to a selected level and leading into the second container through a stopper.

3,811,485
VALVE AND RELATED STRUCTURE FOR VACUUM OPERATED LIQUID-FILL BOTTLES
Le Grand K. Holbrook, Salt Lake City, Utah, assignor to Medical Development Corporation, Salt Lake City, Utah
Filed May 8, 1972, Ser. No. 250,982
Int. Cl. A61m 1/00; A61c 17/04
U.S. Cl. 141—59 **12 Claims**

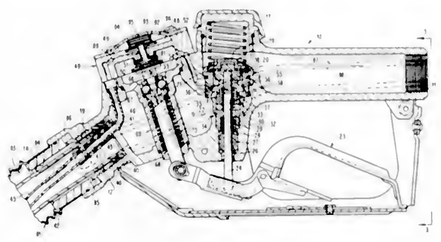
Valve structure for vacuum operated liquid-fill bottles, comprising a float valve having peripherally located air

passage-way vents in addition to shield means. The shield means is designed and positioned such that solid matter as might be contained within a liquid will not tend to flow into and hence clog the valve structure. To insure proper operation



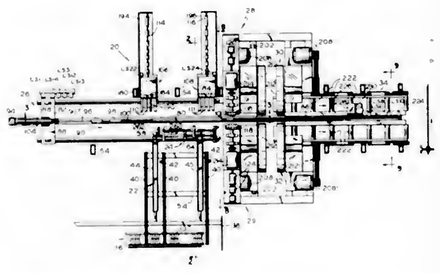
of the float valve such that the same will not be "sucked" to either side of the included valve cage or upwardly, air vents are provided essentially completely around the valve body portion of the structure and above the shield or partition used.

3,811,486
AUTOMATIC SHUT-OFF NOZZLE RESPONSIVE TO MORE THAN ONE CONDITION IN A TANK BEING FILLED
Chester W. Wood, Milford, Ohio, assignor to Dover Corporation, New York, N.Y.
Filed Dec. 26, 1972, Ser. No. 318,238
Int. Cl. B65b *1/30*
U.S. Cl. 141—208 **9 Claims**



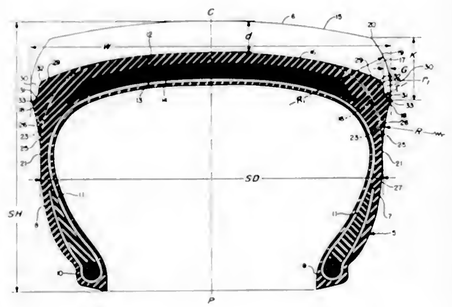
An automatic shut-off nozzle has a pair of diaphragms with a first diaphragm being responsive to the vapor pressure in the tank which is being filled exceeding a predetermined pressure so as to block communication with a second diaphragm, which is subjected to a partial vacuum, with the tank being filled whereby the second diaphragm moves due to an increase in the partial vacuum acting on said second diaphragm to cause closing of a manually operated valve which stops flow through the nozzle. When the liquid in the tank reaches a predetermined level, the second diaphragm moves due to the partial vacuum acting on said second diaphragm being increased so as to cause the valve to again be closed.

3,811,487
AUTOMATIC SAWMILL
Lyle D. Warren, 500 Birch St., Sweet Home, Oreg., and Robert W. Brewster, 5924 S.E. McNary Rd., Milwaukee, Oreg.
Filed Oct. 19, 1971, Ser. No. 190,589
Int. Cl. B27b *1/00*
U.S. Cl. 144—312 **6 Claims**



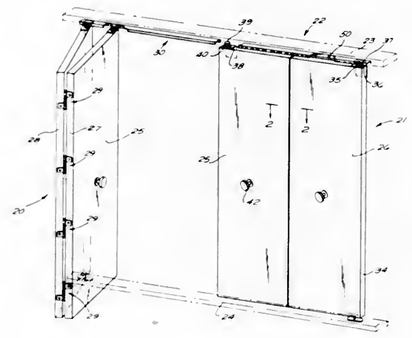
In an automatic sawmill, a caliper device measures the diameter of an incoming log and the log is then positioned against a pair of backstands over a log receiving carriage. A plurality of cutting devices are positioned relative to the carriage, and the speed control for the carriage is predetermined, in response to the log diameter. The diameter measurement is supplied to data processing circuitry which provides outputs indicative of "sets" to be taken by the aforementioned backstands and cutting devices for sawing the log into a number of cants, boards, or slabs in a manner making optimum use of the log content.

3,811,488
TIRE WITH AN UPPER SIDEWALL PROTECTOR
Ethel Lee Duncan, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Aug. 21, 1972, Ser. No. 282,888
Int. Cl. B60c *11/04*
U.S. Cl. 152—209 R **14 Claims**



A radial tire provided with a plurality of tread rib extensions which are disposed in the upper sidewalls of the tire and project outwardly of the sidewalls to protect them from pointed rocks and other sharp-edged objects which could pierce the sidewalls and ruin the tire.

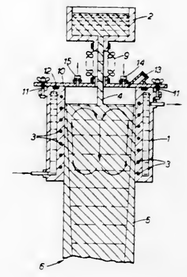
3,811,489
BIFOLD DOOR SYSTEM
Leonard Thun, Bay Park, and Leon David Grebow, Bronx, both of N.Y., assignors to Acrite Industries, Inc., New York, N.Y.
Filed Oct. 17, 1972, Ser. No. 298,333
Int. Cl. E06b *3/48*
U.S. Cl. 160—118 **10 Claims**



A bifold door system which includes a door frame having top and bottom walls. A trackway is mounted on one of the walls. A pair of door panels hinged together along adjacent vertical edges are associated with the frame with one of the panels being pivotally mounted at its top and bottom to the frame to enable the panel to rotate between a closed position substantially flush with the door frame and an open position out of the plane of the frame. The other panel has means thereon movably mounted in the trackway so as to permit the panel to be shifted between a closed position substantially flush with the door frame and an open position out of the plane of the frame. The hinged connection between the panel permits the panels to be opened to a substantially face-to-face interengagement and to bias the panels into a closed position substantially flush with the door frame and maintain a continuing bias to retain the door panels in the closed position thereby requiring a predetermined force to open the door and permit passage through the door frame. Finally, resilient retention means are on the trackway to allow shifting of the hinged panels to the open position and then to retain the panels in substantially the open position until a predetermined force is applied at which time the retention means will release the panels and allow the bias means to automatically return the panels to the closed position.

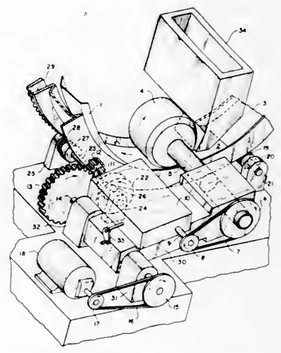
3,811,490
CONTINUOUS CASTING OF RIMMING STEEL
Malcolm Cecil Middleton, Dodworth nr. Barnsley, and Henry Bassell Lloyd, Horsham, both of England, assignors to British Steel Corporation, London, England
Continuation-in-part of Ser. No. 124,825, March 16, 1971, abandoned. This application Apr. 5, 1973, Ser. No. 347,994
Int. Cl. B22d *11/02, 27/02*
U.S. Cl. 164—49 **4 Claims**

In the production of steel by the continuous casting technique, a steel having a negatively segregated outer surface layer is made. An electromagnetic field is applied to the molten steel in the mould by coils surrounding the mould so that the steel is stirred with a rotary motion and passes over the outer solidifying layer in a direction parallel to the longitudinal axis of the cast strand and returns through the centre of



the mould. The steel supplied to the continuous casting mould is in a deoxidised or partially deoxidised state.

3,811,491
METHOD AND APPARATUS FOR MINIMIZING SURFACE DEFECTS ON ITR CAST STRIP
Charles Christian Gerding, Pittsburgh, Pa., assignor to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.
Filed Mar. 1, 1973, Ser. No. 337,022
Int. Cl. B22d *11/06*
U.S. Cl. 164—87 **8 Claims**

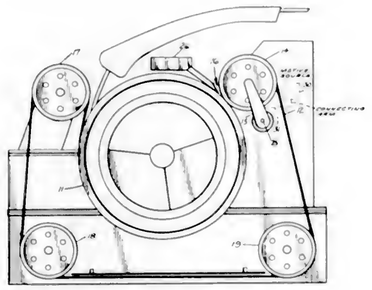


The formation of surface wrinkles, cracks and tears during Inside-The-Ring casting of strip is minimized by providing a slightly slower speed of the casting drum surface relative to that of the ring casting surface.

3,811,492
CASTING MACHINE WITH COMBINED PRESSER-BAND GUIDE WHEEL
George C. Ward, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga.
Filed May 8, 1972, Ser. No. 251,208
Int. Cl. B22d *11/06*
U.S. Cl. 164—278 **4 Claims**

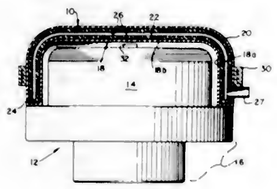
The invention disclosed is a combination presser-band guide wheel for guiding an endless flexible band into closed relationship with a portion of the peripheral groove of a

rotatable casting wheel. The presser-guide wheel is positioned adjacent the periphery of the rotatable casting wheel on a



pivot arm and is arranged to press a flexible band into positive contact with the casting wheel at or near the point where molten metal first contacts the casting wheel.

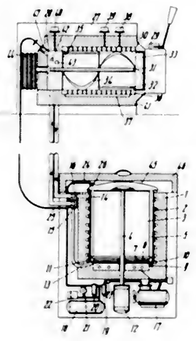
3,811,493
THERMAL SHIELD
Donald J. Bilinski, Dover; Lawrence S. Galowin, Upper Saddle River, and Michael Napolitano, Mendham, all of N.J., assignors to The Singer Company, Little Falls, N.J.
Division of Ser. No. 26,641, April 8, 1970, Pat. No. 3,675,711.
This application Oct. 14, 1971, Ser. No. 189,463
Int. Cl. G05d *23/00*
U.S. Cl. 165—32 **2 Claims**



A thermal shield consisting of a pair of walls forming an enclosed space. A heat exchange fluid is disposed in the space between the walls and is maintained at a working temperature whereby it changes in phase in response to changes in temperature along one of the walls.

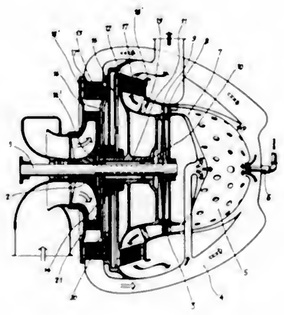
3,811,494
ICE CREAM MACHINE
Waldemar Menzel, Burghaig, Germany, assignor to Firma Ireks Arkady GmbH, Kulmbach, Germany
Filed Aug. 10, 1972, Ser. No. 279,381
Claims priority, application Germany, Aug. 10, 1971, 2139917
Int. Cl. F25c *7/14*
U.S. Cl. 165—65 **4 Claims**

A device for the preparation and dispensing of soft ice cream, sherbert or flavored ice has two spacially separated and distinct chambers connected by means of elongated supply tubes, one chamber serving as a storage container in



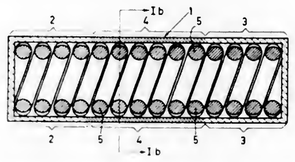
which refrigerating, heating, and sterilizing functions are carried out, and the other serving as a freezing and dispensing container.

3,811,495
ROTARY HEAT EXCHANGERS IN THE FORM OF TURBINES
Nikolaus Laing, Hofener Weg 35-37, 7141 Aldingen bei Stuttgart, Germany
Filed Oct. 26, 1970, Ser. No. 84,097
Int. Cl. F28d *11/04*
U.S. Cl. 165—85 **8 Claims**



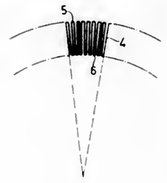
A rotary heat exchanger, in which an internally circulating heat-carrying fluid thermally interacts with an external fluid of different temperature, is set in rotary motion by the kinetic force of either of these fluids acting upon a set of turbine blades on a rotary member carrying the heat-exchanging surfaces. In one embodiment, the rotary member forms a header centered on the axis of rotation and carries a set of axially extending tubes which communicate with the header at one end and are closed at the opposite end; the tubes are embraced by annular fins at locations remote from the header and are arrayed in a plurality of concentric groups, their lengths decreasing progressively from the outermost to the innermost group.

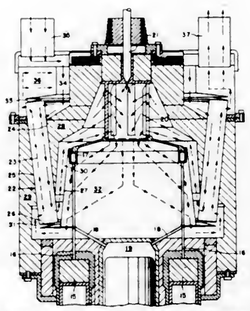
3,811,496
HEAT TRANSFER DEVICE
George Albert Apolonia Asselman, and Adrianus Petrus Dirne, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 2, 1972, Ser. No. 303,270
Claims priority, application Netherlands, Nov. 6, 1971, 7115318
Int. Cl. F28d *15/00*
U.S. Cl. 165—105 **10 Claims**



A heat transfer device (heat pipe) in which the layer of material having a capillary structure for the transport of condensate from the condensor to the evaporator is formed by helically wound wire which has grooves transversely to the axis of the wire.

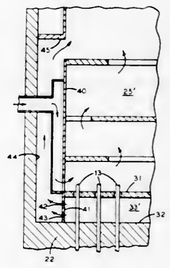
3,811,497
HEAT EXCHANGER
Roelf Jan Meijer; Gregorius Theodorus Maria Neelen, and Jules Herman Vree, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 21, 1972, Ser. No. 246,138
Claims priority, application Netherlands, Apr. 29, 1971, 7105840
Int. Cl. F28d *7/10*
U.S. Cl. 165—157 **2 Claims**





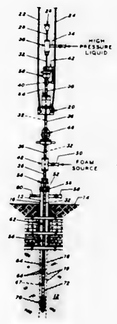
An annular heat exchanger having conically shaped inner and outer walls with a space between said walls occupied by a zig-zag folded strip of material forming several flow ducts. The strip is initially a straight blank that is folded so that the partitions between the ducts extend radially and each partition has the shape of an isosceles trapezium or trapezoid.

3,811,498
INDUSTRIAL TECHNIQUE
John J. Ferraro, Barberton, Ohio, and Bertrand Norval McDonald, Lynchburg, Va., assignors to The Babcock & Wilcox Company, New York, N.Y.
Filed Apr. 27, 1972, Ser. No. 248,199
Int. Cl. F28b *9/22*
U.S. Cl. 165—161 **3 Claims**



An illustrative embodiment of the invention shows an heat exchanger for converting the secondary coolant feedwater in a nuclear power reactor system into superheated steam. The tube sheet adjacent to the feedwater inlet nozzle is protected from thermal shock by discharging the feedwater directly into the economizer and establishing a controlled secondary coolant flow or leakage from the economizer along the terminal portion of the tube bundle to the tube sheet. The heat absorbed in the secondary coolant flowing toward the tube sheet raises the coolant temperature and protects the sheet from thermal shock. The secondary coolant that collects between the economizer and the adjacent tube sheet, moreover, can be reintroduced to the tube bundle or bled from the secondary coolant loop.

3,811,499
HIGH PRESSURE JET WELL CLEANING
Stanley O. Hutchison, Bakersfield, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Division of Ser. No. 150,536, June 7, 1971, Pat. No. 3,720,264.
This application July 24, 1972, Ser. No. 274,720
U.S. Cl. 166—67 **5 Claims**



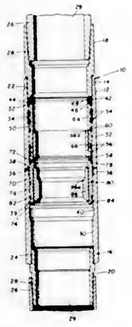
Method and apparatus for directionally applying high pressure jets to well liners to clean openings which are plugged with foreign matter. High velocity jets of liquid having a velocity in excess of 700 feet per second are jetted from jet orifices having a standoff distance between 5 and 10 diameters

of the orifice from the openings to remove substantially all plugging material from the openings. Apparatus for circulating foam is provided in combination with apparatus for delivering high pressure jets. New swivels and check valves permit rotation and reciprocation of the jet tool and tubing string while maintaining high pressure in the apparatus.

3,811,500
DUAL SLEEVE MULTIPLE STAGE CEMENTER AND ITS METHOD OF USE IN CEMENTING OIL AND GAS WELL CASING

O. L. Morrisett, and Eugene E. Baker, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Continuation-in-part of Ser. No. 139,095, April 30, 1971, abandoned. This application Oct. 2, 1972, Ser. No. 294,426
Int. Cl. E21b *27/00, 33/132*
U.S. Cl. 166—154 **4 Claims**

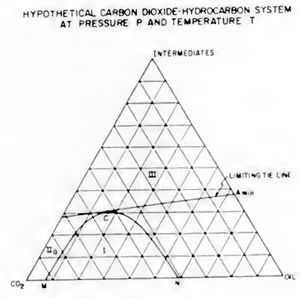


This invention relates to a cementing tool used in oil and gas well multiple stage cementing operations, and more particularly to a cementing tool having an elongated case containing a plurality of ports, and two sliding sleeves within the case. The two sleeves, positioned in tandem relation one with the other, provide fluid tight seals between the ports and the interior of the cementing tool.

3,811,501
SECONDARY RECOVERY USING CARBON DIXOIDE AND AN INERT GAS

David B. Burnett, Houston; Robert B. Alston, Missouri, and Frank H. Lim, Houston, all of Tex., assignors to Texaco Inc., New York, N.Y.

Filed July 27, 1972, Ser. No. 275,587
Int. Cl. B21b *43/22*
U.S. Cl. 166—252 **9 Claims**

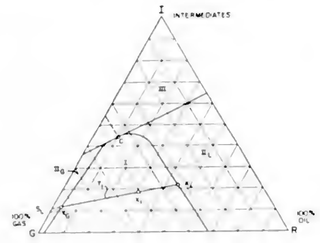


Recovery of oil from an oil-bearing reservoir is effected by the injection of a mixture of carbon dioxide and an inert gas in a critical ratio whereby there is formed a miscible transition zone between the mixture and the reservoir oil.

3,811,502
SECONDARY RECOVERY USING CARBON DIOXIDE

David B. Burnett, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed July 27, 1972, Ser. No. 275,588
Int. Cl. E21b *43/22*
U.S. Cl. 166—252 **9 Claims**

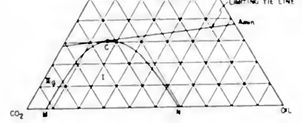


Recovery of oil from an oil-bearing reservoir is effected by the injection of carbon dioxide into the reservoir at a pressure whereby there is formed a miscible transition zone between the carbon dioxide and the reservoir fluid.

3,811,503
SECONDARY RECOVERY USING MIXTURES OF CARBON DIOXIDE AND LIGHT HYDROCARBONS

David B. Burnett, and Frank H. Lim, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed July 27, 1972, Ser. No. 275,589
Int. Cl. E21b *43/22*
U.S. Cl. 166—252 **9 Claims**



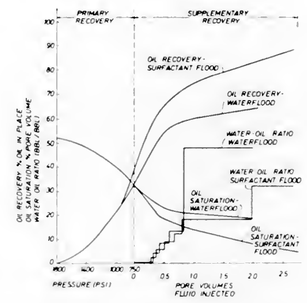
Recovery of oil from an oil-bearing reservoir is effected by the injection of a mixture of carbon dioxide and light hydrocarbons in a critical ration whereby there is formed a miscible transition zone between the mixture and the reservoir oil.

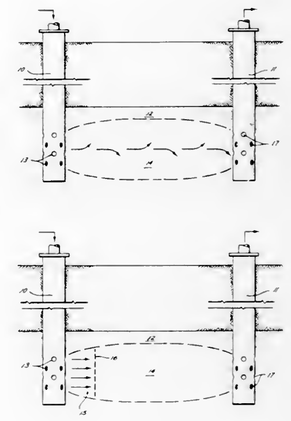
3,811,504
SURFACTANT OIL RECOVERY PROCESS USABLE IN FORMATIONS CONTAINING WATER HAVING HIGH CONCENTRATIONS OF POLYVALENT IONS SUCH AS CALCIUM AND MAGNESIUM

Kenoth H. Flournoy; Ricardo L. Cardenas; Gilbert L. Haferkamp, and Russell D. Shupe, all of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Feb. 9, 1973, Ser. No. 330,933
Int. Cl. E21b *43/22*
U.S. Cl. 166—273 **30 Claims**

A three component surfactant system usable in the presence of from about 1,500 to about 12,000 parts per million polyvalent ions, such as calcium and/or magnesium, and a method of using said surfactant system for recovering petroleum from subterranean formations, said surfactant system comprising a water soluble salt of an alkyl or alkylaryl sulfonate anionic surfactant plus a water soluble salt of an alkyl polyethoxy sulfate anionic surfactant plus a nonionic surfactant such as a polyethoxylated alkyl phenol, a polyethoxylated aliphatic alcohol or a fatty acid mono- or dialkanolamide.

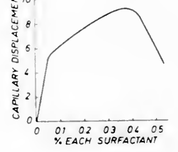




3,811,505
SURFACTANT OIL RECOVERY PROCESS USABLE IN FORMATIONS CONTAINING WATER HAVING HIGH CONCENTRATIONS OF POLYVALENT IONS SUCH AS CALCIUM AND MAGNESIUM

Kenoth H. Flournoy; Ricardo L. Cardenas; Gilbert L. Haferkamp, and Russell D. Shupe, all of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,265
Int. Cl. E21b *43/22*
U.S. Cl. 166—274 **18 Claims**



A dual surfactant system usable in the presence of from about 500 to about 9,000 parts per million polyvalent ions, such as calcium and/or magnesium, and a method of using said surfactant system for recovering petroleum from subterranean formations, said surfactant system comprising a water soluble salt of an alkyl or an alkylaryl sulfonate or phosphate wherein the alkyl chain has from 5 to 25 carbon atoms, plus a nonionic surfactant such as a polyethyoxylated alkyl phenol or a polyethyoxylated aliphatic alcohol.

3,811,506
TAR SAND RECOVERY METHOD

Joseph T. Carlin, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Feb. 12, 1973, Ser. No. 331,391
Int. Cl. E21b *43/22*
U.S. Cl. 166—274 **10 Claims**

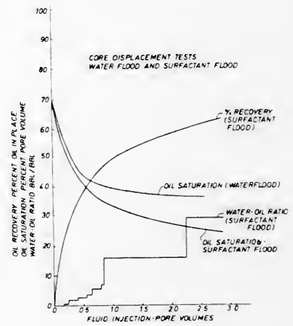
Bitumen may be efficiently and economically extracted from tar sand deposits in situ by imbibition flooding. The imbibition flooding is performed in two general steps. First, the tar sand deposits are contacted with a bitumen solvent followed by a soak period to allow imbibition of the solvent.

Next, the tar sands are contacted with an aqueous fluid followed by a soak period to allow imbibition. The freed bitumen is then produced by conventional means.

3,811,507
SURFACTANT OIL RECOVERY PROCESS USABLE IN FORMATIONS CONTAINING WATER HAVING HIGH CONCENTRATION OF POLYVALENT IONS SUCH AS CALCIUM AND MAGNESIUM

Kenoth H. Flournoy, and Russell D. Shupe, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,117
Int. Cl. E21b *43/22*
U.S. Cl. 166—274 **22 Claims**



A two component surfactant system usable in the presence of from about 3,000 to about 18,000 parts per million polyvalent ions, including calcium and or magnesium, and a method of using said dual surfactant system for recovering petroleum from subterranean formations, said surfactant system comprising a water soluble salt of a linear alkyl or a linear alkylaryl sulfonate first anionic surfactant plus a water soluble salt of an alkyl polyethoxy sulfate second anionic surfactant.

3,811,508
METHODS FOR SELECTIVE PLUGGING

Robert H. Friedman, Houston, Tex., assignor to Getty Oil Company, Los Angeles, Calif.

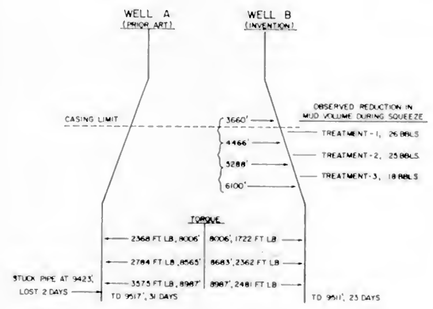
Filed July 10, 1972, Ser. No. 270,244
Int. Cl. E21b *33/13*
U.S. Cl. 166—288 **4 Claims**

Methods and compositions are provided for selectively plugging the water-rich strata of subterranean formations, including the injection into the formation of a water-soluble, oil-insoluble soap or ester. The soap or ester chemically reacts in the formation, either with reactants already in the formation or reactants which may be injected along with or prior to the soap or ester, to produce a water-insoluble, oil-soluble product which is effective to selectively plug the water-rich strata over a relatively long distance and over a relatively long period of time.

3,811,509
WELL DRILLING METHOD

Frank D. Priebe, Houston, Tex., assignor to Cities Service Oil Company, Tulsa, Okla.

Filed Aug. 31, 1972, Ser. No. 285,143
Int. Cl. E21b *21/04, 33/138*
U.S. Cl. 166—293 **26 Claims**



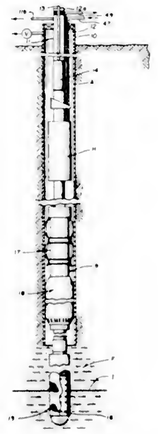
A method is disclosed for reducing drilling torque and preventing sticking of drilling pipe when a permeable formation such as sand is penetrated during the drilling of a well. The reduction in drilling pipe torque which results is particularly advantageous in the drilling of deviated holes.

A slug of gel slurry is deposited in the hole after the permeable formation has been entered, and the slug is then squeezed at a calculated pressure which causes liquid from the slurry to migrate from the hole into the formation. However, the bulk of the gel is filtered out by the formation at or near the wall of the hole, and is thus laid down as a packed cake with the formation itself serving as the matrix on which the cake forms. The squeeze is carried out at a pressure which is substantially greater than the hydrostatic pressure at the point being squeezed and at least equals the greatest pressure which is expected to exist later on at the side of the squeeze after drilling has proceeded to a greater depth. The resulting gel cake is dense enough to seal the wall of the hole and thereby substantially negates loss of fluid from the drilling mud into the formation. Preventing loss of fluid into the formation by means of the gel cake also provides the additional advantage of curtailing inward growth of the hole wall by build-up of drill cuttings thereon. Circulation of drilling mud remains adequate and provides good lubrication between the pipe and the wall of the hole even during sharply deviated drilling. As drilling continues, the integrity of the gel cake is not detrimentally affected by further elevation of pressure where the cake resides in the hole since the squeeze pressure for the formation thereof was at least as great as will later exist at that point from use of higher density drilling mud, greater \sing pressure, etc.

3,811,510
WELL PUMPING METHOD AND APPARATUS

Joe C. Rogers, 216 Lisa Ln., Palestine, Tex., and Brown J. Woolley, P.O. Box 1249, Kilgore, Tex.

Filed May 28, 1971, Ser. No. 147,870
Int. Cl. E21b *23/00, 33/12, 43/24*
U.S. Cl. 166—30? **15 Claims**



A method and apparatus for improving the efficiency of a well pump are disclosed. The method includes controlling the elevation at which the well fluids enter the well to thereby control the amount of each fluid, i.e., oil and water, being lifted by the well pump and further contemplates the cooling of the well fluids prior to their passage to the pump, whereby pumping efficiency is increased. This abstract is not to be construed in any way to define or limit the invention set forth below.

ERRATUM

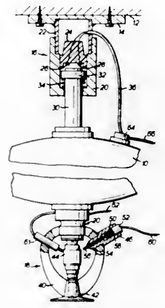
For Class 168—34 see:
Patent No. 3,811,512

3,811,511
FIRE EXTINGUISHING SYSTEMS

Alister L. McCulloch, Moorabbin, Victoria, Australia, assignor to Graviner (Colnbrook) Limited, London, England

Filed July 13, 1972, Ser. No. 271,590
Claims priority, application Australia, July 12, 1971, 5505/71
Int. Cl. A62c *25/00*
U.S. Cl. 169—28 **16 Claims**

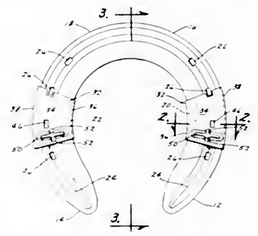
A fire extinguishing system is disclosed comprising several self-contained extinguishers. Each includes a thermally-rupturable bulb for releasing the extinguishant in response to detection of incipient fire conditions in the neighborhood of that extinguisher, electrically operated discharge means also capable of releasing the extinguishant, and one or more electrical switches operated in response to discharge of the extinguishant. In the system, the electrical switches of all the extinguishers are interconnected with the electrically operated discharge means of all the extinguishers so that operation of any one of the extinguishers by rupture of its bulb causes operation of each other extinguisher in the system.



3,811,512
MUD CLIP FOR A HORSESHOE

Robert A. Sirles, 2873 Mary St., Omaha, Nebr.

Filed Oct. 5, 1972, Ser. No. 295,132
Int. Cl. A01l *7/04*
U.S. Cl. 168—34 **8 Claims**



A mud clip for a horseshoe is disclosed comprising a base portion having a lug protruding therefrom. The base portion embraces the quarter portion of the horseshoe and is maintained thereon by a horseshoe nail extending through the clip and the horseshoe.

ERRATUM

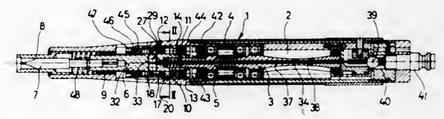
For Class 172—311 see:
Patent No. 3,811,516

3,811,513
PORTABLE PNEUMATIC POWER TOOL

Hans Wezel, Maulbronn/Wuertt, and Manfred Zeller, Pforzheim, both of Germany, assignors to Schmid & Wezel, Maulbronn/Wuertt, Germany

Filed Sept. 27, 1972, Ser. No. 292,631
Claims priority, application Germany, Sept. 30, 1971, 2148739
Int. Cl. B25b *23/14*
U.S. Cl. 173—12 **16 Claims**

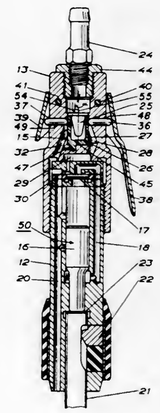
A pneumatic screwdrive wherein the motor is started by opening a normally closed valve in automatic response to axial shifting of the tool spindle when the tip of the tool is pressed against a screw. The output device of the motor then drives a first coupling portion which drives a second coupling portion rotatably mounted on the tool spindle. The latter receives torque by way of an overload clutch having an annulus of balls mounted in the second clutch portion, a flanged sleeve movable axially of but rotatable with the spindle, a set of pins which are movable axially in a portion of the spindle, and an adjustable spring which determines the maximum torque to be transmitted to the tool spindle. The pins are driven by the balls, before the spring yields, to thereby rotate the sleeve. The valve is opened by a pair of spheres mounted in a diametral bore of the tool spindle and displacing a valve actuating rod when the spindle is moved toward the output device. The sleeve of the clutch has two radial bores which receive portions of the spheres to allow the valve to open when the spring yields in response to a predetermined resistance of the spindle to rotation with the output device.



3,811,514
PRESSURE FLUID OPERATED TOOL

Jarl Joel Blomberg, Nacka; Heino Elmessaar, Lidingo, and Karl Gosta Karden, Nacka, all of Sweden, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Sept. 14, 1972, Ser. No. 289,162
Claims priority, application Sweden, Sept. 17, 1971, 11827/71
Int. Cl. B25d *17/14*; **E21c** *7/00*
U.S. Cl. 173—65 **29 Claims**

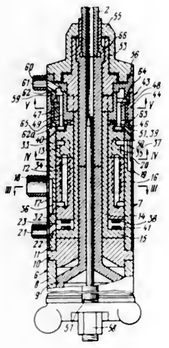


A pneumatic tool has a control valve with a cup-shaped elastomeric valving element disposed in a socket to cover a channel leading from the socket. The forward end of an air inlet forms the socket. The peripheral wall of the elastomeric element can be deformed by means of a radial rod to form between the elastomeric element and the socket a passage from the inlet to the channel.

3,811,515
PERCUSSIVE DRILLING MACHINE

Anatoly Ignatievich Bazhal, ulitsa Franko, 30, kv. 42; Alexandr Ilich Mishkin, ulitsa Gagarina 8, kv. 18, and Anatoly Antonovich Bessarab, ulitsa Shevchenko 8, kv. 24, all of Zheltye Vody Dnepropetrovskoi oblasti, U.S.S.R.

Filed Jan. 15, 1973, Ser. No. 323,405
Int. Cl. B25d *15/00*
U.S. Cl. 173—93 **5 Claims**



A machine in which an air-operated striking rearhead has a body accommodating a hammer piston reciprocating under the action of compressed air so as to deliver blows at a drill steel located at the front end of the machine, and a reversible rotary impulse fronthead has a body accommodating two rotatable and axially movable annular pistons provided with impact projections and indentations formed between the projections, with the pistons being coupled by an interengagement of the respective projections and indentations thereof, the projections and walls of the fronthead body forming work and idle stroke air chambers which are periodically placed in communication via passages with a source of compressed air and the atmosphere, and the projections of one of the annular pistons performing, under the action of air pressure, high-frequency reciprocatory angular oscillations so as to deliver blows with their impact projections at the respective projections of the other annular piston. The rotary impulse fronthead has a ratchet mechanism which ensures the rotation of one of the annular pistons and the drill steel only in one direction.

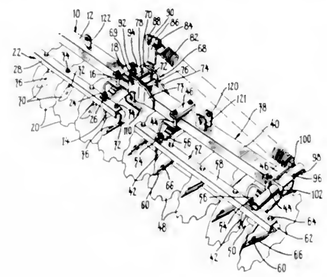
In addition, the rotary fronthead is provided with means adapted to switch over the ratchet mechanism from one rotational direction to the other (from lefthand rotation to righthand rotation, and vice versa) so as to enable right- and lefthand rotation of the drill steel.

3,811,516
FOLDING WING LOCK

Howard G. Thompson, Livonia, and John A. Kay, Jr., Birmingham, both of Mich., assignors to Massey-Ferguson Inc., Detroit, Mich.

Continuation of Ser. No. 59,281, July 29, 1970, abandoned. This application Nov. 10, 1972, Ser. No. 306,252
Int. Cl. A01b *49/00*; **E05c** *3/14*
U.S. Cl. 172—311 **5 Claims**

A folding wing lock for a disc harrow including a main gang, a folding wing gang pivotally attached to the main gang by a hinge pin for pivotal movement about the axis of the hinge pin, an aperture through the main gang spaced from and parallel to the pivotal axis between the two gangs, and plates rigidly attached to the folding wing gang which are adjacent to each end of the aperture in the main gang and have apertures that may be aligned with the aperture in the main gang. A locking pin is inserted through the aperture in one of the plates, through the aperture in the main gang and then through the aperture in the other plate. A cam on the locking pin contacts

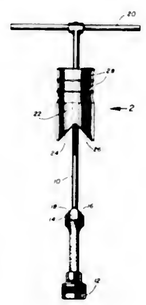


a cam surface on one of the plates and upon rotation of the locking pin, rotates the folding wing gang about the axis of the hinge pin until both ends of the locking pin are securely clamped between the plates and the aperture in the main gang.

3,811,517
IMPACT TURNING TOOL

Joseph Bolger, Summer St., Barre, Mass.

Filed Aug. 28, 1972, Ser. No. 283,910
Int. Cl. B25d *15/00*
U.S. Cl. 173—93.7 **7 Claims**



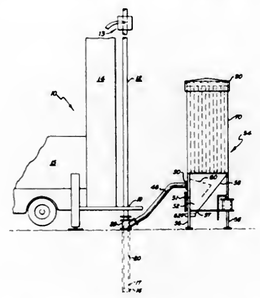
An impact turning tool comprising a rod, a handle at one end of the rod, a turning implement at the other end thereof, an abutment fixed to said rod adjacent the turning implement, said abutment having a generally V-shaped impact surface which extends away from the turning implement toward the handle; and a weight or impact member slidably and rotatably mounted on said rod, and having a V-shaped surface complementary to the V-shaped surface on the abutment.

3,811,518
METHOD OF AND APPARATUS FOR COLLECTING CUTTINGS FROM A DRILLED HOLE

Abe M. Kalaf, Silver Bell, and Dominic A. Chiaro, Tucson, both of Ariz., assignors to Bus-Rx, Inc., Tucson, Ariz.

Filed July 24, 1972, Ser. No. 274,624
Int. Cl. E21c *7/02*
U.S. Cl. 175—60 **22 Claims**

An arrangement for collecting a representative sample of all of the cuttings formed by drilling a hole in the earth regardless of whether the hole is wet or dry. The hole is formed by a drilling mechanism that leaves an annulus between the outer periphery of the drilling mechanism and the periphery of the drilled hole. Compressed air flowing through the drilling

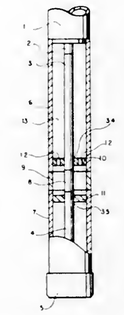


mechanism to the bottom of the hole forces the cuttings up the annulus and through a conduit into a receiver from which the cuttings are collected.

3,811,519
REMOTE CONTROL DIRECTIONAL DRILLING SYSTEM

W. B. Driver, 19 Sheridan Rd., Bridgeton, Mo.

Filed Jan. 4, 1973, Ser. No. 320,901
Int. Cl. E21b *7/04*, *9/34*
U.S. Cl. 175—73 **3 Claims**



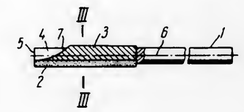
According to the invention a downhole remote control directional drilling system uses a downhole motor to operate the drill bit and provide power to generate the electrical and hydraulic power used to operate the systems remote control guidance system and direct the drill bit. Also the remote control guidance system is controlled by receiving direction commands radiated down the drill pipe string by electromagnetic waves and the remote control guidance system transmits direction and direction control components of the remote control directional drilling system to the top of the well hole.

3,811,520
TOOL FOR DRILLING HOLES AND CUTTING SLOTS

Shiman Tevelievich Frenkel, p/o Agudzera, 28, kv. 4, Sukhumi; Gely Fomich Skripko, ulitsa Vyshgorodskaya, 33, kv. 13, Kiev; Georg Froimovich Golub, ulitsa Dorogozhitskaya, 28, kv. 87, Kiev; Evgeny Leonidovich Prudnikov, ulitsa Stetsenko 1, kv. 55, Kiev, and Naum Borisovich Ganelin, ulitsa Dorogozhitskaya, 24, kv. 61, Kiev, all of U.S.S.R.

Filed Apr. 24, 1972, Ser. No. 246,798
Claims priority, application U.S.S.R., Apr. 24, 1971, 1646212
Int. Cl. E21b *9/16*
U.S. Cl. 175—398 **3 Claims**

A tool is, disclosed wherein provision is made for a shank and a cutting portion of which the latter is made of an abrasive-containing material. A stem is positioned in the side of the cutting portion along the tool generant which is made of a material less resistant to abrading and having a higher bending

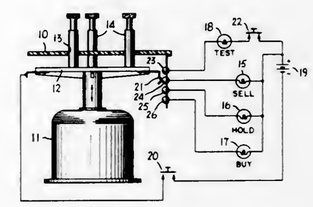


strength than the material of the cutting portion, the profile of the stem being identical to the profile of a longitudinal slot in the end surface of the cutting portion.

3,811,521
STOCK ANALYZER

Stanley M. Goldman, Plainview, N.Y., assignor to G. M. Stanley & Co., Inc., New York, N.Y.

Continuation-in-part of Ser. No. 94,680, Dec. 3, 1970, abandoned. This application Nov. 24, 1971, Ser. No. 201,688
Int. Cl. G01g *19/40*, *3/14*
U.S. Cl. 177—1 **3 Claims**

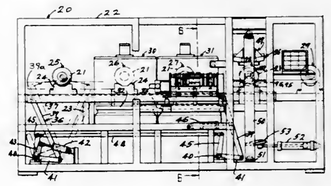


A stock analyzer and method of analyzing stock in which variable information with respect to a particular stock is placed into an information storage system in increments, the total is measured, and the total measurement is translated into a "buy" or "sell" reading on an indicator.

3,811,522
MACHINE FOR WEIGHING, PRINTING AND PUNCHING WORKPIECES

Erich L. Wolf, Riverside, Calif., and William T. Flynn, Perrysburg, Ohio, assignors to Reliance Electric Company, Toledo, Ohio

Filed Apr. 19, 1973, Ser. No. 352,572
Int. Cl. G01g *23/38*; **E41f** *17/00*
U.S. Cl. 177—13 **16 Claims**



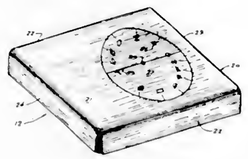
A printing and punching machine, which is particularly adaptable for the weighing, printing and punching indicia on artillery shells. The machine includes a loading station, two weighing stations, a printing and punching station and an unloading station. Preferably the stations are equally spaced apart and a walking beam mechanism advances an individual

artillery shell to successive stations after it has initially been manually placed at the loading station. The artillery shell is weighed at the first weighing station and then weighed again at the second weighing station. If the two weights compare, the proper printing pad and the proper punches are automatically actuated in the printing mechanism. The printing and punching mechanism than moves from a home position and is inked by a multiple roller inking mechanism. The printing and punching mechanism then passes over and engages the artillery shell which is in the printing station. At the end of a cycle, the printing mechanism returns to its home position and the walking beam mechanism advances the shell to the unloading station where it is manually unloaded.

3,811,523
BATHROOM SCALE

Kert Edward Artwick, Morton Grove, and Robert Anthony O'Neil, Glen Ellyn, both of Ill., assignors to Hanson Scale Company, Chicago, Ill.

Filed July 10, 1972, Ser. No. 270,046
Int. Cl. G01g *21/28*
U.S. Cl. 177—180 **10 Claims**

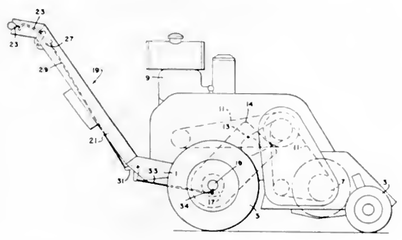


A platform-type bathroom scale having a transparent plastic cover mounted on the platform with the underside painted a desired decorator color except for a circular or other shaped portion with defines a dial-viewing window. The sides of the cover may be draped downwardly over the base of the scale.

3,811,524
GRASS CUTTING OR THE LIKE MACHINES

Edward John Aldred, Ipswich, England, assignor to Ransomes Sims & Jefferies Limited, Ipswich, Suffolk, England

Filed Feb. 17, 1972, Ser. No. 227,103
Claims priority, application Great Britain, Feb. 17, 1971, 4829/71
Int. Cl. B62d *11/08, 51/04*
U.S. Cl. 180—6.2 **6 Claims**

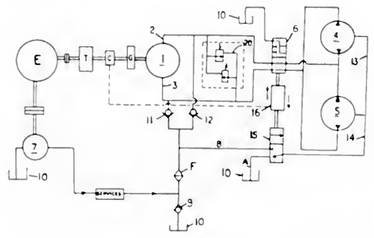


A power-driven grass cutting or the like machine having an operator's handle formed of an upstanding support and two handle bars which are rotatably mounted on the support. Two driving wheels upon which the machine is supported are each provided with a braking mechanism and the braking mechanisms are coupled to respective handle bars. Steering of the machine is effected by rotating one handle bar to operate the associated braking mechanism. Braking is effected by rotating both handle bars together. A further control is mounted on the handle bars and can be operated whilst steering or braking.

3,811,525
FLUID POWER TRANSMISSION AND CONTROL SYSTEM FOR FLUID MOTORS FOR DRIVING THE FRONT WHEELS OF A VEHICLE

Douglas Stuart, Edinburgh, Scotland, assignor to Carron Hydraulics Limited, Kirkcaldy, Fife, Scotland

Filed May 24, 1972, Ser. No. 256,441
Claims priority, application Great Britain, May 26, 1971, 17115/71
Int. Cl. B60k *17/30*
U.S. Cl. 180—44 M **4 Claims**

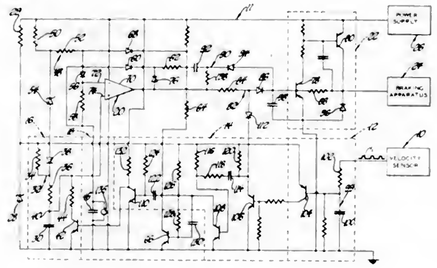


The invention provides for a fluid power transmission and control system for fluid motors directly connected to the front wheels of a vehicle such that no reduction gearing is required between the mechanical output members of the fluid motors and the wheels driven by the motors, the rear wheels of the vehicle being driven by mechanical power transmission in known manner. The system also provides for selecting two wheel drive by mechanical transmission or four wheel drive by mechanical transmission to the rear wheels and fluid power transmission to the front wheels.

3,811,526
RATE OF CHANGE OF VELOCITY CONTROL SYSTEM

Carmeli Adahan, 1930-Vine No. 303, Berkeley, Calif.

Filed July 20, 1972, Ser. No. 273,679
Int. Cl. B60k *33/00*
U.S. Cl. 180—82 R **40 Claims**



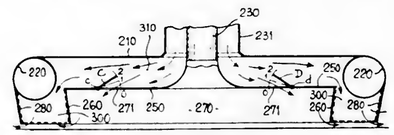
A skid control system for a wheeled vehicle having braking apparatus. By the system, wheel speed is monitored and converted to module input signals having a time spacing corresponding to the velocity of the wheel. These signals are used to control the charge and discharge of a velocity generator capacitor and a velocity reference generator capacitor.

Between input signals a controller will cause the velocity generator capacitor to be charged from a certain threshold value to a peak value corresponding to the instantaneous velocity of the wheel and the velocity reference generator capacitor to be charged from the peak value of the velocity generator capacitor at a rate and to a voltage level corresponding to a desired deceleration rate. Upon the termination of input signal the controller will reset the velocity reference generator capacitor to the peak value of the velocity generator capacitor and the velocity generator capacitor to its threshold value. The voltage levels of the capacitors are compared by an operational amplifier and if the velocity reference generator capacitor has the lower voltage level, which indicates an impending wheel lock condition, an output is developed which through an output signal generator will operate the braking apparatus to relieve the braking force. The system is prevented from operating when the vehicle is stationary and also incorporates provisions for preventing response to minor velocity fluctuations and to wheel velocities below a certain minimum.

3,811,527
AIR-CUSHION VEHICLES

Dominique Pont, Garches; Andre Lafont, Coudoux, and Alain Voisin, Velaux, all of France, assignors to Societe d'Etudes et de Developpement des Aeroglisseurs Marina Terrestres et Amphibies S.E.D.A.M., Paris, France

Filed Dec. 28, 1971, Ser. No. 212,930
Claims priority, application France, Dec. 31, 1970, 70.47521; Dec. 16, 1971, 71.45220
Int. Cl. B60v *1/02*
U.S. Cl. 180—121 **19 Claims**



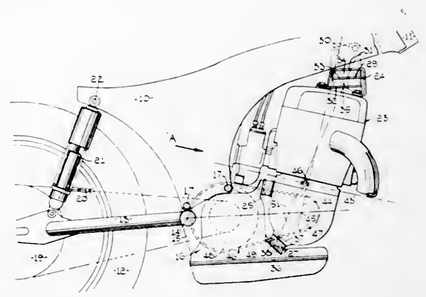
An air-cushion vehicle including a platform carrying means providing central lift compressed air cushion and peripheral cushions. The supply of compressed air to the central and peripheral cushions is effected through a diffusion space below the platform, the diffusion space being divided into sections, and the air pressure in each section being regulated. Concentration means, in the form of swivelling flaps, adjust the air flow to the various diffusion space sections. The peripheral cushions may be defined by a plurality of annular contiguous skirts, and there may be two groups of such skirts arranged at the front and rear or at port and starboard of the vehicle. The means for concentrating and distributing air pressure among the various diffusion space sections may be controlled by a single lever through a programmed memory system.

3,811,528
VEHICLE MOTOR MOUNTS

Bernard Hooper, Wordsley, near Stourbridge, England, assignor to Norton Villiers Limited, Wolverhampton, Stafford, England

Filed Mar. 29, 1972, Ser. No. 239,186
Claims priority, application Great Britain, Apr. 6, 1971, 8829/71; June 30, 1971, 30545/71
Int. Cl. B60k *5/12*
U.S. Cl. 180—33 A **5 Claims**

This specification describes a motor cycle which includes a frame, a two-cylinder internal-combustion piston engine mounted in the frame, the cylinders of the engine having their longitudinal axes in a common plane containing the rotary axis of the crankshaft which has its crank throws spaced by 180°, a gear box driven by the engine and a driven wheel driven by a final drive from the gear box. The motor cycle has an engine unit which includes the engine, a fork carrying the driven wheel for rotation about a first axis and mounted in a mounting fixed in position relative to the frame for pivotal movement about a second axis, the first and second axes being mutually parallel and parallel to said crankshaft axis, balancing means carried by said crankshaft and which statically balances

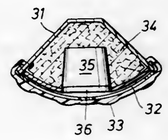


between 90 and 110 percent of the rotating mass of the engine only, and mountings between the engine unit and the frame to support the engine unit in the frame so that in operation the engine unit oscillates about an axis of oscillation generally perpendicular to an axial plane containing the longitudinal axes of the cylinders, the mountings being arranged so that they resiliently resist oscillatory movement of the engine about said axis of oscillation.

3,811,529
ACOUSTIC LOGGING APPARATUS FOR TRAVEL TIME AND CEMENT BOND LOGGING

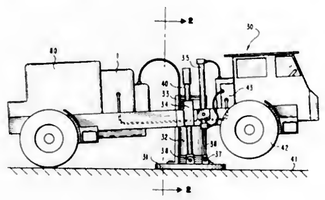
Gerald J. B. Crawford, Norwalk, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Division of Ser. No. 26,266, April 7, 1970, Pat. No. 3,712,414.
This application Nov. 8, 1972, Ser. No. 304,633
Int. Cl. G01v *1/40*
U.S. Cl. 181—.5 ED **4 Claims**



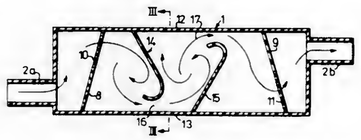
An illustrative embodiment of the present invention includes an acoustic well logging sonde having four articulated arm members disposed at quadrant intervals about a central tubular body member and having an acoustic transmitting transducer disposed on the lower portion of the body member. Two of the diametrically disposed arms carry a pair of acoustic receiving transducers displaced longitudinally from each other while the other two diametrically opposed arms each carry a single acoustic receiving transducer. A switching arrangement is provided for selecting groups of four of the six articulated transducers for making either cement bond log measurements or acoustic travel time measurements.

3,811,530
SOIL-COMPACTION METHOD AND APPARATUS FOR A SEISMIC ENERGY SOURCE TRANSDUCER
Otis A. Johnston, League City, Tex., assignor to Western Geophysical Company of America, Houston, Tex.
Filed May 5, 1971, Ser. No. 140,389
Int. Cl. G01v *1/14*
U.S. Cl. 181—.5 VM **1 Claim**



A hydraulic lifting mechanism is provided to lift and lower a seismic transducer relative to the bed of a carrier. After the transducer couples with the ground, a portion of the carrier is raised above ground to apply a predetermined static load to the transducer. Maximum static loading is accomplished by using the lift mechanism to raise one end of the carrier just clear off the ground, regardless of local surface relief. An incremental lift is then automatically added to compensate for soil compaction.

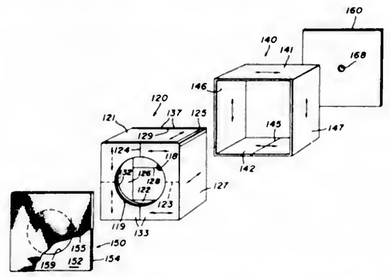
3,811,531
SILENCER
Jan Robert Fleming Forssman, Vallingby, Sweden, assignor to Safety Vehicles Development AB, Stocksund, Sweden
Filed Dec. 5, 1972, Ser. No. 312,317
Claims priority, application Sweden, Dec. 6, 1971, 15632/71
Int. Cl. F01n *1/10*
U.S. Cl. 181—50 **1 Claim**



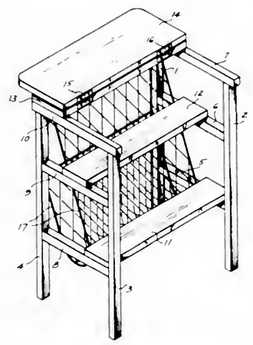
A muffler or silencer, preferably for motor vehicles, adapted to be mounted to the exhaust pipe of an exhaust gas system. The silencer comprises a casing having arranged therein a number of means arranged to impede the passage of a major part of the gas flow and to re-direct said part gas flow rearwardly. Gas through-flow openings are provided at alternate ends of the gas flow re-directing means, between said ends and the casing walls. The arrangement of the through-flow openings is such as to force the gas flow to follow a zig-zag path, and baffle means may be arranged, if desired. The whole device may be made from a heat resistant plastics material.

3,811,532
SOUND REPRODUCTION SYSTEM
Scott F. Everitt, Indianapolis, Ind., assignor to The Indiana National Bank, Indianapolis, Ind.
Division of Ser. No. 222,262, Jan. 31, 1972. This application Feb. 16, 1973, Ser. No. 333,305
Int. Cl. G10k *13/00*; H04r *1/28*
U.S. Cl. 181—156 **13 Claims**

A plurality of generally tubular members of corrugated fiberboard, each rectangular in transverse cross-section and including four panels, are nested one within the other to form a closed six-walled housing, each wall comprising back-to-back panels secured together with the corrugations thereof extending in mutually perpendicular directions, each tubular member being formed of a continuous sheet of fiberboard folded to the tubular configuration and having opposite side edges thereof joined together to form a seam disposed centrally of one of said panels. One form of the invention comprises three tubular members nested together with the axes thereof mutually perpendicular. Another form of the invention comprises two tubular members nested together coaxially, with the inner member having four end flaps at each end thereof disposed in use in a folded configuration wherein opposed flaps are coplanar and joined together to form back-to-back end panels at each end of the tubular member for closing same.

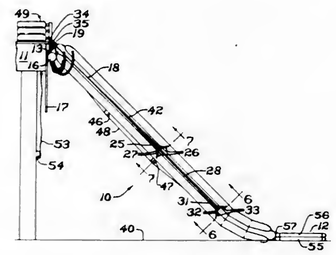


3,811,533
COMBINATION END TABLE, MAGAZINE RACK AND STEP LADDER
Bernice Cocker, Vancouver, British Columbia, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed July 21, 1972, Ser. No. 274,109
Int. Cl. A47c *13/00*
U.S. Cl. 182;28 **1 Claim**



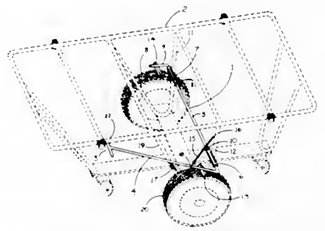
Cross members join the legs of each of two pairs of four spaced legs to each other. Step members join the cross members to each other. The step members include an uppermost step member joining the uppermost cross members to each other. A table member is hingedly affixed to the uppermost step member in a manner whereby the table member is positionable in substantially coplanar relation with the uppermost step member on the uppermost cross members to provide a table top and is positionable in substantially juxtaposed relation with the table member resting on the uppermost step member and providing the uppermost step of a step ladder including the other step members. A magazine rack is mounted under the step members.

3,811,534
ESCAPE SLIDE ASSEMBLY
John M. Fisher, Cuyahoga Falls, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.
Filed July 24, 1972, Ser. No. 274,500
U.S. Cl. 182—48 **9 Claims**



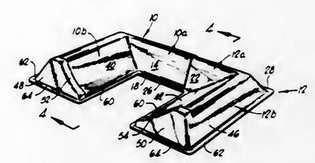
An escape slide assembly having a long inflatable ramp which is inflated from the folded condition to an extended condition for evacuating people from an elevated platform to a lower surface. The slide is hinged to the platform for swinging movement about a horizontal axis and upper and lower guy straps attached to both sides of the slide are connected to outrigger tripods on the platform at positions on the horizontal hinge axis and laterally spaced from the slide providing resistance to lateral displacement of the slide during inflation and after it is fully extended.

3,811,535
VEHICLE BRAKE
Joe R. Preusser, 160 N. Collingsworth, El Paso, Tex.
Filed Feb. 23, 1973, Ser. No. 335,130
Int. Cl. B60t *1/04*
U.S. Cl. 188—29 **6 Claims**



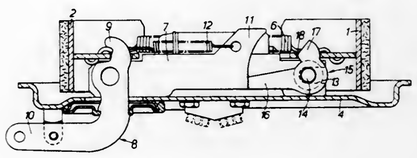
A parking brake is described for use on materials handling vehicles or other small carts. The brake comprises an engagement lever for mechanically engaging the brake shoes against the vehicle's wheels. The lever is mounted on the side of the vehicle with a handle at one end and is connected at its other end at right angles to an axis which is generally parallel to the axle on which the wheels of the vehicle turn and runs through bearing means which are attachable to the base of the vehicle. Stops located on the axis engage the bearing means and prevent excessive lateral movement of the device. The brake shoes are, respectively, mounted directly on the engagement lever and a shorter lever connected at right angles to the opposite end of the axis. Means are also provided for latching the engagement lever with the shoes either engaging the vehicle wheels or out of contact with the wheels.

3,811,536
CHOCK
Freddie J. Haynes, 3612 Meadowbrook, Midwest City, Okla.
Filed July 24, 1972, Ser. No. 274,176
Int. Cl. B60t *3/00*
U.S. Cl. 188—32 **11 Claims**



A chock for aircraft or other vehicles having ground engaging wheels, including a pair of adjustably engaging chock halves defining a generally U-shaped chock. Each of the chock halves is made of a strong, relatively lightweight synthetic resin, and is of generally triangular cross sectional configuration. Each chock half is of L-shaped configuration and includes an arm configured to register with a corresponding arm of the other chock half when the chock halves are slidably engaged. A securing member is provided for locking the two halves of the chock in a selected position when the chock is in position for brakingly engaging the opposite sides of a tire or wheel.

3,811,537
SHOE DRUM BRAKES
Hugh Grenville Margetts, Leamington Spa, England, assignor to Girling Limited, Tyseley, Birmingham, England
Filed Sept. 22, 1972, Ser. No. 291,170
Claims priority, application Great Britain, Aug. 23, 1971, 44500/71; July 29, 1972, 35551/72
Int. Cl. F16d *65/54*
U.S. Cl. 188—79.5 P **6 Claims**

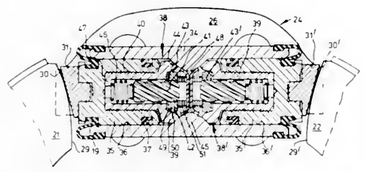


One part of a two-part strut of adjustable length extending between arcuate shoes of a shoe-drum brake adjacent to their actuated ends is formed by a bell-crank lever which is pivotally mounted in the other part, and one arm of the lever is engaged in a slot of limited length in a shoe web while the second arm co-operates with a toothed element rigid with said other part.

3,811,538
BRAKE ADJUSTERS
Glyn Phillip Reginald Farr, Kenilworth, England, assignor to Girling Limited, Birmingham, England
Filed Mar. 19, 1973, Ser. No. 342,359
Claims priority, application Great Britain, Mar. 23, 1972, 13563/72
Int. Cl. F16d *65/56*
U.S. Cl. 188—79.5 GE **21 Claims**

A slack adjuster for a drum or disc brake has a housing, preferably in the form of a cylinder body; a first member, preferably a hydraulic piston, slidable in the housing and a second or strut member normally resting against a stop in the

housing. A non-reversible screw-threaded connection between the first and second members comprises an internal thread on the former and an external thread on the latter. The adjuster includes a screw member fixed relative to the housing and a drive ring member. A reversible screw-thread connection is formed by an external thread on the screw member and an internal thread on the drive ring member. Mating clutch surfaces are provided on the second member and the drive

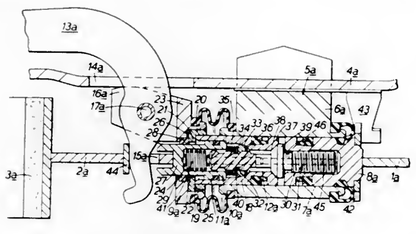


ring and are normally urged towards one another. The normal brake slack is accommodated by axial clearance, preferably at the reversible screw-thread connection. When lining wear has taken place the axial clearance is taken up and slight rotation occurs at the reversible screw-thread. Upon brake release, slight rotation occurs in the opposite direction and this is transmitted to the non-reversible screw-thread connection via the clutch surfaces.

3,811,539
INTERNAL SHOE-DRUM BRAKES

Glyn Phillip Reginald Farr, Kenilworth, England, assignor to Girling Limited, Tyseley, Birmingham, England

Filed Nov. 6, 1972, Ser. No. 303,929
Claims priority, application Great Britain, Nov. 12, 1971, 52569/71
Int. Cl. F16d *65/16*
U.S. Cl. 188—106 A **14 Claims**



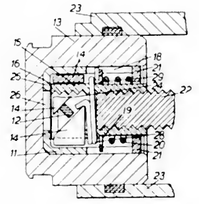
In an internal shoe-drum brake a first and second pair of pistons working in a double ended hydraulic cylinder act to separate the shoes for normal service braking. A lever acting on one shoe is pivotally connected to a third piston which is interposed between the first and second pistons and acts on the other shoe through the second piston when the lever is moved angularly in a brake applying direction about its pivotal connection with the third piston.

3,811,540
SELF-ADJUSTING DEVICE FOR DISC BRAKES

Wilhelm Knapp, Banngarten, and Siegfried Ohmayer, Odenwaldring, both of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Sept. 22, 1972, Ser. No. 290,283
Claims priority, application Germany, Oct. 11, 1971, 2150636
Int. Cl. F16d *65/56*
U.S. Cl. 188—196 D **15 Claims**

There is disclosed a self-adjusting device for the brake lining clearance of a hydraulically actuated spot-type disc brake having a cup-shaped actuating piston. The piston is contained in the hydraulically actuated brake cylinder. A spring housing is inserted into the piston and is resiliently clamped in position therein by the interior surface of the piston. A threaded adjusting spindle and an adjusting nut threaded onto the spindle in a self-locking manner are disposed coaxially within the housing. An engaging element having an inclined ramp is disposed coaxially about the nut and which upon adjustment is

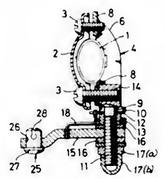


in a torsionally locked connection with the nut. A spring is disposed within the housing coaxial of the exterior surface of the nut and is in a cooperative relationship with the engaging element. A post is fixed to the inner surface of the housing and cooperates with the ramp to enable the desired adjustment. The desired clearance between the disc of the disc brake and the brake lining is provided by the cooperating threads of the spindle and the nut.

3,811,541
APPARATUS FOR ATTACHING A CENTER PULL TYPE BRAKE TO A BICYCLE

Junihiko Yoshikawa, Soka, Japan, assignor to Kabushiki Kaisha Yoshikawa Seisakusho, Tokyo, Japan

Filed Aug. 7, 1972, Ser. No. 278,704
Claims priority, application Japan, Mar. 31, 1972, 47-37242; Mar. 31, 1972, 47-37243
Int. Cl. B62l *1/14*
U.S. Cl. 188—206 R **5 Claims**



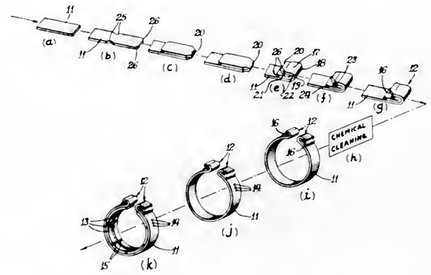
To support a pivotable rod, bearing a brake shoe, on a branch of the front fork of a bicycle, a clamp is provided consisting of two parts, one of which is formed of bent sheet metal especially shaped to hold a bolt on which said pivotal rod is supported.

3,811,542
BAND BRAKE AND METHOD FOR MAKING SAME

Oscar Hamrick, Elmwood, and Orville E. Kessinger, Jr., Mackinaw, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 6, 1972, Ser. No. 304,083
Int. Cl. F16d *69/00*
U.S. Cl. 188—259 **5 Claims**

A band brake comprises a one piece flexible band having an anchor formed on each end thereof by reverse folding integral extensions of the band. The band is stretch-formed to its desired diameter on a like configured die member and a segmented brake lining is secured to inner surface portions thereof.



3,811,543
GARMENT BAG

Maxime Parrochia, Frontonas, Isere, France

Filed Oct. 3, 1972, Ser. No. 294,550
Int. Cl. B65d *3/00*
U.S. Cl. 190—43 **5 Claims**



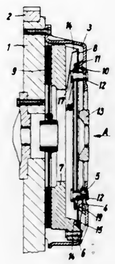
A garment bag of the folding type is provided with a flat, hollow, open ended cover, having a pair of major side surfaces. A grip is fixed to each end of the cover, each grip extending along the entire periphery of the end and having a pair of outwardly extending, oppositely disposed handles integrally formed therein. The grips at each end may be locked together in order to close the respective end and, when the bag is folded, the grips of one end may be locked to the grip of the other end to facilitate carrying.

3,811,544
CLUTCH WITH SPRING LOADED OPERATOR FULCRUM

Paul Maucher, Neuweier, Germany, assignor to Luk Lamellen- und Kupplungsbau GmbH, Buhl, Baden, Germany

Continuation of Ser. No. 838,611, July 2, 1969, abandoned. This application Oct. 8, 1971, Ser. No. 187,868
Int. Cl. F16d *13/44*
U.S. Cl. 192—89 B **10 Claims**

Friction clutch includes a flywheel and a cover fastened thereto and having a wall portion spaced therefrom, a pressure plate disposed in the space between the flywheel and the wall portion and connected to the cover, a rotatable entrainment disc mounted in the space, a clutch plate spring disposed between a pair of annular seats and forming therewith and with the cover a unitary structure, the clutch plate spring being swingably mounted, and spring-loaded means for supporting the seat located on one side of the clutch plate spring, the pressure plate being engageable by the clutch plate spring

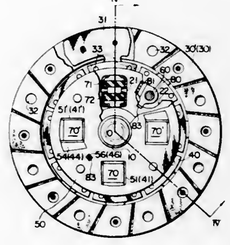


so as to be axially displaced toward the entrainment disc and the flywheel.

3,811,545
CLUTCH DISC WITH FRICTION AND RESILIENT DAMPERS

Kiyoomi Sato, and Takashi Ishidera, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

Filed Feb. 15, 1972, Ser. No. 226,621
Claims priority, application Japan, Feb. 19, 1971, 46-7829
Int. Cl. F16d *3/14*
U.S. Cl. 192—106.1 **1 Claim**



In a friction clutch disc having damper members for resiliently connecting a driving member and a driven member, a means for changing the friction between said two members in accordance with the relative torsional displacement between said two members.

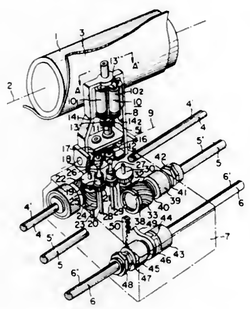
3,811,546
MECHANICAL PRINTER

Takami Suzuki, Fujisawa, and Koh Matsuhisa, Ninomiyamachi, both of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1972, Ser. No. 247,946
Claims priority, application Japan, Apr. 30, 1971, 46-28781
Int. Cl. B41j *23/04*
U.S. Cl. 197—18 **4 Claims**

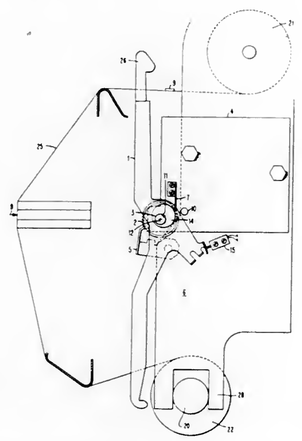
A mechanical printer with a plurality of typing wheels which are pivotable separately from the carrier is provided in which an outer shaft which causes the typing wheels to revolve in unison around the axis thereof and an inner shaft which causes

rotations of the typing wheels on their own axes are coupled to driving shafts through universal joints to permit the separate



pivoting, and at least one driving shaft is provided with an Oldham's coupling obviating the need for strict alignment of the driving shafts.

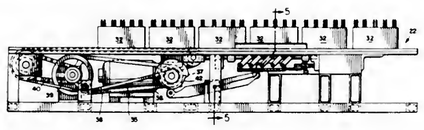
3,811,547
CYCLICALLY ROTATABLE ECCENTRIC PIVOT FOR RIBBON REVERSE LEVER
Donald William Brearley, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 31, 1972, Ser. No. 285,264
Int. Cl. B41j *33/44*
U.S. Cl. 197—165 **2 Claims**



An eccentric mounting for a ribbon reverse lever which provides a different portion of the ribbon at the print position each time the ribbon reverses its winding direction.

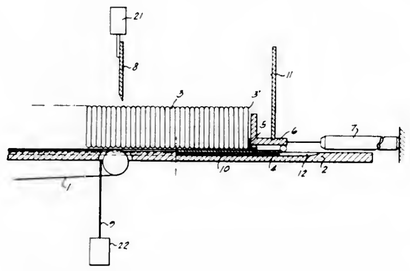
3,811,548
STOP MOTION CONVERTER
Frederick R. Neff, 2993 Curtis Ave., Des Plaines, Ill.
Filed Sept. 5, 1972, Ser. No. 286,014
Int. Cl. B23q *5/22*
U.S. Cl. 198—19 **4 Claims**

There is provided a stop motion conveyer for advancing a series of work holders in step-by-step relation to a work station from a continuous supply of work holders, each of the work holders having a plurality of work positions sequentially alignable at the work station. The conveyer includes a table supporting the work holders through their movement past the work station. A drive mechanism is provided reciprocable through advance and return strokes and engageable with a forward one of the work holders. The drive mechanism includes a retracting mechanism for disengaging the drive mechanism during a return stroke. Additionally, a stop mechanism is provided synchronized with the drive mechanism and engageable



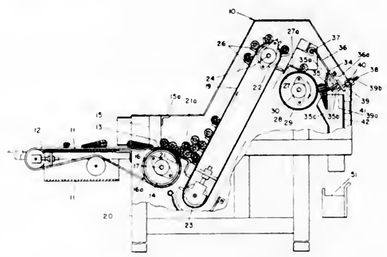
with the next one of the work holders for retarding the advancement thereof until the drive mechanism has advanced the forward one of the work holders out of the path of travel of the next one of the work holders. Thus, the second and subsequent work holders are biased in abutting relation toward the work station, and the stop means retards the forward movement of the second and subsequent work holders and prevents them from running into and dislocating the forward one of the work holders as it passes through the work station.

3,811,549
APPARATUS FOR HANDLING A FLOW OF BOXES
Roland Preisig, Yens, Switzerland, assignor to J. Bobst & Fils SA
Filed May 10, 1973, Ser. No. 358,959
Int. Cl. B65g *47/00*
U.S. Cl. 198—21 **7 Claims**



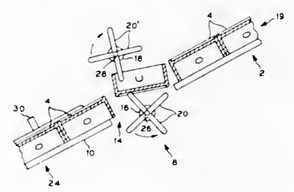
An apparatus for handling a plurality of articles, such as folded or collapsed boxes, which are received as a flow of articles moving in one direction from a conveyor device, characterized by a table arranged to receive the articles from an end of the conveyor device and having a pair of slots in a surface thereof, a pair of skates or skids received in the parallel slots and displaceable therealong for receiving the articles as they are deposited onto the table to transport the article across the table out of contact with the surface of the table. The device further includes a moveable stop which engages the skate combination and urges them in a direction toward the conveyor device and a brake device acting on the moveable stop to control the movement of the skate and flow of boxes across the table.

3,811,550
APPARATUS FOR ORIENTING TAPERED ARTICLES
Fortunato S. Ajero, South Milwaukee, Wis., assignor to Hughes Co., Inc., Columbus, Ohio
Filed Aug. 14, 1972, Ser. No. 280,335
Int. Cl. B65g *47/24*
U.S. Cl. 198—272 **15 Claims**



Apparatus for orienting tapered articles, having a horizontal rotating cylinder, a conveyor for individually depositing randomly oriented tapered articles on the outer surface of the cylinder, and a moveable traction plate adjacent to the descending side of the cylinder outer surface for pinching the larger end of each tapered article against the descending cylinder surface while permitting the smaller end of the article to gravitate downwardly between the surface and the plate at a faster rate of speed than that of the descending surface to orient the article smaller-end-first as it is released downwardly from between the descending surface and the plate.

3,811,551
APPARATUS AND METHOD FOR ORIENTING ARTICLES
William R. Eddy, c/o Phillys Petroleum, Kansas City, Mo.
Filed Jan. 15, 1973, Ser. No. 323,790
Int. Cl. B65g *47/24*
U.S. Cl. 198—288 **9 Claims**

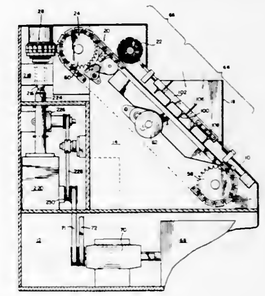


A method and apparatus for orienting articles having a concave side and a convex side by ejecting unoriented articles from a feedstream of said articles.

3,811,552
CAPSULE INSPECTION APPARATUS AND METHOD
William D. Wagers, Jr.; Willard J. Vandenberg, both of Indianapolis; Robert L. Bollman, Mooresville; Robert E. Ramsey, Indianapolis; Daniel G. Swisher, Indianapolis, and John E. Taylor, Jr., Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
Division of Ser. No. 105,262, Jan. 11, 1971. This application Jan. 31, 1973, Ser. No. 328,454
Int. Cl. B65g *47/24*
U.S. Cl. 198—253 **9 Claims**

Apparatus for handling medicinal capsules at high rates, e.g., 900 per minute, to present them in succession, in uniform orientation, at an inspection position and there spin them on their axes to expose their entire surfaces for inspection as by optical means. Bulk capsules are loaded from a hopper into the cavities of a chain conveyor running up an incline. A pair of spaced rolls define a feed slot from the hopper to the conveyor along the line of cavity travel. The rolls rotate outward to move misaligned capsules away, induced air flow urges aligned capsules through the slot and into the cavities, and an agitator bar dislodges capsules from double-filled cavities.

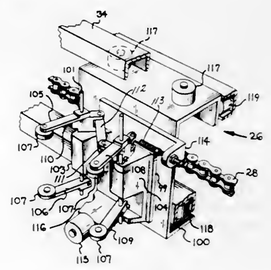
To rectify body-forward capsules to cap-forward position, each cavity has a bottom slot between side ribs, which will pass the body but retain the cap of the capsule. As the cavity moves off the end of a capsule-supporting rail, a forward capsule body is swung downward by gravity and induced airflow



through the slot to tilt the capsule to an upright position. A brush then tilts the upright capsule forward, and a camming belt moves it to a cap-forward position in its cavity.

Pick-up transfer fingers in the upper conveyor sprocket wheel are advanced through the cavities to lift the capsules therefrom on suction seats and transfer them to an inspection head at a loading station. The inspection head has a ring of parallel rolls, each pair of which forms a groove in which a capsule is retained by air flow. The head indexes to carry capsules from the loading station to an inspection station where rotation of the rolls spins each capsule on its axis to expose its entire surface for optical inspection. The capsules are discharged at a reject or accept station, depending on the inspection result.

3,811,553
PHASE COMPENSATED MULTIPLE MOVING HEAD INSPECTION APPARATUS
Darius O. Riggs, Ottawa Lake, Mich., assignor to Owens-Illinois, Inc., Toledo, Ohio
Division of Ser. No. 209,144, Dec. 17, 1971. This application May 11, 1973, Ser. No. 359,247
Int. Cl. B65g *47/24*
U.S. Cl. 198—283 **3 Claims**



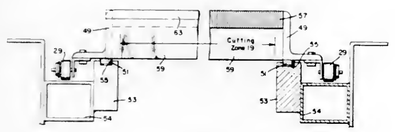
Apparatus and method for driving three article inspection stations out of phase with one another for inspecting moving

articles with a minimum expenditure of drive power. In this invention, three inspection station drive mechanisms are utilized. Each of the three drive mechanisms is an identical unit utilizing a cam to produce an oscillating output from an arm, the cam being driven by a continuously rotating input shaft. Each of the three units are coupled in series in a linear array and driven by a common drive motor. A split coupling is used to connect the three drive units together, allowing the phase of the cams contained within the unit to be set independently. The oscillating arms are set out of phase with each other by approximately 120°. The oscillating output arms drive article inspection stations on which are mounted inspection apparatus. The motion of the article inspection stations is such that, as articles are precessed past each station, the station tracks the article for a period of time at a constant velocity and inspects the article for various attributes, the station then returning to its starting point at a velocity greater than the inspecting velocity to pick up and track the next container presented to it. This function is performed by all three inspection stations on each article that passes through the inspection apparatus. By driving the three drive units out of phase with one another, the power needed to accelerate one unit may be furnished, in part, from the deceleration of another unit in the series drive train. Thus, the total power required to drive the apparatus is reduced and the fluctuations within the system caused by relatively high transfers of power from acceleration to deceleration is reduced, thereby allowing the operation of the system without the use of an energy storage element, such as a flywheel, to help absorb these large fluctuations in power requirements.

3,811,554
WORKING SURFACE FOR RADIANT ENERGY BEAM CUTTER

Georgette S. Egan, Granada Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Substitute for Ser. No. 176,497, Aug. 31, 1971, abandoned. This application Jan. 19, 1972, Ser. No. 218,896
Int. Cl. B65g *17/06*
U.S. Cl. 198—131 **3 Claims**



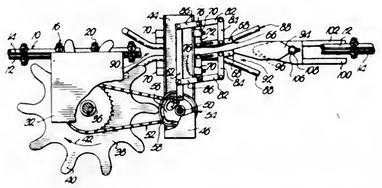
A cutting surface for a laser cutter is formed of a plurality of slats assembled into an endless conveyor belt, or alternatively into a slidable tray, for carrying material toward and away from the cutting area. In order to prevent damaging reflection of the laser beam the slats have a honeycomb core held rigid by knife-edged support members.

3,811,555
DIVIDER MECHANISM FOR ARTICLE CONVEYORS

Donald J. Scheier, Kansas City, Mo., and James A. Bonuchi, Merriam, Kans., assignors to Johnson Gordon Company, Kansas, Mo.

Filed Apr. 1, 1969, Ser. No. 812,072
Int. Cl. B65g *17/20*
U.S. Cl. 198—177 **13 Claims**

Articles hanging from a conveyor are deflected out of their normal path of advancement by swingable fingers actuated by the article supporting units. The arrangement is such as to deflect one of any number of units while those not deflected

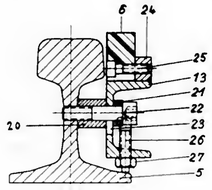


continue their normal course. Guide rails receive the deflected units and hold them within a separate path for a predetermined distance of travel.

3,811,556
CONVEYOR APPARATUS, ESPECIALLY FOR SECTIONAL STEEL

Gerhard Kaiser, Metzingen, and Gerhard Faiss, Reutlingen, both of Germany, assignors to Gustav Wagner Maschinenfabrik, Reutlingen, Germany

Filed Aug. 2, 1972, Ser. No. 277,297
Claims priority, application Germany, Dec. 16, 1971, 2162605
Int. Cl. B65g *15/60*
U.S. Cl. 198—204 **8 Claims**



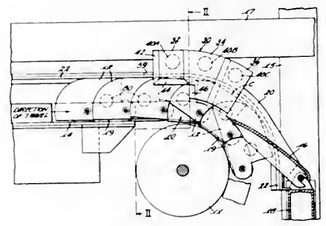
The present conveyor apparatus is adapted for moving sectional steel to machining stations whereby the sectional steel is carried by means of roller chains across steel rails of a cross conveyor to main conveyor means. For avoiding a screeching noise, bars of synthetic material are arranged alongside at least one side of said steel rails to reach slightly above the top surface of the steel rails whereby the sectional steel may slide along said bars of synthetic material. Preferably, the synthetic material bars are adjustable in their elevational position relative to the respective rail to compensate for wear and tear.

3,811,557
SIDE STRIPPER FOR RAVELING GRATE CONVEYOR

Walter J. Hartwig, Hartland, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Mar. 26, 1973, Ser. No. 345,231
Int. Cl. B65g *45/00*
U.S. Cl. 198—230 **20 Claims**

An assembly for scraping and sealing the inner surface of the side wall of a traveling grate conveyor contiguous the discharge end of the upper run of the conveyor. A similar assembly is provided for each of the opposite side walls of the grate conveyor. The assembly comprises a plurality of hollow fluid-cooled plows which are positioned in abutting relation to each other lengthwise of the conveyor and contiguous the inner surface of the conveyor side wall at a location in the region where the conveyor strand is about to turn, or has started to turn, about the head shaft at the discharge end of the conveyor. At least one of the plows is provided with a scraping edge which deflects the conveyed material from adjacent the inner surface of the corresponding side wall of the conveyor to a position laterally inwardly of the side wall. The plows also serve to close the clearance space between the sealing plate and the upper edge of the conveyor side plates (a plurality of pivotally connected side plates define the side wall) in the region where the conveyor strand turns, whereby to prevent lateral spillage of material being conveyed, such as ore pellets, through this clearance space. Each of the plows which constitute the scraping and sealing assembly is rigidly connected to a cooling fluid (air) supply pipe which is mounted for axial movement in a direction laterally of the conveyor strand. The

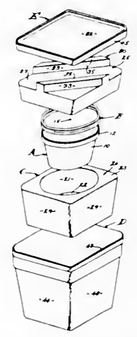


cooling fluid is circulated through the hollow interior of the plows. The plurality of air supply pipes also are rigidly connected to a guide plate lying laterally outwardly of the conveyor side plates. The relation between the plow members, the conveyor side plates, and the guide plate provides a "follower" arrangement whereby lateral expansion or contraction of the conveyor strand causes corresponding movement of the air supply pipe members and hence of the plows and guide plate attached to the air supply pipe members. This follower movement insures that the plows are maintained in proper scraping and sealing relation at all times to the inner surface of the conveyor side wall, while at all times maintaining a predetermined working clearance of the conveyor side plates relative to the guide member and relative to the plows.

3,811,558
CONDITIONED FOOD TRANSPORT CONTAINER

Robert L. Burk, 417 S. Lucerne Blvd., Los Angeles, Calif.

Filed July 21, 1972, Ser. No. 273,970
Int. Cl. A45c *11/20*
U.S. Cl. 206—4 **3 Claims**

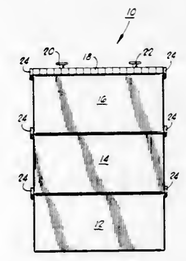


A container for the transport of a serving of food at the temperature condition required therefor, together with supplements to be added thereto according to taste, and compartmented so as to accommodate utensils appropriate to be used in consuming the contained food. Sanitation and cleanliness is of prime concern, the container being characterized by replaceably expendible components, each serving its particular function and cooperatively related so as to maintain the food in its optimum prepared condition for appetizing exposure to the consumer.

3,811,559
PICNIC ACCESSORIES

John A. Carter, 143 W. Riekenhaeker, Midwest City, Okla.

Filed Aug. 17, 1972, Ser. No. 281,308
Int. Cl. A45c *11/20*; **B65d** *21/02*
U.S. Cl. 206—4 **8 Claims**

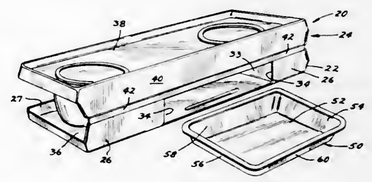


An apparatus for unitary assembly to carry diverse picnic supplies, such apparatus being light in weight while having desirable insulative and other functional attributes. The apparatus consists of a stackable series of insulated containers which are light in weight, individually insulative, and individually adapted for specific storage or utilitarian function. Individual modular containers of the unit may include such as a charcoal grill section, cold food storage section, dry food storage and still other specifically designated compartments.

3,811,560
CLOSABLE DINNER SERVICE

Paul K. Schilling, and Thomas H. Eckdahl, both of St. Paul, Minn., assignors to Plastics, Inc., St. Paul, Minn.

Filed Oct. 27, 1972, Ser. No. 301,471
Int. Cl. A45c *11/20*; **B65d** *21/02*
U.S. Cl. 206—4 **10 Claims**

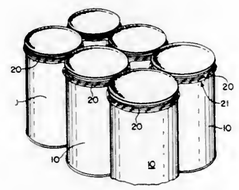


A closable dinner service device including a case having a body and a cover adapted to close said body and be opened relative to said body and in open position forming a serving tray, an opening formed in a wall of said body through which a food tray is inserted when the device is closed, the opening being closed by a side wall of the cover when the device is opened into tray formation, the side wall of the body and the side wall of the cover being hinged and an insert tray adapted to be received in the cover in overlying relation to the food tray with the cover closed upon the body, the service providing a substantially rigid tray when in opened extended condition.

3,811,561
CONTAINER CARRIER

Ougljesa Jules Poupitch, Lojolla, Calif., assignor to Illinois Tool Works Inc., Chicago, Ill.

Continuation of Ser. No. 131,625, April 6, 1971, Pat. No. 3,713,684. This application Aug. 31, 1972, Ser. No. 285,280
Int. Cl. B65d *85/62*
U.S. Cl. 206—161 3 Claims

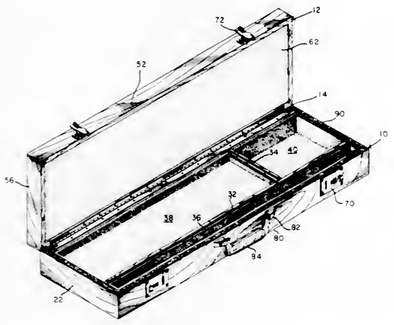


Formed wire ring carrier arrangements for retaining and transporting a plurality of containers.

3,811,562
GUN CASE

Samuel Smith, 3105 June St., Lake Charles, La.

Filed Mar. 29, 1972, Ser. No. 239,150
Int. Cl. B65d *85/54*
U.S. Cl. 206—317 1 Claim

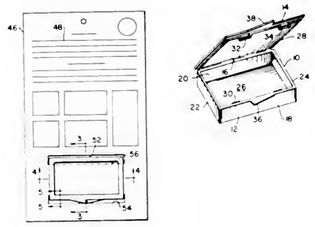


A gun case having an elongated rectangular shape including a base and a cover hinged to the base, both parts being made from marine plywood with an external layer of sheet Formica material. The various side and end walls forming the cover and the base are glued together while the joints are also secured through mortise and tenon arrangements. The base is partitioned into a first elongated compartment extending between the ends thereof for receiving the barrel of a gun, a second elongated compartment wider than the first for receiving the stock of the gun, and a third compartment for receiving other parts such as trigger mechanism or shells, etc. Foam padding is provided on the inside of the cover and in the compartment which receives the stock for ensuring that the latter is properly held in the case against movement when the cover is closed. A cloth lining of acrylic pile covers the interior of the case, and a felt strip is placed on the edges of the base to engage the edge of the cover when closed. An aluminum handle is provided on the front side of the base and combination latch and lock mechanisms are provided for releasably securing the cover to the base.

3,811,563
PACKAGE STRUCTURE

William L. Fox, II, 35785 Restmore, Mt. Clemens, Mich.

Filed July 3, 1972, Ser. No. 268,649
Int. Cl. B65d *43/10, 43/16, 73/00*
U.S. Cl. 206—459 6 Claims

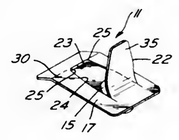


A key case for holding a second key having adhesive material on one surface thereof whereby the case may be attached to the underside of a vehicle hood or the like, which case includes an integral plastic hinge between the box and cover of the case and locking means between the other side of the box and cover whereby the cover is held in spaced apart relation with respect to the box on closing of the case, in conjunction with a display card for the case including a pair of parallel slots therein through which the hinge and locking means extend, with the cover on one side of the card and the box on the other side of the card.

3,811,564
CONTAINER CONSTRUCTION

Robert J. Braber, Harleysville, Pa., assignor to The Lehigh Press, Inc., Harleysville, Pa.

Filed July 12, 1972, Ser. No. 270,945
Int. Cl. B65d *73/00, 83/04*
U.S. Cl. 206—469 6 Claims



A container wherein one wall is flexible and formed with a score adapted to fracture upon flexure to provide an opening into the container.

3,811,565
REINFORCING BAND STRIP

Andrew J. Tancredi, c/o Surprise Plastic Inc., 124 57th St., Brooklyn, N.Y.

Filed Oct. 25, 1972, Ser. No. 300,515
Int. Cl. B65d *25/00, 73/00*
U.S. Cl. 206—478 5 Claims

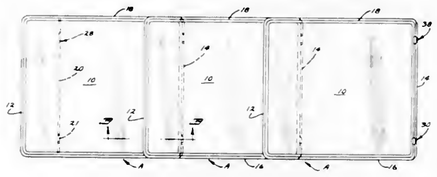
An improved reinforcing band strip including opposed ends. A groove is located at each end and inwardly of each groove is an opening. In one embodiment a slot extends from the base of each groove to the adjacent opening. In a further embodiment a slot extends from the lengthwise edge of the reinforcing band strip to each opening. Still further, transversely disposed inwardly directed fingers can be provided at the end of each groove to prevent a tape passing therethrough from inadvertently slipping therefrom.



3,811,566
TRAY

Robert F. Bateman, St. Paul, Minn., assignor to Plastics, Inc., St. Paul, Minn.

Filed Jan. 24, 1972, Ser. No. 220,229
Int. Cl. B65d *21/04*
U.S. Cl. 206—509 1 Claim



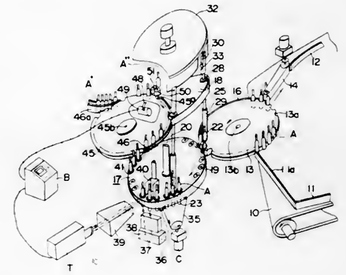
A tray arrangeable and engageable with an identical tray in partially overlapping relation with a portion of the bottom of the underlying tray exposed which includes a bottom having notch means formed on the undersurface thereof and spaced from one end thereof together with upstanding lug means formed on the top surface of the bottom at the opposite end thereof for engagement with the notch means on the bottom of a tray placed partially on the top of the tray.

3,811,567
APPARATUS FOR INSEPCTION OF AMPOULES

Akio Tomita, Tsuneyoshi; Tadakazu Karitani, Hyogo, and Takashi Ohtsuki, Osaka, all of Japan, assignors to Takeda Chemical Industries, Inc., Osaka, Japan

Filed Dec. 18, 1972, Ser. No. 315,827
Claims priority, application Japan, Dec. 22, 1971, 46-104997
Int. Cl. B07c *5/342*
U.S. Cl. 209—73 5 Claims

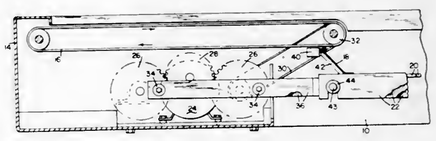
An apparatus for inspection of ampoules wherein ampoules to be inspected are positioned in alignment with a plurality of pairs of holders having inwardly tapering portions, into and by which the shoulder or bottom portions of ampoules are inserted and held, and rotated by the holders without there being any shaking or other movement to cause formation of bubbles in the liquid in the ampoules, and any foreign bodies in the ampoules are illuminated by a source of light without there being reflection of light from other ampoules with the result that inspection of ampoules can be carried out accurately, and without misinterpretation, directly by an operator or by a television camera.



3,811,568
PARTS SEPARATORS

Irving T. Pearson, Sterling, Mass., assignor to Nelmor Co. Inc., Worchester, Mass.

Filed Dec. 13, 1972, Ser. No. 314,853
Int. Cl. B07b *1/12*
U.S. Cl. 209—99 4 Claims



A machine for separating plastic parts from runners comprising a conveyor section carrying the parts from the mold to a separating section. The separating section comprises elongated rods alternating with parallel orbitally movable bars, the bars lifting and conveying runners to the end of the machine and the parts falling between the rods and the bars into a collecting box.

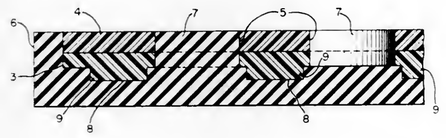
3,811,569
FLOTATION RECOVERY OF MOLYBDENITE

Joseph Floyd Shirley, Tucson, Ariz.; Edward Frank Caropreso, Hightstown, N.J., and George Lamar Fraser, Magna, Utah, assignors to FMC Corporation, New York, N.Y.

Filed June 7, 1971, Ser. No. 150,773
Int. Cl. B03d *1/06*
U.S. Cl. 209—167 14 Claims

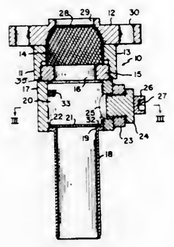
A process for separating molybdenite from copper concentrates containing copper and iron sulfides, gangue materials and an organic collector comprising (1) conditioning the concentrate in aqueous suspension at a pH below about 7 with a soluble metal salt; (2) contacting the so treated concentrate with hydrogen peroxide at pH of about 4 to about 8; (3) subjecting the concentrate from (2) to a soluble iron cyanide and/or a solution of phosphorus pentasulfide in sodium hydroxide while maintaining the pH at no higher than about 8.5 whereby the molybdenite is floated and (4) recovering the enriched molybdenite float.

3,811,570
POLYURETHANE SCREEN WITH BACKING MEMBER
Thomas Holding, Canton; Robert C. Schisler, Akron, and John M. Sawyer, Cuyahoga Falls, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed May 20, 1971, Ser. No. 145,358
Int. Cl. B07b *1/46*
U.S. Cl. 209—399 **6 Claims**



An improved shaker screen having openings therein for the size particles desired, comprising a plastic or hard elastomeric member and a facing member of a polyurethane elastomer having a Shore A hardness of 30 to 90.

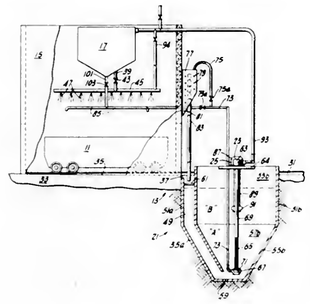
3,811,571
PUMP FILTERS
James F. Woods, Craigsville, and Gary Paul Kerns, Fenwick, both of W. Va., assignors to Standard Hydraulics Service, Inc., Craigsville, W. Va.
Filed July 3, 1972, Ser. No. 268,684
Int. Cl. B01d *35/02*
U.S. Cl. 210—136 **5 Claims**



A pump filter comprises a housing having two independent chambers in communication with each other. The chambers are vertically spaced with the upper chamber being further defined by a mounting plate and the lower chamber communicating with a suction tube. A filter screen is positioned in the upper chamber and the lower chamber includes a swing valve which opens and closes the mouth of the suction tube. A removable plug communicates with the second chamber to permit access thereto.

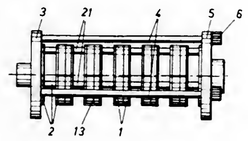
3,811,572
POLLUTION CONTROL SYSTEM
Benjamin F. Tatterson, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Continuation of Ser. No. 27,487, April 13, 1970, abandoned. This application Jan. 17, 1973, Ser. No. 324,436
Int. Cl. B01d *21/00*
U.S. Cl. 210—152 **3 Claims**

A system for controlling pollutants from the quenching station of a coke oven is provided. The system includes a coke breeze sump that is divided into two zones, a coke breeze settling zone and a clean liquid zone. A first pumping means withdraws a thickened sludge of coke breeze, either continuously or intermittently, from the coke breeze settling zone and a second pumping means flows clean liquid from the clean liquid zone to a spray means. The spray means directs the clean liquid onto hot incandescent coke in a quenching car thereby producing quenched coke and a slurry of coke breeze and of liquid. This slurry drains into the coke breeze settling



zone of the sump where the coke breeze settles by gravitational force to form a thickened sludge of coke breeze in the coke breeze settling zone so that clean supernatant liquid collects above the thickened sludge of coke breeze in the clean liquid zone of the sump.

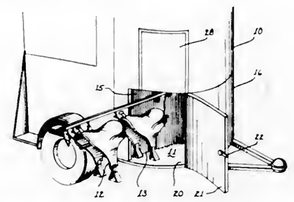
3,811,573
DIALYSIS APPARATUS
Hans Georg Weder, Maurstrasse 42, 8117 Fallanden, Zurich, Switzerland
Filed Dec. 13, 1972, Ser. No. 314,502
Claims priority, application Switzerland, Jan. 10, 1972. 341/72
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **6 Claims**



A dialysis apparatus is disclosed having a plurality of dialysis cells. The apparatus comprises guide rods, end plates held on the guide rods, a plurality of individually spring-loaded pressure members and dialysis cells clamped between the end plates, these press members and dialysis cells being arranged in alternating sequence. Two cell halves of each dialysis cell have annular surfaces facing each other. The press members clamp, in a pressed state, by means of these annular surfaces a membrane between the two cell halves whereby two dialysis spaces are sealed in the two cell halves. The two cell halves also have cylindrical peripheral surfaces facing each other by means of which the cell halves are centered in respect of one another.

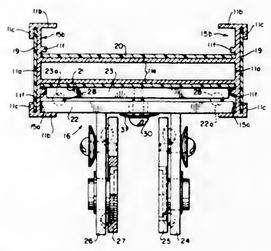
3,811,574
SADDLE HANGER
John R. O'Brien, 321 E. La Diosa Dr., Tempe, Ariz.
Filed Dec. 22, 1972, Ser. No. 317,694
Int. Cl. B60r *11/00*
U.S. Cl. 211—13 **7 Claims**

A saddle hanger is disclosed incorporating an elongated support beam movably mounted within a saddle compartment; the support beam being extendable out of the compartment through an opening therein. An elongated saddle support bar is suspended from the support beam and a plurality of



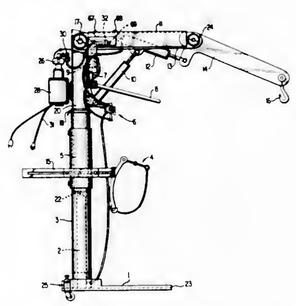
flexible saddle support lines are attached to the beam at one end and detachably secured to the beam at the other end to permit the line to engage the saddlebow of a saddle.

3,811,575
SYSTEM OF CONSTRUCTING DISPLAY RACKING AND SHELVING
Richard A. Boegehold, 5 Greenview Way, Upper Montclair, N.J.
Filed Apr. 5, 1972, Ser. No. 241,333
Int. Cl. A47f *5/10*
U.S. Cl. 211—148 **15 Claims**



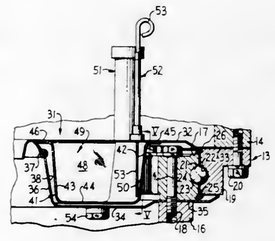
A system for joining two members wherein one member includes opposing wall surfaces defining a track and the other member includes a pair of plates disposed in overlying relation to each other and a control mechanism for moving the plates apart and into frictional contact with the wall surfaces to secure the second member to the first member.

3,811,576
UNIVERSAL ENGINE HEAD LIFT
John Fagen, 2318 W. 4th Ave., Kennewick, Wash.
Filed Feb. 14, 1973, Ser. No. 332,364
Int. Cl. B66c *23/54*
U.S. Cl. 212—35 R **8 Claims**



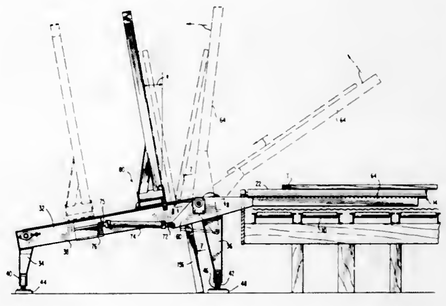
A universal engine head lift having a rectangular base for insertion under the front wheel of an automobile to be worked on, a tubular upright and a two-component boom with a hook for engaging the head of an automobile at the end thereof. The tubular upright has a tire clamp for stabilizing the assembly and truck wheels and a dolly are provided for transporting the assembly. Three hydraulic cylinders with respective control valves determine the angle of the boom and the height and lifting of the boom. Parallel manual and motor actuated hydraulic systems are provided for supplying hydraulic pressure to the cylinders.

3,811,577
ENCLOSED GEAR DRIVE MECHANISM FOR EXCAVATORS
John W. Yancey, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 27, 1972, Ser. No. 238,311
Int. Cl. B66c *23/84*
U.S. Cl. 212—69 **16 Claims**



An excavator comprises an upper unit rotatably mounted on a tracked undercarriage. The upper unit is rotated on the undercarriage by selectively driving a swing pinion against a reaction ring gear secured to the undercarriage. An enclosure forms an annular chamber containing the swing pinion and ring gear, including radially disposed and separated compartments for assuring uniform distribution of a lubricating oil therearound when the excavator is tilted.

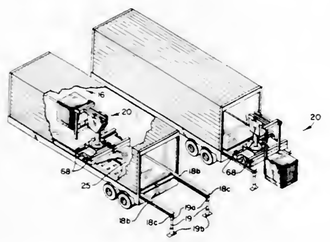
3,811,578
APPARATUS FOR UNLOADING AND STACKING WOODEN STRUCTURAL FRAMES
John Calvin Jurelt, Coral Gables, and Adolfo Castillo, Miami, both of Fla., assignors to Automatic Building Components, Inc., Miami, Fla.
Filed Sept. 19, 1972, Ser. No. 290,315
Int. Cl. B65g *57/28*
U.S. Cl. 214—7 **17 Claims**



Disclosed is a conveyor table disposed at the output end of a structural frame prefabricating line. Unloading and stacking

assemblies to one side of the table carry raising arms underlying the conveyor. Each assembly carries a carriage which mounts a rearwardly inclined stacker arm pivotally mounted for swinging movement from a raised stacking position to a generally horizontally disposed frame unloading position to one side of the associated assembly. The raising arms displace the horizontally disposed frame from the conveyor to a generally vertical but over-center position against the inclined stacking arms. Upon return of the raising arms to the conveyor, the carriages are retracted a distance equal to the width of the frame. Upon retracting movement of the carriages a predetermined distance, the stacking arms are unlocked from the carriage and the weight of the frames is transferred to the arms to maintain them in the upright position. After a predetermined number of frames are stacked, the frames are banded together and lifted from the assemblies whereupon the stacker arms pivot to their generally horizontal position for movement in a forward direction toward the conveyor for receiving additional frames.

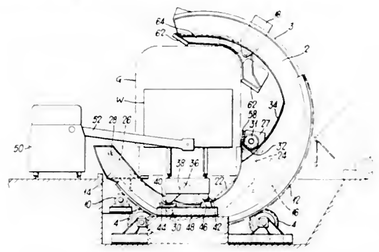
3,811,579
MECHANIZED VAN LOADING AND UNLOADING APPARATUS AND SYSTEM
David F. Black, 3904 Hallmark Dr., Salt Lake City, Utah
Filed Sept. 25, 1972, Ser. No. 291,663
Int. Cl. B65g *67/02*; **B60p** *1/52*, *1/54*
U.S. Cl. 214—38 D **13 Claims**



Apparatus and a system for its use including mechanized means for moving a load of freight, as a unit, into or out of a van-type trailer, and a mechanized carrier for transporting portions of the load thereon which carrier is designed to take up a minimum cubic area within the trailer interior. The mechanized carrier is arranged to travel the length of the trailer and is capable of lateral and vertical movement therein to bring freight supporting means into contact with selected items of freight. The carrier is installed at the rear of the trailer behind or at the face of a load to off-load, at a delivery point, all or part of a load. The mechanized carrier is mounted to travel on rails arranged within the trailer, which railway can be extended out from the trailer and be supported on a dock area or by an appropriate stanchion to the ground below the trailer such that the carrier can exit the trailer thereover and deposit a portion of the load of freight onto the dock area or directly onto the ground below the trailer.

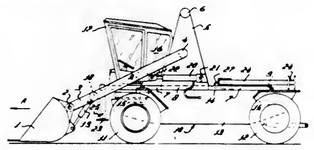
3,811,580
WAGON TIPPLERS
Gilbert Leslie Sheppard, Keynsham, England, assignor to Strachan & Henshaw Limited, Bristol, England
Filed Apr. 16, 1973, Ser. No. 351,411
Claims priority, application Great Britain, Apr. 20, 1972, 18476/72
Int. Cl. B65g *67/54*
U.S. Cl. 214—55 **6 Claims**

A tippler for the discharge of rail wagons has a rail table mounted on a rotary support structure. The structure comprises spaced coaxial end frames of open arcuate form the central axis of the frames being the axis of rotation of the structure. The wagon track on the rail table has its centre line in a vertical plane at or close to said axis of rotation. A charger



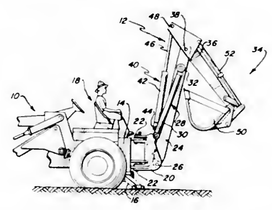
located alongside the tippler has a laterally extending arm and the arcuate forms of the end frames define aligned openings through which the arm passes to entrain wagons onto and from the tippler.

3,811,581
IMPLEMENTS
Cornelis Van Der Lely, Zug, Switzerland
Division of Ser. No. 26,291, April 7, 1970, Pat. No. 3,757,976. This application May 17, 1973, Ser. No. 361,256
Int. Cl. B66f *9/00*
U.S. Cl. 214—131 A **10 Claims**



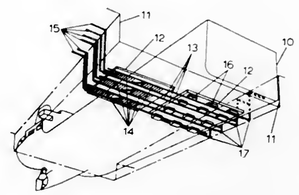
An agricultural tractor has a load supporting area to receive removable working tool and/or container attachments. The supporting area and the attachments have cooperating lifting devices and flaring parts that orient and retain the attachments during operation. Quick release elements are located on the tractor and attachments to cooperate with the lifting devices and lock the attachments in place as same are lowered on the load area. The lifting devices and quick release elements can be hydraulically operated.

3,811,582
BACKHOE BOOM LOCK
John F. Shumaker, Mount Pleasant, and James O. Morehouse, Burlington, both of Iowa, assignors to J. I. Case Company, Racine, Wis.
Filed Feb. 4, 1972, Ser. No. 223,688
Int. Cl. B66f *9/00*
U.S. Cl. 214—138 **11 Claims**



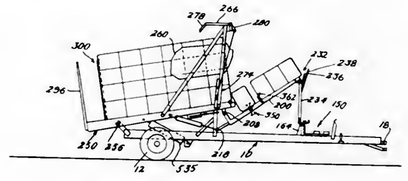
A backhoe is releasably locked to its support by pivotal movement of the backhoe to its transport position and is unlocked by manipulation of the earth working tool ram carried by the boom. The releasable lock consists of a pin carried by either the boom or the support, and a lug having a recess and inclined camming surface for guiding the pin into the recess. Either the pin or the lug is normally biased to a first position and is movable from the first position by interengagement between the pin and the camming surface when the boom is moved to its transport position to locate the pin in the recess and lock the boom to the support. By proper manipulation of the fluid ram associated with the earth working tool, the pin and recess are separated to allow the boom to be pivoted from the transport position.

3,811,583
METHOD FOR MOVING AND LIFTING A SHIP SECTION
Albert Arthur Weeks, Whippingham, England, assignor to British Hovercraft Corporation Limited, Somerset, England
Filed Aug. 7, 1972, Ser. No. 278,229
Claims priority, application Great Britain, Sept. 23, 1971, 44397/71
Int. Cl. B63c *1/02*
U.S. Cl. 214—152 **6 Claims**



The movement of a section of a ship during assembly or repair is facilitated by cushions of pressurised fluid positioned beneath the section, lateral escape of the fluid being prevented by flexible skirts. When in position the section is raised to a desired height by fluid inflatable lift bags. The fluid may be water, and when working in a dry dock is advantageously sea water.

3,811,584
METHOD OF OPERATION OF A SINGLE BALE UNLOADING BALE WAGON
Donald M. Grey, Selma; Lee D. Butler, Kingsburg; Jerry W. Welker, Fresno, and Jack W. Crane, New Holland, all of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Division of Ser. No. 194,305, Nov. 1, 1971, Pat. No. 3,706,389, which is a division of Ser. No. 870,828, June 6, 1969, Pat. No. 3,638,808, which is a division of Ser. No. 755,141, Aug. 26, 1968, Pat. No. 3,502,230. This application Oct. 2, 1972, Ser. No. 294,417
Int. Cl. B65g *57/32*
U.S. Cl. 214—152 **8 Claims**



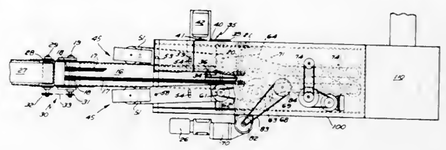
A bale wagon which unloads bales one at a time. The wagon is provided with a bale pick-up, a bale tier former, and a load rack which receives the tiers of bales from the bale tier former. A cross conveyor is mounted on the bale tier former, and when discharging the bales are dropped a tier at a time from the load rack onto the bale tier former, the lowest layer of bales on the tier being engaged by the cross conveyor and discharged, while the layer next above the lowest layer is held from interference with the lowest layer.

3,811,585
METHOD OF PROCESSING TOBACCO IN A BLEND-BULK SILO
Edwin L. Wilding, Louisville, Ky., assignor to Griffin & Company, Louisville, Ky.
Division of Ser. No. 159,823, July 6, 1971, Pat. No. 3,735,881. This application Jan. 22, 1973, Ser. No. 325,548
Int. Cl. B65c *65/32*
U.S. Cl. 214—152 **10 Claims**



A method for processing tobacco, which varies between a single type and a plurality of types, includes a plurality of bulk storing and blending steps. A shuttle car and conveyor carried thereon traverses a longitudinal storage bin or silo as the conveyor is controlled to deposit tobacco placed thereon into the silo beneath the conveyor. To store tobacco, the shuttle is moved incrementally while the conveyor is operated in the direction of that portion of the silo to be charged. To blend tobacco, the shuttle is reciprocated while the conveyor is operated in a direction toward that portion of the silo to be charged so as to deposit a plurality of layers into the silo. The shuttle and conveyor are operable to manually or automatically charge selected portions of the silo. The speed of the conveyor is varied in several of the blending steps to insure layers of even thicknesses. Tobacco is deposited on the conveyor by an additional shuttle and associated conveyor, the speed of the latter also being varied to insure deposited layers of even thickness on the first conveyor.

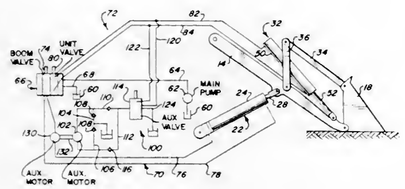
3,811,586
BAG OPENING AND EMPTYING MACHINE
Gilbert V. Lavoie, 311 Elm St., Raynham, Mass.
Filed Feb. 24, 1972, Ser. No. 229,095
Int. Cl. B65g *65/04*
U.S. Cl. 214—305 **4 Claims**



A machine for slitting and emptying bags containing free flowing particles of material. It has a mechanically driven belt conveyor that transports vertically oriented bags along the first portion of a predetermined path. A rotary or stationary knife is positioned at the end of the first portion of the path for slitting the bottom portion of each bag as it passes thereover. Bag flatteners are positioned to extend inwardly over the conveyor from its opposite lateral edges to guide and compress the bags as they approach the knife and also to provide support for keeping the bags vertically oriented. Bag ejector means in the form of pinch rollers are positioned immediately

rearwardly of the knife to grip the top edge of the vertically oriented bags and carry them along a second portion of the predetermined path. Mechanical beaters are positioned on laterally opposite sides of the second portion of the predetermined path to aid in emptying all the particles of material in the bags into the hopper that extends along the bottom of the machine.

3,811,587
HYDRAULIC LEVELING CIRCUIT FOR IMPLEMENT
David H. Seaberg, Davenport, Iowa, assignor to J. I. Case, Company, Racine, Wis.
Filed July 17, 1972, Ser. No. 272,365
Int. Cl. E02f *3/87*
U.S. Cl. 214—763 **13 Claims**



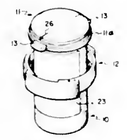
The disclosure relates to a hydraulic circuit for a vehicle having a boom pivoted thereon by a boom ram and a bucket pivoted on the boom by a bucket ram. The hydraulic circuit includes a main pump that supplies fluid under pressure from a reservoir to the boom and bucket rams through control vales. An auxiliary circuit supplies fluid from the reservoir to the bucket ram to maintain the material handling unit at a predetermined attitude with respect to the reference plane and the auxiliary circuit includes a pump that is driven by the flow of fluid between the boom control valve and the boom ram.

3,811,588
BOTTLE
Leon Roger Vermeerbergen, Ol Lagnieu, and Guy Antoine Flamand, Chalon-sur-Saone, both of France, assignors to Saint-Gobain Industries, Neuilly sur Seine, France
Filed Apr. 6, 1972, Ser. No. 241,708
Claims priority, application France, Apr. 8, 1971, 71.12439
Int. Cl. B65d *1/02*
U.S. Cl. 215—1 C **7 Claims**



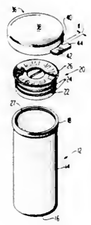
A bottle of especial utility is disclosed. The bottle may be made of synthetic material as polyvinyl chloride. The bottle is formed by the rotation of a faired generating line made up from a straight linear segment and arcs of selected radii and centers about a central longitudinal axis. The linear segment of the generating line is parallel with the axis and the arcs are tangent at their points of juncture with each other and with the linear segment. The generating line thus rotated defines a form from which a mold is readily and inexpensively made to produce a bottle having adequate strength. The bottle may be used to contain, in particular, carbonated and like beverages or liquids. The bottom of the bottle is interiorly convex reentrant shape and has an exterior integral diametral reinforcing rib.

3,811,589
CHILD-RESISTANT CONTAINER ASSEMBLY AND COMPONENTS THEREOF
Theodore Wayne Thornton, and Ronald W. Thornton, both of 2036 Laird Dr., Salt Lake City, Utah
Filed May 30, 1972, Ser. No. 257,774
Int. Cl. B65d *55/02*
U.S. Cl. 215—9 **13 Claims**



A safety latching ring, for protecting cylindrical medicine vials and other containers having cylindrical mouths provided with snap-on closure caps from being opened by children, is provided with a latch chamber internally thereof for each of the usual laterally projecting tabs of the closure cap. The latch chamber has frictionally restricted entry and exit, so that, in their latched relationship, the cap and the protective latching ring freely rotate in unison relative to the vial to thereby prevent opening of the vial unless the cap is pressed tightly against the vial rim. Such pressure frictionally anchors the cap to the vial, permitting the latching ring to be rotated relative thereto for moving each tab into or out of its latching chamber. The combined pressing and turning actions necessary to release the latching ring from the vial cap are too much for children to manage. The vial cap preferably has two, three, or even more tabs symmetrically arranged and the latching ring a corresponding number of latch chambers correspondingly arranged. For added safety, the vial and vial cap are both shouldered circumferentially to mate with corresponding formations of the latching ring and prevent anchoring pressure from being transmitted from the latching ring through the cap to the vial.

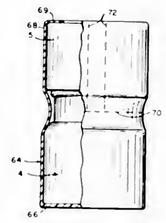
3,811,590
SAFETY MEDICINE BOTTLE CLOSURE
Samuel Hall, Jr., Brooklyn, N.Y., assignor to Plastic Container Corporation, Brooklyn, N.Y.
Filed June 30, 1972, Ser. No. 268,198
Int. Cl. B65d *55/02*; **A61j** *1/00*
U.S. Cl. 215—9 **7 Claims**



A safety container closure for small plastic medicine bottles. A plug is inserted into the top or neck, in a tight friction-

fit. The plug carries a key recess. An outer cap fits over the top of the container, and carries a key molded to it. The key is placed into the recess, and the plug engaged for withdrawal. An upper rib on the plug fits into a groove in the container to inhibit dislodgement.

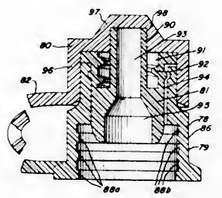
3,811,591
DUALLY SEALABLE, NON-LEAKING VIAL FOR SHIPPING RADIOACTIVE MATERIALS
Howard Novitch, Walnut Creek, Calif., assignor to New England Nuclear Corporation, Boston, Mass.
Division of Ser. No. 190,490, Oct. 19, 1971. This application Oct. 16, 1972, Ser. No. 297,810
Int. Cl. B65d *65/28, 85/70*
U.S. Cl. 215—12 R **4 Claims**



A dually sealable, non-leaking vial for shipping liquid radioactive materials, particularly sterile radioactive materials, and other sterile liquid materials in which the mouth of the vial, as shipped, is sealed by a needle pierceable septum seal and in which a threaded cap is located and held over the septum seal and mouth with the threads thereby held out of engagement with mating threads on the vial by the septum seal. However, upon removal of the septum seal after shipment, the threads of the cap mate with the threads of the vial whereby the cap can be removably threaded tightly over the mouth to seal it.

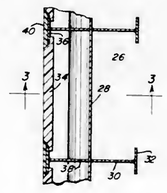
The capped and septum-sealed loaded vial is placed in a heat shrinkable plastic envelope having a bottom end wall and an upstanding cylindrical wall of greater height than the capped, septum-sealed vial and of lesser thickness than the bottom end wall and the envelope is heat shrunk circumferentially, tightly and sealably around the capped septum-sealed vial with the upper part of the envelope being shrunk circumferentially and downwardly tightly over the margin of the upper surface of the cap to securely seal the capped septum-sealed vial.

3,811,592
RECEPTACLE CLOSURE CAP
John F. Dye, Barrington, Ill., assignor to The Kendall Company, Boston, Mass.
Filed Dec. 22, 1971, Ser. No. 210,921
Int. Cl. B65d *47/12, 47/32*
U.S. Cl. 215—73 **6 Claims**



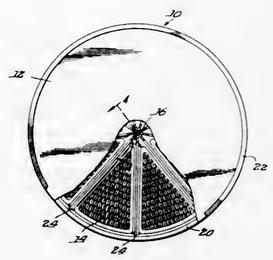
A receptacle for collecting fluid samples including, a vial having a fluid retention cavity opening through the top of the vial. The receptacle has a closure member which is removably secured to and covers the top of the vial. The closure member has a passageway communicating between the vial cavity and the outside of the closure member when the closure member is secured to the vial. The receptacle also has a cap which is removably secured to the closure member and which covers the outer end of the passageway relative to the vial cavity. The closure member is secured to the vial and the cap is removed from the closure member to take fluid samples through the passageway, and the cap is secured to the closure member to cover the passageway for retaining collected samples in the vial. The secured cap and closure member are removed from the vial to provide access to the collected samples.

3,811,593
DOUBLE WALL CARGO TANK HAVING INSULATING SECONDARY BARRIER
Thomas F. Bridges, Port Washington; Petros Lalangas, Bronx, both of N.Y., and Carl H. Sjostrom, Cranberry, N.J., assignors to John J. McMillen Associates, Inc., New York, N.Y.
Filed Jan. 27, 1971, Ser. No. 110,042
Int. Cl. B65d *25/18*
U.S. Cl. 220—9 LG **30 Claims**



A double wall tank for transporting cryogenic materials by ship. The inner wall of the tank, the primary barrier, takes the form of an integral metallic corrugated structure. The outer wall of the tank, the secondary barrier, takes the form of a plurality of insulating panels structurally connected to the inner wall of the tank through the means of external webs and is in liquid and gas-tight relation to external face plates. There are disclosed several types of insulating panels, several procedures for attaching the panels to the external face plates, and several procedures for securing adjacent panels to one another.

3,811,594
UNITARY CONTAINER FOR A FOOD PRODUCT
Jeno F. Paulucci, Duluth, Minn., assignor to Jeno's, Inc., Deluth, Minn.
Filed Nov. 26, 1971, Ser. No. 202,081
Int. Cl. B65d *1/36*
U.S. Cl. 220—20 **2 Claims**



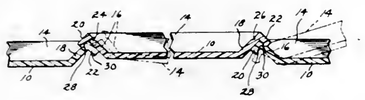
A unitary circular container for receiving a food product, the container having a segmented floor and a side wall around

the periphery of the floor. The floor has a central support core extending upward to the level of the side wall and an odd number of camming surfaces extending radially from the side wall to the central support core. The camming surfaces serve to direct the food product into the segmented portions.

3,811,595
INTERLOCKING SERVING TRAY

Thomas H. Eckdahl, Brooklyn Center, and Robert F. Bateman, St. Paul, both of Minn., assignors to Plastics, Inc., St. Paul, Minn.

Filed June 12, 1972, Ser. No. 262,055
Int. Cl. B65d *21/02*
U.S. Cl. 220—23.4 **2 Claims**



An interlocking tray including a flat bottom having opposed first and second end walls thereon with a first lip extending from the first end wall and a second lip extending from said second end wall together with a first locking groove on the first end wall and a second locking groove on the second end wall, and a first rib formed on said first lip of the first end wall for engagement with the second locking groove of the second end wall of another tray and a second rib formed on said second lip of the second wall for engagement with said first locking groove of a first end wall of another tray to removably connect the trays at the ends thereof.

3,811,596
BALL BAT CONSTRUCTION

Richard C. Wilson, Arcadia, Calif., assignor to Aluminum Company of America, Pittsburgh, Pa.

Division of Ser. No. 121,677, March 8, 1971, Pat. No. 3,703,290. This application May 22, 1972, Ser. No. 255,895
Int. Cl. B65d *51/00*; **A63b** *59/06*
U.S. Cl. 220—24 A **9 Claims**



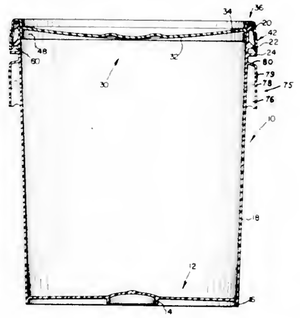
An end plug for a hollow ball bat. The end plug has a substantially rigid inner plug member and a resiliently compressible outer plug member secured to the inner member. The outer plug member has a periphery provided with a generally cylindrical lower portion and an upper portion separated from the lower portion by an outwardly open annular recess. The inner plug member has a generally radially outwardly directed stabilizer portion which extends radially outwardly at least to a position adjacent to the periphery of the outer plug member. The outwardly directed stabilizer portion of the inner plug member may be divided into a plurality of individual stabilizer segments and may be provided with underlying reinforcing members.

A hollow ball bat having a generally cylindrical barrel portion and a generally cylindrical handle portion. At least one of the barrel and handle portions terminating in an open end provided with a transversely inwardly directed flange which is engaged within the annular recess of the end plug to provide an effective mechanical joint between the bat and the end plug. The composite end plug serves to provide both sound and vibration deadening means and integral structural reinforcing means resisting relative axial movement between the end plug and the ball bat.

3,811,597
PLASTIC CONTAINER

Henry E. Frankenberg, Hinsdale, and Harry A. Peyser, Olympia Field, both of Ill., assignors to Continental Can Company, New York, N.Y.

Filed Apr. 17, 1972, Ser. No. 244,438
Int. Cl. B65d *43/10*
U.S. Cl. 220—60 R **20 Claims**

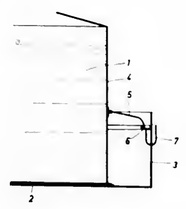


An improved plastic container and cover in which the container is an open cup-shaped member and the cover comprises a web with a peripherally depending skirt. The container and skirt on the cover are provided with a first cooperating closure means and a second cooperating reclosure means, while the skirt has access areas for permitting access of the tool therethrough whereby the first closure means may be disengaged.

3,811,598
STORAGE TANK INSTALLATION

Karl Schwarz, Linz, Austria, assignor to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed Aug. 5, 1971, Ser. No. 169,174
Claims priority, application Austria, Sept. 22, 1970, 8541/70
Int. Cl. B65d *25/00, 25/24*
U.S. Cl. 220—88 R **3 Claims**

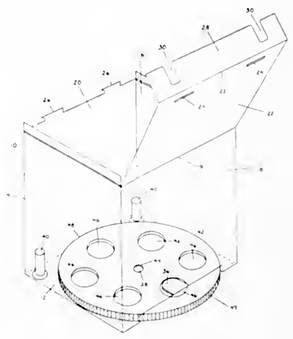


A covering for a collecting tub defining an annular channel around an aboveground storage tank intended to hold an inflammable liquid having a predetermined combustion temperature comprises an annular roof consisting of a plastics material which tends to disintegrate rapidly and substantially without formation of a flame at said combustion temperature.

3,811,599
TWO-PART COMBINATION CONTAINER AND TABLET DISPENSER

Donal J. O'Connor, Chicago, Ill., assignor to Morton-Norwich Products, Inc., Chicago, Ill.

Filed Oct. 13, 1972, Ser. No. 297,183
Int. Cl. B65h *3/00*
U.S. Cl. 221—265 **2 Claims**



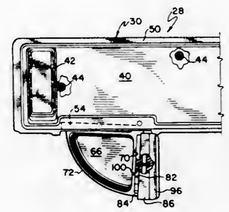
A two-part combination container and tablet dispenser wherein the container portion is integrally molded, having a base, top, and front and side walls. The top is hingedly formed in the open position on the upper edge of the front wall and is adapted to move freely toward the rear wall to a closed position secured by closure means formed in the top with mating closure means on the upper edge of the rear wall. A flange is integrally formed on the upper edge of the top and depends therefrom for mounting the container to any suitable support when the top is in the closed position. The container is molded with the base having an upstanding tapered stud formed thereon, with a tablet discharge slot formed at the front edge of the base, with recess defined by the lowermost portion of the front wall and the front edge of the base, and with a projecting shield spaced over said recess. The tablet dispenser portion comprises a molded rotatable disc having a plurality of spaced tablet receiving openings and a central tapered hub therethrough which mates and locks onto the upstanding stud in the base. In this position, a portion of the periphery of the disc extends through the recess for easy manual rotation whereby a tablet-receiving opening is brought into registry with the tablet discharge slot to discharge a tablet therethrough. The projecting shield prevents tablets from clogging or accumulating at a tablet-receiving opening as the disc is rotated so that a single tablet is discharged at each rotation of the dispenser disc.

Efficient and economical tablet dispensers assume an increasing importance as improved technology provides a great variety of substances in tablet form. Some substances which are provided in this form are candy, medicinals, vitamins, salt, disinfectants, and plant nutrients, to mention a few. Diverse tablet dispensers have been provided by the prior art with the objective of dispensing tablets conveniently and efficiently with a minimum of handling, breakage and/or contamination. Combined tablet containers and dispensers have been devised to minimize handling expense and to reduce chances for contamination. One such dispensing container is described by U.S. Pat. No. 2,742,200 which provides a cardboard blank which can be folded into the shape of a box with the walls being secured in their assembled relation by suitable adhesive. Inserted into the formed box is a dispenser unit comprising a base plate, a dispenser wheel and means for mounting said wheel onto the base-plate.

3,811,600
TREATING AGENT DISPENSER FOR AUTOMATIC WASHING MACHINE

James E. Allison, Jeffersontown, and Bob F. Boecker, Louisville, both of Ky., assignors to General Electric Company, Louisville, Ky.

Filed Oct. 11, 1972, Ser. No. 296,618
Int. Cl. B67d *5/08*
U.S. Cl. 222—70 **11 Claims**

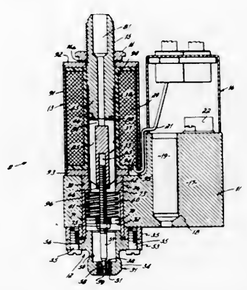


There is disclosed a dispenser for storing and dispensing treating agent in an automatic washing machine. The dispenser is designed to position the treating agent container in a sealed storage position regardless of variations in the device caused by manufacturing and assembly tolerances.

3,811,601
MODULAR SOLENOID-OPERATED DISPENSER

Alan B. Reighard, Bay Village, and Simon Z. Tamny, Lorain, both of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Sept. 11, 1972, Ser. No. 287,646
Int. Cl. B67d *5/62*
U.S. Cl. 222—146 HE **8 Claims**



A solenoid-operated dispenser for dispensing liquid materials. The dispenser comprises a heated service module which contains static parts, a gun module which contains all of the movable parts of the dispenser, and a solenoid coil module, all three modules of which are resiliently held in an assembled relationship by a single threaded nut.

3,811,602
PARTICULATE MATERIAL RETAINING GATE

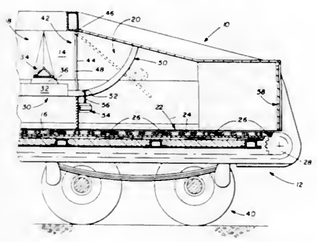
John H. Holland, Norman, Okla., assignor to Arkansas Rock and Gravel Co., McAlester, Okla.

Filed Aug. 17, 1972, Ser. No. 281,388
Int. Cl. B60p *1/38*
U.S. Cl. 222—178 **16 Claims**

A particulate material delivery vehicle includes a semi-trailer chassis comprising opposed side walls and a floor. The side walls and the floor define a generally V-shaped particu-

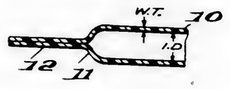
late material receiving hopper and extend beyond the rear end of the hopper to define a discharge chute. An endless conveyor is supported on the semitrailer chassis for movement around a course extending through the hopper and through the discharge chute to unload particulate material from the hopper through the discharge chute and to discharge particulate material from the extreme rear end of the vehicle.

A particulate material retaining gate is supported on the semitrailer chassis between the particulate material receiving hopper and the discharge chute. The gate comprises a plate



which is substantially identical in cross-section to the particulate material receiving hopper and which is pivotally supported on the chassis for movement between a closed position wherein it blocks the rear end of the hopper and an open position wherein it permits flow of particulate material out of the hopper and through the discharge chute under the action of the endless conveyor. During transportation of particulate material into the vehicle the plate is retained in the closed position and functions to retain the particulate material in the hopper. Subsequently the plate is released to the open position whereupon the conveyor is actuated to unload the vehicle.

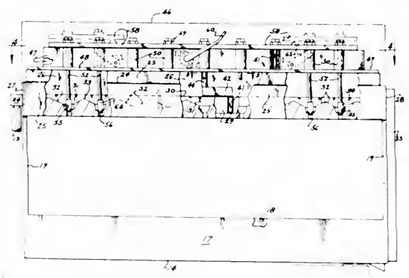
3,811,603
DROPPER AND STIRRER DISPENSING A SINGLE DROP
Lloyd Crosser Felton, Cockeysville, Md., assignor to Hynson, Westcott & Dunning, Incorporated, Baltimore, Md.
Filed Apr. 15, 1968, Ser. No. 721,299
Int. Cl. B65d *47/18*
U.S. Cl. 222—420 **4 Claims**



A disposable (i.e., single-use) dropper for delivering a single drop of liquid, e.g., blood plasma or serum to, and distributing the drop of liquid over a (predetermined) area of, a substrate. The article comprises a tube formed of resilient, essentially non-plasticized, plastic material having hydrophobic properties, and being inert with respect to the liquid being dispensed. One end of the tube is open and clearly cut at right angles to the major axis of the tube, while the opposite end is closed and collapsed for a distance of about a half-inch or less from its terminus. The collapsed portion of the tube is formed as a paddle-like stirrer.

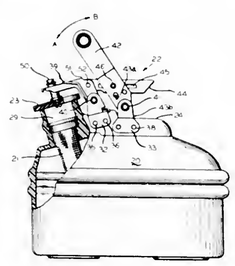
3,811,604
LIQUID DISPENSING DEVICE
Elmer L. Perry, 1203 7th St., La Grande, Oreg.
Filed Feb. 16, 1973, Ser. No. 332,931
Int. Cl. G01f *11/02*
U.S. Cl. 222—429 **8 Claims**

A cabinet housed dispenser for the simultaneous filling of a tray of drinking glasses. Multiple valve stems seat within discharge orifices with the stems urged upwardly to an open position by a cam or solenoid actuated plate. Spring means seats each valve stem downwardly to a closed position. Diversion means divert a trough carried water flow into multiple recessed areas of equal size for the collection therein of an



equal volume of liquid which is subsequently discharged into each glass. A modified form of the dispenser includes a float actuated valve to regulate the flow of incoming fluid into a tank. An operator lever uniformly controls the flow from each tank orifice.

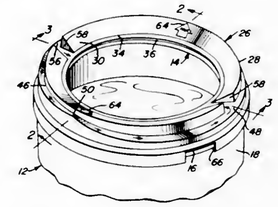
3,811,605
SAFETY CONTAINER FOR INFLAMMABLE FLUIDS
Frank S. Flider, Chicago, Ill., assignor to The Justrite Manufacturing Company, Chicago, Ill.
Continuation-in-part of Ser. No. 98,557, Dec. 16, 1970, abandoned. This application May 27, 1971, Ser. No. 147,522
Int. Cl. A47g *19/14*
U.S. Cl. 222—472 **5 Claims**



A completely enclosed plastic container having a neck-like opening closed by a spring biased cap. The cap is controlled by a handle linkage attached to a vertical fin formed on the can by an enlargement of the flash line between the two plastic mold parts which are joined together to mold the container, the neck-like opening, the vertical fin and a handle. The fin extends between and is integral with the neck-like opening and the handle. Thus, the fin reinforces the handle and adds strength thereto.

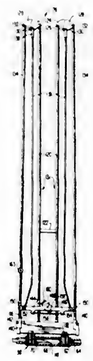
3,811,606
REMOVABLE COVER FOR PAINT CONTAINER RIM
Jerome C. Higgins, 3139 E. Glenrosa Ave., Phoenix, Ariz.
Continuation-in-part of Ser. No. 79,170, Oct. 8, 1970, abandoned. This application Dec. 30, 1971, Ser. No. 214,291
Int. Cl. B65d *5/74*
U.S. Cl. 222—570 **6 Claims**

An attachable and detachable annular collar-like compressibly resilient plastic cover for temporary use atop the circumferentially grooved lid supporting lip or rim commonly present on the upper openable end of a paint containing can. The lower inner and outer peripheral portions of the cover have inwardly directed circumferential portions for snap engagement over the usual inner and outer rim beads of the can rim and the cover assembly seats atop the rim in reasonably good fluid-tight sealed engagement therewith. The cover includes conical inwardly and downwardly sloping top surfaces which cause surplus paint to gravitate back into the can and a narrow smooth inner peripheral surface is fashioned into and



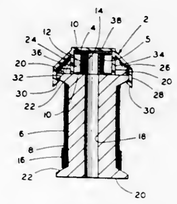
provides an efficient brush scraping edge. Diametrically opposite generally radial recesses are formed in the top surface of the cover to provide paint returning notches and the cover further includes encircling outer grooves located at the juncture of the outer and top surfaces of the cover to provide an effective drip catcher communicatively cooperable with the paint return notches. Also, diametrically opposite upper surface portions of the cover disposed between and spaced from the notches are selectively usable for pouring paint from the associated paint containing can.

3,811,607
HOSIERY FORM
John W. Glaze, Jr., Charlotte, N.C., assignor to Intech Corporation, Charlotte, N.C.
Division of Ser. No. 66,338, Aug. 24, 1970, Pat. No. 3,704,565. This application Aug. 18, 1972, Ser. No. 281,979
Int. Cl. D06c *15/00*
U.S. Cl. 223—74 **12 Claims**



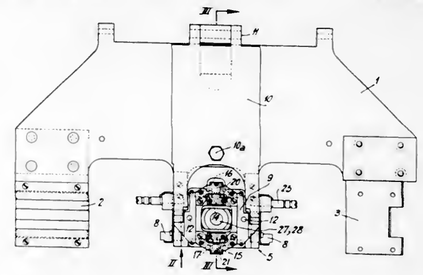
A hosiery form for semi-boarding hoisery articles is collapsible to facilitate loading and stripping. Each form comprises a pair of upstanding leg forms which together accomodate a bifurcated hosiery article. Each leg form comprises a pair of generally parallel elongated rods attached at one end to a base. One of the rods is fixed and the other rod is laterally movable. Attached to the free ends of the rods are a pair of interlocked toe expansion plates that are so configured as to accomodate the toe of the hosiery article. An expansion mechanism is connected to the movable rod to move it between the expanded position and the collapsed position. The expansion mechanism has a spring biased overthrow linkage to hold the rods in either the expanded position or the collapsed position.

3,811,608
BOBBIN RETAINER ATTACHMENT FOR A THREAD CARRYING SPOOL
Henry L. Olney, 3745 N. Olcott, Chicago, Ill.
Filed Mar. 16, 1973, Ser. No. 342,172
Int. Cl. A41h *31/00*
U.S. Cl. 223—106 **6 Claims**



The bobbin retainer attachment for a thread carrying spool has a retainer mounted on the end of the spool of thread by retainer clamping fingers which attach on to the spool and extend in the direction of axis of the spool. The retainer has a bobbin storage housing connecting with the fingers and held on the end of the spool by the fingers with the open end of the housing abutting against the end wall of the spool to hold a bobbin therein. The fingers extend from the periphery of the retainer and clamp around the peripheral enlarged end edges of the spool. Also an annular clamping finger can extend from the central portion of the housing and through the bobbin and into and against the bore of the spool in wedging fashion.

3,811,609
DEVICE FOR ADJUSTING THE POSITION OF FLEXIBLE STRIP PROVIDED WITH LATERAL PERFORATIONS
Pierre Louis Sigel, Villeneuve-le-Roi, and Raymond Louis Delorme, Bagnolet, both of France, assignors to Societe Honeywell Bull (Societe Anonyme), Paris, France
Filed May 29, 1973, Ser. No. 364,233
Int. Cl. B65h *17/38*
U.S. Cl. 226—52 **11 Claims**

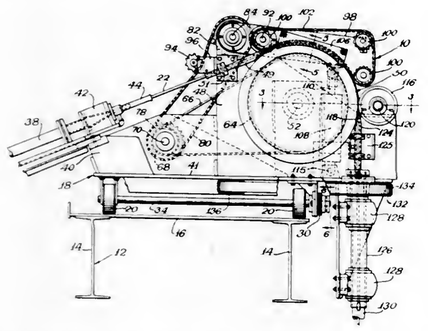


An apparatus is provided for adjusting the position of a flexible strip which is provided with two rows of perforations. A support is provided with a running surface for the strip, with pins housed in the support which may project so as to enter the perforations. Swinging grippers, which cooperate with the pins, are hinged to the support so as to press the strips against the running surface.

3,811,610
ROD HANDLING APPARATUS

Kenneth F. Edwards, Lancaster, Ohio, and Ralph A. Vogel, Three Rivers, Mich., assignors to Essex International, Inc., Fort Wayne, Ind.

Continuation-in-part of Ser. No. 167,986, Aug. 2, 1971, abandoned. This application Oct. 12, 1971, Ser. No. 188,026
Int. Cl. B65h *17/34*
U.S. Cl. 226—171 **11 Claims**



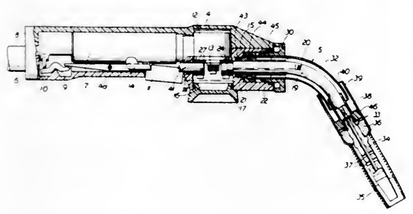
An apparatus for guiding and controlling the path of travel of a continuously moving metallic rod, such as rolled copper rod. A rotating wheel has a peripheral groove for receiving and pulling the rod for maintaining proper tension thereon. A continuously moving chain is operatively mounted on a frame which is pivotally mounted so that the chain can be selectively moved in and out of peripheral engagement with the periphery of the rotating wheel. When the chain is in peripheral engagement with the rotating wheel, the chain positively forces the rod into engagement with the peripheral groove. Thereafter, the chain is moved out of peripheral engagement with the wheel and the moving rod remains in engagement with the groove between an entrance position and a discharge position.

Preferably, a device signals when the rod is in engagement with the peripheral groove and moves the frame for the moving chain to a position spaced from the rotating wheel and from the moving rod.

3,811,611
WELDING GUNS

Lars Helge Gottfried Tholander, Huskvarna, and Harry Thostrup, Laxa, both of Sweden, assignors to Elektriske Svetsningsaktiebolaget, Enkoping, Sweden

Filed Sept. 10, 1971, Ser. No. 179,498
Int. Cl. B65h *17/22*
U.S. Cl. 226—178 **1 Claim**

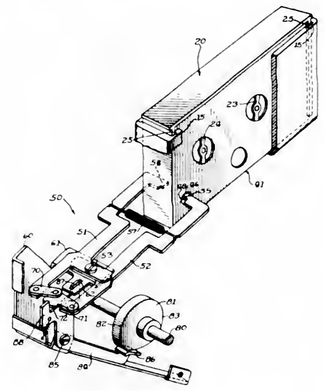


A welding gun for consumable electrode welding provided with a compressed-air electrode advancing motor and a throttle valve provided between the outlet of said motor and the atmosphere for adjusting the speed of the motor.

3,811,612
FILM SNUBBER CONTROL SYSTEM

Kenyon A. Hapke, Libertyville, and John P. Bagby, Lake Forest, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed June 28, 1973, Ser. No. 374,281
Int. Cl. B65h *23/08*
U.S. Cl. 226—195 **11 Claims**

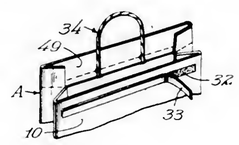


A film snubber activating and control system for use with a film cassette having a rotatable and lockable film snubber. The system includes snubber locking means arranged to selectively lock and release said film snubber in a manner which will maintain the cassette in a selected location.

3,811,613
HANDLED BAG

Robert E. Harrison, Newburgh, N.Y., assignor to Hoerner Waldorf Corporation, Ramsey, Mich.

Filed May 22, 1972, Ser. No. 255,430
Int. Cl. B65d *31/10, 33/12, 33/02*
U.S. Cl. 229—54 C **5 Claims**



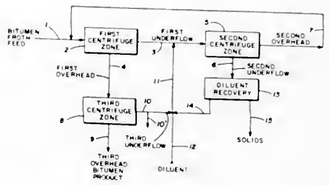
A handled bag is provided having opposed walls. A first wall is provided with a reinforcing flange folded downwardly to provide a reinforced upper edge. A handle is secured to the inner surface of the opposite wall to project upwardly therefrom. A closure flange is hinged to the upper edge of the opposite wall and is slit to permit it to be folded past the handle and outwardly of the first wall to provide a bag closure. A tape covered adhesive area on the first wall permits the sealing of the closure flange to the first walls when the tape is removed.

3,811,614
METHOD FOR CENTRIFUGING OF TAR SANDS FROTH

Daniel J. Curtin, Richardson, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed June 5, 1973, Ser. No. 367,199
Int. Cl. B04b *1/02*
U.S. Cl. 233—18 **7 Claims**

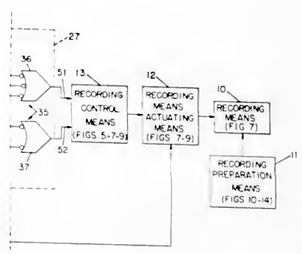
A method for treating tar sands bitumen froth wherein said froth is subjected to centrifugation in a first centrifuging zone to remove coarse particles therefrom and is thereafter treated in at least one second centrifuging zone to remove additional coarse particles, the overhead from the second centrifuging zone immediately downstream of the first centrifuging zone being utilized at least in part as part of the feed for the first centrifuging zone, the overhead from each succeeding second cetrifuging zone being used at least in part as part of the feed for the next prior second centrifuging zone, the overhead from the first centrifuging zone being passed to a third centrifuging zone wherein fine particles are separated thereby producing a third overhead bitumen product.



3,811,615
RECORDING DEVICE CONTROL SYSTEM

Izumi Yamanaka, Hiratsuka; Hironobu Sato, Isehara, and Yoshihiro Takeuchi, Fujiwawa, all of Japan, assignors to The National Cash Register Company, Dayton, Ohio

Filed Mar. 12, 1973, Ser. No. 340,465
Int. Cl. B41j *9/38*; **G06c** *11/04*
U.S. Cl. 235—58 P **12 Claims**

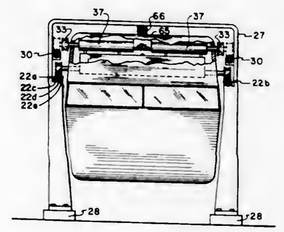


A control system for ensuring proper operation of a recording device during the cycling thereof in the event of loss of operating voltages. The recording device is operable in a cycle having a recording preparation phase and a recording phase. The recording phase occurs after the completion of the recording preparation phase and a recording means actuating means, when operated during such recording phase, causes a recording or non-recording operation which is determined by operation, or not, of a recording control means after completion of such recording preparation phase. The recording device is connected to a power source which has power supply means connected thereto. The control system comprises first detecting means coupled to the power source which is responsive to a voltage failure condition and second detecting means coupled to the power supply means which is responsive to removal of such voltage failure condition. The control system further includes first timing means for developing a first timing signal occurring during the recording preparation phase and second timing means for developing a second timing signal occurring during the recording phase. The control system is further provided with circuit control means coupled to the first and second detecting means and the first and second timing means which is operable to inhibit operation of the recording control means upon occurrence of a voltage failure condition at the power source during the recording preparation phase or upon removal of such voltage failure condition so that the recording means actuating means when operated during the recording phase will effect a non-recording operation. The control system is also operable to cause operation of the recording control means upon lack of a voltage failure condition at the power source or upon the occurrence of a voltage failure condition at the power source during or after initiation of the recording phase so that the recording means actuating means when operated will effect a recording operation.

3,811,616
HIGH SPEED TRAIN TRACK

Raymond Lashley, Syracuse, Utah

Division of Ser. No. 65,630, Aug. 20, 1970, Pat. No. 3,728,974. This application Mar. 22, 1973, Ser. No. 343,830
Int. Cl. E01b *5/08*
U.S. Cl. 238—150 **4 Claims**



A composite laminated construction track for use in a relatively low cost and economically operated high speed passenger transportation system wherein motive vehicles are coupled to provide transportation for large numbers of people. A powered main vehicle that may be one unit or more than one coupled unit is provided to travel between terminal stations and detachable passenger ferrying auxiliary vehicles are used to transport passengers and their baggage between the main vehicle and intermediate loading or unloading stations. Operation of the independently powered motive vehicles is coordinated through a computer system, sensing units on the vehicles provide signals for coupling control and specially constructed tracks and track switching insure safe operation even at very high speeds.

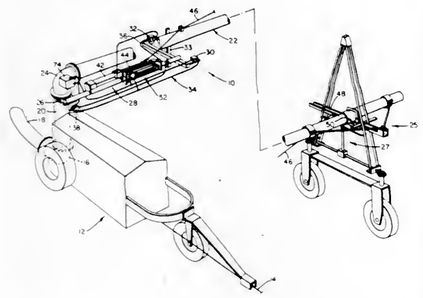
3,811,617
90° SAFETY SHUTOFF SYSTEM FOR SELF-PROPELLED SPRINKLING APPARATUS

Gail L. Cornelius, Portland, Oreg., assignor to R. M. Wade & Co., Portland, Oreg.

Filed Apr. 10, 1970, Ser. No. 27,226
Int. Cl. B05b *3/00*
U.S. Cl. 239—189 **6 Claims**

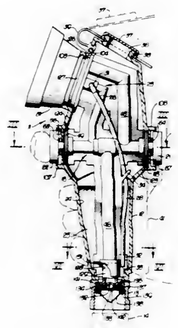
A safety control system for shutting down a self-propelled sprinkling apparatus when the long line of spaced self-propelled towers, and thus the pipeline supported thereby, deviates by a given angle from a 90° relationship relative to the direction of movement of a driving means located at its end.

Valve means is suitably supported, whereby excessive leading or lagging deviation of the pipeline from the 90° relationship is



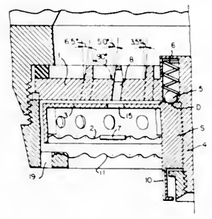
sensed by the valve means, to in turn actuate means which terminates the water input to the pipeline and shuts down the apparatus.

3,811,618
LIQUID CONCENTRATE AND WATER MIXING AND DISPENSING DEVICE
Klaus W. Gartner, and Peter Phillips, both of c/o Dream Flo Systems, Inc., 320 Union Bank Towers, 21515 Hawthorne Blvd., Torrance, Calif.
Filed Jan. 31, 1973, Ser. No. 328,301
Int. Cl. B05b *7/26*
U.S. Cl. 239—312 **10 Claims**



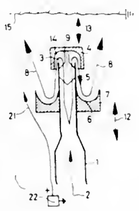
A hand held spray gun device adapted to be attached to a garden hose is provided for washing automobiles, garden furniture, pets, or spraying insecticide, disenfectant, etc. The body of the gun forms a reservoir for containing a liquid concentrate, such as soap, insecticide, disenfectant, etc. A pair of buttons are mounted on the gun for actuation by the thumb and index finger of the hand holding the gun body for selectively controlling a pair of fluid valves. Actuation of one button and its associated valve causes a discharge of a clean water shower-like rinsing spray, whereas operation of the other button discharges a strong jet of water and liquid concentrate useful, for example, as a cleaning jet with liquid soap. An aspirator device provides for adding and mixing the liquid concentrate with the water jet.

3,811,619
SPRAY PRODUCING DEVICE
Elie P. Aghnides, 795 Fifth Ave., New York, N.Y.
Filed June 26, 1972, Ser. No. 266,039
Int. Cl. E03c *1/084*
U.S. Cl. 239—428.5 **17 Claims**



An aerator arranged to vary the velocity and aeration of the issuing jet of water having a casing with one or more screens, which may have holes in them, arranged thereon and rotatable to vary and/or eliminate the screen resistance for producing alternately different sprays wherein the jets may or may not be bubbly. A rotatable sealing device may be arranged to cover various holes in a diaphragm mounted on the upstream side of the aerator. The velocity and aeration of the output jets may be varied by manually adjusting either the rotatable screens or the sealing disc, or through cooperation of both.

3,811,620
HEAD FOR POWDER SPRAYING GUN
Otto R. Gebhardt, Fellbach, Germany, assignor to Firma Ernst Mueller KG
Filed Nov. 13, 1972, Ser. No. 305,734
Claims priority, application Germany, Dec. 20, 1971, 2163111
Int. Cl. B05b *1/26*
U.S. Cl. 239—499 **11 Claims**

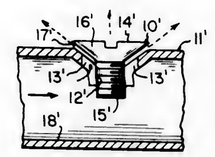


A head for powder spraying guns having placed in front of the exit orifice a deflection part which deflects the stream by 180°.

3,811,621
CONE SPRAY NOZZLE AND METHOD FOR MAKING THE SAME
Frank B. Augustine, 1135 McLaughlin Rd., Bridgeville, Pa.
Filed Jan. 30, 1973, Ser. No. 328,132
Int. Cl. B06b *1/26*
U.S. Cl. 239—520 **5 Claims**

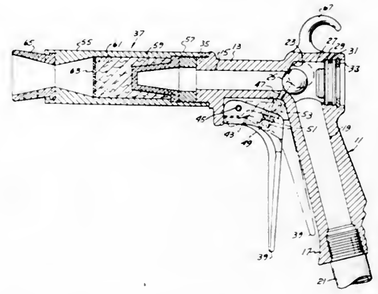
A cone spray nozzle is provided in a tubular member for carrying a fluid to be sprayed. The tubular member has at least one opening with a plurality of grooves, preferably symmetrical, around the periphery thereof. In each opening is positioned a dispersion member having a stem portion for fastening to the tubular member and a tapered head portion with an angular. typically conical surface for dispersing

the fluid. The fluid is ejected from the tubular member through the grooves to strike the tapered head portion, which in turn disperses the fluid in a generally conical spray pat-



tern. Preferably the nozzle is made by punching the opening having the peripheral grooves with a die and inserting the dispersion member which is preferably a standard flat-head screw or rivet.

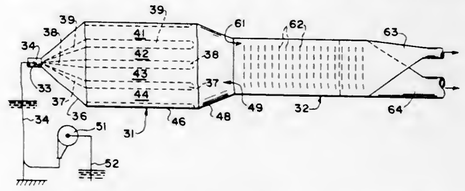
3,811,622
AIR BLOW GUN FOR CHIP AND DEBRIS CLEANING
Leland F. Blatt, 821 Lakeshore Rd., Grosse Pointe Woods, Mich.
Filed Nov. 6, 1972, Ser. No. 304,196
Int. Cl. B05b *7/02*
U.S. Cl. 239—526 **2 Claims**



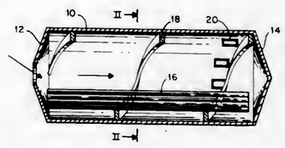
An air blow gun for chip and debris cleaning comprises a barrel with a bore at its inner end opening into an enlarged chamber defining a valve seat. A hand grip has a bore joined to said chamber adapted for connection to a source of compressed air. A ball seal nested in said chamber seats on application of air pressure and a trigger operated pin on the barrel is adapted to unseat the ball seal, permitting the flow of compressed air through said barrel.

3,811,623
PROCESS AND APPARATUS FOR SEPARATION OF MINERAL ORE FROM GANGUE MATERIAL
Rolland Orin Speer, 2254 Wordside Ln. Apt. 6, Sacramento, Calif.
Filed Dec. 4, 1972, Ser. No. 312,232
Int. Cl. B02c *19/18*
U.S. Cl. 241—1 **19 Claims**

A process and apparatus for breaking the mechanical bonds between relatively interlocked and embedded mineral ore crystals and gangue crystals are disclosed. Severing the bonds between the crystals is effected by irradiating the rock material with ultrasonic waves in the range of about 300,000 to about 1,200,000 cycles per second. The frequency of the ultrasonic waves is selected to cause one of the ore and gangue crystals to vibrate at about a resonant frequency thereof until oscillations within the resonating crystals and a node condition at the interfaces between crystals causes fracturing of the rock material at about the interfaces. The separation of magnetite and rutile crystals, as contained in black sands material, by ultrasonic irradiation is particularly advantageous, and a magnetic concentrator and separator capable of separation of ferromagntic and non-ferromagnetic particles in a liquid medium is also disclosed.

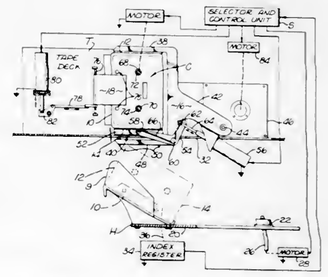


3,811,624
ROTARY TUBULAR CRUSHER
Jean Claude Giorgi, Lille, France, assignor to Fives Lille Cail, Paris, France
Filed Sept. 28, 1972, Ser. No. 293,044
Claims priority, application France, Sept. 29, 1971, 71.34998
Int. Cl. B02c *17/10*
U.S. Cl. 241—176 **6 Claims**



A rotary crusher comprises a cylindrical crusher drum rotating about a horizontal axis and inwardly projecting spacers occupying only a small part of the interior wall surface of the drum and disposed in planes inclined in respect of the drum axis or along curves so as to support and space the freely moving crushing rods in the drum at least at two points at opposite sides of the center of gravity of the rods.

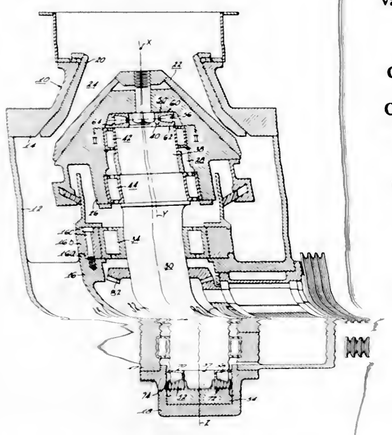
3,811,625
MAGNETIC TAPE CASSETTE CHANGER
James W. Harford, Woodland Hills, and Stuart W. Jeffries, Simi, both of Calif., assignors to Cybrix Corporation, Chatsworth, Calif.
Filed Mar. 16, 1972, Ser. No. 235,204
Int. Cl. G11b *5/00*
U.S. Cl. 242—181 **9 Claims**



A cassette selector or changer is disclosed for operation with a plurality of cassettes and a magnetic tape deck. A

holder for cassettes is mounted for movement to a position at which a selected cassette may be grasped by a cassette-engaging structure. A drive (incorporating a geneva movement and an axial cam) rotates to move the engaging structure so as to transport the cassette along a multiple-dimensional path between the tape deck and the holder. A locking structure completes the engagement between the cassette and the tape deck, holding the cassette engaged during operation. The elements as described above are controlled to accomplish an operating sequence whereby a predetermined program involving several cassettes may be selectively executed.

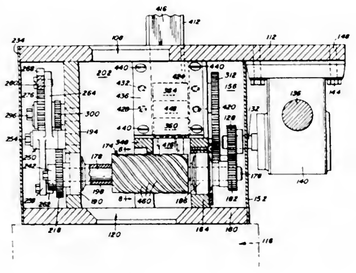
3,811,626
GYRATORY CRUSHER WITH A PAIR OF INTERCHANGEABLE AXIAL THRUST BEARINGS
Robert H. Kemnitz, Appleton, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Nov. 16, 1972, Ser. No. 307,050
Int. Cl. B02c *2/06*
U.S. Cl. 241—214 **6 Claims**



A gyratory crusher is disclosed having a central upright rotating shaft for supporting and camming a crushing head to gyrate relative to a surrounding stationary concave. An upper portion of the shaft cams the head to gyrate by being inclined relative to a lower and vertical portion of the shaft, with a central axis of the upper portion intersecting a vertical central axis of the lower portion at a point above the shaft. Radial bearings are mounted around the upper shaft portion between the shaft and the head and radial bearings are mounted around the lower shaft portion between the shaft and a hub defined by a frame. A pair of axial thrust bearings are provided, a first such bearing being on top of the shaft and a second such bearing being beneath the shaft. The axial thrust bearings have equal diameters which are less than the outer diameter of the radial bearings. The two axial thrust bearings are identical and interchangeable, and therefore only one size axial thrust bearing need be stocked in repair parts inventory.

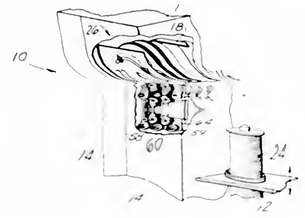
3,811,627
APPARATUS FOR INTRODUCING CONTROLLED AMOUNTS OF PIGMENT INTO THERMOMECHANICALLY FORMED PLASTIC
William B. Bradbury, Coral Springs, Fla., and Anton J. Rothschmitt, Mountainside, N.J., assignors to Plastic Molders Supply Co., Inc., Fanwood, N.J.
Division of Ser. No. 193,968, Oct. 29, 1971. This application July 31, 1972, Ser. No. 276,437
Int. Cl. B02c *18/44*
U.S. Cl. 241—281 **5 Claims**

A micrometer mixer is used to comminutize (shave) pigment bars and mix it with plastic pieces. The mixture is passed into a plastic articles forming machine. The micrometer mixer



includes a rotary cutter against which a pigment bar is advanced at a controlled rate.

3,811,628
CONTROL MEANS FOR THE BUILDER MECHANISM OF TEXTILE YARN TWISTER OR LIKE MACHINE
Carey A. Glazener, Easley, S.C., assignor to Maremont Corporation, Chicago, Ill.
Filed Nov. 7, 1972, Ser. No. 304,380
Int. Cl. B65h 54/28
U.S. Cl. 242—26.1 **18 Claims**



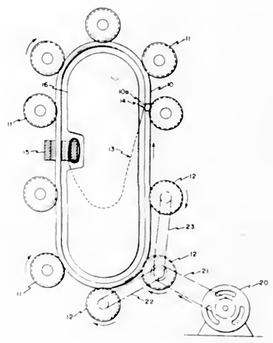
The control means is characterized by versatility and reliability of operation, and in the disclosed embodiment includes proximity-type switching elements mounted within an end cabinet of the textile machine and movable by adjustable drive means along arcuate paths of travel about the axis of the shaft of the windlass of the builder mechanism.

3,811,629
PROCESS OF WINDING CORES
Richard Duane Sedgewick, R.F.D. No. 3, Rt. 16, Dover, N.H.
Continuation-in-part of Ser. No. 100,277, Dec. 21, 1970, abandoned. This application Oct. 25, 1972, Ser. No. 300,456
Int. Cl. H01f *41/08*
U.S. Cl. 242—4 A **3 Claims**

In toroidal core winding apparatus, wherein the wire to be wound is stored as a helix within a hollow hoop and the hoop as it rotates through the core dispenses the wire from a point on the edge of its inner periphery; the hoop consists of a flexible hollow steel or plastic tube that can be maintained in the shape of a distorted circle; e.g., an elongated oval or racetrack shape, by guide wheels so that the hoop, for at least an appreciable portion of length on its periphery, moves in a straight line as it passes through the core, thus permitting the diameter of the tubing forming the hoop to be larger.

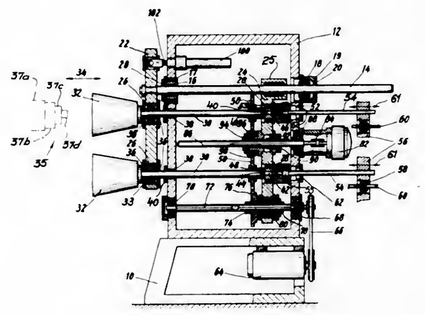
Significant advantages of this invention are that: (a) the straight run permits the wire to be drawn down tight on the core largely along its line of travel; and (b) the wire can be

wound on the core in either direction by simply reversing the direction of rotation of the hoop. Also, two strands of wire can



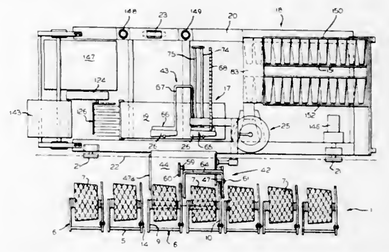
be payed out simultaneously from the hoop. This can be done in any conventional manner. For example, motor 20 can be a reversible motor.

3,811,630
COIL WINDING APPARATUS
Willi Muskulus, Bergen-Enkheim, and Willi Kramer, Bad Vil
Filed Mar. 22, 1972, Ser. No. 237,115
Claims priority, application Germany, Mar. 23, 1971, 2113873
Int. Cl. H01f *41/06*; **B21f** *3/04*
U.S. Cl. 242—7.11 **12 Claims**



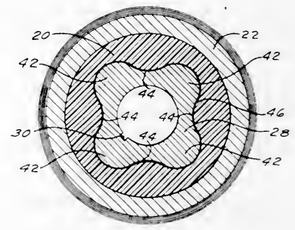
A coil winding apparatus having one or more wire guides fixedly mounted on respective spindles which are mounted on a housing for axial movement relative thereto and for rotational movement about their axes. Each spindle includes a main front bearing in the vicinity of its wire guide and a main rear bearing in the housing. The main rear bearings are movable axially with the spindle but the front bearings are shiftable axially relative to the spindle.

3,811,631
WINDING TUBE CHANGING MECHANISMS
Manfred Mayer, Remscheid-Lennep, and Reinhard Naydowski, Remscheid, both of Germany, assignors to Barmag Barmer Maschinenfabrik Aktiengeselischaft, Wuppertal, Germany
Filed July 26, 1971, Ser. No. 165,414
Claims priority, application Germany, July 30, 1970, 2037826
Int. Cl. B65h *54/02*
U.S. Cl. 242—18 R **10 Claims**



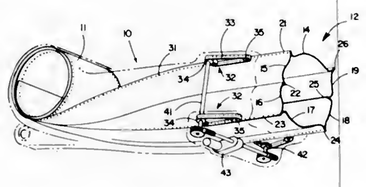
Apparatus for automatically feeding empty tubes, separately or in groups, to bobbin holders which pivot about a horizontal axis extending longitudinally of the machine and embodying at least one opening device adapted to travel into and out of engagement with the machine and by which, when moved into engagement with the machine, a bobbin holder is swung upwards into a prescribed position and a bobbin lever is swung laterally outwards; at least one loading device which is adapted to move into and out of engagement with the machine and which, when it is moved out of engagement with the tube into the region between the centering plates of the bobbin holder, which is swung upwardly into the prescribed position and opened by the opening device when the loading device is moved into engagement with the machine.

3,811,632
CORE CHUCKS
Kirk W. Bassett, 9 Knollwood Rd., Paxton, Mass.
Filed Oct. 1, 1971, Ser. No. 185,714
Int. Cl. B65h *17/02*, *75/30*
U.S. Cl. 242—46.4 **8 Claims**



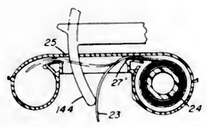
There is disclosed in the present specification a core chuck including a deformable outer sleeve of elastomer or equivalent material and a multi-lobar generally rigid internal actuator for expanding the sleeve as a result of relative angular motion in either direction between the sleeve and the actuator from their at-rest positions. The sleeve is non-cylindrical having a plurality of core engaging ridges and is compressible for initial insertion into the core.

3,811,633
TUBULAR EXTENDABLE STRUCTURE
Alan F. Cummings, Downey, and Gene G. Freeman, Santa Ana, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Oct. 20, 1972, Ser. No. 299,568
Int. Cl. B65h 75/34, 75/48
U.S. Cl. 242—54 A 12 Claims



A collapsible tubular extendable structure comprising four walls wherein two oppositely disposed walls are formed by a pair of elongated ribbons, all of which are joined along their longitudinal edges forming a plurality of cusps allowing the structure to be folded flat and wound into a coil having the width thereof approximately equal to the diameter of the structure in an extendable mode. Four of the cusps are provided with means to permit positive control when the structure is being extended.

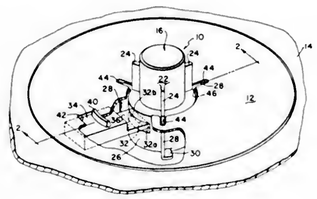
3,811,634
CARTRIDGE STRIPPING
Evan A. Edwards, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 15, 1972, Ser. No. 234,797
Int. Cl. B65h 75/02, 5/28
U.S. Cl. 242—55 13 Claims



A method and device for use in removing from a cartridge a strip of film that is interwound with a strip of backing material. The invention obviates the need for breaking open or otherwise mutilating the cartridge and, instead, contemplates withdrawing the backing material through a cartridge exposure aperture to, in turn, withdraw the film strip by contact with the backing material.

3,811,635
SPINDLE ADAPTER
William H. Goddard, Brockport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 15, 1973, Ser. No. 332,849
Int. Cl. B65h 17/02
U.S. Cl. 242—68.3 9 Claims

A spindle adapter for selectively accommodating reels having differing central driving core diameters. The spindle adapter, extending through a reel supporting plate, has a body mounted on a spindle drive shaft for rotation therewith and axially movable relative thereto. The body has differing diametral sections corresponding to the diameters of the central driving cores to be accommodated. A spring-biased latch is selectively engageable with the adapter body to position the adapter body axially relative to the plate to properly locate a



selected diameter portion of said body to receive a reel of particular core diameter, and to secure the adapter in the established position.

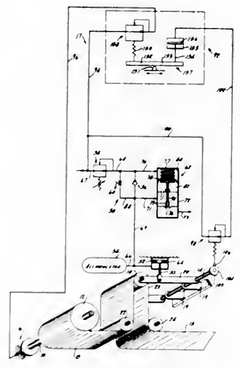
3,811,636
YARN BOBBIN SUPPORT DEVICE
Fred B. Muchnick, 71 N. 6th St., Kew Gardens Hills, N.Y.
Filed Dec. 5, 1972, Ser. No. 312,312
Int. Cl. B65h 49/00; D01h 7/16
U.S. Cl. 242—129.5 5 Claims



A holder for a yarn bobbin is provided which includes a concave base, a central post which extends upwardly through a central opening in the base and a support element coaxial with the post which includes an upper annular collar which fits closely around the post and a plurality of downwardly depending legs which are joined together at the bottom by a second annular collar and are bowed outwardly to form a gripping surface for engaging the internal surface of the bobbin. A stretchable fabric seat fits over the base and a nut screwed onto the post controls bowing of the legs and hence the effective diameter of the discontinuous gripping surface defined thereby.

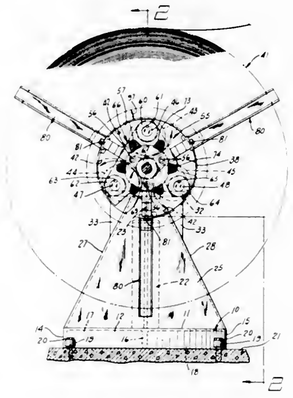
3,811,637
PNEUMATIC TENSION CONTROL SYSTEM
Norman C. Abler, Menomonee Falls, Wis., assignor to Faustel, Inc., Butler, Wis.
Filed Aug. 24, 1972, Ser. No. 283,489
Int. Cl. B65h 25/22
U.S. Cl. 242—75.43 18 Claims

A pneumatic dancer web tension control apparatus for maintaining tension in a web being wound onto or unwound from a spool mounted on a spindle on a winding stand having a signal responsive brake for controlling the speed of the spool and a shiftably mounted sensing roll or dancer positioned to response to the tension of the web, the control system including a pneumatic brake control circuit having a compensating cam operatively connected to said sensing roll to respond to the movements of said sensing roll for generating a compensating signal for controlling said brake and a pneumatic



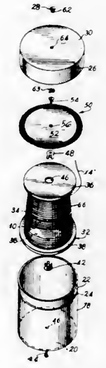
dancer load circuit connected to respond to the movement of said sensing roll to maintain a steady and uniform tension on the web.

3,811,638
AUTOMATIC CENTERING REEL FOR COIL STOCK
Elert F. Bruns, Birmingham, Mich., assignor to U.S. Industries, Inc., Detroit, Mich.
Filed Feb. 2, 1970, Ser. No. 7,806
Int. Cl. B21c 47/30
U.S. Cl. 242—78.6 15 Claims



An automatic centering reel for a coil of strip stock including a base, a support means on said base, a rotatable strip stock coil support member rotatably mounted on said support means, said strip stock coil support member being provided with a plurality of eccentrically mounted rotatable coil holding members, said coil holding members being arranged to permit a coil of strip stock to be mounted thereover, means for rotating the eccentrically mounted coil holding members to expand them into gripping engagement with the inner diameter of the coil for gripping the coil to support it during an unreeling operation, and brake means operatively connected to said coil support member for selective braking of the reel.

3,811,639
PACKAGE FOR DISPENSING WIRE WITH PRESET TENSION
Anthony Jordan, Des Plaines, Ill., assignor to Chicago Magnet Wire Corporation, Elk Grove Village, Ill.
Filed Apr. 3, 1972, Ser. No. 240,427
Int. Cl. B65h 49/00, 49/18
U.S. Cl. 242—129.8 9 Claims



A combination package for use by coil manufacturers required to wind coils of wire at relatively high speed and constant tension. The package comprises a cylindrical container having a spool of wire enclosed therein, the spool adapted to be maintained in a vertical disposition during the dispensing of the wire, the wire adapted to be stripped off of the upper end of the spool through a central passageway in the cover of the container. A wire tensioning device is fixedly connected to the upper end of the spool coaxial therewith, this device comprising a disc having a plurality of radially extending resilient filaments that protrude beyond the periphery of the upper end of the spool. The upper end of the spool is a conventional annular flange. As the wire is stripped off the spool in a rotary movement, it strikes and deflects the filaments while moving around the upper annular flange. The impedance to free stripping produces the tension in the wire, such tension being a factor of the wire gauge, the thickness and density of filaments and to a much lesser degree, the diameter of the discs and the speed of stripping of the wire. The manufacturer of the package furnishes the entire combination with preset tension capability to the coil manufacturer. Various structures of wire tensioning devices are disclosed including axially spaced multiple discs and rings of filaments installed on the interior of the housing overlying the upper flange end of the spool.

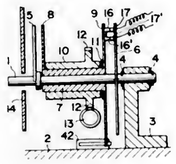
ERRATUM

For Class 242—181 see:
Patent No. 3,811,625

3,811,640
TAKEN-UP TAPE QUANTITY INDICATING SYSTEM
Michinori Nagahiro, Nishinomiya; Toshiomi Yabu, Kyoto; Hiroo Hosono, Hirakata, and Masaharu Ushihara, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Oct. 12, 1972, Ser. No. 297,072
Claims priority, application Japan, Oct. 15, 1971, 46-95867
Int. Cl. B65h 59/38; G03b 1/02; G11b 15/13
U.S. Cl. 242—191 3 Claims

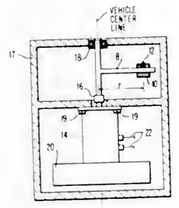
A taken-up tape quantity indicating system for indicating the taken-up quantity of tape by an indicating pointer rotated

in association with the forward and reverse rotation of tape drive means. In the rewind operation, the reaching of zero



point by the indicating pointer is detected, and the rewind operation is stopped after a predetermined time delay from the detection of the reaching of the zero point.

3,811,641
PRECESSION CONTROL DEVICE FOR A CLASS OF SPIN STABILIZED SPACE VEHICLES
Frederick W. Hopper, Littleton, Colo., assignor to Martin Marietta Corporation, New York, N.Y.
Filed June 18, 1971, Ser. No. 154,378
Int. Cl. B64g *1/00*
U.S. Cl. 244—1 SA **8 Claims**

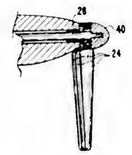


A system for controlling the precession of spin stabilized space vehicles, particularly those space vehicles wherein the spin axis is the principal axis of least moment of inertia. An initial precession of a spin stabilized vehicle excites various energy dissipation mechanisms causing a decrease in the vehicle's kinetic energy which results in a progressive increase in the precession angle. Excessive precession causes instability and must be controlled. Precession is controlled according to this invention by providing the space vehicle with a system which includes a sensor and control unit, the sensor providing output signals proportional to the precession angle, the control unit being energized in response to a sensor signal indicating an excessive precession angle. Energization of the control unit results in a slow decrease in the precession angle by causing kinetic energy to be returned to the vehicle.

3,811,642
COLLAPSIBLE PROPELLER FOR MAN-POWERED GLIDER AIRCRAFT
Alfred G. B. Prather, P.O. Box 53, Lanham, Md.
Division of Ser. No. 188,289, Oct. 12, 1971, Pat. No. 3,750,981. This application May 9, 1973, Ser. No. 358,475
Int. Cl. B64c *3/104*
U.S. Cl. 244—16 **1 Claim**

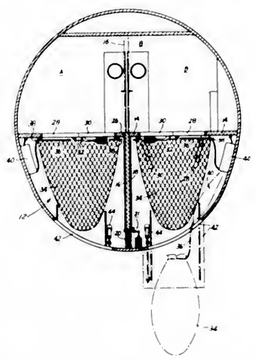
The aircraft wings have means for varying their camber and include a fan-like tail section hinged to the rear of a rigid frame surrounding the pilot's space between the inner ends of the side wing sections, in substantially the same plane therewith, a unicycle being fixed to said rigid frame to provide a seat for the pilot. A collapsible propeller is mounted on a shaft extending forwardly from a bearing on the front of said rigid frame, and is driven by a chain or belt drive from a sprocket or pulley on the wheel of the unicycle, the blades of the propeller being keyed to the propeller shaft through limited annular slot and key connections between adjacent blade bearings, to spread the blades to their proper angular spacing whenever the shaft is driven, and to return them to a common vertical hanging position so as to reduce their drag during gliding operations whenever no power is applied.

The pilot sits on the unicycle seat, drops a yoke harness over his shoulders which is operatively connected to control the inclination and twist of the hinged tail section, whereby the



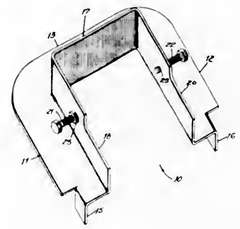
shifting of his body forward, lifts the tail section to cause an increase in the angle of attack of the side wing sections, and by shifting his body rearward the tail section is lowered to decrease the angle of attack, and if he moves his body from side to side he can twist the tail section accordingly. After placing this yoke over his shoulders, the pilot inserts his arms through openings in the inner ends of said wing sections and grasps the handles of the correspnding hand control plates which are operatively connected to control the chambers of the side wing sections, the warping of the outer ends of these sections and the spread of the fan-like tail section.

3,811,643
ANTI HIJACKING SYSTEM FOR AIRCRAFT
Gustano A. Pizzo, 34-20 74th St., Jackson Heights, N.Y.
Filed Nov. 2, 1972, Ser. No. 303,094
Int. Cl. B64d *25/08*
U.S. Cl. 244—137 P **1 Claim**



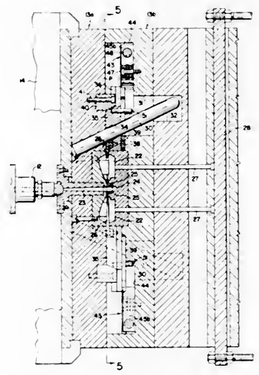
An anti hijacking system for an airplane to be operated during flight. A partition or barrier located immediately aft of the pilots cabin is adapted to be raised dividing the aft section longitudinally into port and starboard areas, the floors of which are dropped on command to lower the hijacker into a capsule in the belly of the plane. The capsule is releasable through opened bomb bay doors having attached thereto a parachute for safely returning the hijacker within the capsule to earth.

3,811,644
PIPE HANGER
Warren J. Arnault, Main St., Raymond, N.H.
Filed Nov. 22, 1972, Ser. No. 308,705
Int. Cl. F16l *5/00*
U.S. Cl. 248—56 **7 Claims**



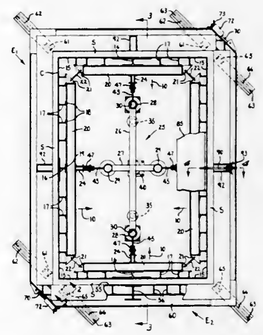
A hanger in the form of a U-shaped bracket for waste lines in buildings having concrete plank floors. Flanges are provided toward the closed end of the U for supporting the bracket on top of concrete planks siding the waste line opening. Downwardly extending tabs at the open end of the U extend between the planks to prevent the U from opening and upstanding portions of the bracket are provided with fastening devices to secure a waste line extending through the bracket and prevent downward movement thereof.

3,811,645
SLIDE RETAINER AND POSITIONER
Karl K. Feist, 4325 Strasser St., N.W., North Canton, Ohio
Filed Jan. 5, 1973, Ser. No. 321,204
Int. Cl. B29c *7/00*
U.S. Cl. 249—68 **8 Claims**



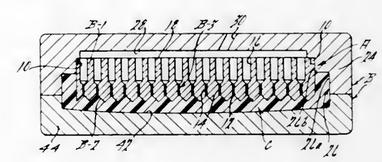
A slide retainer and positioner for molds having at least one cam-actuated slide for pulling a core element laterally of the mold cavity as the mating mold parts are opened, said slide retainer and positioner being embodied wholly within the mold at all times and adapted to yieldingly clamp the slide in cam-aligned position only when the mold is opened without restraining the opening and closing movement of the slide.

3,811,646
FORM FOR PORTABLE CONCRETE BUILDING MODULE
Robert W. Beasley, Tualatin, Oreg., assignor to Ted Nelson Company, Portland, Oreg.
Continuation of Ser. No. 150,147, June 4, 1971, abandoned, which is a division of Ser. No. 781,554, Dec. 5, 1968, Pat. No. 3,614,054. This application Nov. 17, 1972, Ser. No. 307,621
Int. Cl. B28b *7/30*
U.S. Cl. 249—144 **6 Claims**



The form is used for casting wall portions of a single rectangular room as a modular unit to be assembled with other such units and floor and ceiling structure to build homes, apartment houses and other buildings. The form comprises a core form and two exterior forms. The core form is contractible in all directions for stripping. The two exterior forms are L-shaped, each embracing one end wall and one side wall of the room, these forms being supported by trolleys on diagonal tracks for movement away from each other in stripping.

3,811,647
VENTING OF ELECTROFORM REFLEX INSERTS BY LASER DRILL
Frank A. Plink, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed June 28, 1972, Ser. No. 266,887
Int. Cl. B29c *1/14*
U.S. Cl. 249—160 **7 Claims**

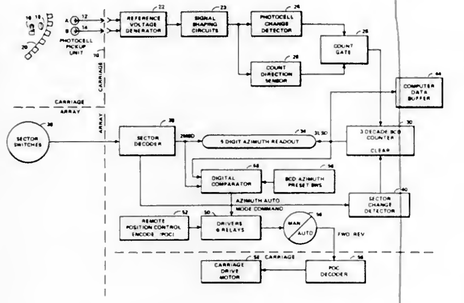


A unitary electroplated reflex insert preferably made of high nickel alloy, useful in completing a molding assembly for making plastic retrodirective reflectors. The insert has a patterned surface contoured with a plurality of multi-faceted cube-corner projections arranged with adjacent edges of commonly joined facets defining female apices; microbores are constructed through said female apices such as by laser beam drilling to provide a venting system.

3,811,648
AZIMUTH READOUT SYSTEM

Donald E. Ream, Jr., San Diego, and Gregory A. Brown, Sante, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 9, 1973, Ser. No. 377,500
Int. Cl. H01j *39/12*
U.S. Cl. 250—578 7 Claims

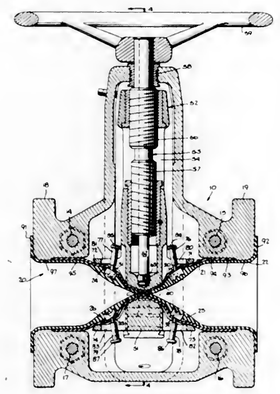


A system for accurately and remotely positioning and displaying the position in azimuth of a movable instrumentation package. The package is mounted on a carriage that is driven by an electric drive motor around a circular track. A light beam directed towards two photo cells is broken by a notched metal strip as the carriage moves along the track. The pulses generated by the photo cells are counted with the counter being reset at every ten degree sector to cancel any small accumulated azimuth error.

3,811,649
CONSTRICTABLE TUBE VALVE WITH PLURAL WALL TUBE

Irving D. Press, West Orange; Helm A. Rink, North Haledon, and John K. Menzel, Orange, all of N.J., assignors to Resistoflex Corporation, Roseland, N.J.

Filed July 20, 1972, Ser. No. 273,388
Int. Cl. F16k *7/06*
U.S. Cl. 251—8 16 Claims

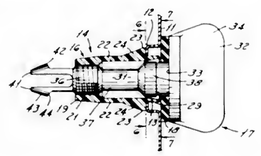


The tube of a constrictable tube valve is formed with a plural wall of which the outermost wall is shorter than the innermost wall. A metal housing with internal surfaces of varying perimeter or girth closely fits around the separate walls with the innermost wall extending outside the housing where it is radially flared over the faces of flanges on the housing. A plurality of connecting elements pass through the outermost wall of the tube and connect with the innermost wall. The free ends of the connecting elements are coupled to one or the other of two compressor members which exert closing pressure upon the tube. A separate metal fork having its tines inserted in a corresponding base on the innermost tube wall serves to anchor the respective connecting element thereto.

3,811,650
VALVE ASSEMBLY

David C. Dehar, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 4, 1973, Ser. No. 347,964
Int. Cl. B65d *41/04*
U.S. Cl. 251—144 12 Claims



A valve assembly suitable for use as a draincock in an automobile radiator. The valve elements can be preassembled and installed in a stamped opening in a radiator tank by simple snap-in action. The assembly includes three elements: (1) an insert, (2) a threaded plug, and (3) a gasket that forms a seal between the plug and wall of the radiator tank.

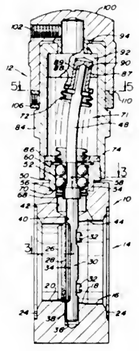
ERRATUM

For Class 251—331 see:
Patent No. 3,812,398

3,811,651
BELLOWS SEALED BUTTERFLY VALVE

Bernard J. Gallagher; Earl D. Shufflebarger, both of Mentor; David M. Simko, Parma Heights; Richard J. Nedvick, Brooklyn Heights; John R. Boylan, Cleveland Heights, and Oliver L. Danko, Chesterland, all of Ohio, assignors to Nupro Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 272,561, July 17, 1972. This application June 14, 1973, Ser. No. 370,001
Int. Cl. F16k *41/10*
U.S. Cl. 251—335 B 6 Claims



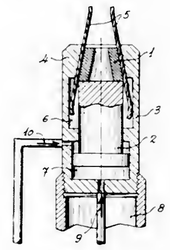
The specification and drawings disclose a valve particularly suited for use in critical vacuum systems. The valve shown

comprises a body having a through flow passage of generally circular cross-section. A butterfly valve disc is positioned in the passage and has an outer periphery adapted to close the passage when rotated to a position transverse to the axis of the passage. A rotatable operating stem is connected to the valve disc and extends outwardly through the body. Joined with the operating stem is an actuating stem which has an outer end portion inclined at an angle relative to the axis of the operating stem. A bellows assembly encloses the actuating stem with a lower portion of the assembly joined to the body. The bellows assembly includes a flexible, gas impervious bellows member which encloses the actuating stem and is inclined throughout a portion of its length at an angle corresponding to the angle of the inclination of the outer end portion of the actuating stem. Additionally, the outer end of the bellows is rotatably engaged with the outer end of the actuating stem. Means are provided in the form of a rotatable housing member for applying a generally radially acting force to the outer end of the bellows assembly to produce rotation of the operating stem and deflection of the bellows without torsional loading of the bellows.

3,811,652
SYSTEMS OF ANCHORAGE TO THE TRACTION JACK OF REINFORCEMENTS TO BE POST-TENSIONED

Ricardo Barredo De Valenzuela, Raimundo Fernandez Villaverde 45, Madrid 3, Spain

Filed May 4, 1972, Ser. No. 250,192
Claims priority, application Spain, Feb. 8, 1972, 399570
Int. Cl. E21b *19/00*
U.S. Cl. 254—29 A 3 Claims



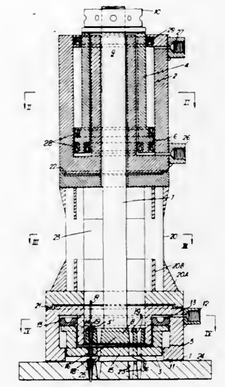
The present invention relates to an improvement in an anchoring device for post-tensioning reinforcement elements by a cooperating traction jack, and a conical wedge and mating interior conical ring of the traction jack. In accordance with the invention, a truncated conical wedge is solidly united to the head of a hydraulic piston, the cylinder of which has fixed to its front end an interior conical ring acting in conjunction with the wedge in order to fix the terminal ends of the rods or cables. The ends of the rods or cables enter into the anterior chamber of the body of the cylinder part of the body of the cylinder has an external screw-thread to which there is directly coupled the front extremity of the body of the traction jack.

3,811,653
FLUID OPERATED JACKS

Gunter Persicke, Dartford, England, assignor to Christiani and Nielson Limited, London, England

Continuation-in-part of Ser. No. 739,106, June 21, 1968, abandoned. This application July 31, 1970, Ser. No. 59,905
Claims priority, application Great Britain, July 31, 1969, 38551/69
Int. Cl. E21b *19/00*
U.S. Cl. 254—29 A 4 Claims

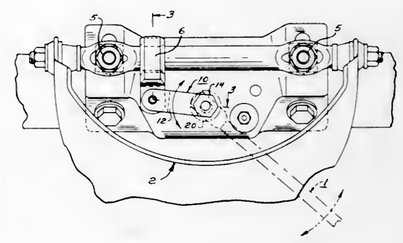
A jacking device for stressing or tensioning elongated reinforcing elements in concrete structures comprising an anchor homing jack and a stressing jack assembled in axial alignment, each jack having an annular cylinder surrounding an element to be stressed and an annular piston sliding in the cylinder, a tensioning member extending through both jacks and having means for engagement by the piston of the stressing jack and means associated with the piston of the homing jack to clamp the reinforcement elements after stressing to enable the jacks to be used for further stressing of the elements.



3,811,654
CAMBER AND CASTER ADJUSTMENT TOOL

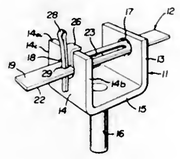
John H. Castoe, Los Angeles, Calif., assignor to Branick Manufacturing Company, Fargo, N. Dak.

Filed Dec. 7, 1972, Ser. No. 313,089
Int. Cl. B66f *3/00*
U.S. Cl. 254—131 8 Claims



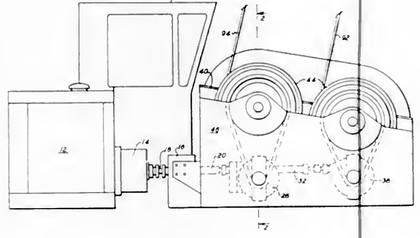
A vehicle camber and caster adjustment tool including a hook member for engaging the inner shaft of a wheel assembly to be adjusted wherein the hook member is pivotally mounted to a force transmitting element which is adapted to be retained on the frame of the vehicle. The force transmitting element further includes an upper socket wrench receiving projection which permits manual force to be applied to the hook by rotation of the force transmitting element in an appropriate direction. The novel design of the tool of the invention achieves a significant application of force to the shaft supporting the wheel assembly because of the offset position of the hook with respect to the force transmitting element.

3,811,655
TENSIONING DEVICE
Howard F. Foster, 4500 Cavendish Cir., Fort Lauderdale, Fla.
Filed Mar. 29, 1973, Ser. No. 346,019
Int. Cl. B66d 1/00
U.S. Cl. 254—161 8 Claims



A device for tensioning a flexible element, such as a strap or cable. The device includes a U-shaped frame with aligned, circular openings in its opposite legs, and a slotted tensioning plate extending across the space between the legs of the U-shaped frame and rotatably received in said openings. A locking member is removably inserted to hold the tensioning plate against rotation. The locking member may be inserted and removed without shifting the tensioning plate axially.

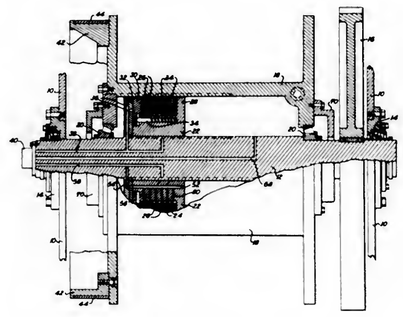
3,811,656
CABLE WINCH HAVING VARIABLE RATIO INTERLOCK
Charles J. Hoover, Box 173, Mill City, Oreg.
Filed June 26, 1972, Ser. No. 266,073
Int. Cl. B65d 1/26
U.S. Cl. 254—184 6 Claims



A cable winch having a reversible power shift transmission connected to drive shafting, a pair of driven shafts, a two-speed transmission interposed between the drive shafting and each of the driven shafts, and a chain connecting each of the driven shafts to a cable drum so as to enable each of the cable drums to rotate at a relatively high speed or a relatively low speed.

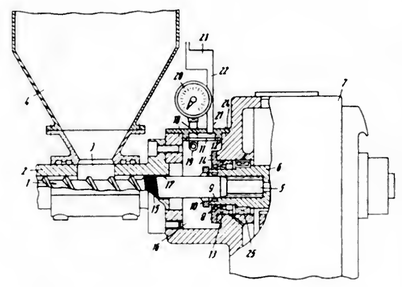
3,811,657
CABLE WINCH HAVING A CLUTCH INCLUDING FRICTION DRIVE AND COOLING MEANS
Charles J. Hoover, Box 173, Mill City, Oreg.
Continuation of Ser. No. 217,143, Jan. 12, 1972, abandoned.
This application Aug. 15, 1973, Ser. No. 388,496
Int. Cl. B66d 1/00
U.S. Cl. 254—187 5 Claims

A cable winch having a clutch formed of clutch plates for coupling a drum to a rotatable shaft, a mechanism for selectively operating the clutch under a high force wherein the drum and the shaft are locked by the clutch plates for unitary rotation and a low force wherein slippage occurs between the clutch plates and thus between the drum and the shaft, and a



mechanism for regulating the supply of oil to the clutch plates for cooling the clutch plates and preventing chatter.

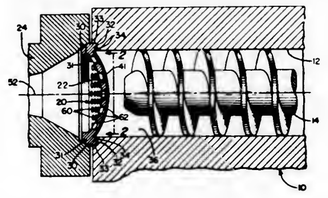
3,811,658
EXTRUDER FOR PROCESSING PLASTICS AND RUBBER
Horst Heidrich, Hochbergweg 19, 792 Heidenheim-Brenz, Germany
Filed Jan. 22, 1973, Ser. No. 325,335
Claims priority, application Germany, Jan. 24, 1972, 2203759; Jan. 24, 1972, 2203760
Int. Cl. B01f 7/02
U.S. Cl. 259—191 9 Claims



An extruder provided with an intermediate chamber between the screw cylinder and the gear drive unit with the screw shaft extending through the chamber to a vacuum sealed driving connection to the gear drive unit, and with the intermediate chamber communicating with the screw cylinder and hopper bore by a small annular clearance between the screw shaft and the cylinder wall. The usual shaft seals are eliminated and are instead installed at the end of the intermediate chamber adjacent the gear drive unit and avoids seal contamination while making possible seal lubrication. When additives are employed, the tight seal off of the intermediate chamber from the gear drive unit is assured by using seals

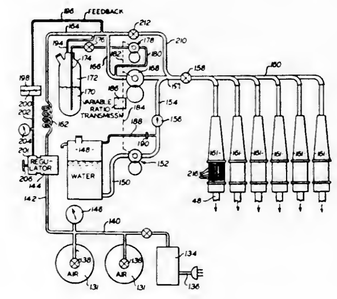
designed to correspond to the properties of the additive to be processed. The intermediate chamber is provided with a pressure line connection to an apparatus for supplying liquid or gaseous additives which can be introduced and quantitatively metered at the beginning of the screw to thereby accomplish uniform conveying of the additive over the circumference of the screw to make the entire length of the screw available for mixing the additive with the plastic. The intermediate chamber may alternatively be provided with a vacuum line connection for degasifying the feed from the supply hopper while minimizing suction in the screw cylinder toward the ejection end of the screw.

3,811,659
ARCHED STRAINER PLATE FOR PLASTIC AND LIKE MATERIAL
Challen E. Taylor, Waukegan, and John H. Stanley, Libertyville, both of Ill., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Mar. 15, 1972, Ser. No. 234,752
Int. Cl. B01d 35/28
U.S. Cl. 259—193 6 Claims



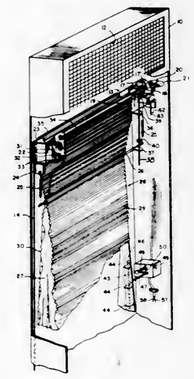
This invention relates to strainers and particularly to strainers for straining plastic, visco-elastic, or highly viscous, rubbery materials and more particularly to a strainer having an improved breaker plate.

3,811,660
EQUIPMENT FOR MAKING FOAM FOR DUST SUPPRESSION AND OTHER PURPOSES
Howard W. Cole, Jr., 12 Vale Dr., Mt. Lakes, N.J.
Continuation-in-part of Ser. No. 91,371, Nov. 20, 1970, abandoned. This application Mar. 30, 1973, Ser. No. 346,286
Int. Cl. A62c 5/04
U.S. Cl. 261—18 B 9 Claims



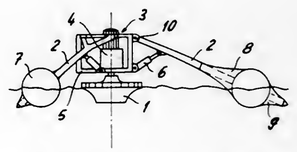
This system generates foam which is discharged into broken masses of coal or other dusty products at the locations where the coal is broken loose from a mine vein, or at conveyor or other transfer points for any dusty material. Nozzles discharge the foam under conditions that cause the foam to penetrate the dusty mass of material. The amount of foam required is regulated automatically by the weight of the coal or other material. The system also functions as a fire suppression system which can be automatic with fire detector means located at places to be protected. The foam generator maintains a constant ratio of air to water, but the apparatus is adjustable to change the ratio when desired.

3,811,661
HUMIDIFYING APPARATUS
James C. Procter, R.R. No. 1, Seymour, Ind.
Filed May 22, 1972, Ser. No. 255,534
Int. Cl. B01f 3/04
U.S. Cl. 261—26 15 Claims



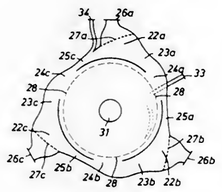
A humidifier in which an air-permeable, water-holding sheath, preferably of inverted bag-like form, is resiliently suspended in a substantially vertical air stream for vertical movement in response to variations in the weight of water held thereby, controls for supplying water to the sheath and for inducing and maintaining the air stream being actuated by such movement of the sheath. A humidistat may be provided to prevent water delivery when environmental humidity exceeds a predetermined value.

3,811,662
AERATION DEVICE FOR THE SURFACE AERATION OF LIQUIDS
Joseph Richard Kaelin, Villa Seeburg, CH-6374-Buochs, Switzerland
Filed Sept. 5, 1972, Ser. No. 286,206
Claims priority, application Switzerland, Sept. 6, 1971, 13012/71
Int. Cl. B01f 3/04
U.S. Cl. 261—91 19 Claims



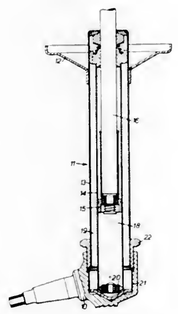
The aeration device of the invention has supporting legs which, in the rotor-bearing unit end, are forked and are hinged to a cage-like supporting frame which surrounds the rotor-bearing unit, whereby the height of the latter can be adjusted by adjusting means provided on or adjacent the axis of the supporting legs.

3,811,663
INTIMATE GAS-LIQUID CONTACT METHOD AND APPARATUS
Jacques Sterlini, Paris, France, assignor to Societe Anonyme: Compagnie Electro-Mecanique, Paris, France
Filed Jan. 26, 1971, Ser. No. 109,767
Claims priority, application France, Jan. 27, 1970, 70.02814
Int. Cl. B01f 3/04
U.S. Cl. 261—151 13 Claims



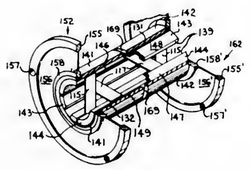
A process permitting the intimate contact of a gaseous medium and a liquid medium obtaining a considerable economy of investments with respect to the prior technique. The process generally consists in forming a very fine emulsion of the gas in the liquid, by submitting the latter to high velocity movement, the initial necessary accumulation of kinetic energy of said liquid on the one hand, and the continuous compensation of losses by friction of said liquid on the other hand being obtained by means of a thermodynamic cycle described by the gas itself. The invention is applicable to all processes for transfers of mass and energy as well as chemical reactions wherein gases and liquids are contacted.

3,811,664
VEHICLE SUSPENSION UNITS
Ralph William Spinks, Birmingham, England, assignor to Girling Limited, Birmingham, England
Filed Oct. 29, 1971, Ser. No. 193,628
Claims priority, application Great Britain, Nov. 17, 1970, 54610/70
Int. Cl. B60g 13/06
U.S. Cl. 267—66 7 Claims



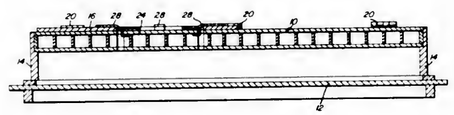
A vehicle suspension unit comprises a housing tube with an increased diameter lower end portion which can be releasably secured in a corresponding recess in a stub axle. The increased diameter portion provides a shoulder which, in use is abutted by an annular retaining member which surrounds, the housing tube to retain the increased diameter portion within the socket.

3,811,665
FLEXURAL PIVOT WITH DIAPHRAGM MEANS
Frederick A. Seelig, New Hartford, N.Y., assignor to The Bendix Corporation, Teterboro, N.J.
Filed Sept. 5, 1972, Ser. No. 286,369
Int. Cl. F16f 1/18
U.S. Cl. 267—160 9 Claims



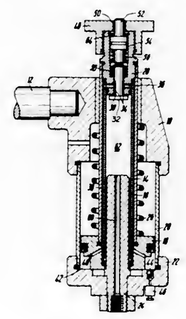
A flexural pivot device having a pair of flat crossed springs, each of the crossed springs having at least one side projection at each end extending perpendicularly from the side end of its spring and being the same thickness as the spring to provide connecting segments, two arcuate quadrant elements and two divided quadrant elements positioned alternately between the connecting segments and joined thereto to provide a tubular assembly having two semi-circular members interconnected by crossed flat springs and spaced at the lengthwise edges thereof, first outer sleeve means connected to one of the semi-circular-like members and radially spaced from the other member, second outer sleeve means connected to the other of the semi-circular members and radially spaced from the first sleeve member, either the first outer sleeve means and/or the second outer sleeve means having flexible diaphragm means fixedly secured thereto thereby allowing relatively low axial and torsional stiffness while permitting relatively high radial or shear stiffness.

3,811,666
APPARATUS FOR INSTALLING INSERTS IN DOORS
John L. Rogers, Tunnel Hill, Ga.
Filed Sept. 15, 1972, Ser. No. 289,363
Int. Cl. B25b 5/00; B27b 29/00; B27m 3/00
U.S. Cl. 269—9 3 Claims



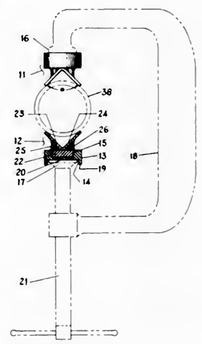
An insert is installed in a door and the like by cutting a portion from the door for providing the door with an opening. A clip having a pair of parallel leg portions connected by a back portion and provided with a portion extending from one of the leg portions and arranged past the back portion is placed on all but the last side of the cutout to be cut. These clips are arranged near the start of the cut for holding the cutout in place during the cutting. The leg portions embrace a portion of the cutout, and the extending portion rests on a surface of the door. The cutout and clip are removed from the opening once the cutting is completed, and an insert is held in position in the opening by a support member having a pair of spaced, parallel, planar members abutting the insert and a supporting surface spaced from the door. The insert is now secured to the door.

3,811,667
PNEUMATIC HOLDING DEVICE
Max Mayer, Heuweg 16, 7911 Burlafingen, Germany
Filed Sept. 15, 1972, Ser. No. 289,572
Claims priority, application Germany, June 16, 1972, 2229538
Int. Cl. B25b 1/18; F01b 15/02
U.S. Cl. 269—23 21 Claims



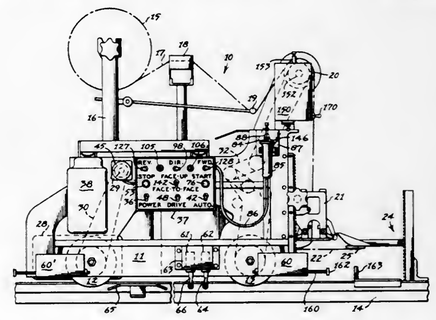
A holding or clamping device of the type comprising two pressure cylinders adapted to produce a first preliminary weak holding force and subsequently a greater holding force is provided with a sensor pin adapted to bring about a switch over from operation of the first cylinder to the second cylinder. The sensor pin is so loaded that it will only bring about the switching over when it strikes a hard object such as metal but is not actuated when it comes into contact with the human hand.

3,811,668
PIPE HOLDING ATTACHMENT FOR C-CLAMPS AND VISES
James I. Kotter, 3120-49th St., Metairie, La.
Filed Mar. 22, 1971, Ser. No. 126,471
Int. Cl. B25b 1/24, 5/16
U.S. Cl. 269—258 2 Claims



Utilization and attachment of two V-type units, oppositely positioned onto a conventional C-clamp, a machinist's vise, a woodworker's vise and other clamping devices, enables positive clamping of cross-sectionally curved objects, such as pipe and tubing. Two cross-sectionally curved objects may be positioned and positively held at any angle with respect to each other by use of alternate embodyment of invention.

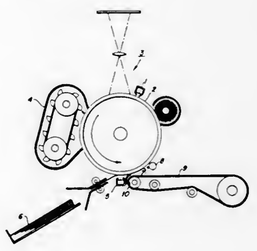
3,811,669
ELECTRICALLY CONTROLLED CLOTH SPREADING MACHINE
Robert W. Benson; James Ronald Chapman; Robert G. Reed, and Hoyt L. Smith, all of Nashville, Tenn., assignors to Cutters Machine Company, Inc., Nashville, Tenn.
Division of Ser. No. 857,509, Sept. 12, 1969, Pat. No. 3,663,006.
This application Feb. 25, 1972, Ser. No. 229,603
Int. Cl. B65h 29/46
U.S. Cl. 270—31 4 Claims



An electrically driven and controlled cloth spreading machine including means for reversing the travel of the machine, means for controlling the high and low speeds of the machine, means for causing the machine to fail safe at low speed upon power failure and open circuit conditions caused by different changes in function of the machine.

The machine is also provided with various selective controls for manual, semi-automatic and automatic operation of the machine, and for spreading cloth face-to-face, face-up or face-down.

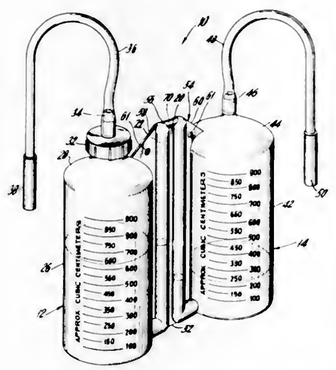
3,811,670
ELECTROSTATOGRAPHIC APPARATUS WITH AIR BAFFLE
Noriyuki Inoue, Ebina, Japan, assignor to Xerox Corporation, Stamford, Conn.
Filed May 21, 1973, Ser. No. 362,597
Claims priority, application Japan, June 19, 1972, 47-71376
Int. Cl. B65h 29/56
U.S. Cl. 271—80 9 Claims



In an electrostatographic apparatus wherein toner images are transferred from a first imaging support to a second flexible support with a transfer corona generator, past which said second support is transported on the first support, and wherein an air puffer assists in peeling the second support from the first support by air injection against the second support; the improvement comprising an air baffle positioned

between the transfer corona generator and the puffer for impeding the air from said puffer from deflecting the second support adjacent the transfer corona generator, thereby reducing toner smearing.

3,811,671
CONTAINER FOR FORCED EXPIRATION EXERCISES
Charles H. Turnbull, Old Lyme, Conn., assignor to Cheseborough-Pond's Inc., New York, N.Y.
Filed Aug. 25, 1972, Ser. No. 283,874
Int. Cl. A63b *23/00*; A61b *5/08*
U.S. Cl. 272—57 F **12 Claims**

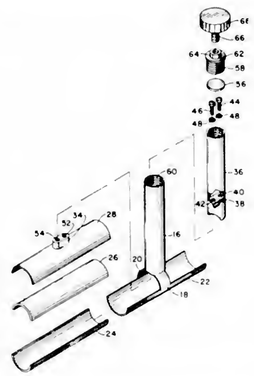


A unitary, self-supporting, semi-rigid container for forced expiration exercises having a pair of compartments for containing liquid into which a patient seeking respiratory stimulation can forceably blow, a web between and integrally joined to the compartments providing rigidity for the container, and a conduit in the web for transferring the liquid from one compartment to the other in response to a patient forceably blowing into the liquid filled compartment.

The conduit includes a pair of spaced channels each connected at its lower end to the adjacent compartment and at its upper end to an interconnecting restriction for controlling the quantity of liquid flowing through the downstream channel to prevent siphoning from occurring when a recuperating patient blows into the liquid filled compartment and causes liquid in that compartment to flow through the conduit into the other compartment.

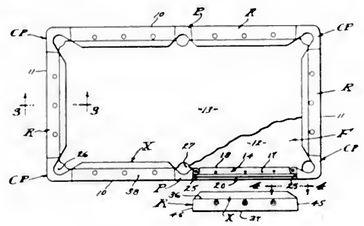
3,811,672
FRICTIONAL EXERCISING APPARATUS
Clarence C. Simmons, 1722 N. Winona Blvd., No. 203, Los Angeles, Calif.
Continuation of Ser. No. 50,502, June 29, 1970, abandoned. This application Apr. 12, 1973, Ser. No. 350,442
Int. Cl. A63b *21/00*
U.S. Cl. 272—79 R **7 Claims**

An exercising apparatus to be operated with push-pull movements by a single human being, a first grasping means fixedly located substantially at a right angle to a tubular elongated member, a second grasping means also located substantially at a right angle to the elongated member and being pivotally and longitudinally movable thereupon; an adjusting device associated with the second grasping means operates a



braking means to vary the frictional force of the connection between the second grasping means and the longated member.

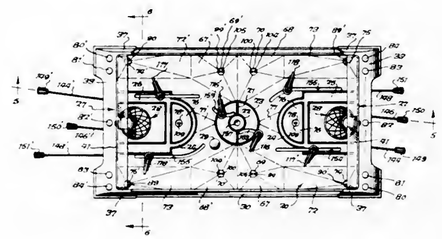
3,811,673
REPLACEABLE GAME TABLE RAIL
Raymond J. Baker, 3136 Yale Ave., Marina Del Rey, Calif.
Filed June 13, 1972, Ser. No. 262,339
Int. Cl. A63d *15/06*
U.S. Cl. 273—9 **20 Claims**



A game table wherein the cushion rails are replaceably removable for repair, and keyed in operating position by cooperative engagement with the table and corner and/or pocket member configurations which provide interface engagements that accurately locate the cushioned rails. To facilitate such accurate locating of the rails, the end faces of the corner and/or pocket members are upwardly and outwardly divergent while the end faces of the rails are complementary thereto. Additionally, a cleat extends between the pocket and/or corner members. Over this cleat is positioned a rabbet, which rabbet is recessed into the bottom of the rails and is of greater heighth and width than the cleat.

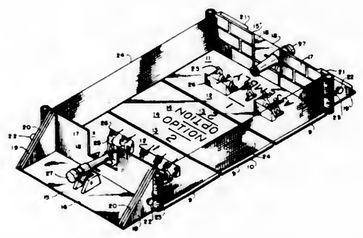
3,811,674
SIMULATED BASKETBALL GAME
Nicholas D. Trbovich, West Seneca; William P. Robinson, Lockport, and Eugene R. Trunzo, North Tonawanda, all of N.Y., assignors to Servotronics, Inc., Buffalo, N.Y., by said Robinson and Trunzo
Filed Sept. 27, 1971, Ser. No. 183,861
Int. Cl. A63f *7/06*
U.S. Cl. 273—85 E **16 Claims**

A game board having an upper surface with a basketball court displayed thereon on which a plurality of ball deflecting player pieces are movable under the control of the participants of the game to strike a ball and direct it in a desired direction. A plurality of wells or recesses having circular openings are provided on the board surface. Plungers are movable through these openings under the control of the participants to strike the ball when lodged in such openings to propel or catapult the ball toward an opponent's basket. Each



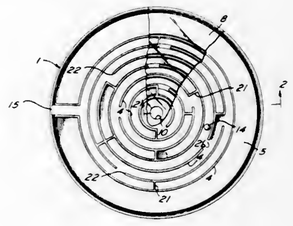
of the plungers is mounted so that it may be translationally adjusted along the board surface relative to the associated opening thereof. The plungers are further formed of a ductile plastic material so that they may be bent to finely adjust the lateral disposition of each plunger relative to its associated opening.

3,811,675
PROJECTOR, FIELD, AND TARGETS
Abraham M. Torgow, 185 E. 206th St., Bronx, N.Y.
Filed Apr. 6, 1972, Ser. No. 241,696
Int. Cl. A63b *71/02*
U.S. Cl. 273—101 **1 Claim**



A game combining strategy and skill has a game playing surface with two ends, the surface being marked off from each end in an assembly zone, numbered advance zones, and an option zone. Movable playing pieces are two sets of target symbols, usually representing soldiers, and shielding blocks. Each player has a shooting means operated from his end of the game surface with which he may knock down shielding blocks or soldiers of the other player. The shooting means is preferrably a spring operated cannon having a barrel, an axial rod in the barrel, an impulse plunger disposed about the rod, a compression spring urging the plunger towards the muzzle of the barrel, means locking and releasing the plunger in a rear position, and a projectile containing an axial bore disposed about the rod and ejected on release of the plunger. Emplacements at each end of the game surface or board have end walls through which the cannon project. Side nets extending between the emplacements contain projectiles on the playing surface.

3,811,676
FOOT OPERATED GAME APPARATUS
Sherry F. Greenberg, 1525 Redwood Ln., Wyncote, Pa.
Filed Jan. 10, 1973, Ser. No. 322,448
Int. Cl. A63f *7/16*
U.S. Cl. 273—110 **3 Claims**



A foot operated game apparatus for moving a ball element through a maze. The game apparatus includes a base frame with channels formed therein. A cover plate is mounted to an upper surface of the base frame and permits an operator to stand on the apparatus. A resilient member is secured to a lower surface of the base frame. As the operator applies pressure to a specific area of the cover plate, the resilient member is compressively displaced in that area and the base frame tilts. By manipulating foot pressure on various areas of the cover plate, the operator may tilt the apparatus in a predetermined direction to guide the ball through a predetermined path within the channels.

3,811,677
GAME PLAYED ON STILTS WITH NONROUND BALL
Jorge S. Saladrigas, Calk Uracoa Ota. Los Saladrigas Urbanizacion El Marquez, Caracas, Venezuela
Continuation of Ser. No. 888,584, Dec. 29, 1969. This application Apr. 11, 1972, Ser. No. 243,096
Int. Cl. A63b *67/00*
U.S. Cl. 273—118 R **1 Claim**

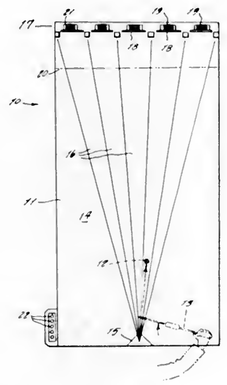


A game resembling Soccer-Football in which the players move on stilts and such stilts are used to "kick" a ball in the form of a modified cube having flattened corners and flattened edges.

3,811,678
HAT-SKEET OR CUP-SKEET
John Fink, P.O. Box 206, Blackfoot, Idaho
Filed Nov. 5, 1971, Ser. No. 195,909
Int. Cl. A63f *3/00*
U.S. Cl. 273—126 R **2 Claims**

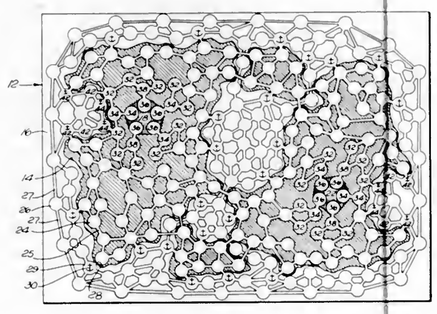
A sports type of game device for being played for fun, and which is modelled after skeet shooting, the game device consisting of a horizontal table panel of 4 by 8 feet, having a target on one end where there are a series of solonoid operated gates at the ends of a series of target lanes that extend diverging from a shooting area at the opposite end of the table panel,

and whereupon a hat-shaped, inverted cup is placed, the top of the cup having a cross slot into which one end of a piano



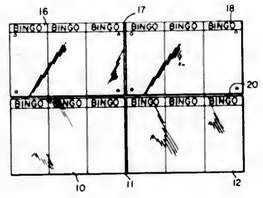
steel wire rod is receivable and which at its other end is held in the hand for flinging the cup along the target lanes toward the targets.

3,811,679
WARFARE GAME
Donald Benge, 1122 W. Burbank Blvd., Burbank, Calif.
Filed Sept. 22, 1972, Ser. No. 291,505
Int. Cl. A63f 3/02
U.S. Cl. 273—131 BB **7 Claims**



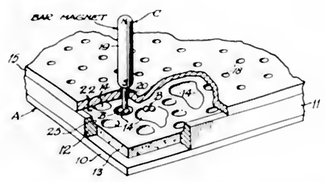
A game simulating warfare containing a game board and a plurality of pieces movable thereon. The game board represents a plurality of sections of land and bodies of water. The bodies of water are adjacent portions of the land. A plurality of spaces are positioned on the bodies of water and sections of land with the pieces movable only between adjacent spaces which are interconnected. The pieces are divided into land pieces and water pieces and in addition, are classified into different categories. Each piece of a specified category is movable a predetermined maximum number of spaces. The sections of land have at least one portion representing a "capitol" of each portion with a plurality of spaces assigned to each capitol. Each space in each capitol portion is connected to a single different space outside the capitol portion. The game is terminated when the pieces assigned to one of the capitols "occupy" the spaces assigned to one of the other of said capitols, or the pieces assigned to one of the other capitols "captures" the pieces assigned to the other capitol.

3,811,680
BINGO CARD HOLDER
Frederick E. Benesch, 957 Broadway Ave., Holbrook, N.Y.
Filed June 26, 1973, Ser. No. 373,858
Int. Cl. A63f 3/06
U.S. Cl. 273—136 G **10 Claims**



An arrangement for supporting game cards such as bingo cards on the lap of a player or on a table surface in front of the player. A plurality of boards are interlinked to accommodate a number of such game cards used by the player. Removable legs attachable to the boards allow the board to be supported on the lap of a player at an inclined angle, or on a table surface in front of the player. Interlinking or disengagement of the board are achieved without the application of tools.

3,811,681
GAME WITH MAGNETIC EXTRACTION OF COUNTERS
Danny H. Sprouse, and Muriel K. Sprouse, both of 1830 Oak St., Paso Robles, Calif.
Filed Dec. 15, 1972, Ser. No. 315,331
Int. Cl. A63b 71/06
U.S. Cl. 273—139 **10 Claims**

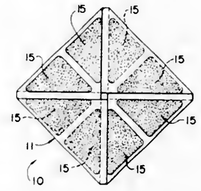


A hollow game board has a top panel provided with apertures through which spherical counters of magnetic (e.g., ferrous) material are extracted by applying a bar magnet to an aperture above one or more of the counters resting therebeneath. A bottom, spaced below the top panel, has a plurality of shallow indentations in which the counters may collect after being distributed by shaking the board. Counters of different colors have varying values representing, for example, gold, silver, uranium, etc., or ground water, oil deposits, etc., or may represent other items of value such as fish or game. The game may take several forms such as prospecting, fishing, hunting, etc. The counters are hidden from view.

3,811,682
FOLDING PUZZLE
Robert E. Neale, New York, N.Y.; Paul C. Wilhelmsen, Alamo, and David R. Winterhalter, Berkeley, both of Calif., assignors to Berkeley Applied Research Corporation, Alamo, Calif.
Filed June 1, 1972, Ser. No. 258,504
Int. Cl. A63f 9/08
U.S. Cl. 273—155 **4 Claims**

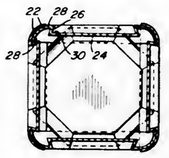
An interlocking folding puzzle is formed from an elongated rectangular web having a plurality of triangular stiffening

panels arranged thereon in spaced apart sets of four to form four repeating spaced apart edge aligned squares. Each of the squares is folded along one of its diagonals and the ends of the web are connected together such that each square forms one quarter of a composite interfolded square. Those portions of



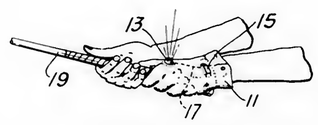
the web between the stiffening panels constitute hinges which enable the stiffening panels to assume various relationships relative to each other. The web is formed of polyethylene, polypropylene or polyvinylchloride to provide long life, non-memory hinges.

3,811,683
CUBE FORMING DISC PUZZLE
Frederick G. Street, 27 Jackson Ave., Bradford, Pa.
Filed Dec. 7, 1972, Ser. No. 311,729
Int. Cl. A63f 9/12
U.S. Cl. 273—157 R **4 Claims**



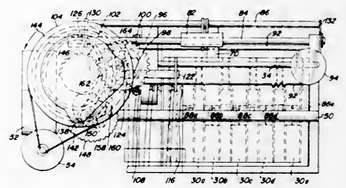
Six dish-shaped discs have curved upstanding marginal edge portions selectively interleaved at spaced peripheral points to define a cube unit. The discs are of varying configurations, including straight angularly related edges, retaining ribs of various angles, upstanding ears, domed center portions, cutout center portions, or oblong shapes, all to vary the degree of difficulty associated with the assembly of the discs into a cube.

3,811,684
GOLF SWING TRAINING GLOVE INCLUDING LIGHT PROJECTING DEVICE
Wynn B. Tredway, Sr., P.O. Box 130, Freeport, Pa.
Filed June 11, 1973, Ser. No. 368,812
Int. Cl. A63b 69/36
U.S. Cl. 273—183 B **5 Claims**



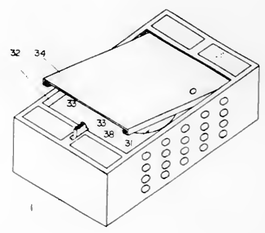
A golf swing training device wherein a golfer's glove supports and positions a light at the knuckle of the root of the forefinger of a golfer's hand so that when the golfer wears the glove and addresses a ball and then swings the club on the backswing properly, the rays of light from the light on the glove follow a prescribed path on an adjacent wall.

3,811,685
CASSETTE TAPE RECORDER WITH INDEXING HEAD
Robert Haake, Monrovia, Calif., assignor to Bell & Howell Company, Chicago, Ill.
Filed Dec. 3, 1971, Ser. No. 204,610
Int. Cl. G11b 5/00, 15/26
U.S. Cl. 360—92 **12 Claims**



There is disclosed tape recorder-reproducer which is adapted to receive and play a plurality of tape cassettes of the type having a plurality of separately playable record tracks, at least one of the record tracks being recorded in a direction opposite from the second of the record tracks. More particularly, the improvement in the tape recorder-reproducer comprises a movable record-reproducer head and a means for selectively indexing the head from a first position to a second position wherein the head reproduces one of the record tracks of the first cassette when in the first position and one of the tracks of the second cassette when the head is in the second position. Additional features are also disclosed.

3,811,686
CASETTE-TYPE TOY PHONOGRAPH
Katsumi Watanabe, No. 371 Ozenji, Kawasaki-shi, Kanagawa-ken, Japan
Filed June 28, 1971, Ser. No. 157,202
Int. Cl. G11b 3/40, 25/04
U.S. Cl. 274—9 C **1 Claim**

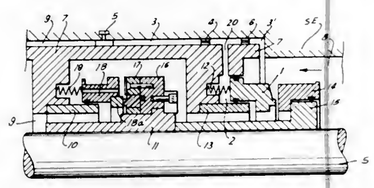


A toy electric phonograph comprising a housing having a top opening and a closure pivotally supported at one end within the opening. The closure has means on its inner surface for removably supporting a grooved record. The housing contains an upwardly pointed stylus which is suported rotatably to engage in the groove of the record to follow it from end to end. The closure is normally biased at its pivoted end to be upwardly tilted for record insertion and to simultaneously open a switch in the electric circuit. The housing is provided with a latch that automatically engages the other end of the closure when the latter is pressed down against it into level position, to lock it in place with the record in engagement with the stylus, simultaneously closing the switch in the circuit. The latch is automatically released when the stylus reaches the end of the record groove.

3,811,687
SHAFT SEAL

Ernst Honold, Frankenthal; Werner Hubner, and Hans-Dieter Sturm, both of Beindersheim, all of Germany, assignors to Klein, Schanzlin & Becker Aktiengesellschaft, Frankenthal Pfalz, Germany

Filed Feb. 3, 1972, Ser. No. 223,207
Claims priority, application Germany, Nov. 17, 1971, 2156953
Int. Cl. F16j *15/34, 15/54*
U.S. Cl. 277—28 **4 Claims**

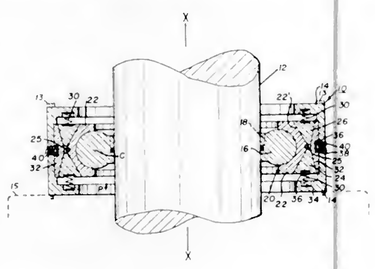


A shaft seal for reactor pumps has a rotary shaft surrounded by an element stationary relative to the shaft and defining with the same an annular clearance opposite open ends of which are exposed to fluid at high pressure and to the atmospheric pressure, respectively. A hydrostatic seal is located in the clearance adjacent the end exposed to fluid under pressure and includes a first ring rotatable with the shaft and a non-rotatable second ring which is urged into axial engagement with the first ring. A mechanical seal is located in the clearance adjacent the open end exposed to atmospheric pressure and between the two seals a chamber is provided which is connected via first and second passages with the opposite open ends of the clearance. Two fixed throttles are provided in these passages and a valve is located in the passage connecting the chamber with the end exposed to atmospheric pressure and can be opend and closed.

3,811,688
MECHANICAL SEAL FOR ROTARY SHAFT

Basil G. Smith, Kentville, Nova Scotia, Canada, assignor to Basil Smith Seals Limited, Nova Scotia, Canada

Filed Dec. 28, 1971, Ser. No. 213,202
Claims priority, application Canada, Dec. 29, 1970, 101600
Int. Cl. F16j *9/00, 15/16*
U.S. Cl. 277—39 **10 Claims**

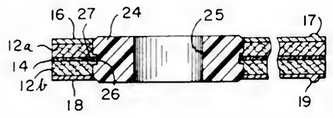


A mechanical seal includes a stationary housing of the type adapted to be mounted on and connected to a machine casing. A rotor is positioned within the confines of the housing and is rotatable relative thereto about an axis. This rotor includes an outwardly directed seal engaging surface. A floating seal ring surrounds the rotor and sealingly engages the same. The seal ring confines the rotor such that the only substantial movement which can take place therebetween is rotation of the rotor about the above mentioned rotation axis. This seal ring is radially spaced from the stationary housing. A device is provided which bridges the space between the housing and the floating seal ring and provides a fluid seal between them. The bridging device, seal ring and housing are so constructed and arranged as to permit floating movement of the seal ring relative to the housing in response to extraneous forces applied to the rotor while at the same time maintaining fluid sealing relation between the seal ring and housing.

3,811,689
PREFORMED BUSHING

Robert G. Farnam, New Lisbon, Wis., assignor to F. D. Farnam Co., New Lisbon, Wis.

Filed Aug. 2, 1972, Ser. No. 277,389
Int. Cl. F10j *15/06;* **F16j** *15/10*
U.S. Cl. 277—166 **7 Claims**

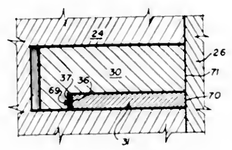


Annular bushings are provided with a circumferential projection or groove to index and retain the bushings in place in laminated insulator gaskets.

3,811,690
SEAL

Maurice J. Moriarty, 3225 W. Sahuaro Dr., Phoenix, Ariz.

Continuation of Ser. No. 66,333, Aug. 24, 1970, abandoned. This application Sept. 25, 1972, Ser. No. 291,756
Int. Cl. F16j *9/16*
U.S. Cl. 277—193 **2 Claims**



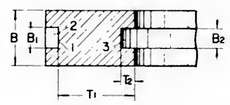
An improved seal primarily for piston ring use wherein leakage is minimized by means of a seal member overlaying the end gap of the ring member and a ridge on the ring member to prevent flow of fluids past the end portion of the seal member. Fast seating, low friction, and long life are provided by selection of materials and dimensions.

3,811,691
PISTON RING HAVING PERIPHERAL GROOVE

Eisuke Sugahara, Tokyo, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Sept. 3, 1971, Ser. No. 177,763
Int. Cl. F16j *9/20*
U.S. Cl. 277—224 **1 Claim**

A piston ring having a peripheral groove formed in its outer sliding surface for accommodating a ferrosoferric oxide to improve the wear-resistivity of the piston ring is modified by removing a segment of material from the piston ring. The segment of material, or balance cut, is provided at the

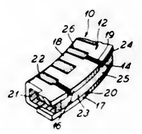


peripheral side of the piston ring for balancing the stress forces on the piston ring and thereby reducing the tensile stress on the outside periphery of the piston ring.

3,811,692
PLASTICS FILLED PISTON RING

Arthur M. Brenneke, New Castle, Ind., assignor to TRW Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 50,677, June 29, 1970, Pat. No. 3,697,090. This application May 30, 1972, Ser. No. 258,061
Int. Cl. F16j *15/16*
U.S. Cl. 277—231 **6 Claims**



A composite metal and plastics piston ring having a controlled operative load-deflection ratio. The piston ring is composed of a circumferentially expansible and contractible channel-type metal ring component and an elastomeric plastics material ring component anchored to and supported by the metal ring. The plastics material ring component has a peripheral wall and side walls with at least one side wall having integral ribs projecting therefrom into the gaps between the segments of the metal ring component and the ribs being spaced from the segments in the expanded free condition of the composite ring but engaging the segments to seal the gaps in the contracted, use condition of the composite ring. The composite piston ring is formed by compacting an elastomeric plastics material in a segmented circumferentially expansible and contractible channel-type metal ring component in its expanded, free condition to form a continuous plastics material ring component therein, contracting the compacted plastics-filled metal ring to its use condition to form ribs of the plastics material in the gaps between the segments of the metal ring component, and heating the compacted plastics-filled metal ring in its expanded, free condition to sinter the plastics material ring therein in an integrally bonded relation to the metal ring providing a composite metal and plastics piston ring.

3,811,693
DRILL CHUCK

George C. Derbyshire, Sheffield, England, assignor to The Jacobs Manufacturing Company, Limited, Sheffield, England

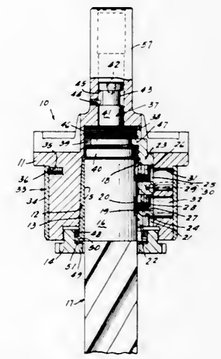
Filed Mar. 30, 1973, Ser. No. 346,420
Claims priority, application Great Britain, May 15, 1972, 22698/72
Int. Cl. B23b *31/04*
U.S. Cl. 279—18 **10 Claims**

A drill chuck having a sleeve for reception of a drill shank through a central hole in its front end into a body part in the sleeve, the body part carrying mutually slidable gripping members provided with apertures into which the shank is received and retained by means of adjustable screws in the slidable member. The sleeve is internally formed to carry a disc that bears against an outermost one of the gripping members, and the body is adapted for reception of a tanged end of a drill inserted into the chuck.

3,811,694
COLLET CHUCK

George L. Dahlman, Birch Run, and Leon O. Kern, Frankenmuth, both of Mich., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Filed May 31, 1972, Ser. No. 258,408
Int. Cl. B23b *31/04*
U.S. Cl. 279—83 **15 Claims**

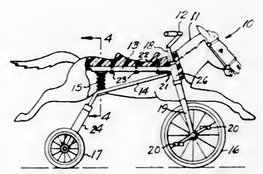


A collet chuck includes a body, a tapered collet received therein for receiving the shank of a tool, a nut acting between the body and the collet, axially slidable key means for effecting a positive drive from the body to the tool, and an axially adjustable end stop for being engaged by the end of the tool, said end stop being connected to the axially slidable key means.

3,811,695
TRICYCLE HORSE

Russell B. Curtis, Eagle Butte, S. Dak.

Filed June 23, 1972, Ser. No. 265,582
Int. Cl. B62m *29/00*
U.S. Cl. 280—1.192 **14 Claims**



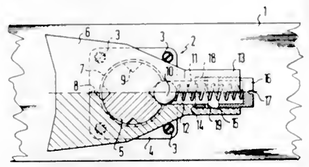
A toy for children having a simulated plastic horse to which is affixed on the interior with suitable fasteners a frame having

three wheels at its lower extremity. This device includes a main frame which secures the plastic horse to the device and includes also a pivotable front wheel to which is affixed a handle bar. The device is propelled by foot pedals and is supported at the rear novel spring means in order to initiate a rocking action.

3,811,696
SKI SAFETY BINDING ELEMENT WITH ADJUSTABLE RELEASE FORCE

Brigitte Sittmann, Stuttgart, Germany, assignor to Vereinigte Baubeschlagfabriken Gretsch & Co. (GmbH), Leonberg, Germany

Continuation-in-part of Ser. No. 303,032, Nov. 2, 1972. This application Jan. 22, 1973, Ser. No. 325,247
Claims priority, application Germany, Jan. 27, 1972, 2203867
Int. Cl. A63c *9/08*
U.S. Cl. 280—11.35 T **14 Claims**

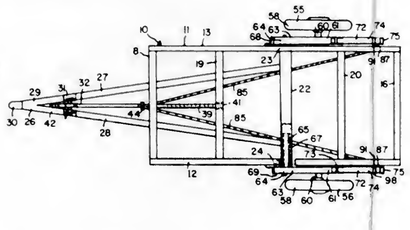


A pivotally mounted toe holder in a ski safety binding is held in its angular operating position by a spherical detent engaging a radial notch in the shaft carrying the toe holder. The detent is biased inward of the recess by a helical compression spring whose stress may be adjusted by a threadedly mounted backing member. An abutment member has an abutment face in the tubular guide member receiving the spring and partly receiving the detent and the backing member, and impedes or prevents excessive tightening of the spring by threaded movement of the backing member inward of the guide member.

3,811,697
VERTICAL LIFT TRAILER

Alvin P. Armstrong, Vancouver, British Columbia, Canada, assignor to Kolof Holding Limited, West Vancouver, British Columbia, Canada

Substitute for Ser. No. 730,780, May 21, 1968. This application Jan. 11, 1971, Ser. No. 105,435
Int. Cl. B62d *21/18*
U.S. Cl. 280—43.18 **6 Claims**

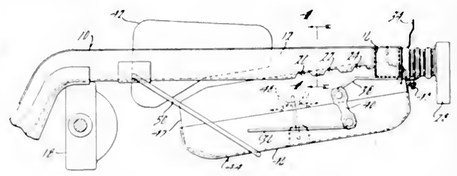


A trailer having a pair of ground engaging wheels mounted on the after ends of a pair of elongated supporting members the latter being swingably connected for rotation about a transverse axis to the trailer frame. Leaf springs, to which operating cables are connected, extend rearwardly from the supporting arms for swingably positioning the latter relative to the trailer frame when operated by cables.

3,811,698
STRUCTURE FOR A MOTOR VEHICLE

Patrick M. Glance, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 29, 1972, Ser. No. 239,062
Int. Cl. B62d *27/04*
U.S. Cl. 280—106 R **12 Claims**

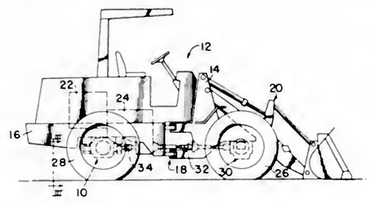


A frame structure for the chassis of a motor vehicle having a construction designed to absorb kinetic energy by plastic deformation of the frame components. The frame has longitudinally extending side rails with fluted lower edges in side elevational view. When an impact load is exerted against the end of the frame assembly, the side rails will collapse by bending at each flute in a progressive manner to absorb the energy of the impact.

3,811,699
AXLE TRUNNION SUPPORT ARRANGEMENT

Robert Casey, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 21, 1972, Ser. No. 282,136
Int. Cl. B60g *9/02*
U.S. Cl. 280—111 **6 Claims**



There is disclosed a trunnion support assembly for pivotally supporting an axle to a vehicle. The trunnion comprises a sleeve member extending into a pilot bore in the axle housing and held in place by a thrust plate and a single set of bolts.

3,811,700
AXLE CLAMP FOR SHEAR RUBBER VEHICLE SUSPENSION

Robert G. Moore, Elkhart, Ind., assignor to Hickman Developments, Inc., Eden, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,815
Int. Cl. B60g *11/24*
U.S. Cl. 280—124 R **4 Claims**

In adapting the suspension of the Hickman U.S. Pat. No. 3,279,820 to rear drive axles with round tubular ends, conventional U-bolt clamps between the axle ends and the out-of-round torsionally rigid beam extending lengthwise of the line of vehicle travel were found inadequate. The present clamp avoids this inadequacy by providing plates fitting the top and bottom sides of each torsionally rigid bar; U-bolts embracing the corresponding round tubular axle end with their legs extending through openings in these plates; vertical spacers interposed under pressure between these plates and embracing

the torsionally rigid beam and arranged between the corresponding legs; and blocks in line with the spacers and interposed under pressure between the axle end and the adjacent

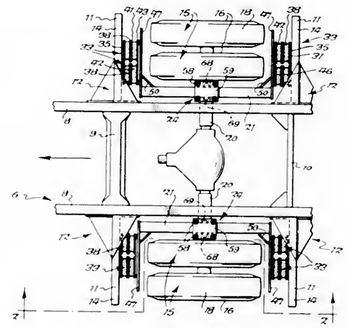


plate. The spacers and blocks unify the torsionally rigid beam, plates, U-bolt legs and axle to prevent destructive strains on the legs.

3,811,701
RESTRAINING DEVICE FOR A VEHICLE PASSENGER

Geoffrey Grime, Swansea, England, assignor to Britax (London) Limited, Byfleet, England

Division of Ser. No. 157,110, June 28, 1971, Pat. No. 3,764,159. This application July 18, 1973, Ser. No. 380,277
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 B **19 Claims**



A restraining device to restrain an occupant of a vehicle. The device may be a pad or belt attached to a member movable alongside the occupant's seat between an operative position where the pad or belt is adjacent the occupant's chest and an inoperative position spaced from the occupant's chest. The member is either slidable or pivotable and preferably attached to inertia locking means and a device for absorbing forward momentum of the occupant on deceleration of the vehicle. The member can be automatically positioned in its operative position when the vehicle is occupied or used whereby a passive restraint is provided.

3,811,702
SAFETY DEVICE FOR MOTOR VEHICLE

Yoshiya Kurasawa, Yokohama, and Syuichi Otani, Tokyo, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

Filed June 5, 1972, Ser. No. 259,768
Claims priority, application Japan, July 15, 1971, 46-62393[U]
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 SB **1 Claim**

A safety device for protecting a vehicle occupant from injury during a collision of a motor vehicle, which device includes a seat belt extending over the seat portion of a seat of the motor vehicle, and a shock absorber associated with the seat belt for absorbing an energy of the vehicle occupant due to a sudden deceleration of the motor vehicle when the motor vehicle encounters the collision. The shock absorber includes a cylinder body having a fluid chamber containing therein a fluid, the cylinder body being connected at one end to a leading end of the seat belt, a piston slidably disposed in the fluid chamber of the cylinder body, a connecting rod connected to the piston and movable therewith, a coupling means having

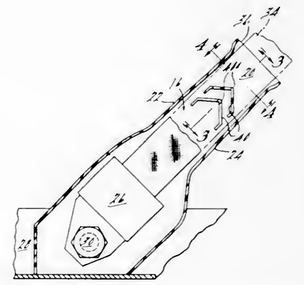


one end connected to the other end of the cylinder body and the other end pivotally connected to a structural part of the motor vehicle, and destructible retaining means provided for connecting the other end of the cylinder body to the destructible means for retaining the piston in a rest position, the retaining means being destroyable when the seat belt connected to the cylinder body is subjected to a predetermined magnitude of tension due to the forward movement of the vehicle occupant during the collision of the motor vehicle.

3,811,703
SAFETY BELT PROTECTOR

Frank D. Turkovich, Madison Heights, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Nov. 30, 1972, Ser. No. 311,028
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 SB **5 Claims**

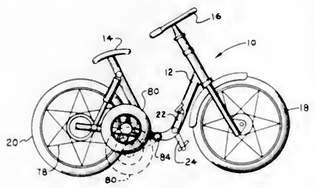


A safety belt webbing guard for use in conjunction with a safety belt retractor mechanism which will remove any folds or twists in the webbing which might occur during safety belt usage before such twists interfere with functioning of the retractor. The guard comprises a sleeve portion through which the webbing passes just prior to being wound on the retractor with the sleeve being provided with runners which contact the webbing. The runners are shaped to unfurl any twists or loops which may be in the safety belt webbing.

3,811,704
SELF-PROPELLED HYDRAULICALLY DRIVEN VEHICLE

Bran F. Gregoric, 4685 Central Blvd., Ann Arbor, Mich.

Filed Oct. 12, 1972, Ser. No. 296,871
Int. Cl. B62m *3/00*
U.S. Cl. 280—216 **3 Claims**

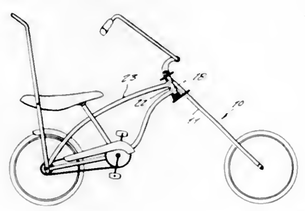


A self-propelled bicycle-type vehicle comprising a frame, front and rear wheels supporting the frame, a foot pedal actuated pump on the frame operable to provide fluid under pressure and a torque producing mechanism associated with the bicycle drive wheel and driven by fluid from the pump. The vehicle also has two auxiliary side wheels which are movable between retracted and ground engaging positions. The side wheels engage the ground so as to prevent the vehicle from tipping over when the vehicle is at rest or is moving slowly. A pump actuated lift system on the frame retracts the wheels when the vehicle has achieved a predetermined speed.

3,811,705
EXTENDED FRONT END FOR A BIKE

Michael D'Ambra, 59 Seba Ave., Brooklyn, N.Y.

Filed May 2, 1972, Ser. No. 249,663
Int. Cl. B62k *3/00*
U.S. Cl. 280—279 **1 Claim**



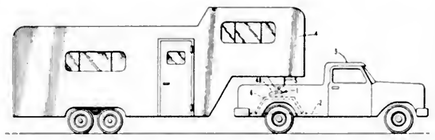
A special steering fork for replacing the standard steering fork of an ordinary bicycle, so to raise and extend the bicycle front end, thus giving it the appearance of an easy rider; the device consisting of a pair of parallel steel plates which are also secured to a fork neck tube that extends angularly respective to the long fork tubes and which pivotally supports the front end of the bicycle frame.

3,811,706
TRAILER HITCH

Raymon Z. Tucker, Elkhart, Ind., and Jack O. Benson, Union, Mich., assignors to Schott Industries, Inc., Cincinnati, Ohio

Filed Jan. 2, 1973, Ser. No. 320,605
Int. Cl. B62d *53/12*
U.S. Cl. 280—407 **14 Claims**

A hitch apparatus for securing a trailer to a towing vehicle. In particular a hitch is provided which is useful for securing trailers of the type known as "Fifth Wheel" trailers to a pick-up truck and includes a pair of outrigger supports secured to the truck bed and extending over the rear wheel wells, and a removable crossmember which is mountable at a plurality of points on the outrigger supports to insure placement of the crossmember for maximum support with respect to the rear axle. The hitch further comprises a locking mechanism

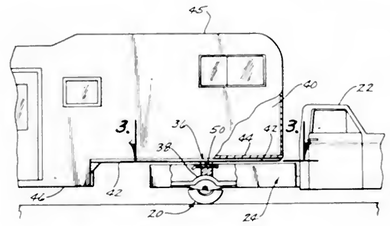


mounted on the crossmember which automatically engages the mating element upon contact. The hitch apparatus achieves further stability by having a mating element which may be adjustably extended from the towed vehicle. The hitch is provided with a self-locking feature and means for securing the lock in a locked or unlocked position.

3,811,707
FIFTH WHEEL TRAILER AND PRIME MOVER THEREFOR

Calhoun G. Jeambey, 7013 Palm Dr., Des Moines, Iowa

Filed Aug. 7, 1972, Ser. No. 278,604
Int. Cl. B62d *53/00*
U.S. Cl. 280—423 R **3 Claims**



A fifth wheel trailer and prime mover therefor is disclosed which substantially increases the head room in the living compartment at the forward end of the trailer. The living compartment at the forward end of the trailer has a floor structure at the lower portion thereof which is supported by a substantially shallow frame structure. The prime mover has a fifth wheel hitch mounted on the frame of the prime mover. The frame structure of the trailer extends closely over the rearward end of the prime mover frame.

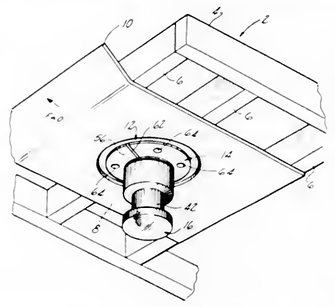
3,811,708
TRAILER HITCH

George L. Baaso, Royal Oak, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 13, 1973, Ser. No. 331,752
Int. Cl. B62d *53/08*
U.S. Cl. 280—433 **12 Claims**

A kingpin socket has a vertical opening which is frusto-conical at the bottom, converging upward, and horizontally slotted at the top. A kingpin has a T-head that passes through the socket slot and is then turned to place the T across the slot against a stop. A radially split nut having an external conical surface engages a thread on the kingpin and tightly frictionally

grips the socket cone. Cooperating cylindrical surfaces on the kingpin and in the socket give the assembly lateral stability,



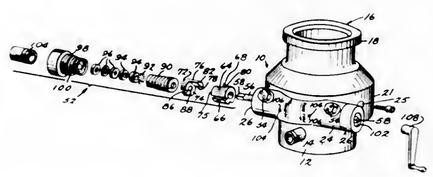
and a sleeve welded to an upper surface of the socket and to the trailer floor gives the socket added stiffness and strength.

3,811,709
FULL BORE CASING HEAD

John K. McGee, and Marvin L. Holbert, Jr., both of Houston, Tex., assignors to Gray Tool Company, Houston, Tex.

Filed Sept. 6, 1972, Ser. No. 286,755
Int. Cl. F16l *35/00*
U.S. Cl. 285—39 **12 Claims**





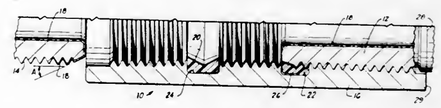
The casing head has a throughbore which is equivalent in diameter to that of the control equipment (e.g., blowout preventers) that are installed above the head. Expansible support ring means are installed in the head to hang casing. A drill bit of larger diameter than the internal diameter of the contracted ring may be pulled up through the ring should the operator have forgotten to expand it. Wash out ports are provided to prevent accumulation of foreign matter in the working space of the support ring. The invention is applicable to single, multi-bowl and compact head completions.

3,811,710
SEALED TUBULAR JOINT

Alfred A. Dula, and Elwood Wehring, both of Houston, Tex., assignors to Pipe Specialties, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 876,307, Nov. 13, 1969, abandoned. This application Oct. 22, 1971, Ser. No. 191,644
Int. Cl. F16l *9/14*
U.S. Cl. 285—55 **6 Claims**

A sealed joint for threaded tubular members including a male threaded member, a female threaded member having an internal groove interrupting its internal threads and a sealing ring in the groove and having an internal taper to seal against the external end taper of the male member. The internal groove in said female member having a tapered surface of increasing diameter in a direction away from the nearest end of the female member. The sealed joint is also suitable for use with internally coated tubular members, and the coating ex-

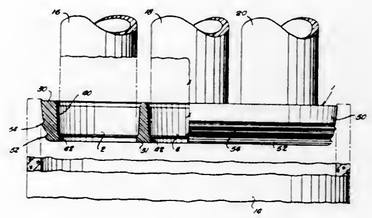


tends only partially through the groove in the female member. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,811,711
MULTIPLE CONCRETE TO PLASTIC PIPE ADAPTER

Ernest L. Tarkenton, Mineral Wells, Tex., assignor to Harsco Corporation, Harrisburg, Pa.

Filed Oct. 3, 1972, Ser. No. 294,568
Int. Cl. F16l *39/00*
U.S. Cl. 285—110 **1 Claim**



An adapter for connecting a plurality of circular pipes to a rectangular tube to form conduits for electrical wires and communication cables. The adapter has a plurality of passages formed therein having annular shoulders extending into each passage. Surfaces on a pipe when inserted in the passage urge the shoulder and ribs on the outer periphery of the adapter outwardly such that the shoulder seals against the outer surface of the pipe and ribs on the outer surface of the adapter seal against inner surfaces of the tube in which it is inserted.

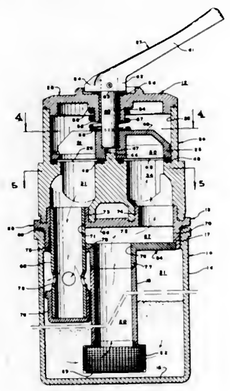
3,811,712
ADAPTER

Salvatore E. Barrera, Mountaintop, Pa., assignor to Wilkes Pool Corporation, Berwick, Pa.

Filed May 9, 1972, Ser. No. 251,710
Int. Cl. F16l *47/00*
U.S. Cl. 285—132 **4 Claims**

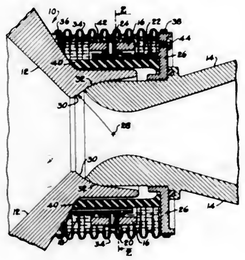
An adapter suitable for conducting separate streams of fluid between a device having a pair of ports and a container having an internally threaded opening communicating with first and second chambers within the container, generally including a housing defining a chamber and having external threads for threading the housing into the internally threaded opening of the container, an outer port communicating with the housing chamber and communicable with one of the pair of ports of the device, an inner port communicating with the housing chamber and communicable with the second container chamber, and means projecting through the housing chamber intercommunicating the other of the pair of ports of the device and the first container chamber when the device is mounted

on the adapter with one of the pair of ports of the device communicating with the outer port of the housing and the adapter



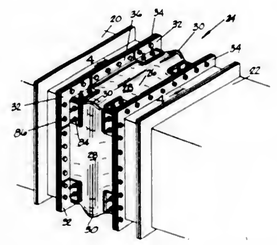
is threaded into the internal-threaded opening of the container with the inner port of the housing communicating with the second container chamber.

3,811,713
FLUID-TIGHT HIGH TEMPERATURE FLEXIBLE JOINT
Hillard E. Barrett, Hillsdale; Donald B. Clark, Wayne, and Bernard Seid, Cedar Grove, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Nov. 28, 1958, Ser. No. 776,872
Int. Cl. F16l *5/00*
U.S. Cl. 285—226 **7 Claims**



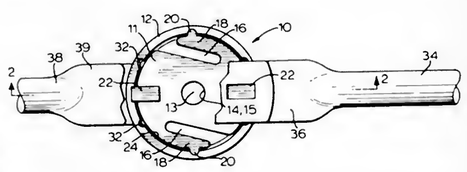
1. A flexible fluid tight connection for high temperature gases; said connection comprising first and second substantially abutting tubular parts for transmitting said gases; means disposed outside of the abutting ends of said tubular parts and connecting said parts together so as to permit tilting adjustment of the axis of one of said parts relative to that of the other of said parts; an annular flexible diaphragm having one end connected to one part and the other end connected to the other part, said diaphragm being disposed so as to bridge the outer side of the abutting ends of said parts so as to provide a seal there across; a ring of rubber-like material also bridging the outer side of the abutting ends of said parts but being disposed inwardly of both said diaphragm and said connecting means, said ring having a first portion bonded to one of said parts and a second portion bonded to the other of said parts so as to provide an annular sealed space between said ring and diaphragm; and a liquid disposed within said sealed space.

3,811,714
CORNER ADAPTORS FOR EXPANSION JOINTS
Frederick Bruce Pintard, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.
Filed Apr. 24, 1972, Ser. No. 246,615
Int. Cl. F16l *51/02*
U.S. Cl. 285—229 **11 Claims**



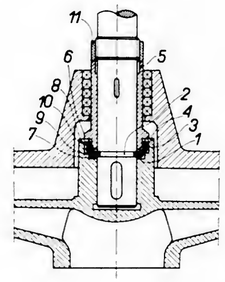
A corner adaptor for a frameless flexible expansion joint comprises inner and outer complementary members adapted to be secured together and to a corner of a duct. A corner of the expansion joint boot is received between the inner and outer members and is secured thereto whereby each corner adaptor positions, reinforces, seals, supports and secures a corner of the boot to a corner of the duct. Intermediate the corner adaptors, clamping bars secure the boot directly to the duct to complete the connection of the boot to the duct. The corner adaptor accommodates both flat belt boots and molded corner boots.

3,811,715
RETRACTOR ASSEMBLY
Peter E. Brudy, Willowdale, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Ontario, Canada
Filed Aug. 21, 1972, Ser. No. 282,434
Claims priority, application Great Britain, Aug. 31, 1971, 40,656/71
Int. Cl. F16c *11/10*
U.S. Cl. 403—93 **13 Claims**



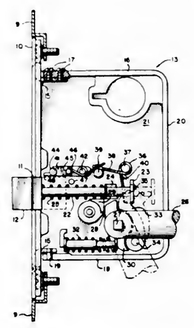
This invention provides a retractor assembly in which a first and second member are connected adjustably by a bolt means or the equivalent so that they may rotate about a common axis with respect to each other. One of the members has radially outwardly directed rib means which resist deformation away from an unstressed position, while the other member has a conically diverging wall centered on the axis, the wall having a number of outward grooves adapted to receive the rib means upon mutual rotation of the members. The members are capable of mutual axial displacement to compensate for wear of the rib means.

3,811,716
SYSTEM FOR LOCKING A HUB OF ROTODYNAMIC PUMP ROTOR ON PUMP SHAFT
Stanislaw Morzynski, Zamenhofa St. 13/6, Zabrze, Poland
Filed Dec. 27, 1972, Ser. No. 318,855
Claims priority, application Poland, Mar. 1, 1972, 152737
Int. Cl. F16b *11/00*
U.S. Cl. 403—204 **3 Claims**



A disconnectable locking system or arrangement between a rotor hub and pump shaft of a roto-dynamic pump when a shaft portion is inserted into a bore of the hub, including a locking sleeve on the shaft adapted to be moved by the action of a threaded nut so as to have one end thereof extend into the hub bore until a thrust shoulder on the sleeve engages the hub, the end of the sleeve being chamfered and adapted to contact a first split ring positioned in a recess in the hub bore so as to in turn contact a second split ring fastened to the shaft and forming a thrust surface with said first split ring.

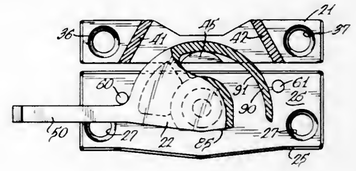
3,811,717
LATCH BOLT STOP LEVER FOR FIRE DOOR LOCK SETS
Alfred E. Floyd, North Guilford, and Lars E. Erickson, Clinton, both of Conn., assignors to Sargent and Company, Division of Walter Kidde & Co. Inc., New Haven, Conn.
Filed Mar. 1, 1973, Ser. No. 336,932
Int. Cl. E05f *15/20*
U.S. Cl. 292—92 **6 Claims**



This specification discloses a fire door lock set incorporating a latch bolt having a latch bolt stop lever which is normally maintained in an ineffective position by a fusible pin, but which drops into a position holding the head of the latch bolt in door closing position when the pin melts at a predetermined temperature caused by a fire condition.

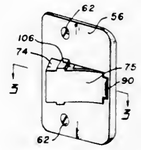
The present invention relates to the lock set incorporating a latch bolt and associated mechanism in a fire door and is concerned primarily with a latch bolt stop lever which is under the control of a fusible pin.

3,811,718
SASH LOCK
Wayne C. Bates, Owatonna, Minn., assignor to Truth Incorporated, Owatonna, Minn.
Filed Aug. 10, 1972, Ser. No. 279,371
Int. Cl. E05c *3/04*
U.S. Cl. 292—241 **8 Claims**



A sash lock for double hung windows with the locking lever thereof provided with a smooth top to avoid collection of dirt and other foreign material and having design strength even if made of plastic to function with a keeper member to draw the window sash together in a vertical direction and having a second, unexposed, cam surface coacting with a lug on a keeper member to draw the meeting rails of the sash tightly together in a horizontal direction.

3,811,719
DOOR LATCHING ASSEMBLY
Stuart G. McBurnie, Burnaby, British Columbia; William A. W. Jorgensen, West Vancouver, British Columbia, and Michel L. E. Rocher, Vancouver, British Columbia, all of Canada, assignors to Velto Industries, Ltd., Vancouver, British Columbia, Canada
Filed Nov. 30, 1972, Ser. No. 310,803
Int. Cl. E05c *1/08*
U.S. Cl. 292—254 **6 Claims**

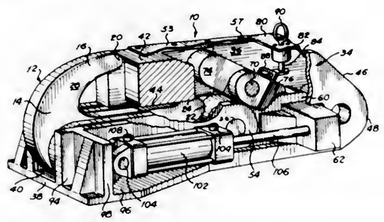


A latching assembly for attachment to a door frame and including a housing and a latch bolt. The bolt is connected at one end to a part of the housing to allow the bolt to swing in a horizontal plane between latched and unlatched positions. Additional reinforcing means is provided to resist forces tending to move the bolt across the door frame whereby the assembly can be lightly and inexpensively constructed.

3,811,720
RELEASABLE HOOK
Irving Epstein, 4216 Shore Club Dr., Mercer Island, Wash.
Filed Nov. 9, 1972, Ser. No. 305,089
Int. Cl. B66c *1/38*
U.S. Cl. 294—83 R **21 Claims**

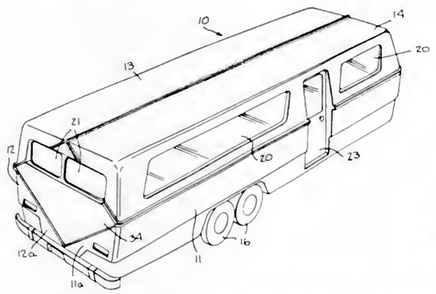
In the mooring of ships and boats to a dock, it is necessary to have a line running from the ship or boat to the dock. The line can be more or less tight and must be fixed so as to allow

relatively sudden movements of the ship or boat with respect to the dock. Then, when it is necessary to allow the ship or boat to sail away from the dock, it is necessary to disengage the line from the fastening means on the dock. This invention relates to a fastening means whereby a line can be positioned to the fastening means for securing the ship or boat adjacent



to the dock. Then, the person on the dock can, by means of a motor and electric control, if desirable, at a remote position from the fastening means, actuate the fastening means to allow the line to slip away from the fastening means and also to allow the ship or boat to sail away from the dock. This fastening means is identified as a releasable hook.

3,811,721
MOBILE BODY AND METHOD OF MAKING SAME
Richard C. Bolesky, Warsaw, Ind., assignor to Uniroyal, Inc., New York, N.Y.
Filed June 1, 1972, Ser. No. 258,673
Int. Cl. B62d *29/04*
U.S. Cl. 296—28 R **18 Claims**

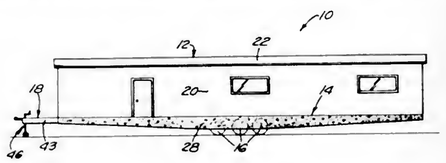


A mobile body, especially a mobile travel trailer body, formed from a plurality of angled sections of thermoplastic sheet material water-tightly joined to one another along their edges. In a preferred embodiment, a mobile travel trailer body is formed from four such quarter sections, a four-sided portion of thermoplastic sheet material water-tightly closing each end of the hollow four-sided body. A novel method of making such a body is shown. The lower pair of quarter section members of the resulting body are typically secured to a rigid frame having a plurality of road-engaging wheels mounted thereon.

Another embodiment utilizes a pair of quarter section members cooperating with a conventional half section member for forming the body portion of the mobile trailer.

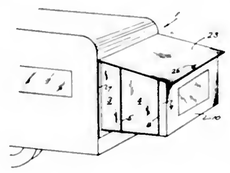
3,811,722
FOUNDATION STRUCTURE FOR MOBILE HOME
George T. Jones, P.O. Box 3217, Blue Jay, Calif.
Filed Dec. 7, 1972, Ser. No. 311,739
Int. Cl. B60b *3/32*
U.S. Cl. 296—23 R **5 Claims**

A foundation structure for mobile homes, comprising a prestressed, or post-stressed, lightweight concrete base, having longitudinally and transversely extending flanges on the underside, which give it structural stiffness and rigidity. The concrete base is much heavier than the conventional steel framework underbody, and a larger proportion of the total mass is incorporated in the foundation structure, so that the center of gravity of the complete mobile home is lowered to a level just about at the tops of the wheels, making it very stable.



Cast concrete underbody requires less labor to build, its cost is less, no painting is required, needs no wood floor and therefor is less susceptible to termites, and conduits for plumbing, electric wires, and ventilation air can be cast in place. Prestressed steel reinforcing rods or cables are embedded in the flanges, and are bent to obtain maximum vertical force vectors at the ends of the concrete structure.

3,811,723
CAMPING TRAILER
William H. Anderson, 236 Pearl St. Apt. 11, Oregon City, Oreg.
Filed Sept. 25, 1972, Ser. No. 291,883
Int. Cl. B60p *3/34*
U.S. Cl. 296—26 **1 Claim**

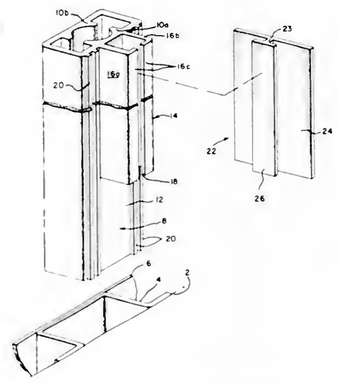


An expansible and retractable housing adapted for concealed securement, when collapsed within the rearward end of a camping trailer or similar vehicle, and when extended and expanded to provide an additional bedroom or the like. The housing comprises foldable side walls made of panels hingedly interconnected to each other and to the the sides of an opening in a wall of the trailer or to a frame secured within said opening. A top wall for the housing is hingedly attached along the top edge of said opening in the trailer wall and when swung outwardly and upwardly serves as a roof for said housing when the housing is fully extended from its concealment within the opening, or within the confines thereof. The housing includes a bottom wall or platform adapted to be swung from a vertical position on the interior of the camper then downwardly and outward to provide a bottom wall or floor for the extended housing.

3,811,724
CARGO CARRYING VEHICLE
Ernest F. Woodward, 11 Circle Dr., Camp Hill, Pa.
Continuation-in-part of Ser. No. 186,051, Oct. 14, 1971, and Continuation-in-part of Ser. No. 210,498, Dec. 21, 1971, Pat. No. 3,764,177. This application Jan. 17, 1973, Ser. No. 324,399
Int. Cl. B62d *27/06*
U.S. Cl. 296—36 **6 Claims**

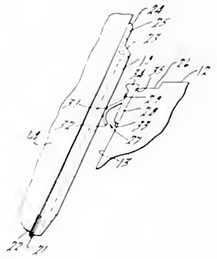
A quickly removable two-part stake for a flat bed cargo carrying vehicle, the parts of which are easily attached together

to form between them opposite channels for retaining the side edges of panels therein, and for quickly detaching them for removing the panels. The relative lengthwise movements of the parts of the stake and panels in both instances, are much less than the height of the panels or stakes. Also, the stakes



provide both anchoring and storage means for tarpaulin bows which have pivoted ends removably anchored in the stakes. A tie-down for the cargo which passes under the bottom edge of a panel is anchored to an anchor base secured to the edge of the platform outside of the enclosure formed by the removable panels.

3,811,725
LATCH AND ANTI-RATTLE CLIP
David J. Bauer, Taylor, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed June 29, 1973, Ser. No. 375,214
Int. Cl. B60n *1/02*
U.S. Cl. 296—66 **4 Claims**

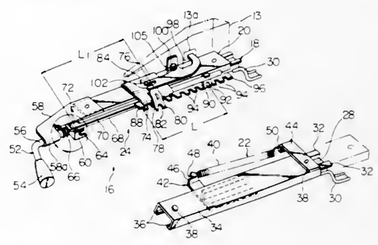


A combination latch and anti-rattle clip for a folding seat structure having a backrest panel pivotally mounted on the floor of a vehicle body. An elevated deck extends rearwardly of the floor and an upstanding wall extends from the floor to the deck. An extension panel is hinged to the backrest panel for pivotal movement with the latter from an upstanding position to a position in which the backrest panel, extension panel and elevated deck form a flat surface, the extension panel filling a space or gap between the backrest panel and elevated deck. The extension panel has a socket adjacent its edge opposite to its hinged edge.

The combination latch and anti-rattle clip comprises a high density elastomeric member having a flat base portion adapted to be mounted on the upstanding wall. A downwardly depending arcuate flange projects forwardly from the base portion intermediate the upper and lower edges of the latter. A terminal edge of the arcuate flange is in spaced relation to the bottom edge of the base portion. The arcuate flange is stiffly resiliently flexed toward the base portion upon engagement by the extension panel when the latter is folded against the backrest panel when both are in upstanding position thereby to provide the anti-rattle function.

At its upper edge the base portion is provided with an enlarged rib portion in spaced relation to the arcuate flange, the rib portion having on its rear edge a lip adapted to overlie the juncture of the upstanding wall and the elevated deck. The enlarged rib is receivable in the extension panel socket to latch the latter in planar relationship to the deck when the extension panel is in horizontal position between the backrest panel and elevated deck.

3,811,726
MOVABLE SEAT FOR A MOTOR VEHICLE
Masakazu Muraishi; Noriaki Hamada; Toshiyuki Shinkawa, and Tomiji Arai, all of Tokyo, Japan, assignors to Nissan Motor Company, Limited and Ikeda Bussan Company, Limited, both of Yokohama City, Japan
Filed July 3, 1972, Ser. No. 268,841
Claims priority, application Japan, Nov. 12, 1971, 46-90477; July 10, 1971, 46-50678; July 10, 1971, 46-50676
Int. Cl. A47c *1/02*
U.S. Cl. 297—341 **6 Claims**

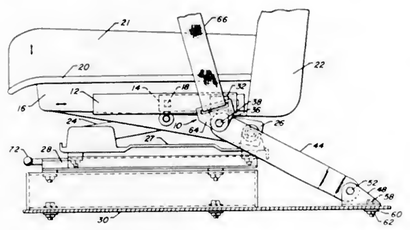


An adjustable support structure for a seat unit of a motor vehicle, which structure permits fore and aft adjustments of the seat unit. The adjustable support structure comprises a stationary base member for fixing to a floor panel of the motor vehicle in laterally spaced and parallel relation to extend upwardly from the floor panel beneath the different seat ends in fore and aft relation thereto, a movable support member slidably carried on the stationary base member for fore and aft adjustments therealong and fixedly mounted thereon frame structures for the seat unit, a biasing means operatively interposed between the stationary base member and the movable support member for biasing the movable support member in forward direction, and a latch mechanism selectively releasable to cause the movable support member to automatically move in the forward direction under the force of the biasing means when the seat back is tilted forwardly to a predetermined angle.

3,811,727
SEAT BELT ANCHOR MECHANISM FOR ADJUSTABLE SEAT
Harvey R. Rumpel, West Allis, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Dec. 15, 1972, Ser. No. 315,719
Int. Cl. A62b *35/00*; **B60r** *21/10*
U.S. Cl. 297—385 **4 Claims**

Seat belt anchor mechanism for vertically movable suspension seat having fore and aft adjustment feature provides an anchor point for a lap belt which is spaced from the vehicle

floor and movable relative to the floor. The anchor point is on a guide member carried by a slide on the upper movable seat frame and is movable vertically with the seat suspension but remains stationary when the movable seat frame is adjusted fore and aft. The guide member and anchor point are carried

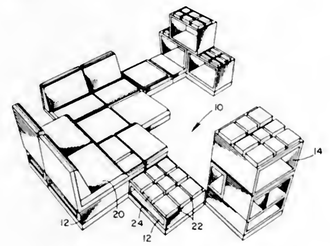


at the end of a pivot link attached at its rearward end to the floor or rear wall of the vehicle at such an angle as to fully support the anchor point and eliminate the necessity for an auxiliary tether belt. The mechanism permits the lap belt to remain relatively stationary relative to the occupant, regardless of the amount of movement of the suspension.

3,811,728
PLASTIC MODULAR FURNITURE

Richard K. Redemske, 4824 W. Hutchinson, Chicago, Ill.

Filed July 3, 1972, Ser. No. 268,545
Int. Cl. A47c *7/00*; **A47b** *57/08*, *47/00*
U.S. Cl. 297—440 **9 Claims**



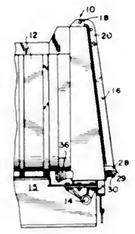
This invention relates to a new concept for plastic modular furniture using a unique system to combine individual modular components into a plurality of combinations for seating, sleeping, or storage. The invention comprises a plurality of individual molded plastic base modules having a plurality of grooves formed on one face thereon, and a plurality of shells for sitting, sleeping, storage, and table tops, having a perimetal ridge suitable for engaging anyone of the plurality of grooves on said base module. The positioning of the perimetal ridge into the grooves enables a plurality of combinations to be formed into sitting, sleeping, and storage units.

3,811,729
DUMP TRAILER HAVING AUTOMATIC TAIL GATE LOCK

George F. Vornberger, Cincinnati, Ohio, assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 11, 1972, Ser. No. 313,884
Int. Cl. B60p *1/26*
U.S. Cl. 298—23 M **5 Claims**

A dump truck trailer body having a swinging tail gate engaged by a pneumatically operated locking arrangement comprising a swinging spring biased locking hook operatively attached to a pneumatic cylinder which is actuated to disengage the locking hook from the swinging tail gate and permit gate opening. Release of air pressure from the pneumatic operating

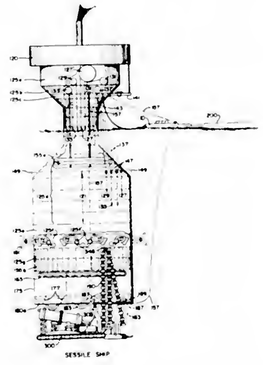


cylinder allows the hook biasing springs to force the locking hook into locking engagement with the lower portion of the swinging tail gate.

3,811,730
DEEP SEA MINING SYSTEM

Ernest Blaney Dane, Jr., 57 Tyler Rd., Belmont, Mass.

Continuation-in-part of Ser. No. 148,853, June 1, 1971, abandoned, and a continuation-in-part of Ser. No. 754,191, Aug. 21, 1958. This application Aug. 29, 1972, Ser. No. 284,606
Int. Cl. E02f *7/00*
U.S. Cl. 299—8 **20 Claims**

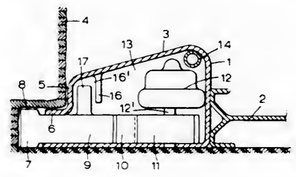


A deep sea mining system for mining ore from the surface of an ocean bed using a mining plant that travels the bed, a Sessile ship, and an interconnecting hoist pipe circuit. The system is transported to the mining site by a ship with streamline and structural strengthening sections which are later detached and reassembled into an auxiliary vessel. The hoist pipe circuit is towed to the mining site in sections which, during assembly of the hoist pipe circuit, are used to lower the plant to the ocean bed. After being lowered, the plant covers the bottom, the Sessile ship following the course of the plant, continually hovering over it. A scraper bucket system mounted on arms incorporated by the plant scrape ore nodules from the surface of the bed. The plant cleans the nodules of valueless mud, crushes them to particle size and couples the ore particles to the hoist pipe circuit where they are lifted as slurry and deposited in bins of the hovering Sessile ship.

3,811,731
LONGWALL CUTTER DRIVEN BY EQUALLY SPACED MOTORS

Bernhard Sann, Aachen, Germany, assignor to Gewerkshaft Eisenhutte Westfalia Methmar bie Lunen, Westfalia, Germany

Filed Sept. 27, 1972, Ser. No. 292,667
Int. Cl. E21c *29/00*
U.S. Cl. 299—34 **26 Claims**

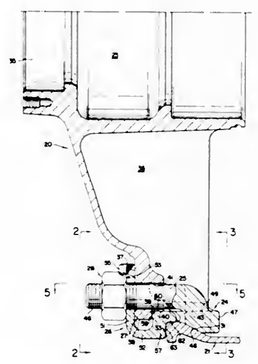


A mineral mining installation composed of a longwall conveyor having a ramped guide member at its mineral free side. The guide member locates on the face and acts as a housing for a traction member having interconnected elements which may be provided with cutters for cutting a groove at the floor region or at the floor and roof regions of the face. The elements, which are flexibly interconnected, have teeth which mesh with pinions driven by a number of hydraulic drive motors distributed along the length of the working. The motors can be housed in the guide member or disposed at the stowage side of the conveyor.

3,811,732
RIM AND WHEEL ASSEMBLY

William D. Walther, Dayton, and Robert A. De Regnaucourt, Centerville, both of Ohio, assignors to The Dayton Steel Foundry Company, Dayton, Ohio

Filed May 11, 1972, Ser. No. 252,411
Int. Cl. B60b *23/00*
U.S. Cl. 301—11 R **4 Claims**

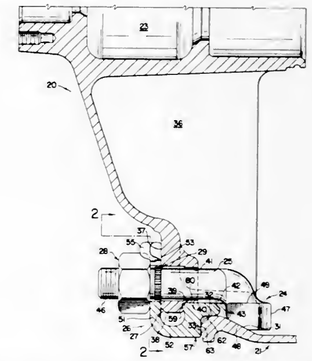


A rim and wheel assembly including a series of axially inner clamp means and a series of axially outer clamp lugs to cooperatively engage the mounting flange of a rim. The wheel has means thereon for positive retention of the clamp lugs. The clamp means each have a surface for engaging a surface on the rim. The clamp lugs each have intersecting surfaces for engaging surfaces on said rim. The clamp means are supported by fastening elements extending axially through the wheel. The fastening elements carry fastening means which draw the clamp means toward the clamp lugs to seat the rim flange.

3,811,733
RETAINED FASTENING ELEMENTS FOR A RIM AND WHEEL ASSEMBLY

Robert A. DeRegnaucourt, Centerville, and Fred R. Caudill, Dayton, both of Ohio, assignors to The Dayton Steel Foundry Company, Dayton, Ohio

Filed June 26, 1972, Ser. No. 266,212
Int. Cl. B60b *23/00*
U.S. Cl. 301—12 R **9 Claims**

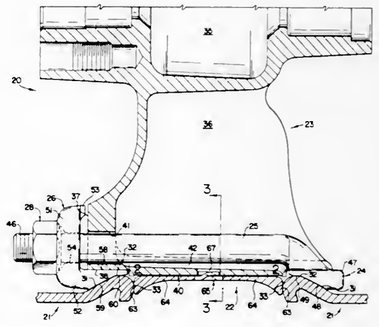


A rim and wheel assembly including a series of axially inner clamp means and a series of axially outer clamp lugs to cooperatively engage the mounting flange of a rim. The clamp means are supported by fastening elements extending axially through the wheel. The fastening elements carry fastening means which draw clamp means toward the clamp lugs to seat the rim flange. Means are provided so that the fastening elements are retained on the wheel when a rim is being demounted and mounted.

3,811,734
SPACER FOR A DUAL RIM AND SPOKED WHEEL ASSEMBLY

Robert A. De Regenaucourt, Centerville, and Fred R. Caudill, Dayton, both of Ohio, assignors to The Dayton Steel Foundry Company, Dayton, Ohio

Filed May 11, 1972, Ser. No. 252,413
Int. Cl. B60b *11/06*
U.S. Cl. 301—13 SM **2 Claims**

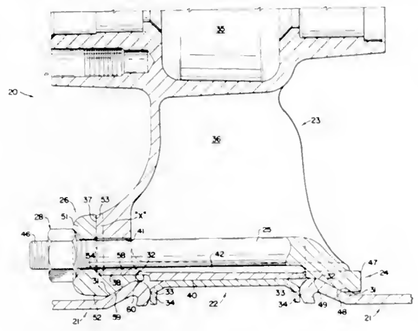


A positioned spacer for a dual rim and spoked wheel assembly having a strengthened medial portion and a series of alignment means received in correspondingly dimensioned openings in the spoke ends.

3,811,735
POSITIONED CLAMP LUGS FOR A DUAL RIM AND WHEEL ASSEMBLY

Robert A. De Regnaucourt, Centerville, Ohio, assignor to The Dayton Steel Foundry Company, Dayton, Ohio

Filed June 26, 1972, Ser. No. 266,213
Int. Cl. B60b *23/00*
U.S. Cl. 301—13 R **1 Claim**

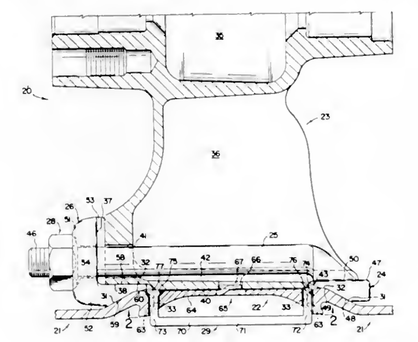


A dual rim and wheel assembly including as clamping elements a series of axially inner clamp means and a series of axially outer clamp lugs to cooperatively engage the mounting flanges of dual rims separated by a spacer. Each set of clamp means and a clamp lug is supported by a common fastening element extending axially through the wheel. The fastening elements carry fastening means which when tightened draw the clamp means and clamp lugs together to seat the rim flanges and assure lateral alignment. Means are provided so that selected clamp lugs are first bottomed out against the wheel when the fastening means therefor are tightened to minimize radial runout when the remaining fastening means are tightened.

3,811,736
TORQUE TRANSMITTING MEANS FOR A DUAL RIM, SPACER AND WHEEL ASSEMBLY

Robert A. De Regnaucourt, Centerville, Ohio, assignor to The Dayton Steel Foundry Company, Dayton, Ohio

Filed July 25, 1972, Ser. No. 274,998
Int. Cl. B60b *23/00*
U.S. Cl. 301—13 R **8 Claims**

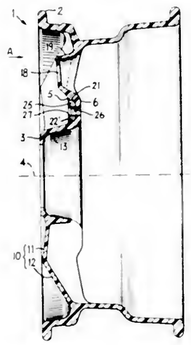


A dual rim, spacer and wheel assembly including as clamping elements a series of axially inner clamp means and a series of axially outer clamp lugs to cooperatively engage the mounting flanges of dual rims separated by the spacer. Each set of a clamp means and a clamp lug are supported by a fastening element extending axially through the wheel. The fastening elements carry fastening means which draw the clamp means and the clamp lugs together to seat the rim flanges. The assembly also has a torque transmitting means providing a positive driving connection between the inner rim-spacer-outer rim mounted on the wheel by the clamping elements.

3,811,737
REINFORCED RESIN WHEEL

Daniel Lejeune, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin, raison Sociale Michelin & Cie, Clermont-Ferrand, France

Filed Sept. 27, 1972, Ser. No. 292,602
Claims priority, application France, Oct. 4, 1971, 71.35741
Int. Cl. B60b *5/02*
U.S. Cl. 301—63 PW **9 Claims**

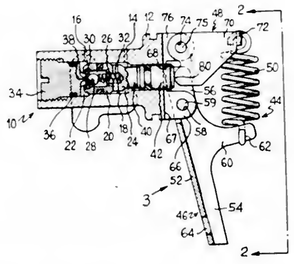


A wheel of reinforced resin comprises a disc formed with a plurality of fastening holes facilitating attachment of the wheel to a hub, and plates of rigid material embedded in the disc and formed with bores aligned with the fastening holes. The plates have an outer face that extends out at least as far as the immediately surrounding portions of the outer face of the disc.

3,811,738
BRAKING PRESSURE REGULATING DEVICE FOR A VEHICLE

Jean-Jacques Carre, Montreuil, France, assignor to Societe Anonyme D.B.A., Paris, France

Filed Jan. 24, 1973, Ser. No. 326,349
Claims priority, application France, Feb. 2, 1972, 72.03247
Int. Cl. B60t *8/18*
U.S. Cl. 303—22 R **4 Claims**

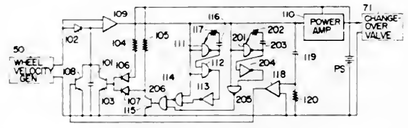


A device for regulating braking pressure, for example for controlling the rate of pressure rise in some of the brakes of a vehicle under varying load conditions of the vehicle. The device includes a pressure correcting valve adapted to be connected to the sprung part of the vehicle and a force transmitting mechanism adapted to be connected to the chassis. This mechanism is composed of two levers interconnected by draw springs. One of the levers, when at rest, engages an abutment fixed relative to the housing of the correcting valve. The other lever exerts a force on the movable member of the valve.

3,811,739
BRAKE SYSTEM WITH SKID CONTROL

Akira Nakamura; Hiroshi Arai, and Jun Ohta, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Aug. 5, 1971, Ser. No. 169,401
Claims priority, application Japan, Aug. 8, 1970, 45-69024
Int. Cl. B60t *8/10*
U.S. Cl. 303—21 BE **36 Claims**



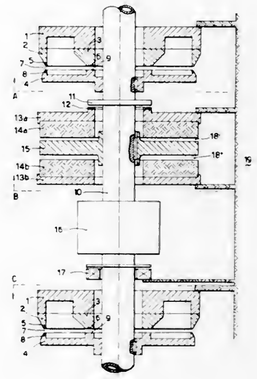
In the apparatus disclosed a wheel velocity detector detects the velocity of a wheel on a vehicle that is being slowed down by a brake. A control circuit constrains a pressure regulator to decrease the pressure in the brake fluid that applies the braking force when the control circuit determines that skidding becomes likely. In the control circuit the velocity detector charges a capacitor to a reference velocity level just below the wheel velocity level. A first adjusting circuit allows the capacitor to discharge at a maximum first rate. Thus if the wheel velocity decreases beyond that maximum deceleration rate the wheel velocity may become less than the reference level. A comparator responsive to the wheel velocity detector and the capacitor level responds to the reference level exceeding the wheel velocity level by issuing a pressure reducing pulse to the pressure regulator. The pulse actuates a second adjusting circuit that increases the discharge rate of the capacitor for a given period of time. Thereafter the second adjusting circuit is inactivated and the first rate is reestablished. When, as a result of reduced pressure and braking force, the wheel velocity increases beyond the decreasing reference velocity the pressure reducing pulse ends. A third adjusting circuit measures a period of time from the onset of the pulse longer than the beforementioned time period to reestablish the second rate of discharge after the reestablishment of the first rate, in the event that the wheel velocity level does not exceed the reference level by that time. A setting circuit responds to the cessation of the pressure reducing pulse by momentarily discharging the capacitor to reestablish the differences between the wheel velocity level and the reference level.

3,811,740
SELF-CENTERING ROTARY MAGNETIC SUSPENSION DEVICE

Giancarlo Sacerdoti; Aldo Catitti, and Luciano-Luigi Soglia, all of Rome, Italy, assignors to Comitato Nazionale Per L'Energia Nucleare (CNEN), Rome, Italy

Filed Apr. 24, 1972, Ser. No. 246,938
Claims priority, application Italy, Apr. 24, 1971, 49943/71
Int. Cl. F16c *39/06*
U.S. Cl. 308—10 **6 Claims**

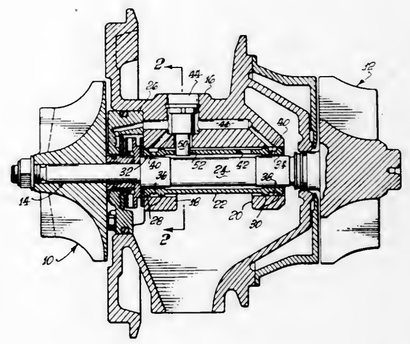
A self-centering magnetic device for suspensing rotating bodies which device comprises two suspension and centering units spaced along the rotation axis and one axial balancing unit interposed between said suspension and centering units which are known per se. The axial balancing unit comprises two identical magnetic elements each of which consists of a number of identical permanent magnets arranged in a starlike pattern around the rotation axis; these magnets are magnetized all parallel to the axis but one in one direction and the adjacent two in the opposite direction; a conductive disk is provided between the magnetic elements which disk during the suspended body rotation is forced towards a position intermediate between the magnetic element due to a reciprocal repulsive action between each magnetic element and the disk.



3,811,741
BEARING

Charles E. McInerney, Torrance, and Olgierd S. Winiarz, Granada Hills, both of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 26, 1972, Ser. No. 318,000
Int. Cl. F16c *33/66*
U.S. Cl. 308—122 **4 Claims**

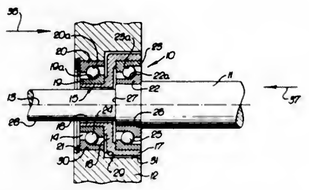


A bearing having a substantially free floating bushing prevented from rotation but without radial restraints.

3,811,742
REDUNDANT BEARING

Joseph G. Rosales, Gardena, Calif., assignor to Donald M. Ackley, Hermosa Beach, Calif.

Division of Ser. No. 163,811, July 19, 1971. This application Nov. 13, 1972, Ser. No. 305,932
Int. Cl. F16c 19/00
U.S. Cl. 308—183 8 Claims



A bearing assembly combinable with inner and outer coaxially relatively rotatable members annularly spaced apart comprises:

a. a ring in said space and spaced from said members to be rotatable relative thereto about said axis,

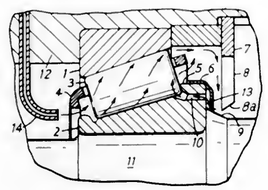
b. first inner and outer annular races respectively on the outer member and the ring and first rolling bearings engaging said first races, and second inner and outer annular races respectively on the inner member and the ring and second rolling bearings engaging said second races, and the races and bearings characterized in that loading is transmitted between said members via said races and bearings and

c. there being structure transmitting force acting to pre-load said races and bearings in an axial direction.

3,811,743
ROLLER BEARING LUBRICATION

Frederick James Wren, Northampton, England, assignor to The Timken Company, Canton, Ohio

Filed June 8, 1972, Ser. No. 261,057
Claims priority, application Great Britain, June 16, 1971, 28322/71
Int. Cl. F16c 1/24
U.S. Cl. 308—187 17 Claims

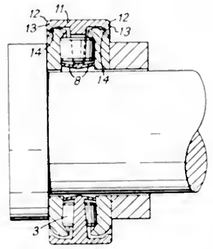


The invention relates to the lubrication of tapered roller bearings operating at high speed. Lubricant is fed to the roller-end/thrust rib interface through holes formed in the cone which communicate between the large diameter end face of the cone and the intersection of the cone race and thrust rib. The lubricant is supplied, externally of the shaft on which the bearing is mounted, to the openings of the lubricating holes in the large diameter end of the cone. For this purpose this end of the cone may be formed with a gutter which defines a space opening radially inwards and to which lubricant is fed either directly or by centrifugal force, the lip of the gutter extending inwardly to a diameter which is less than the diameter of a circle circumscribing the openings of the lubricating holes. In another embodiment the large diameter end of the cup may be provided with an enclosure member having a radially inner end portion positioned adjacent the circle circumscribing the openings of the lubricating holes which directs lubricant passing through the bearing into the openings.

3,811,744
ROLLING BEARINGS

Frederick James Wren; Eric Frank Instone; John Oliver Alford Hunt, and Alan John Wright, all of Northampton, England, assignors to The Timken Company, Canton, Ohio

Filed Jan. 19, 1973, Ser. No. 325,161
Claims priority, application Great Britain, Jan. 20, 1972, 2871/72
Int. Cl. F16c 33/38
U.S. Cl. 308—235 10 Claims

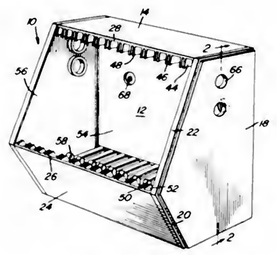


A flat tapered roller thrust bearing has a cage provided with axially directed lips which engage the opposed faces of the races and seal the bearing. The cage may also be provided with axially extending flanges which are shaped to enclose the outer diameter of the races so as to hold the races together.

3,811,745
CASSETTE CARRIER

Edward J. Cylke, Rt. 1, Box 283, Ellijay, Ga.

Filed Sept. 29, 1972, Ser. No. 295,990
Int. Cl. A47f 1/04; F16b 12/00
U.S. Cl. 312—13 10 Claims

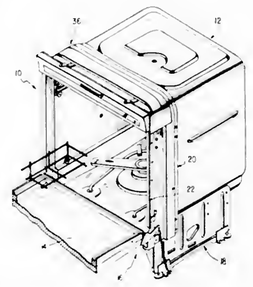


A carrier rack cabinet has an opening restrictively receiving tape cassette bodies at a predetermined angular orientation relative to a back wall of the cabinet housing. Spring elements yieldably limit insertion of the cassette bodies to positions from which they may be displaced in two stages to reference positions and permanent storage positions abutting the back wall of the housing.

3,811,746
TORSIONALLY REINFORCED, SKELETAL SUPPORT FRAME FOR PLASTIC TUBS

Richard L. Butsch, and Bernard J. Brezosky, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Dec. 19, 1972, Ser. No. 319,200
Int. Cl. A47b 77/06
U.S. Cl. 312—228 1 Claim

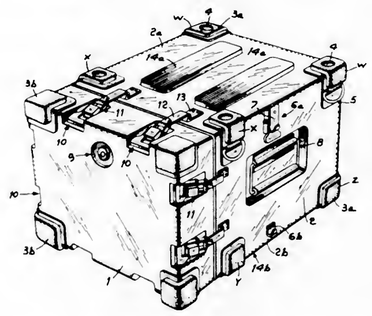


A unipartite plastic tub is employed in a front loading dishwasher in substitution for the usual solid, lined or coated metal tubs. The disclosure relates to the particular positionment of torsional reinforcing members to the upper and/or lower sides of a generally rectangular, skeletal support frame for the plastic tub.

3,811,747
TRANSIT/COMBINATION CASE PROVIDING UNIQUE LATCH ACCESSIBILITY AND NOVEL STACKING AND LATCHING FEATURES

Herbert L. Levin, Wyckoff, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Mar. 10, 1972, Ser. No. 233,473
Int. Cl. B65d 21/00
U.S. Cl. 312—308 16 Claims

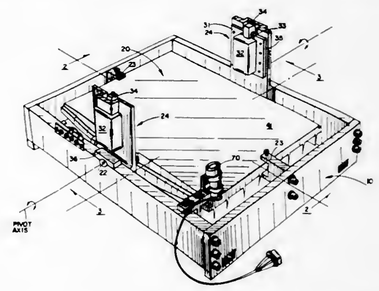


This disclosure describes improvements in transit/combination case design. The transit/combination case cover latches are mounted in angled recesses on each of the four sides of the case cover to permit easy removal thereof from the front when stacked with other cases. Novel arrangements of cover latching mechanisms which are multi-functional to provide a hinging capability are disclosed which are operable in the angled recesses of the cover. Multi-functional case body reinforcement and stacking facilities are included in the form of complementary elongated raised portions and depressions in the top and underside of the case body respectively, which serve the double utility on the inner surface of the case bottom of being slides, or of providing bases therefore, to facilitate easy removal of the case contents. Provision is also made for pivotable cover latch mechanisms which provide the additional function of intercase latching when in the stacked mode. In a preferred embodiment of latch mechanism having hinging capability and "round-the-corner" operation required from the mounting thereof in the angled recesses of the case cover, the latch hook is utilized as the tension member of the pivot arrangement, while the compression member of the pivot arrangement forms an integral part of the latch itself.

3,811,748
OPTICAL SCANNER

Robert L. Treuthart, Villa Park, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Continuation of Ser. No. 110,081, Jan. 27, 1971, abandoned. This application Oct. 2, 1972, Ser. No. 293,953
Int. Cl. G02b 17/00
U.S. Cl. 350—7 26 Claims

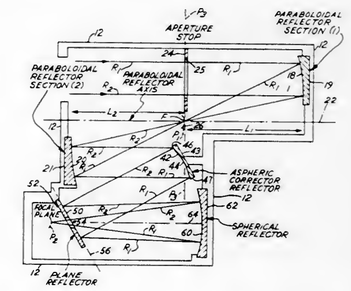


The optical scanner is designed with a system of torquing coils symmetrically distributed over the rear face of the scanning mirror about the mirror's pivot axis. Each torquer coil is disposed within air gaps of an array of permanent magnets so that current pulses in each of the coils produce a push-pull torque impulse on the mirror. The torquer structure is designed for optimal distribution of torquing impulse over the mirror surface to maximize the torquing effect and to minimize the effect of impulse shock which causes mirror bending and acoustic mode patterns in the mirror reflecting surface.

3,811,749
WIDE FIELD REFLECTIVE OPTICAL APPARATUS

Irving R. Abel, Lexington, Mass., assignor to Honeywell, Inc., Minneapolis, Minn.

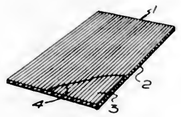
Filed Oct. 12, 1972, Ser. No. 297,028
Int. Cl. G02b 17/00
U.S. Cl. 350—55 16 Claims



The disclosure describes a wide field reflective optical system comprising an afocal fore telescope and an imaging

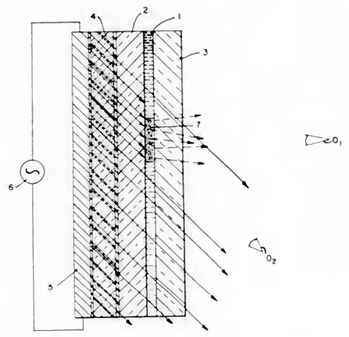
system. The afocal telescope comprises first and second confocal paraboloidal reflectors, an aperture stop located in front of the first reflector at a distance equal to its focal length, and a field stop located at the common focal point of the reflectors. The imaging system is an improvement of the Schmidt principle and comprises an aspheric corrector reflector that reflects radiation from the second paraboloidal reflector onto a plane reflector. The plane reflector is located in front of a spherical reflector that focuses radiation at its focal plane through an aperture in the plane reflector.

3,811,750
PROJECTION SCREENS
James Albert Coulthard, Sheffield 10, England, assignor to Marie Luise Batzner Coulthard and David Malcolm Pearson, both of Sheffield, England
Filed July 18, 1972, Ser. No. 272,868
Int. Cl. G03b *21/60*
U.S. Cl. 350—117 **16 Claims**

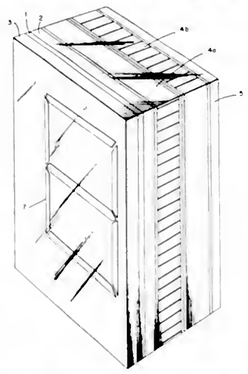


A projection screen affording wide angle viewing comprises a backing with a relfective hairline surface, with a matt overlay of transparent material consisting of a coating of a pigmented solution of a modified vinyl acetate/vinyl alcohol copolymer in a mixture of ketones and hydrocarbons to afford a sharp and brilliant picture in daylight, or with an overlay consisting of a transparent plastics film having a brushed finish on the surface remote from the backing, with the lines of both materials extending in the same direction to afford even wider angle viewing in subdued lighting or total darkness.

3,811,751
SELF-ILLUMINATED LIQUID CRYSTAL DISPLAY PANEL
Gary D. Myer, Canoga Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Apr. 2, 1973, Ser. No. 347,304
Int. Cl. G02f *1/28*
U.S. Cl. 350—160 LC **4 Claims**

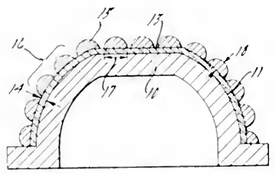


A self-illuminated liquid crystal display panel has an electroluminescent panel behind a liquid crystal layer with two layers of micro-louvered light control film sandwiched between the panel and the liquid crystal layer in order to direct the light prior to selective scattering in activated regions



of the liquid crystal. The embodiments show dark information on a bright background and bright information on a dark background.

3,811,752
LIGHT REFLEX-REFRACTING COATING SYSTEM FOR COLORING METALS
Robert C. Jaklevic; John J. Lambe, both of Birmingham; Mati Mikkor, Ann Arbor, and William C. Vassell, Dearborn, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed June 28, 1972, Ser. No. 266,890
Int. Cl. G02b *5/28*
U.S. Cl. 350—164 **6 Claims**



A light reflex-refracting coating system effective to provide a resonant chamber for wavelengths of light desired to be trapped and transmit a selected sensible color from the object upon which the coating system is applied. The coating system has a base reflective surface, a dielectric coating such as aluminum oxide, having a thickness no greater than 500 angstroms, and an outer coating such as indium or tin, which is interrupted (such as by droplet formation in the thickness range of 500–10,000 A) to complete a resonant chamber.

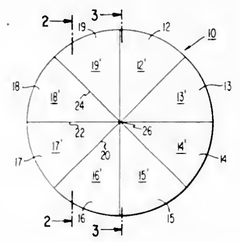
3,811,753
COATED OPTICAL COMPONENT MADE OF PLASTIC
Fumio Onoki, Tokorozawa, and Hajime Kamiya, Kokubunji, both of Japan, assignors to Hoya Lens Co., Ltd., Tokyo, Japan
Filed Aug. 24, 1972, Ser. No. 283,329
Claims priority, application Japan, Sept. 1, 1971, 46-79253
Int. Cl. G02b *1/10*
U.S. Cl. 350—175 NG **3 Claims**

An optical component made of plastics, wherein only one surface of a plastic substrate has an evaporated coating thereon, said coating having a thickness of approximately 1μ



to 10μ and being of a vitreous material which consists essentially of silicates such as SiO and SiO_2.

3,811,754
CORRECTING LENS
Albert Maxwell Morrell, and Frans van Hekken, both of Lancaster, Pa., assignors to RCA Corporation, New York, N.Y.
Filed Oct. 18, 1972, Ser. No. 298,642
Int. Cl. G02b *3/04*
U.S. Cl. 350—189 **7 Claims**

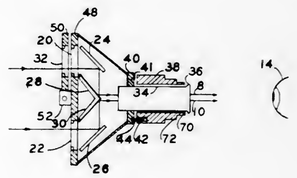


A correcting lens for use in the formation of a color television picture tube screen that is excitable by an electron beam comprises a plurality of individually contoured elements that extend from a point common to all elements to an edge of the lens. Adjacent elements are separated by boundaries and all boundaries extend radially outward from the common point. Each element is individually contoured to direct light onto predetermined paths of the electron beam toward a similarly shaped corresponding area of the screen.

3,811,755
REMOTELY CONTROLLED DAY-NIGHT OUTSIDE TRUCK MIRROR
James W. Carson, 204 Center Ave. South, Mitchellville, Iowa
Filed June 26, 1972, Ser. No. 266,230
Int. Cl. G02b *5/08*
U.S. Cl. 350—289 **9 Claims**

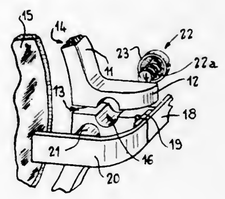
A vertically positioned mirror unit is positioned on a mounting bracket connected to the cab door of a truck. The upper arm of the mounting bracket includes an end portion of spring material to normally maintain the mirror in a first position. A slot is provided in the outer end of the lower support arm, and a pin on the lower end of the mirror unit is received in the slot. A control cable is connected to the pin, and the cable extends through the lower mirror support arm into the cab of the truck. A lock means is provided in the control cable for selectively locking in the mirror at a desired angle against the spring action of the upper support arm. The mirror material is day-night non-glare.

3,811,756
DUAL IMAGE REFRACTION TESTING DEVICE
Willis J. Apple, 1202 Orlanda Ave., Memphis, Tenn., and Wendell W. Anderson, 821 S. Park Ave., Memphis, Tenn.
Filed Dec. 7, 1972, Ser. No. 312,879
Int. Cl. A61b *3/02*; **G02b** *21/18*
U.S. Cl. 351—17 **6 Claims**



A device for receiving light from a single source and producing two parallel image outputs having equal intensity. Totally reflective mirrors receive light from the source through lenses and reflect the respective images to emerge from the device at approximately 8 millimeters separation. One lens is mounted in each light path and a third lens is rotatably mounted for alternate use in conjunction therewith whereby both images may be presented through spherical lenses or cross cylinder lenses depending upon the position of the third lens. The lenses and reflective mirrors may be rotated to permit examination of an eye for oblique astigmatism.

3,811,757
METHOD AND APPARATUS FOR CLAMPING A SPLIT COLLAR CLOSING DEVICE
Henri Guillet, 2 Bd Georges Cleminceau, and Robert Louvet, 26, rue dis Burgandis, both of Oyonnax, France
Filed Oct. 12, 1972, Ser. No. 297,002
Claims priority, application France, Oct. 18, 1971, 71.38157
Int. Cl. G02b *21/24*
U.S. Cl. 351—90 **15 Claims**



The disclosure refers to an open ring device used for instance for mounting of eyeglasses or spectacles. The ring device has a slit which determines two ends. In each end there is recessed an annular groove, one half into the first end and another half into the second end. A washer having a circular projection fits into the annular groove to hold the first end of the device against its second end. The body of a screw passes through a central bore provided in the washer to co-act with a screw-threaded hole co-axial to the annular groove and

located for one-half in said first end and for another half in said second end, while the head of the screw holds the washer confined into the annular groove.

The body of the screw can be screwed into a sleeve which is located in a hole which is not screw-threaded, said sleeve having a flanged portion abutting against the side of the ring ends opposite from the annular groove.

3,811,758

CARTRIDGE-LOADED MOTION PICTURE PROJECTOR

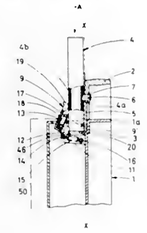
Wolfgang Riedel, Winnenden, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Aug. 4, 1972, Ser. No. 277,930

Claims priority, application Germany, Aug. 6, 1971, 2139416; May 23, 1972, 2224968

Int. Cl. G03b *23/02*

U.S. Cl. 352—72 **14 Claims**



The housing of a motion picture projector has a chamber for a portion of a film-containing cartridge. The inlet of the chamber is surrounded by walls at least one of which extends into the path of movement of a cartridge into the chamber to be displaced by and to thereupon bear aginst the inserted cartridge, either owing to its resiliency or under the action of a spring. The movable wall can be moved to a closing position in which it closes the inlet and it can be held in the closing position by a cover for the housing or by a locking bolt. The movable wall can constitute a centering plate for the inserted cartridge and can be mounted for movement in and counter to the direction of insertion of cartridges into the chamber.

3,811,759

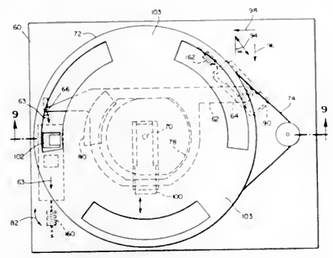
DUAL FILM PICTURE VIEWER

Robert William Johnson, Levittown, and Irvin Paul Shanker, Huntingdon Valley, both of Pa., assignors to ESB Incorporated, Philadelphia, Pa.

Filed Apr. 9, 1973, Ser. No. 349,017

Int. Cl. G01b *4/00*

U.S. Cl. 352—79 **5 Claims**



A compact device projects Standard 8 and Super 8 film on a self contained screen. The films are continuous and are contained in individual film cartridges. Insertion of the film cartridge serves to adjust the viewer for the particular film contained therein. The adjustments include setting of mask size, mask position, image position on screen, stopping point of the film advance claw, adjustment of film advance stroke and lateral position of the film advance claw. The viewer will advance the film even when the film advance opening is damaged.

3,811,760

OPERATING MECHANISM FOR MOTION PICTURE PROJECTORS

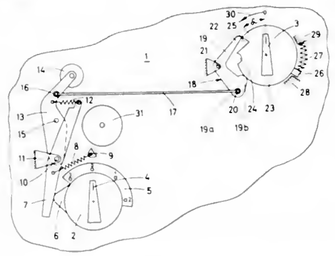
Helmut Rube, Grunbach, and Fritz Krumbein, Stuttgart-Moehringen, both of Germany, assignors to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Jan. 19, 1973, Ser. No. 325,013

Claims priority, application Germany, Jan. 21, 1972, 2202778

Int. Cl. G03b *1/56*

U.S. Cl. 352—157 **18 Claims**



A motion picture projector wherein the setting for forward or reverse transport of film are selected by a first rotary knob and the film threading unit is started in response to turning of a second rotary knob from an inoperative position. A blocking pawl holds the second knob against movement from the inoperative position whenever the first knob is out of its starting position in which the claw pull-down is idle. The second knob is held in its operative position by a detent which is rigid with the blocking pawl. The detent is disengaged from the second knob by a roller of the film threading unit which is shifted by the film upon completion of a threading operation whereby a spring returns the second knob to its inoperative position. The actuation of the film threading unit can be interrupted by manually rotating the second knob from its operative position.

3,811,761

DRIVE MEANS FOR FILM ADVANCING SPROCKETS IN CINEMATOGRAPHIC APPARATUS

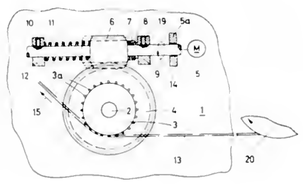
Fritz Krumbein, Stuttgart-Mohringen, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

Filed Mar. 9, 1973, Ser. No. 339,942

Claims priority, application Germany, Mar. 14, 1972, 2212164

Int. Cl. G03b *1/00*

U.S. Cl. 352—166 **11 Claims**



A motion picture camera or projector wherein the film is transported by at least one sprocket which is normally driven

by a worm wheel meshing with an axially reciprocable worm on the shutter shaft. When the resistance which the sprocket offers to rotation in response to increasing tension of film rises to a predetermined value, the worm wheel causes the worm to move axially against the opposition of a prestressed spring whereby one or more jaws on the worm become disengaged from one or more jaws of a clutch element which is secured to the shutter shaft to thereby interrupt the torque-transmitting connection between the shaft and the sprocket. The tension of film increases to a value at which the resistance which the sprocket offers to further rotation overcomes the bias of the spring when the film is completely withdrawn from the supply reel but the sprocket continues to rotate due to inertia of the shutter shaft and after total consumption of one or more loops which the film normally forms between the supply reel and the sprocket.

3,811,762

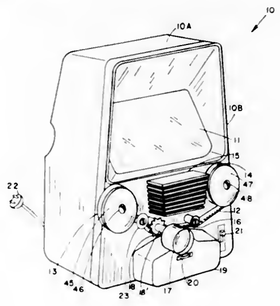
FILM DISPLAY APPARATUS

C. Kenneth Wertz, 601 W. 91st St., Indianapolis, Ind.

Filed Sept. 17, 1971, Ser. No. 181,377

Int. Cl. G03b *21/11, 21/28*

U.S. Cl. 353—26 **6 Claims**



An apparatus for displaying a reelable strip of film. The apparatus has a frame connected to a housing with a plurality of image-directing mirrors mounted to the frame and within the housing. A source of light mounted to the housing directs light through the strip of film to the mirrors in order to display a film image on a display screen mounted to the frame. Each carriage has a spring loaded spool which receives one end of the film. The spring loaded spools are arranged to apply opposite directed forces to the opposite ends of the film thereby placing the film in a state of tension. A sprocket is rotatably mounted to the frame and drivingly engages the film. Rotation of the sprocket by a knob forces the film past the light. As the film is extended from one carriage, the other carriage retracts the film.

3,811,763

APPARATUS FOR READING MICRODOCUMENTS

Gerard Anatole Cordonnier, Ville d'Avray, France, assignor to Le Materiel Compact, Paris, France

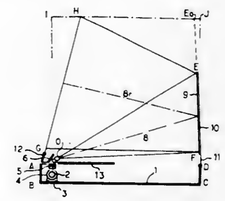
Filed Feb. 1, 1972, Ser. No. 222,623

Claims priority, application France, Dec. 31, 1971, 71.47791

Int. Cl. G03b *21/28*

U.S. Cl. 353—77 **2 Claims**

Apparatus enabling microdocuments to be read by projection on to a translucent screen, using a mirror to reflect the light beam; this, as well as the screen, folds into a case which serves as a base for the apparatus and contains dry cells to feed electricity to the light source. The essential characteristic of this folding "reader" is the use of a miniature bulb in combination with means of recovering the power radiated, making it possible to use dry cells in series with a lower voltage than usual, and at the same time projecting the part of the apparatus which are close to the light source, from excessive heat.



3,811,764

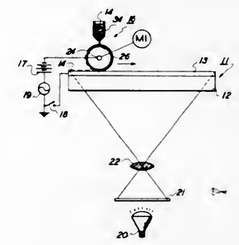
APPARATUS FOR PHOTOELECTROPHORETIC IMAGING USING A PERIODIC ELECTRIC FIELD

Edward Forest, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 764,715, Oct. 3, 1968, Pat. No. 3,657,091. This application Apr. 20, 1971, Ser. No. 135,773

Int. Cl. G03g *15/00*

U.S. Cl. 355—3 P **7 Claims**



Method and apparatus for improving image density, contrast and quality and photographic speed in an electrophoretic imaging system utilizing a particulate suspension for forming the image. The method and apparatus stress a thin layer of the electrophoretic suspension of particles in a carrier on an electrode during imaging by applying a high frequency pulsed or varying electric field across the imaging suspension.

3,811,765

CONTACT-TRANSFER ELECTROSTATIC PRINTING SYSTEM

David E. Blake, Woodside, Calif., assignor to Electroprint, Inc., Palo Alto, Calif.

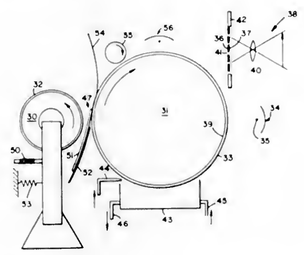
Filed Jan. 21, 1972, Ser. No. 219,616

Int. Cl. G03b *15/00*

U.S. Cl. 355—3 R **38 Claims**

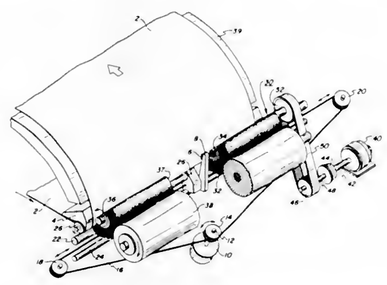
A system and method for electrostatic printing in which an electrostatic latent image charge configuration is established on the non-conducting surface of a transfer medium and developed with a liquid toner suspension in the form of toner marking particles suspended in a fluid. The liquid from the liquid toner suspension applied to the transfer medium is removed leaving toner particles electrostatically retained against the surface of the transfer medium in accordance with the electrostatic latent image charge configuration. A print receiving medium is compressed or pressure biased by means

of a roller or other means having a surface preferably resilient against the transfer medium and the compressed print receiving medium and deposited toner particles are contact heated



by the pressure roller or means in the transfer area so that toner particles are melted and fixed to the print receiving medium in the configuration of the electrostatic latent image.

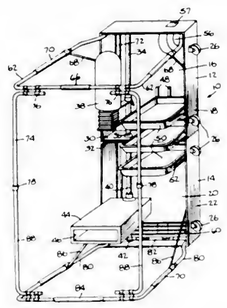
3,811,766
DEVELOPING APPARATUS
Thomas K. Robinson, Jr., Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed Mar. 10, 1969, Ser. No. 805,694
Int. Cl. G03g *15/00*
U.S. Cl. 355—3 **10 Claims**



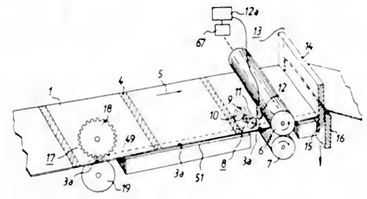
Developing apparatus wherein an electroscopic marking particle loaded applicator is moved to develop charge patterns, the applicator having such a configuration that in a first or developing position it effects deposition of the marking particles on the patterns and in a second or viewing position it does not obstruct direct viewing of the developed patterns.

3,811,767
PORTABLE COLLAPSIBLE DARKROOM
Herbert L. Purnell, 1700 York Ave., New York, N.Y.
Filed June 12, 1973, Ser. No. 369,161
Int. Cl. G03b *27/32*
U.S. Cl. 355—27 **7 Claims**

A portable, collapsible darkroom comprising a housing formed of two hingedly attached sections opening up to overlie one another on the same plane, with a framework disposed within the housing and extensible therefrom to form, with the housing, a substantially rectangular enclosure, and a lightproof canopy enclosing the framework and housing interior. The housing interior supports a photographic enlarger and baseboard secured to, and vertically adjustable in respect of, a pair of aligned posts, and a series of developing trays removeably supported on the housing interior. Air circulation is provided by a blower and baffled vents, and light by a fixture, both secured to the housing interior and wired, with the enlarger, to a source of electricity outside the darkroom.

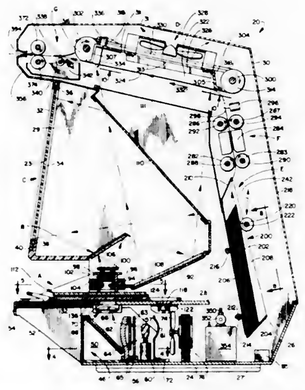


3,811,768
METHOD AND APPARATUS FOR ENCODING AND TREATING STRIPS OF PHOTOGRAPHIC PRINT
Wolfgang Zahn, and Hans-Peter Huber, both of Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Aug. 21, 1972, Ser. No. 282,035
Claims priority, application Germany, Aug. 21, 1971, 2141950.1
Int. Cl. G03b *29/00*
U.S. Cl. 355—29 **21 Claims**



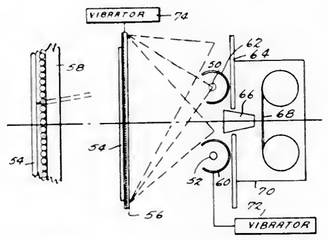
A strip consisting of a row of photographic prints and a marginal portion which extends along one side of the row of prints is transported lengthwise past a photoelectric scanning device which produces signals in response to detection of successive indicia encoded on the marginal portion at predetermined distances from successive boundaries between neighboring prints. The signals are used to arrest the strip at intervals, always in such position that a boundary between a pair of neighboring prints is located in the range of a movable knife which separates the prints from each other. A perforating or cutting unit is mounted ahead of the scanning device or between the movable knife and the scanning device to perforate or completely separate the marginal portion from the row of prints. If the marginal portion is to be completely separated from the row of prints ahead of the scanning device, the separated sections of the marginal portion are guided toward and past the scanning device in unchanged spatial relationship relative to the row of prints. The indicia are exposed on the marginal portion during the making of prints, and the strip is thereupon developed prior to scanning, severing and separation of the marginal portion.

3,811,769
VIEWER-COPIER APPARATUS
Stanley W. Heldenbrand; David L. Johnson, both of Dallas, and Neil H. Mote, Richardson, all of Tex., assignors to Seaco Computer-Display Incorporated, Garland, Tex.
Filed July 28, 1971, Ser. No. 166,953
Int. Cl. G03b *27/70*
U.S. Cl. 355—45 **15 Claims**



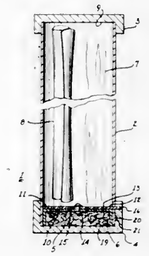
An improved combination viewer-copier apparatus having an optical system for projecting a selected image from a microimage bearing film on a viewing screen sufficiently enlarged for viewing and for projecting an enlarged image on a record medium at an exposure position which is later developed to produce copies thereof. A light filtering means is provided for preventing light entering the apparatus through the viewing screen from reaching the undeveloped record medium. A sheet feeding apparatus is provided for feeding individual sheets of record medium from a stack containing a plurality of sheets and eventually conveying said sheets to the exposure position. A sheet handling means is also provided at an exposure position to hold the sheets in position by means of a pressure differential created across the paper. A developing means is also provided for contacting the paper with a continuously agitated developer fluid by means of a nozzle, pump and a moving roller. A pair of loaded squeeze rollers having a non-cylindrical shape are utilized after the application of the developer to remove excess fluid from the paper.

3,811,770
CAMERA
Rene Baus, Jr., and Lewis Epstein, both of 517 S. Carrollton Ave., New Orleans, La.
Filed June 15, 1971, Ser. No. 153,385
Int. Cl. G03b *27/54*
U.S. Cl. 355—67 **22 Claims**



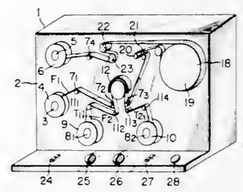
A method and apparatus for increasing the effective light gathering power of a camera, such as a document camera, wherein a plurality of lenses, such as spherical or cylindrical, are disposed adjacent the surface to be reproduced so that the lenses focus incident light onto a reduced document area from which it is reflected back through the transmitting lenses and directed to a film along paths which are relatively close to the path it travelled to the lenses. According to a further aspect of the invention film having a higher speed is disclosed with such lenses mounted adjacent the film for focusing incident light onto a reduced area of the film. Alternately or in addition, a layer of such lenses may be disposed adjacent the film for reflecting light passing through the film back along its path to the film. Other aspects of the invention are set forth below.

3,811,771
APPARATUS FOR EXPOSING AND DEVELOPING PHOTOSENSITIVE SHEETS
Gary R. Hays, 5042 N. 8th St., Phoenix, Ariz.
Filed Dec. 26, 1972, Ser. No. 318,024
Int. Cl. G03d *7/00*
U.S. Cl. 95—89 G **7 Claims**



Apparatus for exposing and developing light sensitized materials in accordance with the diazo process. The apparatus for exposing light sensitized materials includes a light tight material storage chamber and a hinged frame adjacent one side of the chamber. The frame encloses a transparent medium and the paper to be exposed is placed intermediate the storage chamber and the transport medium. The apparatus for developing the exposed light sensitized paper includes a hollow cylinder having a removable air tight cap on one end. A spillproof ammonia reservoir, storing the ammonia in absorbent material, is disposed within the other end of the cylinder. An apertured rotatable gate is attached to the reservoir to selectively permit the ammonia fumes generated within the reservoir to permeate the interior of the hollow cylinder.

3,811,772
FILM REPRODUCTION DEVICE
Mitsutoshi Kanayama, and Motofumi Konishi, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 27, 1973, Ser. No. 336,380
Claims priority, application Japan, Mar. 3, 1972, 47-22139
Int. Cl. G03b *27/10, 27/30*
U.S. Cl. 355—111 **5 Claims**



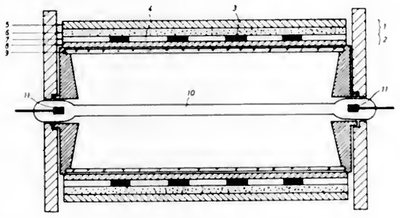
A high speed film reproduction device for reproducing an information image recorded on an original film onto a

reproduction film, including a first original film drive assembly mounted ahead of an exposure assembly with respect to the travelling direction of the original film, a second original film drive assembly mounted subsequent to the exposure assembly with respect to the travelling direction of the original film, and drive control apparatus for selectively equalizing the driving forces of the drive assemblies or setting the driving force of the first drive assembly smaller than that of the second drive assembly.

3,811,773
THERMOGRAPHIC COPYING

Marcel Nicolas Vrancken, Parklaan, Belgium, assignor to Agfa-Gevaert N.V., Mortsel, Belgium

Continuation-in-part of Ser. No. 560,314, June 24, 1966, abandoned. This application June 1, 1971, Ser. No. 149,039
Claims priority, application Great Britain, Nov. 26, 1965, 50441/65
Int. Cl. G03b *27/02*
U.S. Cl. 355—132 **12 Claims**

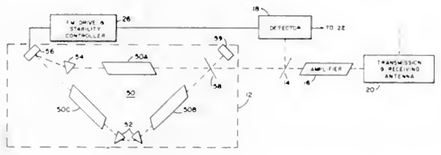


A process for the reproduction of a transparent original having infrared radiation and visible light absorptive image markings thereon by exposing the original to infrared radiation and/or light while the image markings are arranged in heat-conductive contact with a recording layer composed at least 80 percent by weight of gelatin and having distributed therethrough a finely divided substance transforming absorbed visible and infrared radiation into heat, for a period not longer than 10^{-1} second and developing the recording layer by washing with water to remove the gelatin in the area corresponding with the non-image area of the original.

3,811,774
CONTINUOUS WAVE RADAR FOR RANGE AND VELOCITY MEASUREMENT

Thomas E. Honeycutt; William F. Otto, and Charles M. Cason, III, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 20, 1972, Ser. No. 245,995
Int. Cl. G01c *3/08*; **G01p** *3/36*
U.S. Cl. 356—5 **8 Claims**

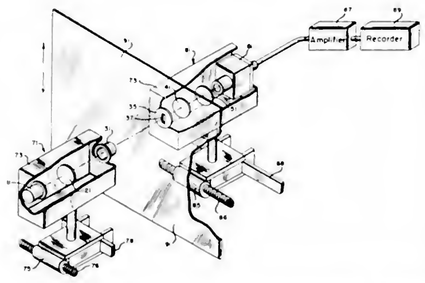


A frequency modulated, continuous wave radar range measurement system using a laser oscillator is disclosed. A ring laser, carbon dioxide (CO_2), laser oscillator allows target range and velocity measurement as either an active or a passive system. Nonlinear variation of laser output power is obtained by mixing the reflected signal with the energy within the laser cavity. In an active system the resulting beat frequency is sensed by a local receiver-detector and reduced to obtain the range and velocity data at the transmission site. The beat frequency is also superimposed on the transmitted laser beam and is therefore available at the target causing the beat frequency and is available to other detectors which may be positioned to receive a portion of the reflected energy, affording a passive system.

3,811,775
POLARISCOPE FOR DETERMINING STRESS IN A TRANSPARENT MATERIAL

Munther Abu-Saud, Jeannette, Pa., assignor to ASG Industries Inc., Kingsport, Tenn.

Filed June 21, 1972, Ser. No. 264,827
Int. Cl. G01b *11/18*
U.S. Cl. 356—35 **3 Claims**

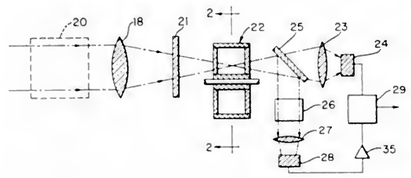


A polariscope is described for detecting stresses in a transparent object. The polariscope comprises means for producing a beam of polychromatic plane polarized light, a condensing lens, an aperture, a quarter-wave retardation plate, analyzing means and a photocell. Changes in stress cause changes in the color and intensity of the light detected. Means are provided for scanning the polychromatic light beam back and forth in one direction across the transparent object that is being studied. Means are also provided for moving the transparent object in a direction transverse to the direction of the scanning light beam. The output of the photocell is applied through an amplifier to a chart recorder in order to produce a plot of the stresses in the object with respect to their position.

3,811,776
GAS ANALYZER

Henry H. Blau, Jr., Wayland, Mass., assignor to Environmental Research & Technology, Inc., Lexington, Mass.

Filed Feb. 26, 1973, Ser. No. 336,078
Int. Cl. G01n *21/26*
U.S. Cl. 356—51 **17 Claims**



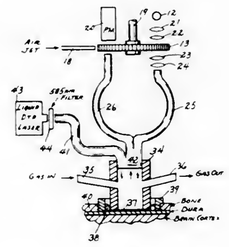
Gas in a sample region is analyzed in a nondispersive system for the presence of a particular gas of interest by cross-correlating the absorption spectra of the sample and a specimen

of the gas of interest. Radiation is directed through the sample region and a filter for isolating a narrow band of frequencies within the absorption band of the gas of interest, to a radiation detector. The radiation is passed through cells that provide the total energy transmitted at the line or lines of interest and a reference energy transmitted by a region adjacent to the lines of interest and unaffected by changes in absorption in the sample region. In one embodiment this is accomplished by passing the radiation from the filter in rapid succession through three cells typically containing, respectively, an inert gas, the gas of interest at a pressure of about one atmosphere and the gas of interest at approximately two atmospheres pressure, to produce three signals which are normalized by ratioing with three comparable signals taken at the same times by transmitting part of the radiation passed by the three cells, through a reference gas cell. The normalized signals are then combined by a conventional electronic system to give the fractional absorption of the gas of interest in the sample region. An interferometer containing in one leg, a cell containing the gas of interest at a pressure of about two atmospheres, may be located in the radiation path between the cells and the detector.

3,811,777
TIME-SHARING FLUOROMETER AND REFLECTOMETER

Britton Chance, c/o Johnson Research Foundation Medical School, Philadelphia, Pa.

Filed Feb. 6, 1973, Ser. No. 330,041
Int. Cl. G01n *21/00*; **G01j** *3/30, 3/48*
U.S. Cl. 356—73 **12 Claims**



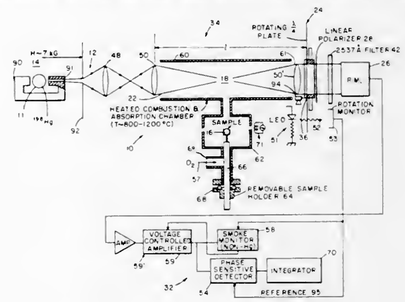
A spectrophotometric probe apparatus including a light source, a photomultiplier and a rotary filter wheel, with respective light pipes located to receive excitation light through one filter from the source and to transmit emission or reflectance light through an opposite filter to the photomultiplier. The remote ends of the light pipes are located adjacent to the area of observation and may be secured together to form a bundle. An additional light pipe may be added to the bundle to inject a photolysis flash on the tissue being studied, and the bundle may be attached to a chamber which can be implanted adjacent the living tissue and which is provided with ducts for passing perturbation gases through the chamber.

3,811,778
ISOTOPE-SHIFT ZEEMAN EFFECT SPECTROMETER

Tetsuo Hadeishi, Berkeley, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Feb. 28, 1973, Ser. No. 336,579
Int. Cl. G01j *3/30, 3/42*
U.S. Cl. 356—85 **1 Claim**

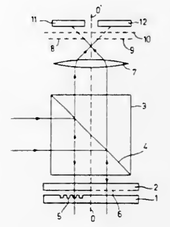
Apparatus and method employing a beam containing specific Zeeman components for rapidly and accurately detecting the presence of trace amounts of a specific biologically dangerous metal element, such as Hg, that contaminates a host substance, such as food. In one embodiment for detecting Hg in fish, the apparatus comprises first means for heating a fish sample containing mercury to 950°C to form a vapor, second means for transmitting a focused light beam through the vapor in the form of light spectra produced from a mercury isotope in a magnetic field parallel to the light spectra, said spectra containing 2537 A light having specific Zeeman components that are equally scattered and differentially absorbed by the Hg in the vapor, comprising a circularly polarized σ^- monitoring component that is attenuated by absorption by the mercury in the vapor an amount corresponding to the amount of mercury in the sample and a circularly polarized unabsorbed σ^+ reference component, said beam then being transmitted through a circular polarization selector for alternately periodically transmitting the respective components passing through the vapor, and a filter for passing only the 2537 A from the transmitted light beam to means for detecting said remaining components after the beam is so transmitted, as a measure of the mercury in the sample. In practice, a rotating quarter (¼ λ) plate and a linear polarizer having a 2537 A filter alternately periodically transmits the respective components to a single photomultiplier for providing a lightweight, portable detector.



3,811,779
APPARATUS FOR ALIGNING A MASK WITH RESPECT TO A SEMICONDUCTOR SUBSTRATE

Bernardus Antonius Johannus Jacobs, and Pieter Kramer, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,122
Claims priority, application Netherlands, Jan. 8, 1971, 7100212
Int. Cl. G01b *11/26*
U.S. Cl. 356—172 **5 Claims**

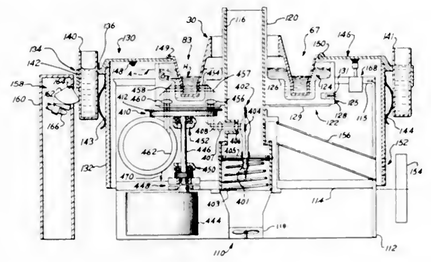


An apparatus for aligning a mask comprising a large number of equal elements with respect to a semiconductor substrate is described. It is stated that for this purpose two patterns are used which each comprise at least three grating-shaped configurations of which two are oriented at right angles to one

another and are spaced from one another by a distance which is small compared with the distance by which they are spaced from a third configuration the groove direction of which is substantially parallel to the line joining it to the two first-mentioned configurations.

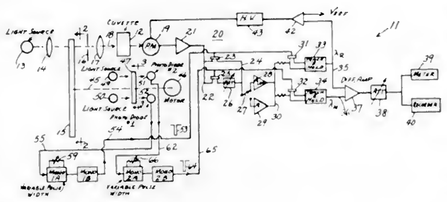
It is explained that one pattern is rigidly secured to the substrate and the other pattern is rigidly secured to the mask, images of the two patterns being formed about at the location of a reference pattern which also comprises at least three grating-shaped configurations.

3,811,780
CHEMICAL ANALYSIS CUVETTE
Max D. Liston, Irvine, Calif., assignor to Abbott Laboratories, North Chicago, Ill.
Division of Ser. No. 133,081, April 12, 1971, Pat. No. 3,748,044. This application May 3, 1973, Ser. No. 357,063
Int. Cl. G01j *3/46*; G01n *1/10*
U.S. Cl. 356—180 **13 Claims**



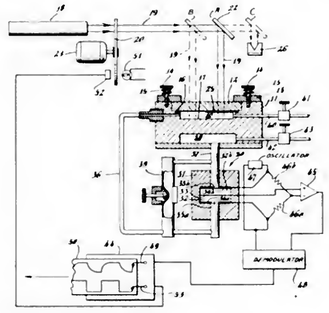
Improved components, such as a cuvette, are disclosed in the specification.

3,811,781
MULTI-WAVELENGTH PHOTOMETER EMPLOYING A ROTATING VARIABLE WAVELENGTH FILTER
George W. Lowy, Silver Spring, Md., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed Jan. 26, 1973, Ser. No. 326,495
Int. Cl. G01j *3/48*
U.S. Cl. 356—188 **13 Claims**



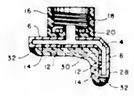
A multi-wavelength photometer using a two-segment rotating circular variable filter to select the working wavelengths. Selection is made by gating respective integrating circuits receiving signals generated by a light beam passing through the filter and the sample cuvette. The gating signals are produced by variable delay circuits triggered respectively by timing pulses derived from an apertured timing disc mounted on the same shaft as the rotating filter. The timing pulses are generated by spaced photo diodes located adjacent the timing disc and receiving light through the aperture of the timing disc as it passes.

3,811,782
METHOD AND APPARATUS FOR MEASURING THIN FILM ABSORPTION AT LASER WAVELENGTHS
Edwin L. Kerr, Ridgefield, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Continuation-in-part of Ser. No. 181,975, Sept. 20, 1971, Pat. No. 3,727,050. This application Apr. 9, 1973, Ser. No. 349,030
Int. Cl. G01n *21/06*; G01b *11/00*
U.S. Cl. 356—201 **10 Claims**



Absorption by thin film, such as an optical coating, of a selected laser wavelength is adapted to be measured by apparatus consisting of a thin test chamber whose diameter is at least several times its thickness. One wall of the chamber is a removable window, the opposite wall is reflective. A pressure measuring instrument, such as a capacitance microphone, is connected to measure the pressure of a gas in the chamber, and a laser having a selected test wavelength has its beam directed through the window into the chamber. The laser beam is chopped at an adjustable rate, and the pressure measuring instrument measures a pressure differential between a reference pressure chamber and the test chamber, there being an adjustable leak across the instrument. The test chamber is filled with a gas that does not absorb the test laser beam wavelength and the window is a material which preferably absorbs as little as possible of the wave-length of interest. The pressure in the chamber is first measured with the laser beam applied through the clear window to obtain the zero of the apparatus; any absorption of the laser wavelength by the window heats the gas by conduction and thus produces a pressure rise. Then a film to be tested is mounted in intimate contact with the inside surface of the window and the laser beam is applied through the film. Absorption of the beam wavelength by the film heats the gas and the window by conduction; when the heat of the gas and window reach a steady state the pressure of the gas in comparison with the "zero" pressure measurement is substantially proportional to the absorption of the film.

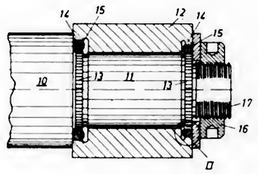
3,811,783
PAINT APPLICATOR
Charles Johnson, 126 Wesley Ave., Portchester, N.Y.
Filed Aug. 28, 1972, Ser. No. 284,070
Int. Cl. A46b *15/00*
U.S. Cl. 401—9 **6 Claims**



An applicator for applying a liquid coating to a surface which abuts another surface which it is not desired to coat.

The applicator is particularly adapted for painting various parts of window structures. The applicator comprises a reservoir having an outer wall, an inner wall spaced from the outer wall, side walls and end walls. The inner wall has apertures formed therein and the outer surfaces of the inner wall and the end walls are covered with an absorbent pad which becomes saturated with paint as the paint flows through the apertures in the inner wall. The portions of the pad which cover the end walls are made impenetrable by the paint by impregnating those portions with glue or a similar substance. The pad is of sufficient thickness to conform to minor convolutions of the surface. In the particular embodiments illustrated, the reservoir is of a generally L-shaped or inverted U-shaped cross section.

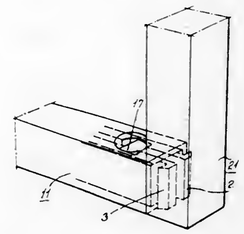
3,811,784
MEANS FOR INTERCONNECTING TWO MACHINE ELEMENTS
Sven Walter Nilsson, Goteborg, Sweden, assignor to SKF Industrial Trading and Development Company NV, Amsterdam, Netherlands
Filed Mar. 1, 1972, Ser. No. 230,744
Int. Cl. F16b *39/34*; F16c *11/10*
U.S. Cl. 403—2 **12 Claims**



In order to lock two machine elements with respect to each other, an annular void is formed between the two elements, and a correspondingly shaped locking member is forced into said void. To obtain a secure grip between the components, the juxtaposed side walls of the void are provided with knurls or keys, and the locking member is made of a material which is softer than that of the elements. The member will be deformed when driven into the void, but it will not cause any damage to the elements. The member may therefore be removed and a new member be applied after an angular adjustment of the relative position between the elements. The member can be designed not to fill the full peripheral extension of the void, in which case it, when used in a torque transmitting transmission, will serve as a rupture safety device.

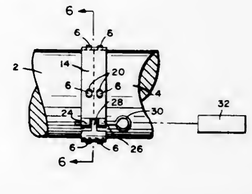
3,811,785
INTERCONNECTION ELEMENT SYSTEM
Ruben Jakob Valdemar Hagglund, 570 70 Hogsby, Sweden
Filed Dec. 15, 1972, Ser. No. 315,775
Claims priority, application Sweden, Dec. 17, 1971, 16196/71
Int. Cl. F16b *7/04*
U.S. Cl. 403—255 **5 Claims**

An interconnection element system for rigidly interconnecting substantially hollow, profiled tubes in simple manner by means of concealed interconnection elements. The interconnection elements clamp an extending end of one of the profiled tubes against the other tube, and the two profiled



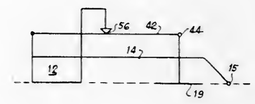
tubes are locked against each other by means of a wedge introduced into the first profile tube and engaging the interconnection elements.

3,811,786
CONNECTING DEVICE
Howard C. Valle, Doylestown, Pa., assignor to Ametek, Inc., New York, N.Y.
Filed Jan. 5, 1973, Ser. No. 321,156
Int. Cl. F16b *2/08*
U.S. Cl. 403—300 **4 Claims**



A pair of cylindrical members substantially equal in diameter have a plurality of pins spaced about the periphery adjacent one edge of each cylindrical member. A spring having a ribbon of spring material with adjacent turns set to coil tightly upon each other and openings adapted to register with the pins on the cylindrical members is back wound around the cylindrical members with the pins passing through the openings in the ribbon. The ribbon is releasably secured in this back wound position. Advantageously the ribbon is releasably secured by means including a pin connecting the ends of the ribbon together.

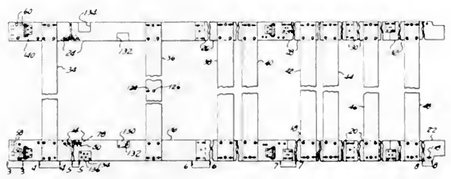
3,811,787
SCREED ATTACHED GRADE REFERENCE MECHANISM
Ronald W. Beaty, Aurora, and Earl D. Martenson, North Aurora, both of Ill., assignors to Barber-Greene Company, Aurora, Ill.
Filed Aug. 7, 1972, Ser. No. 278,299
Int. Cl. E01c *19/48*
U.S. Cl. 404—84 **12 Claims**



A mobile grade reference device is connected to the paving machine for travel therewith, such grade reference device being disposed forwardly of the screed and inboard of the

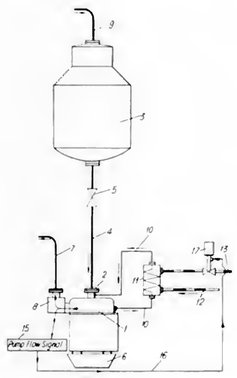
lateral extremities thereof. A longitudinally extending grade reference beam has the forward end thereof pivotally mounted to the mobile grade reference device at the longitudinal midpoint of the latter, such pivot point being located rearwardly of the pivot axes of the draft arms engaged with the screed. The rearward end of this beam is pivotally mounted to the screed. The control system for raising and lowering the pivot axes of the draft arms has the sensor thereof supported from the screed adjacent to and forward of the forward portion of the screed; this sensor is engaged by a stringline mounted on said beam.

3,811,788
INSTALLATION OF CARGO HANDLING SYSTEM
Leslie Mollon, Southfield, Mich., assignor to Brooks & Perkins, Incorporated, Southfield, Mich.
Filed May 16, 1973, Ser. No. 360,765
Int. Cl. B23b *47/28*
U.S. Cl. 408—72 **9 Claims**



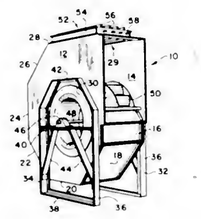
A master drill fixture for providing properly related openings in the flooring of an aircraft for the reception of fastening elements to secure a cargo handling system therein. The master drill fixture is composed of a multiplicity of longitudinally extending rigid bars adapted to be assembled together substantially in end-to-end relationship, a multiplicity of transversely extending cross ties, means for locating a predetermined point on the assembled drill fixture in registration with a locating point in the aircraft, and means for aligning and centering the assembled drill fixture with the center line of the aircraft.

3,811,789
ROTODYNAMIC FLUID MACHINES
Forrest Thomson Randell, Cathcart, Scotland, assignor to Weir Pumps Limited, Cathcart, Glasgow, Scotland
Continuation-in-part of Ser. No. 243,669, April 13, 1972, abandoned. This application July 9, 1973, Ser. No. 366,315
Int. Cl. F01d *1/00*
U.S. Cl. 415—1 **18 Claims**



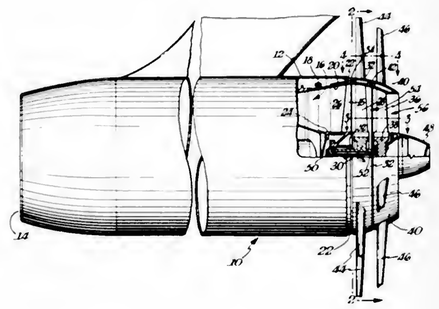
In a rotodynamic fluid pump installation wherein the pump includes a casing having an inlet and outlet for pumped fluid, leakage fluid such as for example as occurs at the glands and bearing surfaces of the pump is withdrawn from the casing, cooled, and recycled to the pump inlet to reduce cavitation at low pump loads.

3,811,790
AIR MOVING APPARATUS
Thomas W. Mikulina, La Crosse; Ronald J. Lievens, Onalaska, and George T. Brockman, Stoddard, all of Wis., assignors to The Trane Company, La Crosse, Wis.
Filed May 8, 1972, Ser. No. 251,124
Int. Cl. F04d *29/46, 29/56*
U.S. Cl. 415—145 **1 Claim**



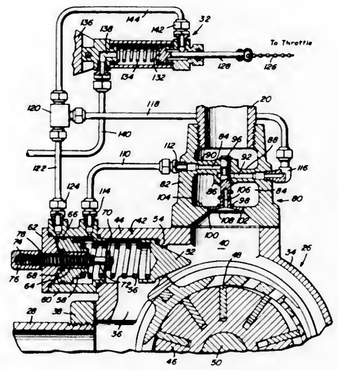
A central station air moving apparatus is disclosed incorporating an irregular heptagonal configuration and an air outlet damper device mounted on one side of the heptagon.

3,811,791
THRUST AUGMENTING DEVICE FOR JET AIRCRAFT
Robert B. Cotton, 1503 Old Orchard Rd., Media, Pa.
Continuation-in-part of Ser. No. 171,197, Aug. 12, 1971, abandoned. This application July 9, 1973, Ser. No. 377,784
Int. Cl. B64c *11/48*
U.S. Cl. 416—129 **9 Claims**



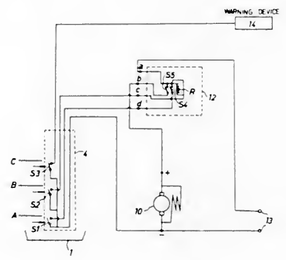
A dual set of counter-rotating impulse turbine wheels having short propeller blades about their periphery are disposed in the exhaust emitted by a jet engine to augment its thrust at lower subsonic speeds by extracting energy from the high velocity gases. The counter rotation minimizes torque loads. The turbine wheels may be closely mounted behind the engine and directly connected thereto or movably mounted for optional retraction out of the path of the exhaust at higher speeds when the jet engine is more efficient.

3,811,792
AUTOMATIC PRESSURE CONTROL SYSTEM FOR PUMPS
William A. Kennedy, Jr., Oklahoma City, Okla., assignor to Corken Pump Company, Oklahoma City, Okla.
Filed June 1, 1973, Ser. No. 366,033
Int. Cl. F04b *49/02*
U.S. Cl. 417—28 **14 Claims**



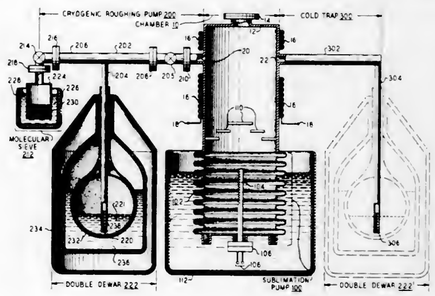
The discharge pressure of a positive displacement pump is increased from a low regulated value to a higher value in response to outflow through a valve-controlled delivery conduit, by flow responsive control of a by-pass valve, the bias of which may be adjustable during pump operation to change the regulated discharge pressure. Flow in the delivery conduit is detected by displacement of a flow reaction disc from a position within the pump outlet port through which continuous fluid communication is established.

3,811,793
SAFETY DEVICE FOR DETECTING WATER LEVEL IN A WATER TIGHT CHAMBER OF AN AMPHIBIAN BULLDOZER
Hideyoshi Kobayashi, Osaka, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Filed June 15, 1972, Ser. No. 263,246
Claims priority, application Japan, June 3, 1969, 44-51182
Int. Cl. F04b *49/04*
U.S. Cl. 417—40 **3 Claims**



A safety device for detecting water level in a water tight chamber of a radio controlled amphibian bulldozer which has means for detecting the level of leaked water in. A water tight chamber, an electric drain pump is driven by the operation of said means when the water level in the water tight chamber reaches. A predetermined level, a drain pipe connected to the pump drains water in the water tight chamber, and means projected over water surface for warning when the leaking flow rate of water into the chamber exceeds the capacity of the drain pump the warning means may be a lamp or radio transmitting antenna.

3,811,794
ULTRAHIGH VACUUM SUBLIMATION PUMP
La Rue Norman Dunkleberger, Berkeley Heights, and Lawrence Yun Lung Shen, Summit, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Nov. 22, 1972, Ser. No. 308,665
Int. Cl. F04b *37/02*
U.S. Cl. 417—49 **30 Claims**

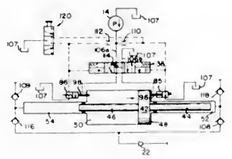


An evacuable chamber includes an upper bell jar portion, which serves as a working space, and in communication therewith a lower pump portion having the shape of a rigid bellows. The bellows is submersed in a refrigerant, such as liquid nitrogen, and surrounds a suitable source of a sublimable getter material, such as titanium-molybdenum filament. The upper portion illustratively has a pair of apertures, one of which communicates with a liquid helium cold trap and the other of which communicates with a roughing pump. In a preferred embodiment the roughing pump comprises in combination a molecular sieve adsorption pump and a cold finger submersible in liquid helium. During operation, the filament is heated above its sublimation temperature to form a thin film of titanium on the interior surface of the bellows. When cooled, the thin film of titanium effectively adsorbs all gases except He and Ne and will additionally adsorb light hydrocarbons, such as methane, if the film is maintained at a temperature below 180 degrees K. The cold trap pumps both He and Ne. The system as a whole is effective not only in producing chamber pressures of at least 10^{-11} Torr in less than ten hours, depending on the volume of the chamber, but also in maintaining that pressure under working conditions at dynamic pumping speeds in the millisecond range.

3,811,795
HIGH PRESSURE FLUID INTENSIFIER AND METHOD
John H. Olsen, Vashon, Wash., assignor to Flow Research, Inc., Kent, Wash.
Filed Jan. 12, 1973, Ser. No. 322,956
Int. Cl. F04b *35/00;* **F01l** *25/04*
U.S. Cl. 417—53 **16 Claims**

A pressure intensifying apparatus to deliver a very high pressure stream of water through a nozzle. There is a single working piston having two pressure surfaces of a relatively large area, the working piston being connected to two high pressure pistons each having a pressure surface of a relatively small area. A control valve delivers a high pressure working fluid alternately to opposite sides of the working piston to cause it to reciprocate so that the pressure pistons alternately

deliver water at high pressure to the nozzle. In shifting between its two end positions, the control valve passes through an intermediate position at which a restricted flow passage is provided for the working fluid, this restricted flow passage having an effective cross sectional area relative to the effective area of the discharge nozzle such that the back pressure of the restricted passage of the control valve matches the



back pressure exerted on the working fluid so that a substantially constant back pressure is imposed on the high pressure source of working fluid. Further, there is a valve shifting mechanism comprising two shifting valves, each of which is responsive not only to physical contact by the working piston, but also to pressurization of its related working chamber to cause rapid shifting of the control valve.

3,811,796

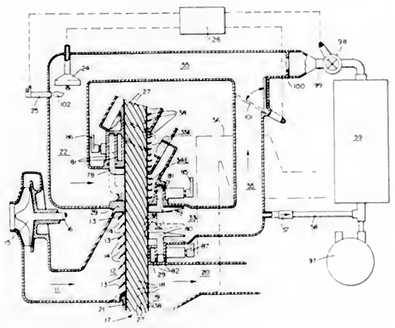
INTEGRAL TURBO-COMPRESSOR WAVE ENGINE

Richard R. Coleman, Jr., Villanova, and Helmut E. Weber, Valley Forge, both of Pa., assignors to General Power Corporation, Paoli, Pa.

Filed Oct. 21, 1971, Ser. No. 191,410

Int. Cl. F04b *11/00*; **F02c** *3/02*

U.S. Cl. 417—64 **30 Claims**



The present engine includes a heating chamber to produce relatively high temperature, high pressure gases; an intake chamber to provide relatively low temperature, low pressure gases which initially act as scavenging gases; an exhaust chamber into which the spent hot gases are expelled by the scavenging gases; a compressed cool gas chamber into which the compressed cool gases flow with partial expansion; and at least one hot gas expansion outlet or duct into which the high pressure hot gases expand. In addition the present engine includes a compressor-expander rotor having a plurality of rotor chambers, with each of said rotor chambers having an inlet opening and a nozzle with an outlet opening. The compressor-expander rotor is disposed to rotate adjacent to said intake chamber and said heating chamber, to accept into said rotor chambers, cool gases from the former followed by hot gases from the latter. Termination of the flow of cool intake gases from each rotor chamber nozzle outlet initiates a shock wave at the rotor chamber nozzle outlet. A second, normally stronger, shock wave is initiated at the inlet of each rotor chamber as it is exposed to the hot gases flowing from the heating chamber. Each rotor chamber is designed so that before this second shock wave (which is set up by the hot gases entering a rotor chamber already filled with cool gas) reaches the end of its excursion toward the rotor chamber outlet, the shock wave encounters the constricted area, or nozzle, of the rotor chamber. As a result this second shock wave is reflected from the rotor chamber nozzle toward the inlet of the rotor chamber. As a result of this reflected shock wave, the final pressure of both the cool gases and the hot gases within the rotor chamber is very high and is substantially higher than the initial pressure of hot gases flowing from the heating chamber. The rotor housing is designed such that ideally as the reflected shock wave reaches the inlet of the rotor chamber, this inlet is sealed as a result of rotation of the rotor. This well-timed closure prevents expansion of the shock-compressed hot gases back into the heating chamber. As indicated above, as the reflected shock wave traverses the rotor chamber from the constricted section or nozzle, the pressure of both the hot and cool gases in the rotor chamber is substantially increased as compared with the pressure of the hot gases which enter the rotor chambers. The high pressure cool gases expand through the nozzles, pass through an outlet port and through a duct to the heating chamber. Then when the rotor chamber nozzle outlet is exposed to a hot gas outlet port in the rotor housing, the discharge velocity of the hot gases held therein is also very high. Thus by reaction to the discharge of both cool and hot gases, the compressor-expander rotor itself is caused to do work.

The present engine may further optionally include movable sections in the side walls of the rotor housing which can be used to adjust the sizes and mean positions of the inlet and outlet ports, as illustrated for the ports connected with the heating chamber and the compressed cool gas chamber. By this means the efficiency of the engine can be controlled, when the speed or the rate of acceleration or deceleration of the compressor-expander rotor is changed. Further, the present engine optionally includes a plurality of reentry paths through the rotor housing and a plurality of recharging-reaction stages through the compressor-expander rotor which enable the engine to recharge the rotor chambers repeatedly, thereby efficiently utilizing the energy of the high pressure hot gases in stages to produce useful work.

3,811,797

FUEL PUMPS FOR USE IN CONDUCTION WITH GAS TURBINE ENGINES

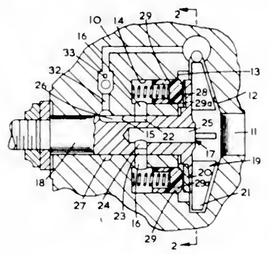
Geoffrey Arthur Lewis, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed July 31, 1972, Ser. No. 276,440

Claims priority, application Great Britain, July 29, 1971, 35607/71

Int. Cl. F04b *23/08*

U.S. Cl. 417—199 A **3 Claims**



A fuel pump in which there is provided a centrifugal impeller operative at high speed and a reciprocating piston pump operative at low speeds. The pump becomes inoperative when a speed is reached such that the spring loading of the pistons is overcome by the pressure generated by the centrifugal impeller. The outlets of the two pumps are connected together via non-return valves.

3,811,798

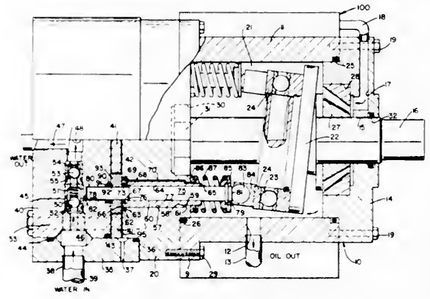
PISTON PUMP WITH SELF-LUBRICATING PISTONS

John C. Bickford, Novato, Calif., assignor to Hydraulic Systems, Inc., San Rafael, Calif.

Filed July 19, 1972, Ser. No. 273,154

Int. Cl. F04b *1/12*; **F01b** *31/10*

U.S. Cl. 417—269 **21 Claims**



A pump having pistons that actuate a pumping device by suction and compression and having novel means for sealing the fluid being pumped from the lubricating fluid and for ensuring lubrication between the pistons and their cylinders. The reciprocation of the pistons is made to pump the lubricating fluid between them and the cylinder and to return the fluid to an internal lubricant reservoir. A swash plate acts also as a circulating pump for sending the lubricating fluid through an external cooling reservoir.

3,811,799

LIQUID FUEL PUMPING APPARATUS

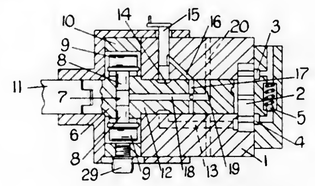
Gordon Frederick William Jackson, New Malden, England, assignor to C.A.V. Limited, Birmingham, England

Filed Oct. 12, 1972, Ser. No. 297,066

Claims priority, application Great Britain, Oct. 15, 1971, 48019/71

Int. Cl. F04b *1/06*

U.S. Cl. 417—221 **3 Claims**



A fuel pumping apparatus includes a member adjustable to vary the timing of injection of fuel to the engine and which is operated by a fluid pressure operable device which comprises a first piston of cup-shaped form and having its open end subjected to a speed dependent pressure which moves it against a first spring and the apparatus also includes a second piston located within the first piston and connected to said member. The second piston is also subjected to said speed dependant pressure but is capable of limited movement relative to the first piston. Means is provided to control the pressure in the space between the two pistons in accordance with the setting of the throttle member of the apparatus.

3,811,800

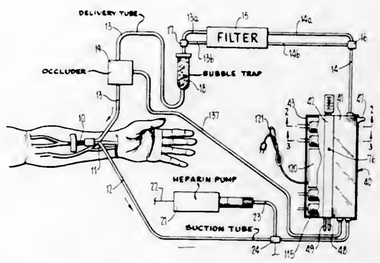
BLOOD PUMP

Karl Shill, 38171 Ashford Way, Fremont, Calif.

Filed July 12, 1972, Ser. No. 271,011

Int. Cl. F04b *43/10, 45/06*; **A61m** *5/00*

U.S. Cl. 417—317 **5 Claims**



This invention relates to a pump for an "artificial kidney machine", or hemodialysis device; and primarily is designed for the pumping of blood for purification in such a system using the recently announced procedure of "single needle" dialysis, whereby a single needle is temporarily inserted into a vein or artery of a patient through which blood is withdrawn from the vein for purification and returned to the patient through the same needle. Such a dialysis system requires, in addition to the filter and pump, a device commonly called an "occluder" by means of which purified blood from the filter is prevented from flowing to the needle during the suction stroke of the pump when blood is withdrawn from the patient and is open to flow during the pumping stroke.

3,811,801

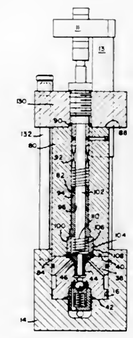
MULTI-PLUNGER RECIPROCATING PUMP

Frederick W. Buse, Allentown, and Warner E. Sensinger, Jr., Emmaus, both of Pa., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed May 30, 1972, Ser. No. 257,588

Int. Cl. F04b *21/02*

U.S. Cl. 417—454 **6 Claims**

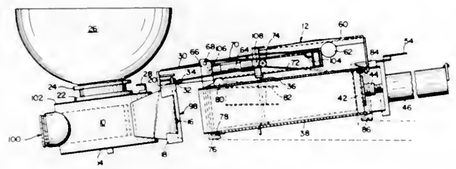


A multi-plunger reciprocating pump having a cylinder head with internal manifolding and valving arrangement that permits removal of valves as units from selected pumps, valve bodies with bias porting, and studs in constant tension. A solenoid actuated rod may be added to unload the compression chambers by inhibiting the inlet or suction valve from seating.

3,811,802
SLURRY PUMP CLEANOUT MECHANISM

Charles A. Semple, Midland, Tex., assignor to Engineering Concrete Placer, Inc., Midland, Mich.

Filed Dec. 6, 1972, Ser. No. 312,764
Int. Cl. F04b *15/02, 21/00, 39/12*
U.S. Cl. 417—454 7 Claims

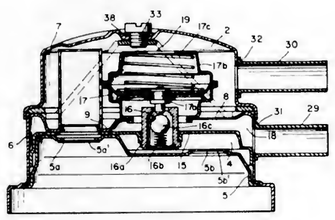


Concrete slurry pumps, particularly a mechanism enabling separation of the valve housing from the pumping cylinders, to enable a washing cleanout of the cylinders and pumping pistons therein.

3,811,803
DIAPHRAGM PUMP

Gunther Frohberg, Neuss/Rhine, Germany, assignor to A. Pierburg Auto-und Luftfahrtgeraete KG, Neuss/Rhein, Germany

Division of Ser. No. 864,337, Oct. 7, 1969, abandoned. This application Jan. 6, 1972, Ser. No. 215,767
Claims priority, application Germany, Oct. 23, 1968, 1804532
Int. Cl. F04b *21/04*
U.S. Cl. 417—458 3 Claims

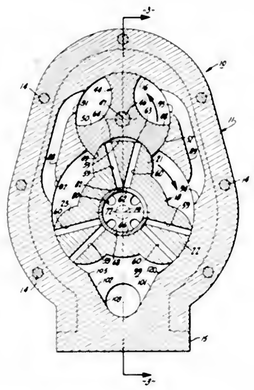


A diaphragm pump, particularly for use as a fuel pump in an internal combustion engine, comprises upper and lower housing parts separated by a diaphragm which is clamped between them. The upper housing part comprises an intermediate housing and a top cover fixed on top of it. The intermediate housing has a cross wall which extends across the interior of the upper housing part and which, together with a valve plate within the intermediate housing, divides the upper housing part into three separate chambers, a suction chamber to which the pump inlet is connected, a working chamber, and a pressure chamber to which the pump outlet is connected. The working chamber is situated between the valve plate and the diaphragm. A sunken port is press formed or drawn integrally from the cross wall in an eccentric position, the lower lip of this sunken port being sealed to the valve plate around a corresponding aperture in the valve plate. In this way a passageway is formed communicating the chamber above the cross wall, preferably the suction chamber, with the working cyamber. The seal at the lower lip of the sunken port is formed either by a sealing ring or by the lip being directly fixed to the valve plate.

3,811,804
ROTARY ENGINE WITH INTERENGAGING ROTATING MEMBERS AND REVERSING VALVE

Larry L. Roth, 39 Palm Ave., Millbrae, Calif., and Joseph Liston, 900 Robinson Ave., West Lafayette, Ind.

Filed Dec. 29, 1972, Ser. No. 319,841
Int. Cl. F01c *1/08*; F04c *17/04*; F01c *21/16*
U.S. Cl. 418—32 2 Claims



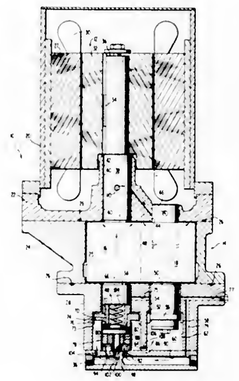
A Rankine cycle rotary engine and gas flow control valve mechanism used therewith. A housing of the engine forms a pair of cylindrical cavities in which primary and secondary rotors are mounted for rotation about spaced, parallel axes. Three outwardly projecting lobes on the primary rotor intermesh with three concaval recesses on the secondary rotor, and a timing gear train is provided to turn the secondary rotor in opposite and equal angular rotation with the primary rotor. Gas under pressure is directed through a distributor chamber to a flow control valve sleeve mounted for axial sliding movement concentrically within the primary rotor. Pairs of radially extending distributor passageways are formed in each of the lobes to direct gas from the valve into successive expansion chambers formed between the intermeshing lobes and recesses. The valve sleeve is formed with a pair of axially spaced apart flow control ports. The control ports are bounded by pairs of admission and cutoff edges which diverge apart in opposite axial directions. Means is provided to axially position the valve sleeve for throttling by varying the angular sector of the control port opening which is in register with the distributor passageways, and further to carry either port into register with these passageways for forward, braking or reverse engine operation. Residual gas from secondary rotor recesses which have disengaged from their associated primary rotor lobes is directed through secondary passages to expand and act against the primary rotor.

3,811,805
HYDRODYNAMIC THRUST BEARING ARRANGEMENT FOR ROTARY SCREW COMPRESSOR

Harold W. Moody, Jr., and Donald D. Schaefer, both of Farmington, Conn., assignors to Dunham-Bush, Inc., West Hartford, Conn.

Filed May 16, 1972, Ser. No. 253,752
Int. Cl. F01c *1/16, 21/04*
U.S. Cl. 418—88 5 Claims

The female drive screw of an axial screw compressor directly drives an oil pump at the end of the screw supporting shaft, remote from the motor, which delivers high pressure oil to hydrodynamic thrust bearings between the ends of the male and female screws and the end plate at the discharge side of the compressor. The female screw is hollow and forms an oil passage with both screws incorporating inclined radial passages to direct pressurized oil to their discharge end faces.

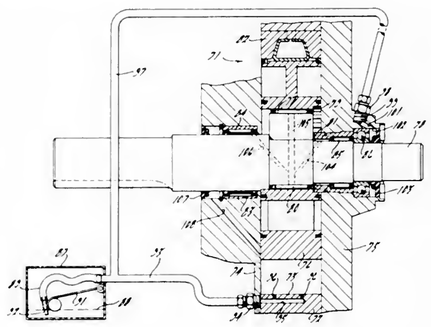


Oil balance pistons carried by the screw supporting shafts are subjected to high oil pressure to overbalance the created thrust on the screws due to compression of the working fluid.

3,811,806
LUBRICATING SYSTEM FOR ROTARY MACHINE

Robert W. King, Sidney, Ohio, assignor to Copeland Refrigeration Corporation, Sidney, Ohio

Filed Feb. 1, 1972, Ser. No. 222,602
Int. Cl. F01c *21/00*
U.S. Cl. 418—100 5 Claims

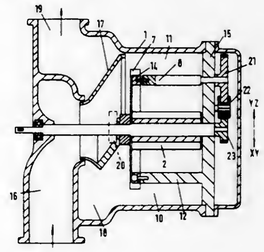


A lubricating system primarily for a rotary piston machine such as a rotating internal combustion engine. The lubricating system includes a conduit that leads from the lubricant sump to a chamber of the mechanism that cyclically changes in volume. When the volume is increasing, the pressure differential acting on the conduit forces oil or other lubricant from the sump into the chamber to lubricate the rotating members. In one embodiment, the pressure differential caused by the changes in volume of the chamber is also used to deliver lubricant to bearings of the mechanism. In each embodiment a capillary device in the form of a porous member meters the flow of lubricant.

3,811,807
ROTARY COMPRESSING, DISPLACING OR EXPANDING MACHINE

Donald Wilfred Tryhorn, Slough, England, assignor to Sir W. G. Armstrong Whitworth & Company (Engineers) Limited, Slough, Buckinghamshire, England

Filed June 15, 1972, Ser. No. 263,095
Claims priority, application Great Britain, June 17, 1971, 28424/71
Int. Cl. F01c *1/00*
U.S. Cl. 418—227 4 Claims

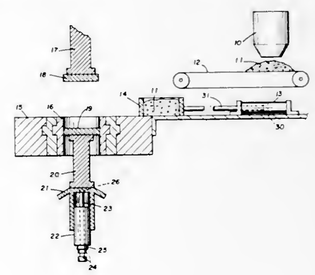


A rotary fluid compressing displacing or expanding machine of the type in which lobes on a rotor rotate within a casing relative to blades which are rotatably mounted on the casing so as in sequence to form a barrier to the passage of fluid and by their rotation permit passing of the lobes to cause a continuous delivery of fluid in front of the lobes and intake of fluid behind the lobes. With the object of achieving a lower than usual noise level and an increased fluid displacement for a given casing diameter, an improved machine is characterized in that the tips of the blades sequentially form a sealing clearance with an inner surface of the casing which is concentric with the rotary axis and further in that the blade thickness to width ratio is in the range of $0.4/N$ to $0.9/N$ where N is the number of blades.

3,811,808
WEIGHED CHARGE SYSTEM FOR A BRICK PRESS

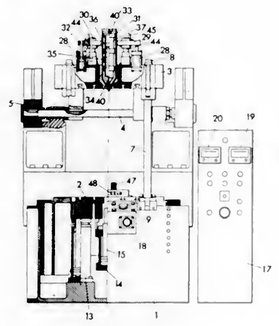
Richard O. Platt, Bethel Park, Pa., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Feb. 22, 1971, Ser. No. 117,587
Int. Cl. B29c *3/06*
U.S. Cl. 425—167 4 Claims



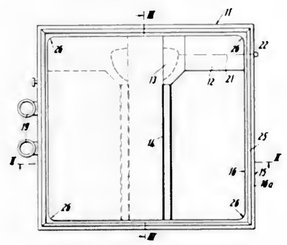
A system to deliver a weighed charge to the mold box of a brick press so that the material is uniformly distributed in the mold is disclosed. Specifically, a weighed charge is conveyed to the mold by conventional means, but is distributed in the mold by the coordinated synchronous movement of both the lower press pad's downward motion and the reciprocating action of the charger during the charging sequence.

3,811,809
DIE PRESS AND ADJUSTING MECHANISM THEREFOR
Takeo Hitosugi, No. 1-20-7, Taihei-cho, Tokyo, Japan
Continuation-in-part of Ser. No. 100,695, Dec. 22, 1970. This application Mar. 16, 1973, Ser. No. 342,200
Int. Cl. B28b *17/00*
U.S. Cl. 425—173 3 Claims



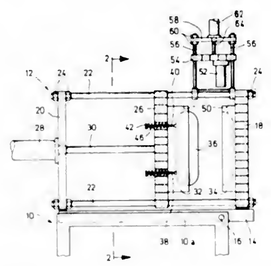
A die press such as an injection molding press. The press has a lower table and an upper bolster for respectively carrying lower and upper die structures which will define a cavity to receive the mold material. An injection assembly is situated at the upper bolster for injecting mold material into this cavity. The bolster is capable of being swung between an operative position over the table and an inspection position where the bolster has been swung from its operative position through 180° and is inverted so that the upper die structure can readily be inspected. A mounting structure mounts the injection assembly on the bolster in such a way that it is possible for the injection assembly to swing with the bolster while still remaining operative at all times.

3,811,810
DEEP-DRAWING MOULD FOR SHAPING THERMOPLASTIC PANELS
Hans Gunter Moller, Oldinburger Landstr. 50, 287 Delmenhorst, Germany
Continuation of Ser. No. 94,714, Dec. 3, 1970, abandoned. This application Mar. 5, 1973, Ser. No. 337,993
Int. Cl. B29c *17/02*
U.S. Cl. 425—185 7 Claims



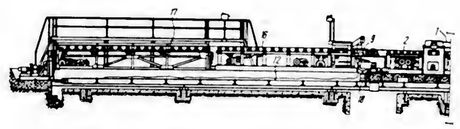
A deep-drawing mould for shaping bathroom forms from the thermoplastic panels. The mould comprises a rigid, box-shaped master having a steel outer wall and a spaced, aluminum inner wall. The inner wall is ported in the corners so that a vacuum may be drawn to pull an overlying thermoplastic panel down into the mould, and temperature regularing means are also provided between the walls. Detachable mould parts, such as a wash basin form, may be inserted in the master mould and provided with separate vacuum drawing means.

3,811,811
APPARATUS FOR SUPPORTING RELATIVELY MOVABLE COMPLEMENTAL MOLD PARTS
Gunter Horl, Esslinger Str., 7310 Plochingen, Germany
Filed Mar. 28, 1972, Ser. No. 238,791
Int. Cl. B28b *17/00*
U.S. Cl. 425—192 4 Claims



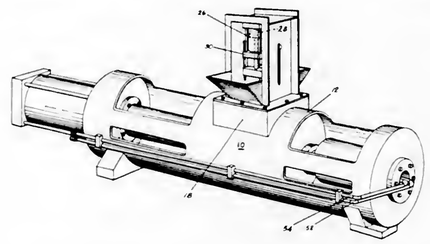
For ensuring accessibility to any desired location of a mold used in injection or cast molding, the support structure carrying the complemental and relatively movable mold halves includes a grate to which a mold half is directly affixed. The multitude of openings in the grate permits simultaneous accessibility to several desired locations at the associated mold half.

3,811,812
MILL FOR MANUFACTURE OF PLASTER CONCRETE ARTICLES
Abram Isaakovich Birger, Prospekt Mira, 184, korpus 2, kv. 167; Alexandr Mikhailovich Fiskin, Prospekt Mira, 184, korpus 2, kv. 211; Ivan Sergeevich Samsonov, Zuezdny bulvar, 5, kv. 23; Anatoly Alexandrovich Savushkin, 2 Novo-Ostankinskaya ulitsa, 14, kv. 5; Nikolai Nikolaevich Zemtsov, Prospekt Mira, 184, korpus 2, kv. 164, and Vitaly Arkadievich Borisevich, Zvezdny bulvar, 5, kv. 174, all of Moscow, U.S.S.R.
Filed May 4, 1972, Ser. No. 250,169
Int. Cl. B28b *3/12, 5/02*
U.S. Cl. 425—217 1 Claim



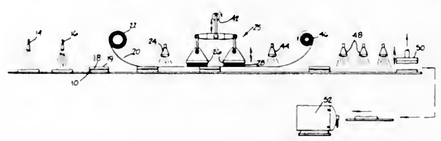
A mill is disclosed which is provided with a device for feeding plaster concrete wastes back to a concrete mixer, said device comprising means for receiving and crushing the wastes, as well as means for conveying said wastes back to the concrete mixer.

3,811,813
BRIQUETTING PRESS
Russell William Taccone, Erie, Pa., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Aug. 25, 1972, Ser. No. 283,881
Int. Cl. B29c *3/04*
U.S. Cl. 425—252 5 Claims



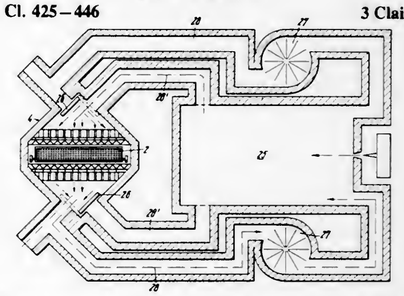
The press includes a stationary box for receiving metal chips. The chips are precompressed in the box by a tamping cylinder. A fixed anvil and a ram lie in horizontal registry on opposite sides of the chip box. A die encompasses the avil and is carried by a movable cylinder which allows for "floating" of the die. The movable die holding cylinder cooperates with a piston fixed on an anvil support rod to respectively extend the die toward the chip box to define a die cavity with the end face of the anvil and retract the die away from the chip box and anvil end face. The ram moves from a retracted position on one side of the chip box through the box to transfer the chips from the container into the die cavity and compress the same against the anvil end face adjacent the other side of the chip box. The die holding cylinder is neutralized during the final portion of the squeeze stroke permitting the die to float, thus equalizing the pressure applied to the opposite ends of the briquette. After the ram is retracted, the die is retracted thereby stripping the briquette from the die and permitting it to fall onto a rollout chute.

3,811,814
VIBRATION IMPACT TEXTURING APPARATUS
Paul Lewis Earle, Martinsville; Andrew Musz, Raritan, both of N.J., and Jan Josef Maria Vandervelden, Mol, Belgium, assignors to Johns-Manville Corporation, New York, N.Y.
Division of Ser. No. 160,857, July 8, 1971, Pat. No. 3,767,746. This application Apr. 20, 1973, Ser. No. 353,040
Int. Cl. B29c *17/00*
U.S. Cl. 425—385 5 Claims



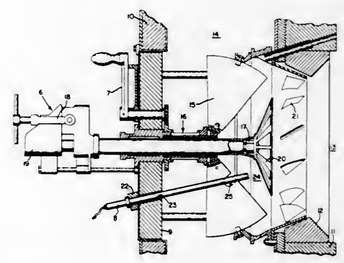
An improved process and apparatus for vibration impact texturing of asbestos cement products and an apparatus therefor. Prior to placing a deformable material on a mold carrying a negative impression of a pattern desired to be imparted to the deformable material, the mold is coated with a liquid which is capable of being absorbed by the deformable material to displace air from recessed areas of the mold. The deformable material while on the mold is subject to the action of rapidly moving members to transfer the pattern to the material. At least some of the rapidly moving members which first impact against the deformable material have sharp pointed ends and the remaining members have blunt ends. After impact by the reciprocating members, the material on the mold is heated to preset the deformable material. The presently preferred deformable material is asbestos-cement in sheet form.

3,811,815
APPARATUS FOR MANUFACTURING OF BODIES OF BULKING CLAY
Erich Sundermann, and Johanna Viedt, both of Broitzem, Germany, assignors to Waldemar Dolle, Braunschweig, Germany, by said Sundermann
Division of Ser. No. 20,916, March 19, 1970, Pat. No. 3,745,201. This application May 5, 1971, Ser. No. 140,479
Claims priority, application Germany, Mar. 21, 1969, 1914372; Germany, Sept. 10, 1969, 1945810; Germany, Sept. 10, 1969, 1945811
Int. Cl. B29b *3/00*
U.S. Cl. 425—446 3 Claims



An apparatus for manufacturing of bodies of swelling clay or equivalent material which comprises a burner adapted for heating of gases and a heaped body to be heated by the gases. A passage chamber is arranged for guiding of the gases and for receiving the heaped body. A rollable, molding box is provided which has massive side walls and a sieve-like perforated bottom wall, as well as a massive, perforated cover, selectively usable in the passage chamber or applicable outside of the passage chamber, and the heaped body is received in the rollable molding box and comprises granules of clay.

3,811,816
ACOUSTIC FLAME DETECTORS FOR STEAM GENERATORS
Nelson Whitman, Lincoln, Mass., assignor to General Electric Company, Schenectady, N.Y.
Filed Jan. 29, 1973, Ser. No. 327,429
Int. Cl. F23m *5/16*
U.S. Cl. 431—75 4 Claims



In a steam generator having a plurality of burners fed by a common windbox and heating a common firebox, a directional electroacoustical sensor for each burner is

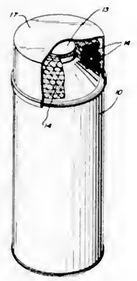
disposed in the passage between the windbox and the firebox. The sensor is responsive to a relatively narrow band width of sound and distinguishes between a flame and a no-flame condition in the individual burner.

3,811,817

LAMP FOR PRODUCING COLORED FLAME

John A. Mansnerus, Northbrook, and Ted A. Dombrowski, West Chicago, both of Ill., assignors to The Bell Company, Inc., Chicago, Ill.

Filed Feb. 20, 1973, Ser. No. 333,716
Int. Cl. F23q 2/44
U.S. Cl. 431—126 **6 Claims**



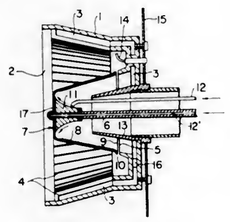
To provide a desired colored flame for a lamp, our method and lamp provides a safe way of incorporating the metallic chlorides on a portion of the wick, which we pack in a removable covering attached to the exterior of a metal container prior to use. The container has fuel and a wick opening which is covered before use by a closure. In use the closure is removed from the container, and the covering is removed from the wick. An untreated portion of the wick is inserted through the wick opening to the fuel in the bottom of the container. The fuel is then ignited and burns to heat the metallic salts on the portion of the wick extending beyond the wick opening to produce desired colored flame.

3,811,818

LIQUID FUEL BURNER

Kingo Miyahara, Tokyo, Japan, assignor to Kabushiki Kaisha Dowa, Tokyo, Japan

Filed Mar. 29, 1973, Ser. No. 346,127
Claims priority, application Japan, July 16, 1972, 47-71123; July 16, 1972, 47-71124
Int. Cl. F23d 11/04
U.S. Cl. 431—168 **4 Claims**



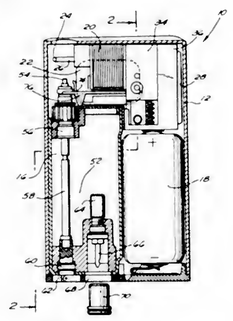
A liquid fuel burner in which a hollow fuel gasifying member and a fuel diffusing member are mounted on a rotary shaft within the burner body for coaxial rotation and air under pressure is directed toward these members for atomizing liquid fuel. A narrow atomized fuel blowing gap is defined between the open end of the gasifying member and a central open space of a gas chamber so that the mixture of atomized fuel and air can be first ignited to heat the gasifying member to a high temperature for promoting later gasification of liquid fuel for continuous combustion.

3,811,819

MODULAR GAS LIGHTER WITH ELECTRONIC IGNITION

Pierre Toiseux, Ol Bellegarde sur Valserine, France, assignor to Ronson Societe Anonyme, Paris, France

Filed Sept. 25, 1972, Ser. No. 291,923
Claims priority, application France, Sept. 20, 1971, 71.33692
Int. Cl. F23q 2/16
U.S. Cl. 431—255 **2 Claims**



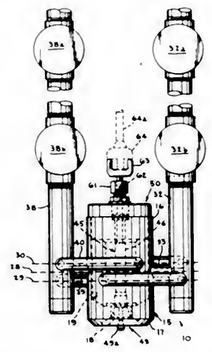
A gas lighter actuated by an electronic ignition system wherein the electronic ignition system as well as the fuel system and battery are provided in the form of modules disposed within the lighter housing. An actuating slide in the electronic circuit module is operably connected to the gas burner valve so that movement of the slide actuates the electronic ignition system and simultaneously operates the burner valve to produce a spark which ignites a flow of gas from the burner valve.

3,811,820

WELL TEST BURNER

Joseph G. Theriot, 1205 Canal St., Morgan City, La.

Filed Nov. 1, 1973, Ser. No. 412,010
Int. Cl. F23d 11/40
U.S. Cl. 431—354 **7 Claims**



A well tester burner for oil wells includes a hollow body closed at one end and having an opening at the other to provide a mixing chamber therebetween. A plurality of openings extend through the body into the chamber and are arranged in an opposing manner so that oil from the well tested may be discharged through a plurality of openings and air discharged into other openings the oil and air openings being arranged in an opposed manner so that the oil and air impinge against each other and form a mist in the mixing chamber prior to discharge through the opening.

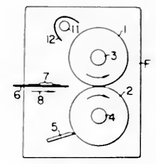
A lance extends longitudinally in the body and is movable relative thereto for controlling the volume of oil and air mist discharged through the opening from the body. The lance includes surface means that cooperate with the opening and surface on the end of the body adjacent to the opening for further misting of the oil and air for better combustion, so that a smokeless flame is created meeting present government and ecology requirements.

3,811,821

POWDER IMAGE FIXING DEVICE FOR XEROGRAPHIC COPYING APPARATUS AND METHOD

Kenzo Ariyama; Shigeru Muramatsu, and Ryoichi Namiki, all of Tokyo, Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Nov. 28, 1972, Ser. No. 310,130
Claims priority, application Japan, Dec. 3, 1971, 46-98054; Dec. 3, 1971, 46-98055
Int. Cl. F27b 9/28
U.S. Cl. 432—8 **14 Claims**



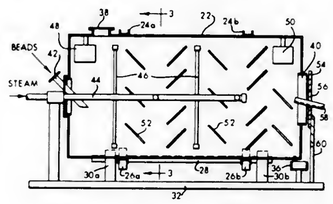
A device comprising a heating, and fixing roller and a pressing roller, the heating and fixing roller having a peripheral surface to which powder of a powder image formed on a recording sheet by a xerographic method is hard to adhere and the pressing roller having a peripheral surface to which the powder readily adheres. The recording sheet is passed between the two rollers so that the powder image on the recording sheet may be fixed.

3,811,822

PROCESS FOR THE EXPANSION OF EXPANDABLE RESIN BEADS

Edward L. Cherenson, Needham Heights, Mass., assignor to Artisan Industries Inc., Waltham, Mass.

Division of Ser. No. 175,548, Aug. 27, 1971, Pat. No. 3,751,218. This application Apr. 30, 1973, Ser. No. 355,416
Int. Cl. F27b 15/00; F26g 11/02
U.S. Cl. 432—13 **11 Claims**



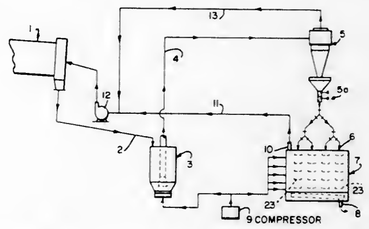
An apparatus for the production of low-density expandable resin beads, which apparatus comprises: a vessel to contain the beads; an inlet to introduce beads to be expanded into the interior of the vessel; an outlet to discharge from the vessel the beads after expansion to the desired density; means to rotate the vessel and to move the beads in a path from the inlet to the outlet of the vessel; and means to heat the beads while in the vessel from one state to another desired expansion state. Baffles are spaced apart from the interior wall of the vessel, and the baffles which are in the path of the beads are adapted to control the residence time of the beads as they move from the inlet to the outlet and of the vessel, and to maintain the beads as they move from the inlet to the outlet in a substantially uniform condition of expansion.

3,811,823

APPARATUS FOR COOLING PULVERULENT MATERIAL

Jay Warshawsky, Allentown, Pa., assignor to Fuller Company, Catasauqua, Pa.

Filed Apr. 12, 1973, Ser. No. 350,544
Int. Cl. F27b 7/38
U.S. Cl. 432—80 **14 Claims**



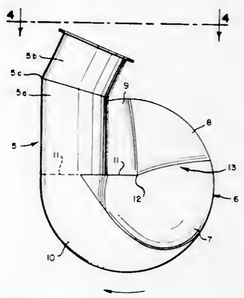
Apparatus for cooling heated pulverulent material which has been discharged from a rotary kiln, furnace, or reactor and also for recovering the product heat for use as a preheated source of air for combustion in the kiln or for drying in another process. The apparatus comprises several levels of fluidized beds which are arranged one above another and spaced from the walls of the outer casing, so that pulverulent material flows by means of displacement overflow from the upper to the lower bed while cooling air passes upward, through, and around the fluidized bed of material. The cooling air is then removed from the casing and discharged directly as preheated air into a rotary kiln, furnace, or reactor.

3,811,824

COOLER TUBES FOR ROTARY KILN

Sven E. Theil, Copenhagen, Denmark, assignor to F. L. Smith & Co., Cresskill, N.J.

Filed Sept. 13, 1972, Ser. No. 288,491
Claims priority, application Great Britain, Sept. 20, 1971, 43765/71
Int. Cl. F27b 7/20
U.S. Cl. 432—80 **6 Claims**



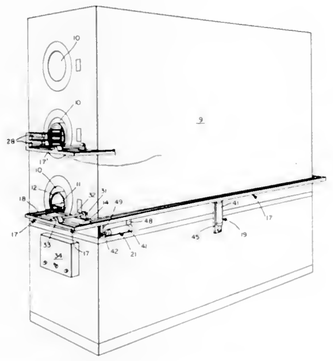
An improved cooler tube construction for rotary kilns is disclosed which includes a concavo-convex internal surface

located at the inlet end of each cooler tube. This concavo-convex surface acts to prevent back-spill and to advance material through the cooler tube.

3,811,825
SEMICONDUCTOR WAFER TRANSPORT DEVICE

Hans Dieter Friedrich Konrad Enderlein, Konstanz, Germany, assignor to John B. Sowell, Ardmore, Pa.

Filed Nov. 3, 1972, Ser. No. 303,653
Int. Cl. F27b *9/14*
U.S. Cl. 432—122 **14 Claims**

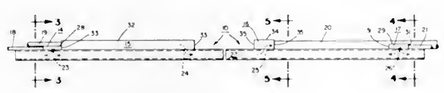


A transport system for conveying semiconductor wafers through a process tube of a diffusion furnace having both fixed wafer support means and movable wafer transport means inside the process tube, the movable wafer transport means being moved inside the process tube by movable frame means mounted external of the process tube to lift the semiconductor wafers and advance them a predetermined distance along the fixed wafer support means.

3,811,826
DIFFUSION FURNACE PROCESS TUBE

Hans Dieter Friedrich Konrad Enderlein, Konstanz, Germany, assignor to John B. Sowell, Ardmore, Pa.

Filed Nov. 3, 1972, Ser. No. 303,652
Int. Cl. F27b *5/04, 11/08*
U.S. Cl. 432—200 **8 Claims**

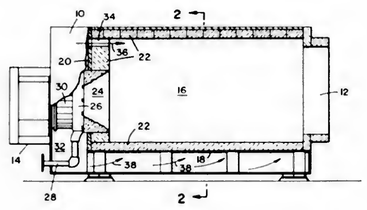


An improved process tube having a plurality of chambers on the process tunnel of the tube, two process gas chambers straddling the hot-zone of the process tube provide introduction and exhaust of process gases to the hot-zone, and two chambers straddling the process gas chambers provide gas curtains to restrict the process gases to the process tunnel intermediate the two process gas chambers.

3,811,827
DIRECT-FIRED HEATING AND COMBUSTION CHAMBER

Ralph Richard Vosper, San Jose, Calif., assignor to Coen Company, Burlingame, Calif.

Filed Feb. 5, 1973, Ser. No. 329,940
Int. Cl. F27b *3/02*
U.S. Cl. 432—221 **12 Claims**

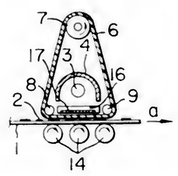


A direct-fired cylindrical chamber having a horizontal floor and a refractory lining is disclosed. Relatively cool air or other gaseous material enters the chamber through ports adjacent the upper portion of the chamber and longitudinal slots of variable width provided between the floor and the sides of the chamber. The air entering through the ports acts to cool the upper portion of the refractory lining, while air passing through the longitudinal slots acts to cool the side portions of the refractory lining. Hence, the air which is to be heated is effectively used to cool the refractory lining to reduce wear thereof.

3,811,828
PROCESS AND DEVICE FOR HEATING AND FIXING AN IMAGE UPON A RECORDING MEDIUM

Wasaburo Ohta, Yokohama; Kazuhiko Kasuya, Kawasaki; Sakae Fujimoto, Tokyo, and Masayuki Yamauchi, Kawasaki, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 85,184, Oct. 29, 1970, abandoned. This application Aug. 8, 1972, Ser. No. 278,832
Int. Cl. F27b *9/28*
U.S. Cl. 432—227 **3 Claims**

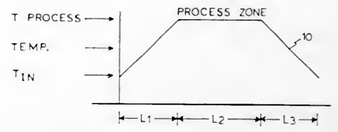


An endless belt arranged to travel around a source of infrared radiation is used in fixing an image on a recording medium as the recording medium is advanced past the belt. The belt, driven in the direction of advance of the recording medium by a drive roller spaced away from the infrared radiation source, passes between the infrared radiation source and the recording medium; the belt prevents contact of the medium with the source while permitting radiation from the source to heat and fix the image on the advancing recording medium.

3,811,829
ISOTHERMAL BOAT CONTAINER

Richard A. Wesson, Phoenix, Ariz., and Sandford Platter, Bolton, Mass., assignors to Semi, Inc., Phoenix, Ariz. and Robert L. Jarratt, Trustee in bankruptcy for Semiconductor Electronic Memories, Inc.

Filed Oct. 26, 1971, Ser. No. 192,052
Int. Cl. F27b *9/00*
U.S. Cl. 432—253 **5 Claims**



In heat treating semiconductor circuits formed on wafers, the wafers are usually loaded into a boat and the boat is pushed into a diffusion furnace. This invention provides a container into which a boat is loaded and then pushed to the center of the furnace. The construction of the container is made such that the temperature gradient undergone by the semiconductor material is maintained below the value at which improper thermal stress is applied. Also, the temperature of the wafers in all locations of the boat is maintained substantially the same. As a result crystal damage is avoided.

3,811,830
STABLE OIL-IN-WATER EMULSION HAIR DYE COMPOSITION

Richard DeMarco, Cedar Heights, Conn., assignor to Clairol Incorporated, New York, N.Y.

Filed Apr. 5, 1971, Ser. No. 131,426
Int. Cl. A61k *7/12*
U.S. Cl. 8—10.1 **13 Claims**

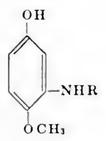
A hair dye composition in the form of an oil-in-water emulsion in which the dye is dissolved or finely dispersed in the oil phase. The composition contains a coupling agent (e.g., water soluble alkylene glycols or alkylene glycol ether alcohols; long-chain fatty acid soaps; or long-chain fatty compound polyoxyalkyl or polyhydroxyalkyl derivatives) which imparts stability to the emulsion. The composition may contain a propellant and be dispensed from an aerosol container.

3,811,831
DYEING HAIR WITH DIAMINE AND AMINOPHENOL OXIDATION DYES AND DIAMINE OR AMINOPHENOL COUPLERS

Andree Bugaut, 7, rue des Abondances, Boulogne-sur-Seine, and Francoise Estradier, 4, rue Nobel, Paris, both of France

Continuation of Ser. No. 841,137, July 11, 1969, abandoned. This application Mar. 14, 1972, Ser. No. 234,672
Claims priority, application Luxembourg, July 15, 1968, 56491
Int. Cl. D06p *1/32*
U.S. Cl. 8—11 **7 Claims**

A composition for dyeing keratinic fibers, especially hair, containing an aqueous solution of an oxidation dye which can be either one having a phenyl nucleus substituted with two amino groups in para position relative to each other or one having a phenyl nucleus substituted with an amino group and a hydroxyl group in ortho or para position relative to each other, and as a coupler therefor a compound having the formula



wherein R can be hydrogen, $-CH_2CH_2OH$, $-COCH_3$ or $-CH_2-NH_2$. The oxidation dye to coupler ratio ranges between 10:1 and 1:4 and the composition has an alkaline pH. It is applied to the hair in the presence of an oxidizing agent for a period of about 5–30 minutes at a temperature of about 15–40 °C. after which the hair can be washed and dried.

3,811,832
TANNING IMPROVEMENTS

Philip Stanley Briggs, Leeds, England, assignor to National Research Development Corporation, London, England

Continuation-in-part of Ser. No. 751,032, Aug. 8, 1968, abandoned. This application Apr. 8, 1971, Ser. No. 132,580
Claims priority, application Great Britain, Aug. 19, 1967, 38315/67
Int. Cl. C14c *3/18, 3/02, 3/04, 3/06*
U.S. Cl. 8—94.25 **29 Claims**

A process for tanning hides or skins comprises first treating the hides or skins with a basic salt of a multivalent metal; and then treating the hides or skins with a reaction medium containing a water-soluble salt of a dibasic organic acid, the water-soluble salt being one that forms an alkaline solution in water, and being present in an amount sufficient to maintain an alkaline pH in the reaction medium.

3,811,833
STABILIZED HYDROGEN PEROXIDE COMPOSITIONS CONTAINING AMMONIUM IONS, AND PROCESS FOR BLEACHING THEREWITH

Neil J. Stalter, Wilmington, Del., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.

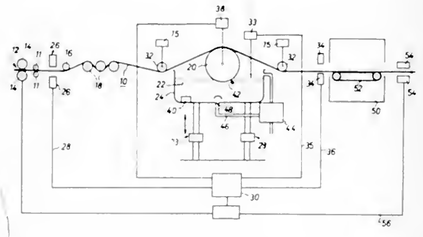
Filed June 30, 1972, Ser. No. 268,051
Int. Cl. D06l *3/02*
U.S. Cl. 8—111 **9 Claims**

A stable aqueous bleaching composition comprising: (1) concentrated, acidic hydrogen peroxide stabilized with a stannate salt; (2) an ammonium salt; (3) a stabilizing amount of an organic acid, preferably an alkylidene diphosphonic acid or salt; (4) optionally, other additives. Upon making the bleaching composition alkaline, the NH_4^+ ion is converted to ammonium hydroxide, which promotes the bleaching activity of hydrogen peroxide. There is also provided a process for bleaching with the bleaching composition.

3,811,834
METHOD AND APPARATUS FOR FINISHING CELLULOSE-CONTAINING TEXTILE MATERIALS AND TEXTILE MATERIALS THUS PRODUCED

Martin Schwemmer, Urdorf; Hans Bors, Fallanden, and Albert Goetz, Dietikon, all of Switzerland, assignors to Triatex International AG. Fur Textile Forschung und Entwicklung, Zurich, Switzerland

Filed Mar. 19, 1971, Ser. No. 126,723
Claims priority, application Switzerland, Mar. 26, 1970, 4659/70
Int. Cl. D06m *13/52, 15/70*; **D06c** *29/00*
U.S. Cl. 8—116 R **16 Claims**



A method of finishing cellulose-containing textile materials by applying a bath containing at least one finishing agent to the textile material. Application of the amount of bath which is applied being controlled such that the total percentual amount of applied bath in addition to the moisture content of the textile material, based upon the dry weight of such material, at most amounts to $[W^2/150]+40$, wherein W represents in percent the water retention capacity of the textile material determined in accordance with test method ASTM-D2402-6 5T.

The equipment for practising the invention to produce these finished textile products or materials embodies at least one applicator device which preferably is constituted by at least one

applicator or kiss roll for applying the finishing bath, there being further provided control means for regulating the rotational speed of such kiss roll to precisely regulate the amount of applied bath.

3,811,835
TREATMENT OF WOOL

Raymond Charles Gallup, Attleboro, and Richard Edward Riley, New Bedford, both of Mass., assignors to Precision Processes (Textiles) Limited, Derby, England

Filed Feb. 8, 1971, Ser. No. 113,697
Claims priority, application Great Britain, Feb. 23, 1970, 8639/70
Int. Cl. D06m *3/10, 15/36, 15/60*
U.S. Cl. 8—128 A **3 Claims**

Wool is rendered shrink-resistant by:

a. a preliminary mild oxidative shrink-resist treatment, preferably using a chlorine-containing agent, and
b. treatment with a cationic polyelectrolyte, preferably a polyvinyl imidazoline, and with a polymer, e.g., a polyethylene, emulsion, so as to exhaust polymer on to the wool fibres.

The treated wool can be dried below 100°C and does not need to be cured.

3,811,836
CONTINUOUS DYEING OF SYNTHETIC TEXTILE FIBRES WITH A BASIC CHARACTER

Jean Marie Louis Jules d'Albignac, and Jean-Francois Gamaury, both of Creil, France, assignors to Societe Civile Soltex, Paris, France

Continuation of Ser. No. 847,000, July 29, 1969, abandoned. This application Dec. 20, 1971, Ser. No. 210,269
Claims priority, application France, Aug. 14, 1968, 68.162965
Int. Cl. D06p *5/04*
U.S. Cl. 8—173 **2 Claims**

Dyebath comprising a solution of anionic dyestuff prossessing at least one free acid group in an organic liquid, the boiling point of the organic liquid being from 120°C. to 300°C. and a process for the continuous dyeing of synthetic textile fibres possessing basic functions in which the fibres are passed for from some seconds to some minutes at a temperature from 90°C. to 160°C. through a solution comprising an organic liquid having a boiling point from 120°C. to 300°C. and an anionic dyestuff in the form of the free acid.

3,811,837
METHOD OF DETERMINING ACID AND WATER IN OIL

John E. Hoffman, St. Louis, Mo., assignor to Sporlan Valve Company, St. Louis, Mo.

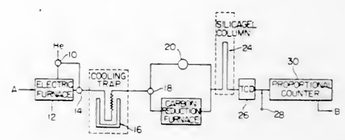
Filed Dec. 30, 1970, Ser. No. 102,928
Int. Cl. G01n *31/22*
U.S. Cl. 23—230 HC **1 Claim**

A method of measuring water in used oils, comprising the steps of placing a measured volume of a test solution into a first container, the first container being of a known volume when filled to overflow; placing a measured volume of test solution into a second container; pouring the measured volume of test solution from the first container into the second container; filling the first container to overflow with the oil being tested; pouring the measured volume of oil from the first container into the second container, the second container being of a volume large enough to accommodate the measured volumes of test solutions and oil, shaking the second container, introducing an additional measured volume of oil being tested into the second container so that the resultant solution separates into two phases to indicate the percentage by volume of water in the oil. The test solution in one container is a neutralizer solution including an alkali such as sodium hydroxide or potassium hydroxide, an alcohol such as ethyl alcohol, isopropyl alcohol or methyl alcohol and a small amount of water. The test solution in the other container is an indicator solution including an aromatic hydrocarbon such as benzene or toluene, an alcohol such as ethyl alcohol, isopropyl alcohol or methyl alcohol, and an indicator such as phenol red, phenolphthalein, cresol red, bromthymol blue, congo red, chlorophenol red or orange I. The percentage of aromatic hydrocarbon by volume in the indicator solution is about two percent (2 percent) to about ninety-eight percent (98 percent) of the combined volume of aromatic hydrocarbon, alcohol and indicator.

3,811,838
METHOD AND APPARATUS FOR MEASURING RADIOACTIVITY OF ORGANIC SUBSTANCE

Tomoo Saito, Sagamihara; Naotake Morikawa, Tokyo, and Kazuo Wanatable, Yokohama, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

Filed Nov. 8, 1972, Ser. No. 304,728
Claims priority, application Japan, Nov. 10, 1971, 46-089119; June 10, 1972, 47-057927; June 10, 1972, 47-057928
Int. Cl. G01n *31/08, 31/12*
U.S. Cl. 23—230 PC **7 Claims**



A radioactive labelled compound is measured quantitively of its mass by a thermal conductivity detector (TCD) and then passed through a proportional counter to take radioactive measurement. As occasion demands, the compound is decomposed into CO_2 and H_2O and then H_2O is trapped which is then reduced in a furnace by using carbon for preparing H_2, on which quantitive measurement is taken by the TCD and then on which radioactive measurement is taken by the proportional counter.

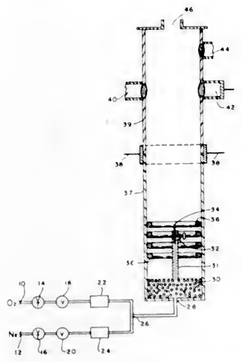
3,811,839
APPARATUS FOR THE DETERMINATION OF FLAMMABILITY AND SMOKE DENSITY OF POLYMERS

Joseph Di Pietro, and Heinrich E. Stepniczka, both of Alma, Mich., assignors to Michigan Chemical Corporation, St. Louis, Mich.

Filed Apr. 28, 1972, Ser. No. 251,546
Int. Cl. G01n *21/12, 21/26, 31/12*
U.S. Cl. 23—253 PC **5 Claims**

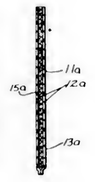
There is disclosed a method and an apparatus for determining the flammability and smoke density of polymeric materials. The apparatus comprises a first device to determine the

flammability of the polymer under consideration by the oxygen index method and a second device connected to said first



device to determine simultaneously, if desired, the smoke density of the same polymer.

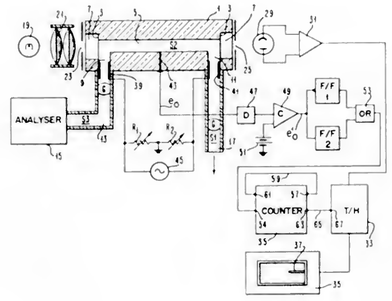
3,811,840
TEST DEVICE FOR DETECTING LOW CONCENTRATIONS OF SUBSTANCES IN FLUIDS
Robert Bauer, Bristol; Richard Gordon Rosenfield, South Bend, and Chauncey Orvis Rupe, Elkhart, all of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.
Filed Apr. 1, 1969, Ser. No. 811,935
Int. Cl. G01n *31/14, 33/00, 33/16*
U.S. Cl. 23—253 TP **8 Claims**



Test device for detecting low concentrations of substances in test fluids comprising an absorbent wick having a substantially flat surface portion enclosed in a fluid impervious sheath having an aperture of predetermined limited area formed therein, the aperture being contiguous to and exposing a predetermined limited area of the flat surface portion of the wick, which portion is incorporated with a reagent specifically reactable with the substance being detected. In use the device is immersed into the test fluid so that the aperture is submerged and the device, allowed to remain therein while the test fluid contacts the reagent area adjacent to the aperture and migrates into the remainder of the wick. The reagent is immobilized with respect to the liquid. The sheath adjacent to the wick is opaque.

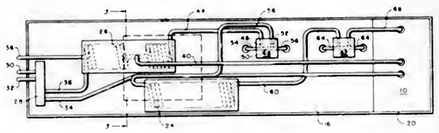
3,811,841
GATING FLOW CELL STRUCTURE FOR CONTINUOUS-FLOW ANALYSIS SYSTEMS
Aaron Kassel, Tarrytown, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.
Filed Aug. 9, 1972, Ser. No. 279,149
Int. Cl. G01n *27/10, 33/16*
U.S. Cl. 23—253 R **11 Claims**

A flow cell structure having a sight passageway for analyzing a series of liquid samples separated by a segmentizing medium, e.g., air or other inert gas, includes at least three electrodes in electrical contact with the segmented sample stream passing therealong. The electrodes are disposed



with respect to the sight passageway and in a ratio system, so as to indicate the presence of segmentizing medium in the sight passageway and deactivate the recorder.

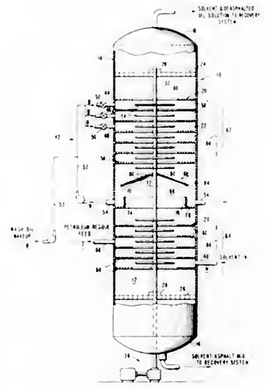
3,811,842
TEMPERATURE-CONTROLLED FLUID MANIFOLD FOR A FLUID SYSTEM OF AN AUTOMATED SAMPLE ANALYZER
Herman G. Diebler, North Haledon; Steven Andrew Gyori, Allendale, and William J. C. McCandless, Ringwood, all of N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.
Filed June 7, 1972, Ser. No. 260,551
Int. Cl. G01n *33/16*
U.S. Cl. 23—259 **10 Claims**



Temperature-controlled fluid manifold for a fluid system of an automated sample analyzer of the type for analyzing a series of liquid samples flowing seriatum to quantitative analysis for a constituent of interest. The basic elements of the temperature-controlled manifold may be permanently combined with a wide variety of other components to meet the requirements of many different chemistries to provide many different temperature-controlled manifolds each suited for analysis of a different constituent of a sample such as blood for example. In each particular manifold, the sample may be treated as by combination and mixing with any appropriate reagent or reagents under temperature-controlled conditions for subsequent analysis as in a colorimeter for example. The manifold may be significantly smaller in size and less costly than conventional manifolds. The aforementioned basic manifold elements comprise a thermally conductive plate or block heated by conduction from a temperature-controlled source of heat, which plate has an outer, exposed surface of substantial area,

and an appropriate number of appropriately configured fluid passageway portions, such as helical mixing or helical time-delay paths, encapsulated in a solid material characterized by a heat storage capacity and which material is supported in an appropriate location on the last-mentioned surface for thermal transfer by conduction to the material from the plate. The manifold includes a cover effectively tending to stagnate the ambient atmosphere around such encapsulated fluid passageway portions.

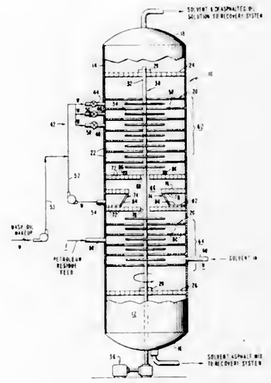
3,811,843
SOLVENT DEASPHALTING
Oliver Morfit, Green Village, and John G. Ditman, Newark, both of N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.
Filed Feb. 22, 1973, Ser. No. 334,783
Int. Cl. B01d *11/04*
U.S. Cl. 23—270.5 **13 Claims**



The invention deals with an apparatus for treating asphaltic feedstock in which a hydrocarbon solvent is introduced into a compartmentalized contacting tower below the feedstock, and a wash oil solvent is introduced above the feedstock. The contacting tower is formed with an enlarged central compartment in which there is located a conically shaped annulus for interrupting and recycling the flow of wash oil.

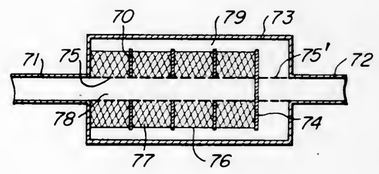
3,811,844
ROTATING DISC CONTACTOR DRAW-OFF SYSTEM
Joseph C. Dunmyer, Jr., and Rino L. Godino, both of Livingston, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.
Filed Feb. 22, 1973, Ser. No. 334,784
Int. Cl. B01d *11/04*
U.S. Cl. 23—270.5 **5 Claims**

The invention deals with an apparatus for treating asphaltic feed stock in which a hydrocarbon solvent is introduced into a compartmentalized contacting tower below the feed stock, and a wash oil solvent is introduced above the feed stock. The contacting tower is formed with an enlarged central compartment in which there is provided an annularly shaped accumulator basin for reducing the flow of the dispersed phase and



recycling the dispersed phase back to the upper portion of the tower.

3,811,845
VEHICLE EXHAUST CONTROL EQUIPMENT
Harutoki Nakamura, Toyonaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed July 19, 1971, Ser. No. 163,939
Claims priority, application Japan, July 30, 1970, 45-67146; July 30, 1970, 45-67147; May 12, 1971, 46-32076
Int. Cl. B01j *9/04*
U.S. Cl. 23—288 F **1 Claim**



A casing is divided into a plurality of small parallel catalyst chambers into which are packed mesh-like catalysts whose carriers are fabrics woven from glass fibers.

3,811,846
ALUMINUM ALLOY ELECTRICAL CONDUCTOR
Roger J. Schoerner, and Enrique C. Chia, both of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.
Continuation-in-part of Ser. No. 94,193, Dec. 1, 1970, abandoned, which is a continuation-in-part of Ser. No. 54,563, July 13, 1970, abandoned. This application June 5, 1972, Ser. No. 259,722
Int. Cl. B21c *1/00*; **C22f** *1/04*
U.S. Cl. 29—193 **32 Claims**

Aluminum alloy electrical conductors are produced from aluminum base alloys containing from about 0.20 to about 1.60 weight percent cobalt, from about 0.30 to about 1.30

weight percent iron, up to about 0.40 weight percent magnesium, up to about 0.40 weight percent copper, from about 99.50 to about 97.00 weight percent aluminum and up to about 0.45 weight percent each of additional alloying elements, the total weight percent of additional alloying elements not exceeding about 0.70 percent; the total weight percent of magnesium and copper not exceeding about 0.40 percent and the total weight percent of additional alloying elements not exceeding about 0.40 percent when the total weight percent of cobalt and iron exceeds about 1,80 percent. The alloy conductors have an electrical conductivity of at least 57 percent, based on the International Annealed Copper Standard (IACS), and improved properties of increased thermal stability, tensile strength, percent ultimate elongation, ductility, fatigue resistance and yield strength as compared to conventional aluminum alloys of similar electrical properties.

3,811,847

LIQUID HYDROCARBON FUELS

Harry J. Andress, Jr., Pitman, and Henry Ashjian, East Brunswick, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Sept. 8, 1972, Ser. No. 287,316
Int. Cl. C10l *1/18*
U.S. Cl. 44—63 **10 Claims**

Liquid hydrocarbon fuels containing, in an amount sufficient to impart good detergent properties, an acetal produced by the reaction of a partial ester of an alcohol and an aldehyde, in which the ester has a least 18 carbon atoms.

3,811,848

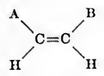
ANTISTATIC ADDITIVE COMPOSITIONS

Daniel D. Johnson, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 30, 1972, Ser. No. 268,045
Int. Cl. C10l *1/24*
U.S. Cl. 44—62 **10 Claims**

Antistatic compositions comprising

1. olefin-sulfur dioxide copolymer consisting essentially of units derived from sulfur dioxide, C_6-1-alkene, and optionally an olefin having the formula



wherein A is a group having the formula $-(C_xH_{2x})-COOH$ wherein x is from 0 to about 17, and B is hydrogen or carboxyl, and

2. a quaternary ammonium compound.

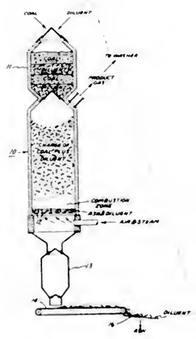
3,811,849

REFRACTORY BODIES AS FIXED BED COAL GASIFICATION DILUENTS

Donald E. Woodmansee, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 19, 1972, Ser. No. 316,454
Int. Cl. C10j *3/16*
U.S. Cl. 48—202 **4 Claims**

The swelling of coal in fixed bed coal gasification is accommodated by the addition of a diluent to the charge of coal in approximately 1:1 volume ratio (or higher) in the form of strong, open-structured bodies. The structures described herein as diluent bodies are hollow refractory cylinders capable of retaining structural integrity throughout the profile of



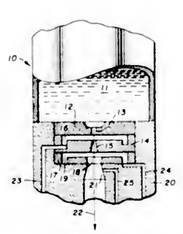
temperature exposure and having cavities large enough to accomodate the swelling of coal and add porosity to the bed.

3,811,850

HIGH SPEED PRODUCTION OF FILAMENTS FROM LOW VISCOSITY MELTS

Emerick J. Dobo, Cary, N.C., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 29, 1972, Ser. No. 319,133
Int. Cl. C03b *37/02*; D01d *11/00*
U.S. Cl. 65—1 **10 Claims**



Improvements in method and apparatus are provided for the fabrication of fibers and filaments from extremely low viscosity melts by continuous extrusion. Realizable production rates are increased up to three-fold over existing capability. This is made possible by an improved orifice assembly which permits very high attenuation of the filamentary jet without an attending disturbance of the jet stream. In practice, the filamentary jet is brought into a zone of pressurized inert gas upon emergence from the extrusion orifice. The jet is then passed with the inert gas in concurrent flow through a supersonic nozzle and into a first zone occupied by a film-forming, gaseous atmosphere followed by passage through a converging orifice and into a second zone of film-forming gas.

3,811,851

METHOD OF MAKING FOAMED GLASS PRODUCTS WITH EXCRETA AND GLASS BATCH

John D. MacKenzie, Los Angeles, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed July 5, 1972, Ser. No. 268,999
Int. Cl. C03b *19/08*
U.S. Cl. 65—22 **13 Claims**

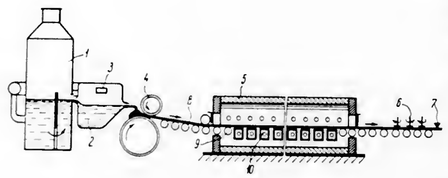
An improved method of making glass products is provided which comprises mixing particulate glass with a selected treating agent comprising heat treated excreta to form a unique glass mix. The glass may be of any type, such as used-container glass which has a preselected approximate concentration range of foreign inclusions and an average reflectance of about 5 percent to about 95 percent, the reflectance of the single colored glass being arbitrarily considered as 0 percent whereas that of the white glass being 100 percent. The mix is heated to a temperature and pressure above the annealing and softening point of the glass but below its melting point and within a range sufficient to activate the treating agent to either foam or fill the glass. In the latter case, increased pressure is applied to form the glass into a hard pressed product, such as tile, of unique composition. In the former case, foamed glass of unique composition is produced. The used-container glass utilized in one embodiment includes a plurality of particles of various colors which imparts a distinctive appearance to the finished product. Pressed products may also have oxide pigments embedded in the surfaces thereof.

3,811,852

METHOD OF PRODUCING ROLLED POROUS GLASSCERAMIC MATERIAL

Konstantin Timofeevich Bondarev, Nizhnaya Pervomaiskaya ulitsa, 33 kv. 176; Nikolai Mikheevich Pavlushkin, ulitsa Gotvalda, 14, kv. 44; Isai Davidovich Tykachinsky, ulitsa Fadeeva, 6, kv. 140, all of Moscow; Viktor Stepanovich Kozlovsky, ulitsa Teatralnaya, 6a, kv. 22, Dolgoprudny Moskovskoi oblasti; Valentin Feoktistovich Krylov, ulitsa Kropotkina, 24/I, kv. 14, and Svetlana Ivanovna Rud, ulitsa Pavla Korchagina, 10, kv. 6, both of Moscow, all of U.S.S.R.

Filed Aug. 22, 1972, Ser. No. 282,841
Int. Cl. C03b *19/08*
U.S. Cl. 65—22 **1 Claim**



A method of founding glass melt accompanied by its simultaneous frothing at a temperature of from 1,500° to 1,530°C, preparing the glass melt at a viscosity of from 25 to 60 poises and crystallizing the molded glass ribbon in a two-step process at respective temperatures of 650°–700°C and 1,100°–1,150°C and respective crystallization times of 0.3–0.5 hr and 1.0–1.5 hr, with the temperature rising between the two steps of the process with a 1.3°C/min gradient.

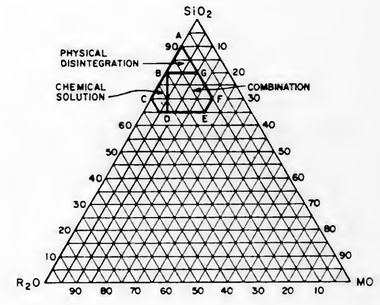
3,811,853

DEGRADABLE GLASS SUITABLE FOR CONTAINERS

Roger F. Bartholomew, Painted Post; Donald E. Campbell, Corning; Harold F. Dates, Corning; Stanley S. Lewek, Corning; Francis J. Marusak, Corning; Joseph E. Pierson, Painted Post; Stanley D. Stookey, Corning, and Bruce A. Swinehart, Big Flats, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed May 1, 1972, Ser. No. 249,289
Int. Cl. C03c *19/00*; C03b *33/00*; B65d *23/00*
U.S. Cl. 65—23 **56 Claims**

The present invention relates to the production of glasses included within particularly-defined ranges of the sodium silicate and/or potassium silicate composition system which will



spontaneously degrade or disintegrate in the ambient atmosphere into relatively non-polluting residual material.

3,811,854

METHOD OF MAKING FLOAT GLASS

George A. Pecoraro, 439 Dakota Dr., Lower Durrell, Pa.

Continuation-in-part of Ser. No. 138,822, April 29, 1971, abandoned. This application Mar. 12, 1973, Ser. No. 340,514
Int. Cl. C03b *5/16*
U.S. Cl. 65—27 **2 Claims**

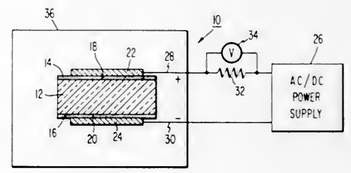
In making high-quality flat glass by the float process, a product substantially free of tridymite-frost stone defects is obtained by mechanically dislodging, during brief and infrequent time intervals, substantially all of the readily dislodgeable particles of tridymite adhering to the silica roof of the refining zone of the melting furnace. Preferably, the removal is done by blowing hot gases against the roof.

3,811,855

METHOD OF TREATING A GLASS BODY TO PROVIDE AN ION-DEPLETED REGION THEREIN

David Emil Carlson, Yardley, Pa.; Kenneth Warren Hang, East Windsor, and George Fairbank Stockdale, Princeton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 10, 1972, Ser. No. 295,974
Int. Cl. C03c *23/00*
U.S. Cl. 65—30 **9 Claims**



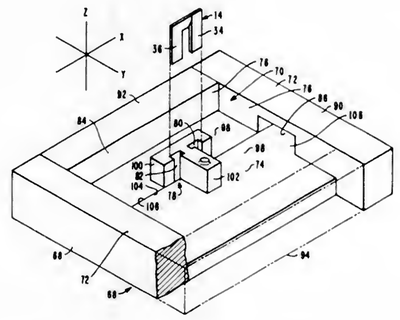
A method that modifies the composition of a region adjacent the surface of an ion conducting glass body comprises applying an electric field, at an elevated temperature, between opposite surfaces of the glass body to remove substantially all monovalent and most divalent ions from the region. A desired

ion-depleted region occurs adjacent the anode-contacted surface of the glass body if the anode is a blocking electrode of relatively non-reactive material with the components of the glass body. A preferred blocking anode is a porous layer of colloidal particles of graphite. A particulate graphite anode allows oxygen evolving from the glass to escape therethrough, or combine with the evolving oxygen to produce easily removable gaseous byproducts, and does not supply cations to the glass body.

3,811,856
METHOD FOR MOLDING AN AIR BEARING MAGNETIC HEAD WITH A GLASS SLIDER BODY

James F. Ruszczyk, and Duane R. Secrist, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 850,765, Aug. 18, 1969, Pat. No. 3,670,112. This application Jan. 24, 1972, Ser. No. 220,516
Int. Cl. C03b *9/00*; **C03c** *29/00*; **G11b** *5/00*
U.S. Cl. 65—48 **4 Claims**



An air bearing slider assembly includes a U-shaped magnetic head and a monolithic glass body which is formed in the glassy state so as to chemically as well as physically bond the head thereto, a nonmagnetic gap in the base of the head being disposed at an air bearing surface of the glass body to facilitate noncontact magnetic recording. The slider assembly is fabricated using a mold having a central cavity which defines the desired configuration of the glass body and which positions the magnetic head at a selected location relative to the glass body to be formed. The mold cavity is filled with a fluid glass composition which solidifies as a monolithic body in bonded relation to the head.

3,811,857
METHOD FOR FIRE POLISHING OPTICAL GLASS LENSES WITH PLASMA FLAMES

Emil W. Deeg, R. R. 2, Box 221, Woodstock, Colo.; Carl G. Silverberg, Willard Rd., and Leslie B. Martel, New Boston Rd., both of Sturbridge, Mass.

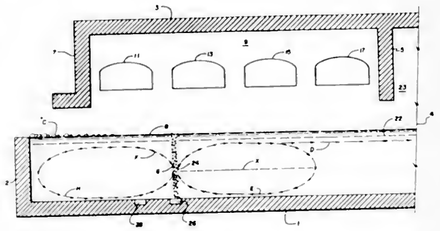
Continuation-in-part of Ser. No. 201,596, Nov. 17, 1971, abandoned. This application June 15, 1973, Ser. No. 370,248
Int. Cl. C03b *29/04*
U.S. Cl. 65—65 R **11 Claims**

Flame polished lenses for spectacles and instruments are provided. Surfaces exhibit profiles of a quality equivalent or superior to mechanically polished lenses by use of a high frequency plasma torch. The torch flame is characterized by extremely high temperature, short wavelengths of maximum emission energy combined with low gas flow rate.

3,811,858
METHOD AND APPARATUS FOR MIXING MOLTEN GLASS BY BUBBLING

Fred M. Ernsberger, Pittsburgh, and Thomas J. Nier, Cheswick, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed June 9, 1972, Ser. No. 261,205
Int. Cl. C03b *5/18*
U.S. Cl. 65—135 **24 Claims**



Improvements are disclosed in a process wherein molten glass is subjected to the agitation of small bubbles generated by electrolysis of molten glass. This gas generation usually is conducted at the anode and the effect of cathodic reactions is advantageously held to a minimum by conducting the electrolysis of glass which contains ferric iron or the like higher valent ion and limiting the degree of electrolysis of glass contacting the cathode so that reduction reactions at the cathode are largely confined to reduction of such higher valent ion to a lower valent state without electrodepositing metal. The oxygen bubbles so generated can be effectively caused to agitate the molten glass and generate or enhance the flow of convection currents, thereby improving homogeneity of the glass. They can also be used to sweep out dissolved gases such as nitrogen or water vapor and produce glass which is free or essentially free of such gases. Pluralities of gas generating electrodes are provided. These electrodes may be operated at different electrode potentials to obtain special circulation patterns or to produce upward circulation at a plurality of spaced locations in the molten glass. Their operation also may be alternated to minimize localized polarization or other effects at the surface of the electrode or to prevent voltage between electrodes from rising excessively.

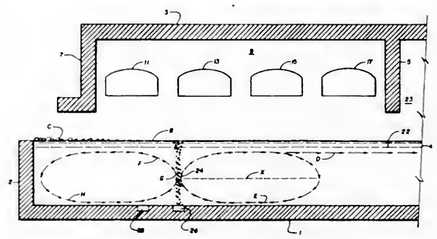
3,811,859
PROCESS AND APPARATUS FOR ELECTROLYTICALLY GENERATING STIRRING BUBBLES IN A GLASS MELT

Fred M. Ernsberger, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed June 9, 1972, Ser. No. 261,482
Int. Cl. C03b *5/18*
U.S. Cl. 65—135 **21 Claims**

Improvements are disclosed in a process wherein molten glass is subjected to the agitation of small bubbles generated by electrolysis of molten glass. This gas generation usually is conducted at the anode and the effect of cathodic reactions is advantageously held to a minimum by conducting the electrolysis of glass which contains ferric iron or the like higher valent ion and limiting the degree of electrolysis of glass contacting the cathode so that reduction reactions at the cathode are largely confined to reduction of such higher valent ion to a lower valent state without electrodepositing metal. The oxygen bubbles so generated can be effectively caused to agitate the molten glass and generate or enhance the flow of convection currents, thereby improving homogeneity of the glass. They can also be used to sweep out dissolved gases such as nitrogen or

water vapor and produce glass which is free or essentially free of such gases. The gas bubbles generated as above described

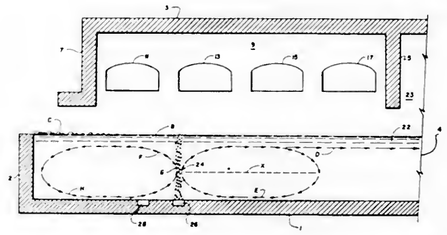


are produced by electrolysis of the glass between anode and cathode which are separated by a solid electrolyte such as beta alumina.

3,811,860
PROCESSING OF STIRRING MOLTEN GLASS WITH BUBBLES FROM ELECTROLYSIS

Thomas J. Nier, Cheswick, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed June 9, 1972, Ser. No. 261,498
Int. Cl. C03b *5/18*
U.S. Cl. 65—135 **35 Claims**



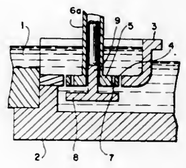
Molten glass is subjected to the agitation of small bubbles generated by electrolysis of molten glass. This gas generation usually is conducted at the anode and the effect of cathodic reactions is advantageously held to a minimum by conducting the electrolysis of glass which contains ferric iron or the like higher valent ion and limiting the degree of electrolysis of glass contacting the cathode so that reduction reactions at the cathode are largely confined to reduction of such higher valent ion to a lower valent state without electrodepositing metal. The oxygen bubbles so generated can be effectively caused to agitate the molten glass and generate or enhance the flow of convection currents, thereby improving homogeneity of the glass. They can also be used to sweep out dissolved gases such as nitrogen or water vapor and produce glass which is free or essentially free of such gases.

3,811,861
APPARATUS FOR HOMOGENIZATION OF MOLTEN GLASS AND ADDITIVES

German Artigas Gimenez, Aviles, Spain, assignor to Saint-Gobain Industries, Neuilly-sur-Siene, France

Division of Ser. No. 22,254, May 13, 1970, Pat. No. 3,725,025. This application Jan. 27, 1972, Ser. No. 221,264
Claims priority, application France, Mar. 25, 1969, 69.08758
Int. Cl. C03b *5/18*
U.S. Cl. 65—179 **7 Claims**

Method and apparatus for the homogenization of molten glass and additives thereto, flowing in the feeder channel of a glassmelting furnace. The glass flow is broken up into a multiplicity of small vertical streams or filaments which are then re-combined by and between two closely-spaced horizontal superposed surfaces. The upper surface may be a disk rotating

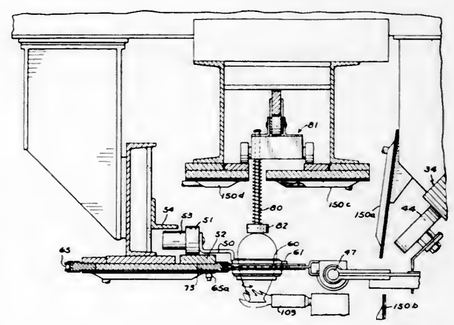


about a vertical axis and comprising a multiplicity of apertures through which the molten glass flows. The lower surface may be fixed, or a disk rotatable as a unit with the upper disk, or independently but coaxially in the opposite direction, or in the same direction but at speed different from the upper disk.

3,811,862
GLASS HEAT TREAT MACHINERY

Louis P. Yakubek, and George R. Obenshain, both of Perrysburg, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 82,987, Oct. 22, 1970. This application Sept. 27, 1972, Ser. No. 292,839
Int. Cl. C03b *24/04*, *25/00*
U.S. Cl. 65—280 **3 Claims**



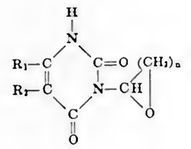
A glass making machine and particularly a heat treat machine wherein open-ended hollow glass articles are supported on carriages moved in an endless path by a conveyor. Each carriage pivotally supports a plurality of heads which, in turn, rotatably support the hollow glass articles. The conveyor moves the carriages and in turn the articles through a plurality of work zones of heat treatment including heating, quenching and cooling zones. As the articles are moved through a work zone, the supports on the heads are rotated to rotate the articles. The work zone includes burners for applying flames to the lower open end of the articles while rotating. A hold down device engages the opposite upper end of each of the articles while in said path, and holds the articles in the support carriage. Next the articles travel in a second path through cooling means.

3,811,863
NOVEL TETRAHYDROPYRIMIDINES

Daniel Bertin; Jacques Perronnet, and Andre Teche, all of Paris, France, assignors to Roussel-UCLAF, Paris, France

Division of Ser. No. 126,865, March 22, 1971, Pat. No. 3,732,228. This application Oct. 19, 1972, Ser. No. 298,859
Claims priority, application France, Mar. 26, 1970, 70.10906; Jan..28, 1971, 71.02829
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **13 Claims**

Novel 1, 2, 3, 4-tetrahydropyrimidine-2,4-diones of the formula



I

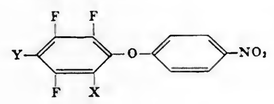
wherein R_1 is selected from the group consisting of lower alkyl of one to seven carbon atoms and phenyl, R_2 is selected from the group consisting of hydrogen, chlorine, bromine and lower alkyl of one to seven carbon atoms and *n* is 3 or 4 which have herbicidal activity and their preparation and intermediates therefor.

3,811,864
DIPHENYL ETHER HERBICIDAL COMPOSITIONS

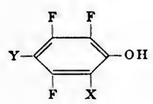
Makoto Nagatomi; Takayuki Isogawa; Nobuo Onodera, all of Tokyo, and Nobuo Ishikawa, Yokohama, all of Japan, assignors to Hodogaya Chemical Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1971, Ser. No. 212,624
Claims priority, application Japan, Dec. 28, 1970, 45-11937
Int. Cl. A01n *9/24*
U.S. Cl. 71—124 **9 Claims**

Novel diphenyl ether derivatives having the formula,

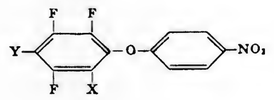


wherein X and Y are individually a fluorine or chlorine atom, provided that X is a fluorine atom when Y is a fluorine atom and is a fluorine or chlorine atom when Y is a chlorine atom, which are prepared by reacting a pentahalogenophenol having the formula,



wherein X and Y are defined above, with a p-nitrohalogenobenzene at an elevated temperature in the presence of a deacidifying agent.

A new herbicidal composition comprising a herbicidal amount of at least one compound represented by the formula,



wherein X and Y are as defined above.

3,811,865
METHOD OF FORMING IRON ORE PELLETS USING A FINELY DIVIDED TREE BARK BINDER

John L. Ladell, Port Credit, Ontario, Canada, assignor to Ontario Research Foundation, Ontario, Canada

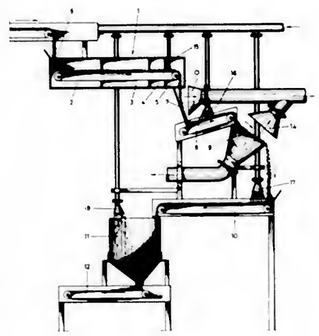
Filed May 30, 1972, Ser. No. 258,043
Int. Cl. C21b *1/26, 1/08;* **C22b** *1/14*
U.S. Cl. 75—3 **8 Claims**

Tree bark is used as a binder in pelletizing iron ore concentrates prior to furnace reduction operations.

3,811,866
PROCESS AND APPARATUS FOR THE MANUFACTURING OF ROASTED, BAKED OR SINTERED ORE PELLETS, AS WELL AS THE ORE PELLETS THUS OBTAINED

Anthonie van Latenstein, Santpoort, Netherlands, assignor to Koninklyke Nederland sche Hoogovens En staalfabriken N.V., Ijmuiden, Netherlands

Filed Aug. 30, 1971, Ser. No. 176,037
Claims priority, application Netherlands, Aug. 31, 1970, 7012876
Int. Cl. F27d *3/00*
U.S. Cl. 75—5 **6 Claims**



In manufacturing roasted, baked, or sintered ore pellets, from green pellets formed from a mixture substantially consisting of ore powder, by a process of the type which comprises forming a stream of the pellets and (a) heat treating the pellets to effect the roasting, baking or sintering thereof, (b) then cooling the pellets, (c) then screening them and (d) thereafter transporting them, the process is improved (e) by conducting the cooling in step (b) to reduce the pellets to a temperature of not over 60°C, and (f) by moistening the screened pellets following step (c) to a water content of 2 to 5 percent by weight, whereby liberation of dust from the pellets during their transportation in step (d) is inhibited. The cooling in step (b) is effected by air cooling to 100°–400°C followed by spraying the pellets with water up to about 6 percent of their weight. Further spraying before and after screening is preferred, and the apparatus aspect of the invention is also disclosed.

3,811,867
PROCESS FOR THE RECOVERY OF TANTALUM AND NIOBIUM AND OTHER METALS FROM TIN SLAG

John J. Scott, 3052 Saint Andrew Ave., Niagara Falls, Ontario, Canada

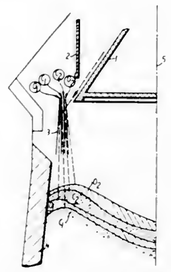
Filed Oct. 16, 1972, Ser. No. 297,595
Int. Cl. C22b *51/00*
U.S. Cl. 75—24 **3 Claims**

Aluminum oxide or calcium oxide is added to tin slag, which contains a relatively large silica content along with a source of carbon, and the mixture is fused. The added aluminum oxide or calcium oxide combines with the silicon oxide and other metallic compositions present to form a slag phase of a new composition which has a melting point 100°–400°C higher than the original slag composition. In the fusion the carbon reduces the tantalum and niobium and other oxides to the respective metals and the higher melting range of the new slag composition results in super heating of the metal alloy which facilitates a more effective ultimate separation of the metal alloy.

3,811,868
METHOD FOR CHARGING MATERIALS INTO BLAST FURNACE

Shin-Ichi Inaba; Ken-Ichi Okimoto, both of Kobe City; Setsuo Tamura, Nishinomiya, and Tashiyuki Uenaka, Kobe City, all of Japan, assignors to Kobe Steel, Ltd., Fukiai-ku, Kobe, Japan

Filed Sept. 7, 1972, Ser. No. 286,886
Claims priority, application Japan, Mar. 6, 1972, 47-22896
Int. Cl. C21b *5/00*
U.S. Cl. 75—42 **2 Claims**



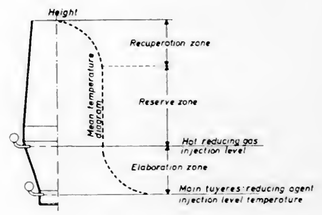
The charging positions of iron bearing materials and a solid reducing agent to be charged into a blast furnace are adjusted by using a variable charging means such as an armor plate so that iron bearing materials and solid reducing materials alternately accumulate in the vertical direction of the furnace in layers which have coaxial circular vertices. The ore-coke ratio in the charged and accumulated beds of material in the furnace is substantially uniform in the radial direction of the furnace, resulting in a uniform upward gas flow rate at any section in the furnace. Thus, stabilized furnace operation and maximum furnace performance are achieved by improved gas utilization and the smooth entry of the falling charge material to the furnace.

3,811,869
PROCESS FOR THE REDUCTION OF IRON ORES

Nicolas Gerassimo Ponghis, Liege, and Arthur Gerard Poos, Embourg, both of Belgium, assignors to Centre National De Recherches Metallurgiques, Brussels, Belgium

Filed Mar. 31, 1971, Ser. No. 129,930
Claims priority, application Belgium, Mar. 31, 1970, 748274; Mar. 31, 1970, 748275; Apr. 7, 1970, 748623; Apr. 10, 1970, 748835; June 30, 1970, 752792; July 10, 1970, 753344; Sept. 9, 1970, 755953; Oct. 14, 1970, 757519
Int. Cl. C21b *5/06*
U.S. Cl. 75—42 **16 Claims**

Iron ore is reduced in a blast furnace. Hot reducing gas is injected into the furnace at the level of the reserve zone; the gas can be reformed gas produced by partial combustion with oxygen of hydrocarbons preheated to about 650°C without pyrolysis. A reducing agent is injected into the furnace at approximately the level of the tuyeres; the agent can be coal-oil slurry, fuel oil, natural gas, or reformed gas.



3,811,870
BASIC OXYGEN PROCESS USING A SODIUM HYDROXIDE REACTION PRODUCT FLUX

Barrie H. Bieler; David C. Morgan, and Kenneth W. Guebert, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 10, 1971, Ser. No. 206,882
Int. Cl. C21c *7/00*
U.S. Cl. 75—52 **19 Claims**

In the manufacture of steel wherein sodium hydroxide is employed as an additive in such manufacture, the improvement of using a reaction product of sodium hydroxide and a calcium oxide source material as the source of sodium hydroxide. A particular instance is the use of this reaction product as an additive to a calcium oxide based flux.

3,811,871
PROCESS FOR CLASS IV B METALS ORE REDUCTION

Paul Franklin Taylor, P.O. Box 468, Crossville, Tenn.

Continuation-in-part of Ser. No. 741,865, July 2, 1968, abandoned, Continuation-in-part of Ser. No. 783,730, Dec. 13, 1968, abandoned. This application Feb. 19, 1971, Ser. No. 117,098
Int. Cl. C22b *33/00, 61/02*
U.S. Cl. 75—84 **16 Claims**

The oxides of IV B are reduced to their metallic state by first introducing the ore into a liquid containing phosphoric acid, zinc oxide and water. The solution is mixed and calcium carbonate is added. After removal of particles held in suspension by decanting, settling, and returning the solution to the original container, the mixture is brought to a boil. Most of the volatiles are removed by boiling and sodium bicarbonate is added to the mixture, along with water. After the reaction has gone to completion, the solution is again decanted and the remaining material is leached and rinsed, following which it is smelted to the base metal.

3,811,872
CORROSION RESISTANT HIGH STRENGTH ALLOY

Edwin Snape, Monsey, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

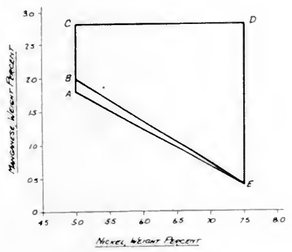
Filed Apr. 21, 1971, Ser. No. 136,217
Int. Cl. C22c *39/00, 19/00*
U.S. Cl. 75—122 **14 Claims**

A high strength corrosion resistant steel containing correlated amounts of iron, chromium, molybdenum, cobalt, nickel, carbon and other constituents such as aluminum and titanium. The alloys resist pitting and crevice corrosion as well as general corrosion and are capable of offering tensile strengths well above 150,000 psi.

3,811,873
HIGH STRENGTH LOW COST STEEL FOR USE AT CRYOGENIC TEMPERATURES

John Joseph deBarbadillo, II, Warwick, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed Jan. 31, 1972, Ser. No. 222,021
Int. Cl. C22c *39/36, 39/54*
U.S. Cl. 75—123 K 2 Claims

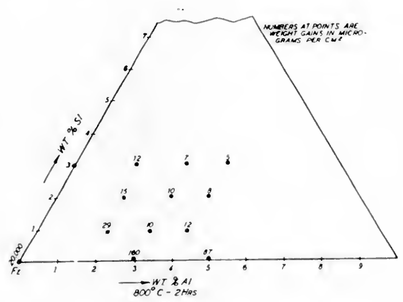


An alloy steel containing, among others, nickel, manganese, molybdenum, carbon and an element such as calcium, offers relatively high strength and excellent toughness at cryogenic temperatures.

3,811,874
OXIDATION RESISTANT IRON BASE ALLOY

Elmer J. Caule, New Haven; Philip R. Sperry, North Haven; Michael J. Pryor, Woodbridge, and James A. Ford, North Haven, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. Nos. 66,866, Aug. 25, 1970, Pat. No. 3,730,779, and Ser. No. 750,991, Aug. 7, 1968, abandoned. This application Aug. 13, 1971, Ser. No. 171,432
Int. Cl. C22c *39/54*
U.S. Cl. 75—124 2 Claims



Iron base alloys are disclosed containing certain alloying additions, which alloys exhibit unique and unexpectedly low weight gains when exposed to oxidizing environments. One of the major advantages of the alloys of the present invention lies in their moderate cost, especially as compared to other oxidation resistant iron base alloys, such as the various grades of stainless steel. The oxidation resistance of the alloys of the present invention is imparted through the formation of a tenacious, compact oxide film.

3,811,875
FREE MACHINING AUSTENITIC STAINLESS STEEL ALLOY

Kermit J. Goda, Jr., Leesport, and Grant M. Aulenbach, Mohnton, both of Pa., assignors to Carpenter Technology Corporation, Reading, Pa.

Continuation-in-part of Ser. No. 855,416, Sept. 4, 1969, Pat. No. 3,645,722. This application Jan. 24, 1972, Ser. No. 220,108
Int. Cl. C22c *39/20*
U.S. Cl. 75—124 12 Claims

Austenitic stainless steel alloy containing about 10 percent to 26 percent chromium, 4 to 46 percent nickel, 0.4 to 15 percent manganese, 0.015 to 0.75 percent sulfur and/or selenium, 0.5 to 10 percent copper, 0.25 to 2 percent aluminum, 0.001 to 0.1 percent tellurium, and the balance being iron, optional elements and incidental impurities. Austenitic compositions are provided having improved free-machining properties or an improved combination of free-machining and corrosion-resistance properties in selected media.

3,811,876
SILVER ALLOYS HAVING HIGH SULPHURATION RESISTANCE

Hiroshi Harigaya; Kazutomo Kasai, both of Suwa, and Michio Asahina, Okaya, all of Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

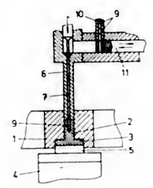
Continuation of Ser. No. 5,917, Jan. 26, 1970, abandoned. This application July 13, 1972, Ser. No. 271,326
Claims priority, application Japan, Feb. 5, 1969, 44-8289
Int. Cl. C22c *5/00*
U.S. Cl. 75—173 R 7 Claims

Tarnish-resistant silver alloys which retain the malleability and silver-white appearance of the pure metal containing tin, indium and zinc in specified concentration ranges. These elements are synergistic in their effects. Small quantities of Ti, Zn, Be, Cr, Si, Al, Ge and Sb when used in addition to Sn, In and Zn further increase resistance to tarnishing by sulphur-containing materials.

3,811,877
METHOD FOR MANUFACTURING ANTI-SKID MEANS INTENDED FOR VEHICLE TIRES

Lennart Hakka, Helsinki, Finland, assignor to Oy Airam AB, Helsinki, Finland

Filed Apr. 27, 1972, Ser. No. 248,024
Int. Cl. B22f *5/00*
U.S. Cl. 75—208 R 3 Claims



A method for manufacturing anti-skid means for vehicle tires consists essentially of the following steps:

Metal powder is supplied into a mould.

The mouth of the mould is closed by a plunger which has a rod located centrally within the plunger. The plunger is depressed into the powder inside the mould so as to form a hole.

Pre-compression is carried out in the mould.

The rod is pulled up and a hard metal insert is introduced into the mould.

The rod is used to press the insert into correct position.

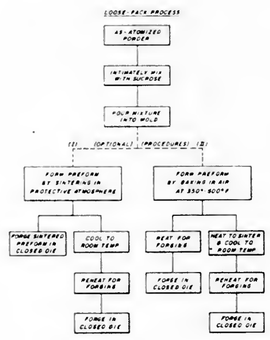
Final compression is carried out in the mould. At the bottom part of the mould the base of the anti-skid means is formed.

The completed anti-skid means are removed from the mould.

3,811,878
PRODUCTION OF POWDER METALLURGICAL PARTS BY PREFORM AND FORGE PROCESS UTILIZING SUCROSE AS A BINDER

Hung-Chi Chao, Monroeville; Robert R. Judd, Murrysville; Roger L. Rueckl, Murrysville, and Charles K. Russell, Murrysville, all of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Dec. 6, 1972, Ser. No. 312,461
Int. Cl. B22f *1/00, 3/00*
U.S. Cl. 75—211 7 Claims



Metal particles are intimately mixed with a sufficient amount of sucrose to effect the desired degree of deoxidation and/or carburization. The mixture is poured into a mold and is then processed by (a) baking at low temperature to form a green compact with sufficient handling strength for further sintering and/or hot working or (b) heating to above sintering temperature to form a stronger compact similarly useful for hot forging.

3,811,879
PHOTOCONDUCTIVE CHARGE-TRANSFER COMPLEX WITH CRYSTALLIZATION PREVENTER

Jean-Pierre Montillier, Manchester, Conn., assignor to Pitney-Bowes, Stamford, Conn.

Filed Dec. 1, 1972, Ser. No. 311,223
Int. Cl. G03g *5/06*
U.S. Cl. 96—1.5 2 Claims

The invention relates to a photoconductive insulating coating composition, which includes a crystallization prevention agent. The photoresponse of a poly N-vinyl carbazole-trinitrofluorenone charge transfer complex can be improved by increasing the trinitrofluorenone content. This increase is limited by the tendency of the coating to crystallize at a trinitrofluorenone-poly N-vinyl carbazole molar ratio of greater than 1/1. The use of dicarbazolyl cyclobutane as a crystallization prevention agent permits the use of ratios of greater than 1.23/1, even with high curing temperatures.

3,811,880
METHOD AND MATERIALS FOR CONTROL OF CONTACT ELECTROSTATIC DEVELOPMENT

Luther C. Browning, Palatine, Ill., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

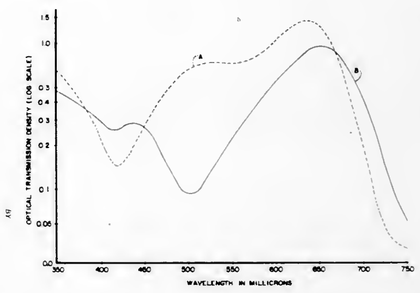
Continuation of Ser. No. 35,884, May 8, 1970, abandoned. This application Mar. 20, 1972, Ser. No. 238,699
Int. Cl. G03g *13/08*
U.S. Cl. 96—1.4 2 Claims

Magnetically attractable conductive carrier particles such as iron, are treated with resins such as, for example, nitrocellulose, acrylic polymers, polyvinyl chloride polymers and chlorinated rubber. The resin as applied constitutes 2 percent by weight of the weight of iron. The treatment changes the triboelectric charge generated when the toner particles carried on the resin coated iron are separated by attraction to an electrostatic image area. The charge generated is in the range of 0.4 volts to 4.0 volts per milligram of iron and toner mixed and its magnitude will depend on the type of resin. The resin treatment also affects the direction of the toner, i.e., either positive or negative relative to the image area to be developed.

3,811,881
PHOTOGRAPHIC PROCESSES AND PRODUCTS EMPLOYING NAPHTHOL SULFONAMIDONAPHTHALIDES AS OPTICAL FILTER AGENTS

Myron S. Simon, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 29, 1971, Ser. No. 193,746
Int. Cl. G03c *7/00, 5/54, 5/30, 1/48, 1/40, 1/84*
U.S. Cl. 96—3 37 Claims



This invention relates to a class of indicator dyes useful as optical filter agents in photographic processes to protect a selectively exposed photosensitive material from further exposure during processing in the presence of incident light. Such dyes comprise 3,3-disubstituted 6-sulfonamido naphthalides wherein the 3,3 substituents are p-hydroxynaphthyl radicals.

3,811,882
WIPE ON COLOR PROOFING PROCESS AND PRODUCT

Vincent Henry, New York, N.Y., assignor to VJG, Inc., New York, N.Y.

Filed May 25, 1972, Ser. No. 256,846
Int. Cl. G03c *7/16*
U.S. Cl. 96—13 21 Claims

A process of color proofing by a wipe on method and color proof product produced thereby wherein the color proof process comprises coating at least one side of a paper with a bichromate gelatin emulsion and thereafter drying the same; exposing the emulsion through a color separation negative so as to expose a portion of the gelatin and effect hardening of

the exposed gelatin; applying a first desired color, i.e., pigment formulation, to the gelatin emulsion; washing the coated paper to remove the unhardened gelatin and thereafter drying the same; coating the paper again with the bichromate gelatin emulsion, drying the same and exposing this further emulsion through a second color separation negative so as to again cause the exposed gelatin to harden; applying a second desired color to the gelatin and drying the coated paper and finally washing the coated paper to remove the unhardened gelatin with subsequent drying. The steps of applying the bichromate gelatin emulsion, exposing the emulsion through a color separation negative, applying a desired color and washing the paper to remove unhardened gelatin can be repeated for as many colors as desired. One or both sides of the paper can be advantageously processed in the above manner to provide a color proof substantially indistinguishable from the actual copies made with subsequently produced printing plates. Additional variations of the above process are applicable including exposing the emulsion through more than one separation negative at a time with overprinting if desired.

3,811,883

PHOTOELECTROPHORETIC IMAGING PROCESS EMPLOYING NAPTHOFURANEDIONES

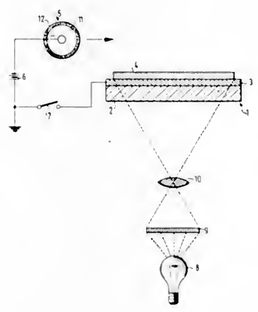
Georg Zographos, Zurich, and Christoph Frey, Oberwil, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Dec. 13, 1971, Ser. No. 207,179

Claims priority, application Switzerland, Dec. 16, 1970, 18616/70

Int. Cl. G03g *17/00, 5/00*

U.S. Cl. 96—1.3 **4 Claims**



Use of 4,4'-diamino-1,1'-dianthraquinonyl, naphthofurandiones, quinophthalones and phthalimidopyrazolones in the photoelectrophoretic production of images.

3,811,884

PROCESS FOR FORMING IMAGES

Eiichi Inoue, Tokyo; Takao Nakayama, Kanagawa; Yutaka Oka, and Yasuo Nakai, both of Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa-ken and Dai Nippon Printing Co., Ltd., Tokyo, both of, Japan, by said Nakayama, Oka, and Nakai

Filed June 14, 1972, Ser. No. 262,522

Claims priority, application Japan, June 18, 1971, 46-43273; June 18, 1971, 46-43274

Int. Cl. G03c *5/04, 5/24, 1/72*

U.S. Cl. 96—27 R **15 Claims**

An image of an organic coloring agent is formed by imagewise exposing a layer of an organic coloring agent formed on a base to light. Said exposed layer of the organic coloring agent is treated with a solvent to remove the unexposed portions of said layer. Said exposed layer of the organic coloring agent is contacted with an image-receptive material, they are treated with a solvent to transfer the unexposed portions of said layer onto the image-receptive material. By exposing light on the layer of the organic coloring agent, the exposed portions of said layer of the organic coloring agent is colored, discolored or faded.

3,811,885

LASER STABILIZATION AND/OR PHOTODEVELOPMENT OF SILVER HALIDE MATERIALS

John C. Marchant, and John R. Tinney, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 6,955, Jan. 29, 1970, now Defensive Publication No. T877,006. This application June 29, 1972, Ser. No. 267,297

Int. Cl. G02c *5/04*; **G03c** *5/32, 1/02*

U.S. Cl. 96—27 R **8 Claims**

This disclosure relates to radiation-sensitive systems such as a silver halide radiation-sensitive system wherein a spot laser beam is used to stabilize an area of a silver halide radiation-sensitive element. In one aspect, the silver halide system preferably stabilized and/or photodeveloped by this technique contains silver halide grains having polyvalent metal ions occluded therein, preferably trivalent metal ions such as bismuth, iridium and the like, said system further comprising a halogen acceptor, such as a direct-print halogen acceptor, contiguous to the grains. In one preferred embodiment, a high-intensity, imagewise, light exposure which can be a laser light exposure is used to record an image on the silver halide layer when the emulsion is appropriately sensitized. A defocused laser is then used to heat-stabilize the silver halide in the image exposure areas; a laser of a second wavelength is used if the emulsion is laser-sensitized for the first exposure. Subsequent image exposures can then be made on the same photographic element followed by localized image stabilization. In certain instances, low-intensity laser beams or other localized light sources can be used to develop the image in localized areas after stabilization.

3,811,886

METHOD OF MAKING LITHOGRAPHIC MASTER

Joan M. W. Mukherjee, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 847,393, Aug. 4, 1969, Pat. No. 3,679,414. This application May 10, 1972, Ser. No. 252,097

Int. Cl. G03f *7/02*; **B41m** *5/00, 3/00*

U.S. Cl. 96—33 **2 Claims**

A lithographic plate comprises a hydrophilic backing having an oleophilic solvent-removable coating which becomes solvent-resistant when heated in reactive association with an oxidizing agent. The coating comprises a polyphenolic reducing agent together with a lesser amount of chemically inert film-forming binder.

3,811,887

PHOTOGRAPHIC MATERIAL COMPRISING BIS-ACYLHYDRAZINIUM COMPOUNDS

Masao Ishihara; Tsuneo Walda; Hisashi Yamaguchi, all of Tokyo, and Sadao Sugita, Hanno, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd, Tokyo, Japan

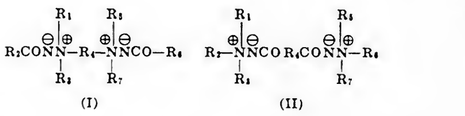
Filed Dec. 16, 1971, Ser. No. 208,890

Claims priority, application Japan, Dec. 18, 1970, 45-113102

Int. Cl. G03c *1/82*

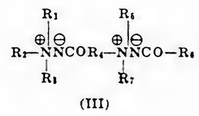
U.S. Cl. 96—50 R **5 Claims**

Antistatic agents for use in light-sensitive silver halide photographic material comprise bis-aminimide compounds having the formula:



(I)

(II)



(III)

wherein R_1, R_3, R_5 and R_7 are individually a lower alkyl group; R_2 and R_6 are individually an alkyl, arakyl or aryl group or a hetero ring; and R_4 is a divalent group.

3,811,888

COMPOSITION FOR PROCESSING SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENTS

Haruo Shibaoka, and Sachio Matsushita, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 3, 1972, Ser. No. 223,374

Claims priority, application Japan, Feb. 3, 1971, 46-4126

Int. Cl. G03c *5/30*

U.S. Cl. 96—66 R **9 Claims**

Composition for processing a silver halide photographic light-sensitive element containing ethylene-bis(β-oxyethylamine) tetraacetic acid or its alkali salt. The compound has a calcium ion-chelating or masking ability superior to that of EDTA.

3,811,889

LIGHT-SENSITIVE PHOTOGRAPHIC MATERIAL WITH ANTISTATIC LAYER

Koutarou Endou; Masakazu Yoneyama; Nobuo Yamamoto; Motohiro Ujihara, and Yosuke Nakajima, all of Kanagawa, Japan, assignors to Fugi Photo Film Co., Ltd., Kanagawa, Japan

Filed Sept. 3, 1971, Ser. No. 177,815

Claims priority, application Japan, Sept. 4, 1970, 45-77644

Int. Cl. G03c *1/04, 1/82*

U.S. Cl. 96—67 **13 Claims**

A light-sensitive photographic material comprising a support having coated thereon at least one silver halide emulsion layer containing

(a) an anionic polymer having a carboxyl group or an alkali metal salt thereof as a side chain thereof, and

(b) at least one of a cationic surface active agent and a betaine-type amphoteric surface active agent is disclosed.

3,811,890

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Noboru Ohta; Yasushi Oishi, and Hirozo Ueda, all of Kanagawa, Japan, assignors to Fuji Photo Film Company, Ltd., Kanagawa, Japan

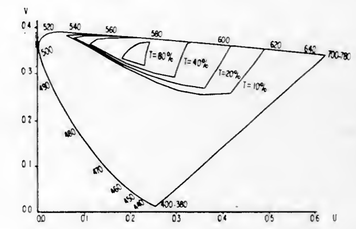
Filed Dec. 8, 1971, Ser. No. 206,060

Claims priority, application Japan, Dec. 8, 1970, 45-108438

Int. Cl. G03c *1/76, 3/00, 7/16*

U.S. Cl. 96—74 **12 Claims**

A multi-layered photographic material comprising a support and (a) blue-sensitive, (b) green-sensitive, and (c) red-sensitive emulsion layers on said support, these layers containing colorless and diffusion-resistant couplers forming yellow, magenta, and cyan respectively upon coupling, wherein at least one of the layers contains a combination of two couplers differing in coupling activity rate by at least 1.5 times from each other and giving two dyes of the same absorption area, that is, 400 to 500 mμ for (a), 500 to 600 mμ for (b), and 600 to 700 mμ for (c). Especially preferred couplers are



acylacetanilides for (a), 5-pyrazolones, indazolones and pyrazolobenzimidazoles for (b), and phenols and α-naphthols for (c). The specific combination of couplers contributes to the widening of the color gamut of the color photographic material.

3,811,891

SILVER HALIDE PHOTOGRAPHIC ELEMENT CONTAINING A VINYLSULFONYL COMPOUND HARDENER AND AN ACRYLIC UREA AS FORMALDEHYDE SCAVENGER

Robert S. Darlak, Penfield, and Charles J. Wright, Rochester, both of N.Y., assignors to Eastman Koadak Company, Rochester, N.Y.

Filed June 27, 1972, Ser. No. 266,767

Int. Cl. G03c *1/76, 1/48, 1/30, 1/06, 1/40, 1/30*

U.S. Cl. 96—74 **14 Claims**

An acyclic urea aldehyde scavenger is concurrently associated with a hardenable hydrophilic colloid and a vinylsulfonyl hardener. In a preferred form the acyclic urea aldehyde scavenger is incorporated into a hydrophilic colloid layer that is located between a coupler containing photographic layer and an aldehyde source.

3,811,892

LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL CONTAINING CYAN-COLORED COUPLERS

Teruo Kagami, Iruma; Mitsuto Fujiwhara, and Takaya Endo, both of Tokyo, all of Japan, assignors to Konishiroku Photo Industry Co. Ltd.

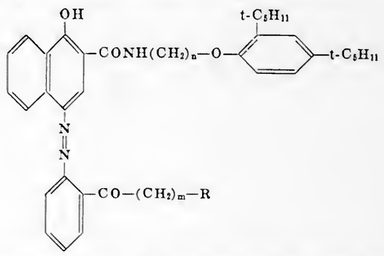
Filed July 24, 1972, Ser. No. 275,211

Claims priority, application Japan, July 27, 1971, 46-55665

Int. Cl. G03c *1/76, 1/40*

U.S. Cl. 96—74 **6 Claims**

A light-sensitive, silver halide, color photographic material having a cyan-colored coupler of the general formula,



wherein n is an integer of 1 to 4; m is an integer of 0 to 2; R is a phenyl group or an alicyclic group, may be used in the form of

a solution in an organic solvent which has an automasking mechanism for compensating the drawback in color reproduction of the light-sensitive, silver halide, color photographic material, said cyan-colored coupler having such properties as excellent solubility in high boiling solvents, favorable color-forming properties, and being capable of giving less deposition, thereby causing less graininess of the resulting image.

3,811,893
PHOTOMASK

Casper Johannes Gerardus Ferdinand Jannssen, Emmasingel, Eindhoven; Hendirk Jonker, Eindhoven; Pieter Willem Haaijman, Emmasingel, Eindhoven; Lambertus Postma, Emmasingel, Eindhoven, and Jacob Klass Vondeling, Emmasingel, Eindhoven, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 2, 1973, Ser. No. 319,986

Claims priority, application Netherlands, Jan. 8, 1972, 7200295

Int. Cl. G03b

U.S. Cl. 95—1 R **2 Claims**

A photomask on a transparent, dimensionally stable substrate whose pattern consists of a phosphorus-containing or boron-containing nickel which is adhered to the substrate through a metal nuclei image which in turn overlies a transparent film of a photosensitive semiconducting oxide. To increase wear resistance and reduce reflection a top layer of transparent semi-conducting oxide may be provided.

3,811,894
PHOTOSENSITIVE ALUMINUM PLATE AND PROCESS FOR PREPARING THE SAME

Teruhiko Yonezawa, and Akira Shirai, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 31, 1970, Ser. No. 68,091

Claims priority, application Japan, Aug. 29, 1969, 44-68410

Int. Cl. G03c *1/94*

U.S. Cl. 96—86 R **3 Claims**

A photosensitive plate comprising an aluminum support containing from 0.05 to 1.0 percent by weight copper and having thereon a finely porous oxide layer formed by the anodization of said support, said oxide layer carrying a photosensitive material, is disclosed. A process for preparing the photosensitive aluminum plate is also disclosed.

3,811,895
SENSITIZED COMPOUNDS AND ELEMENTS

Sanford H. Ehrlich, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 14, 1972, Ser. No. 217,979

Int. Cl. G03c *1/00*

U.S. Cl. 96—88 **22 Claims**

The sensitivity of radiation-sensitive polyyne compounds may be extended to wavelengths in the x-ray region by the use of organometallic sensitizers, such as triphenylbismuthine and hexaphenyldilead, for example. High-speed direct-imaging x-ray elements may thus be obtained.

3,811,896
SILVER HALIDE EMULSION STABILIZED WITH ISOSELENOUREAS OR KETOSELENOZOLIDINES

Arthur Herman Herz, and Edwin Russell Westcott, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 3, 1971, Ser. No. 139,942

Int. Cl. G03c *1/34*

U.S. Cl. 96—100 **6 Claims**

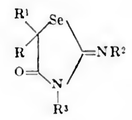
Photographic silver halide emulsions and elements comprising said emulsions are stabilized against fog by selenium-containing organic compounds having the formulae:

(I)



where each of R^1, R^2, R^3, R^4 and R^5 is hydrogen or a hydrocarbon residue or an acid residue, or combined are not more than one selenourea derivative or its salts, a bisisoselenourea compound and L^1, L^2 and L^3 can be hydrogen or hydrocarbon groups which can be linked together to form a completed heterocyclic ring and m is an integer of from about 0 to about 4 and n is an integer of from about 0 to about 4 such that their combined total is a positive integer of not more than about 8; and —Y— is a divalent group; or

(II)



as a free base or its salts in which the groups R, R^1, R^2 and R^3 are each hydrogen or hydrocarbon residues.

3,811,897
METHOD FOR INCREASING THE VISCOSITY OF DILUTE PHOTOGRAPHIC EMULSIONS AND ELEMENTS PREPARED THEREBY

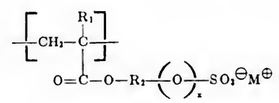
John M. Babbit; Richard W. Spayd, and Nayyir F. Irani, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 29, 1972, Ser. No. 239,389

Int. Cl. G03c *1/04*

U.S. Cl. 96—114 **8 Claims**

A method for increasing the viscosity of dilute solutions of hydrophilic colloids is desired, by incorporating therein a viscosity increasing concentration of a polymer comprising at least about 50 mole percent of units of the structure:



wherein R_1 is hydrogen or a lower alkyl group of from one to four carbon atoms, R_2 is a lower alkylene group of from one to four carbon atoms, x is zero or one and M is a moiety selected from the group consisting of ammonium, alkali metal cations, salt-forming amines and mixtures thereof.

3,811,898
HEAT-INSULATING ANTIPIPING COMPOSITIONS

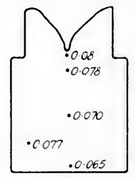
Bernhard Carl Rumbold, and John Edward Cartwright, both of Nechells, England, assignors to Fiseco International Limited, Birmingham, England

Continuation of Ser. No. 92,208, Nov. 23, 1970, abandoned. This application Feb. 20, 1973, Ser. No. 334,017

Claims priority, application Great Britain, Nov. 25, 1969, 57595/69

Int. Cl. B28b *7/36*

U.S. Cl. 106—38.28 **6 Claims**



Antipiping compounds for use in metal casting comprise a refractory heat insulating material and 10 - 40 percent by weight of acid-treated graphite.

3,811,899
INHIBITING GRAIN-GROWTH IN CERAMIC MATERIALS

Donald Stibbs, Dorking; Raymond Thompson, Esher, and Oswald William John Young, Surbiton, all of England, assignors to United States Borax & Chemical Corporation, Los Angeles, Calif.

Filed June 19, 1972, Ser. No. 264,172

Claims priority, application Great Britain, July 23, 1971, 34686/71

Int. Cl. C04b *35/56, 35/58, 35/60*

U.S. Cl. 106—43 **4 Claims**

Grain growth in hot-pressed ceramic materials is inhibited by treating the ceramic powder with a metal alkoxide and decomposing the alkoxide to the corresponding oxide prior to hot-pressing.

3,811,900
REFRACTORY ARTICLE HAVING HIGH THERMAL SHOCK RESISTANCE

Wayne M. Fassell, Newport Beach, Calif., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 7, 1972, Ser. No. 216,238

Int. Cl. C04b *35/58*

U.S. Cl. 106—55 **10 Claims**

Highly ordered boron nitride flakes having a greater surface dimension between about 0.003 inch and 0.030 inch and a thickness less than one-tenth of the greater surface dimension are mixed homogeneously with a refractory material and formed into a refractory article. The boron flakes intersect and arrest microcracks formed in the article by thermal shock or other stress producing conditions. Suitable highly ordered boron nitride flakes can be made by grinding pyrolytic boron nitride obtained by reacting a gaseous mixture of boron trichloride and ammonia.

3,811,901
NON-TOXIC INVERT ANALOG GLASS COMPOSITIONS OF HIGH MODULUS

James F. Bacon, Manchester, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Continuation-in-part of Ser. No. 874,673, Nov. 6, 1969, abandoned. This application Apr. 21, 1972, Ser. No. 246,294

Int. Cl. C03c *3/04*

U.S. Cl. 106—50 **8 Claims**

Glass compositions having a Young's modulus of at least 15 million psi and a specific modulus of at least 110 million inches consisting essentially of, in mols, 15–40% SiO_2, 6–15% Li_2O, 24–45 percent of at least two bivalent oxides selected from the group consisting of Ca, ZnO, MgO and CuO; 13–39 percent of at least two trivalent oxides selected from the group consisting of Al_2O_3, Fe_2O_3, B_2O_3, La_2O_3, and Y_2O_3 and up to 15 percent of one or more tetravalent oxides selected from the group consisting of ZrO_2, TiO_2 and CeO_2.

3,811,902
CONTROL OF POLYMER DEGRADATION RATE

Thomas J. Podlas, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Nov. 8, 1972, Ser. No. 304,701

Int. Cl. C08f *45/24*; **C08b** *21/26*

U.S. Cl. 106—169 **4 Claims**

The rate of degradation of anionic water-soluble polymers in the presence of persulfate ior is reduced and controlled by the presence of divalent manganese ion. The polymer can be either cross-linked or uncross-linked. Useful polymers to which the invention is applied are anionic acrylamidecopolymers and carboxymethyl cellulose.

3,811,903
SILICONE COATED INJECTION MOLDABLE THERMOPLASTIC MATERIAL

Michael Daskivich, Cleveland, Ohio, assignor to Precision Metalsmiths, Inc., Cleveland, Ohio

Continuation of Ser. No. 133,363, April 12, 1971, abandoned. This application Feb. 8, 1973, Ser. No. 330,706

Int. Cl. C08b *21/08*; **C08f** *45/52*

U.S. Cl. 106—187 **12 Claims**

Granules of solid, wax containing injection moldable, thermoplastic composition are coated with a silicone fluid to provide a material which is especially useful for making injection molded patterns to be used in the lost pattern processes of investment casting.

3,811,904
NOVEL COATING COMPOSITIONS AND THEIR PREPARATION

John C. Zola, 2662 S. Tenth Ave., Arcadia, Calif.

Continuation of Ser. No. 77,693, Oct. 2, 1970, abandoned, which is a continuation of Ser. No. 615,044, Feb. 8, 1967, abandoned, which is a continuation-in-part of Ser. No. 201,274, June 11, 1962, abandoned. This application July 10, 1972, Ser. No. 270,021

Int. Cl. C08b *21/12*; **C08f** *45/04, 45/28*

U.S. Cl. 106—193 J **25 Claims**

Disclosed are non-aqueous, substantially all organic multicolor coating compositions of two or more phases consisting of at least one dispersed phase consisting of discrete globules or droplets of film-former and organic solvent, which dispersed phase is dispersed in a liquid organic dispersing medium. At least some of the dispersed globules are different in color from the dispersing medium, and a substantial number of said globules are at least 25 microns in size. The dispersions employ in the discrete globules a polymeric film former of sufficiently high molecular weight, preferably cross-linked, to render a colloidally dissolved solution in an organic solvent immiscible with the same organic solvent not containing the polymeric film former. The dispersing medium may or may not contain a second film-former.

3,811,905
AGGREGATE FOR ROAD CONSTRUCTION AND METHOD FOR THE PRODUCTION OF SAID AGGREGATE

Karl Kristian Kobs Kroyer, Vestre Kongevej 10, and Tage Fredsted, both of Viby J., Denmark, assignors to said Kroyer, by said Fredsted, a part interest

Filed June 14, 1972, Ser. No. 262,673
Claims priority, application Great Britain, June 17, 1971, 28460/71
Int. Cl. C08h *17/04*
U.S. Cl. 106—288 B **7 Claims**

An aggregate material for road construction comprising sharp-edged hard particles bonded to the surface of the particles of a basic aggregate by a binder.

3,811,906
GOLD POWDER

Oliver A. Short, and Richard V. Weaver, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

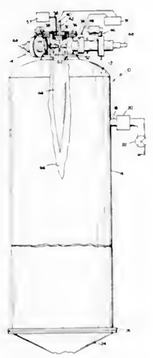
Continuation-in-part of Ser. No. 159,486, July 2, 1971, Pat. No. 3,725,035, which is a continuation-in-part of Ser. No. 15,212, Feb. 27, 1970, abandoned. This application Mar. 21, 1973, Ser. No. 343,371
Int. Cl. C09c *1/62*
U.S. Cl. 106—290 **3 Claims**

Metallizing compositions of certain percipitated gold flakes and spheres in a liquid vehicle, useful for printing patterns in the electronics industries.

3,811,907
PROCESSING OF SILICATE ORES AND PRODUCT THEREOF

Lawrence W. Scammon, Jr., Concord; Clarence L. Grant, Durham, and Phillip H. Wilks, Manchester, all of N.H., assignors to Humphreys Corporation, Bow, N.H.

Division of Ser. No. 168,687, Aug. 3, 1971, Pat. No. 3,749,763. This application Mar. 12, 1973, Ser. No. 340,451
Int. Cl. C09c *1/62*
U.S. Cl. 106—299 **9 Claims**



Separating silica from a metal silicate ore such as zircon by heating particles of the ore above the dissociation temperature of the ore without coalescence of the particles, and quenching the heated particles immediately so that the particle temperature decreases from above to below the dissociation temperature in less than 0.1 seconds. Dissociated zircon particles produced by this process have extremely small zirconia crystallites having dimensions less than about 0.2 microns in fused amorphous silica. Zirconia is produced from these dissociated zircon particles by leaching in an aqueous alkali medium.

3,811,908
PROCESS FOR THE MANUFACTURE OF TITANIUM DIOXIDE PIGMENTS

Luigi Piccolo; Benedetto Calcagno, both of Milan, and Marcello Ghirga, Bresso, all of Italy, assignors to Societa Italiana Resine S.I.R. S.p.A., Milan, Italy

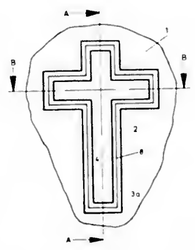
Filed Aug. 3, 1972, Ser. No. 277,548
Claims priority, application Italy, Nov. 17, 1971, 31197/71
Int. Cl. C09c *1/36*
U.S. Cl. 106—300 **5 Claims**

Fluid organic complexes of aluminium trichloride with hydrocarbons are used as nucleants and rutilising agents in the vapor phase oxidation of titanium tetrachloride to give titanium dioxide pigments.

3,811,909
METHOD OF MAKING STONE RELIEFS

Hermann Bertsch, Hindenburgstr. 3, Donaueschingen, Germany

Filed Dec. 17, 1969, Ser. No. 889,851
Claims priority, application Germany, Dec. 19, 1968, 1815742
Int. Cl. B44d *1/52*; **B65b** *33/00*
U.S. Cl. 117—8.5 **9 Claims**



Contaminants are removed from an exposed surface of a stone element on which a relief is to be produced. The exposed surface is covered with a self-adhesive foil which is intimately adhered thereto in surface-to-surface contact and which is resistant to etching fluid capable of attacking the stone element. An illustration of the desired relief is provided on the exposed side of the foil. Successive sections of the foil are removed, each matching the outline of a portion of the illustration to thereby expose corresponding portions of the surface. To the respectively exposed portions of the surface etching fluid is applied of a concentration and for a period of time requisite to etch the respective exposed portion to desired depth, before another section of the foil is removed and etching fluid is applied to the newly exposed portion.

3,811,910
TWO-STEP METHOD OF MAKING A COLOR PICTURE TUBE

Santokh S. Labana, Dearborn Heights; Amos Golovoy, Westland, and Yun Feng Chang, Plymouth, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed May 17, 1972, Ser. No. 254,231
Int. Cl. H01j *9/20*; **B44d** *1/094*
U.S. Cl. 117—17 **10 Claims**

In manufacturing a color picture tube, a plurality of color phosphor dots are placed on a face plate of the tube. A shadow mask used with the tube is made with a plurality of apertures arranged in a predetermined pattern. Each of these apertures have a predetermined size. The predetermined size of each aperture is reduced to a smaller size when the mask is used in placing the phosphor dots on the face plate. The size of each of the apertures is returned to its original, predetermined size when the mask is used for operating the color tube. This disclosure teaches an improvement in the method of reducing and, thereafter, returning the size of the apertures to the predetermined size. The improvement includes a two-step application of powder coating compositions to the shadow mask to reduce the size of the apertures. The first step in the method partially reduces the apertures and the second step in the method reduces the apertures to a final size needed for laying down the phosphor dot pattern on the face plate. Since a powder coating composition is used, the materials may be easily removed from the mask by utilization of a solvent for the composition.

3,811,911
FLEXIBLE PAVEMENT COATING METHOD

Tadashi Doi, Wakayama, Japan, assignor to Kao Soap Co., Ltd., Tokyo, Japan

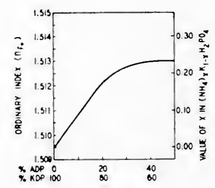
Continuation-in-part of Ser. No. 28,909, April 15, 1970, abandoned. This application Mar. 20, 1972, Ser. No. 236,218
Claims priority, application Japan, Apr. 22, 1969, 44-31176
Int. Cl. B44d *1/00*
U.S. Cl. 117—33 **8 Claims**

A process for applying to the surface of a flexible pavement material a protective and anti-skid coating of a polyepoxide composition, which can contain pigments and aggregates, comprising an epoxy resin, oleylamine and the pigments and aggregate particles. The coating increases surprisingly the durability of said flexible pavement material.

3,811,912
METHOD OF MAKING EPITAXIAL FILM OPTICAL DEVICES

Vellayan Ramaswamy, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 21, 1972, Ser. No. 317,276
Int. Cl. B29d *11/00*; **B44d** *5/06*; **C03c** *17/00*
U.S. Cl. 117—33.3 **7 Claims**



Thin film optical circuit devices, such as wave guides, electrooptic devices, etc., are prepared on KH_2PO_4 (KDP) substrates by epitaxial growth of single crystals having the compostion $(NH_4)_x K_{1-x} H_2PO_4$, where x varies from about 0.05 to about 0.2. Such films, which have low losses, are matchable to many glassy transmission media. The difference in refractive index between substrate and epitaxial film may be controlled by varying the composition of the epitaxial film.

3,811,913
METHOD FOR PREPARING A SUPPORT FOR A PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Tsuneo Kasugai, and Nobuhiko Minagawa, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

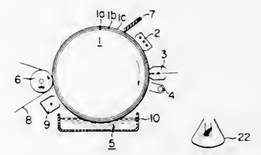
Filed Aug. 13, 1970, Ser. No. 63,376
Claims priority, application Japan, Aug. 12, 1969, 44-64038
Int. Cl. C03c *1/78*
U.S. Cl. 117—34 **15 Claims**

A method for preparing a support for a photographic light-sensitive material comprising applying a subbing solution to a photographic light-sensitive emulsion coating surface of a member selected from the group consisting of a polyethylene film and a polyethylene coated paper, said subbing solution being a solution or a dispersion of a member selected from the group consisting of a gelatin and a maleic anhydride copolymer and having a surface tension at 35°C ranging from 23 dyn/cm to 50 dyn/cm and applying ultraviolet radiation to the thus prepared surface, is disclosed.

3,811,914
METHOD OF TRANSFERRING IMAGES PRODUCED BY LIQUID DEVELOPMENT

Takashi Saito; Shuniti Kubu, both of Tokyo, Japan, and Canon Kabushiki Kaisha, 03, Tokyo, Japan

Filed Aug. 30, 1971, Ser. No. 176,096
Claims priority, application Japan, Sept. 4, 1970, 45-77872
Int. Cl. G03g *13/16*
U.S. Cl. 117—37 LE **4 Claims**

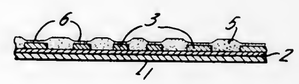


In an electrophotographic process, visual images obtained by developing electrostatic latent images with a liquid developer are transferred to a transferring paper having oil absorbing coefficient ranging from 1.0×10^{-4} to 5.0×10^{-2} cm./sec. and smoothness by Bekk tester ranging from 30 to 150 seconds.

3,811,915
PRINTING METHOD FOR FORMING THREE DIMENSIONAL SIMULATED WOOD GRAIN, AND PRODUCT FORMED THEREBY

Harry Burrell, North Caldwell, and Robert C. Miller, Jr., Roseland, both of N.J., assignors to Inmont Corporation, New York, N.Y.

Filed Apr. 27, 1971, Ser. No. 137,893
Int. Cl. B41m *3/00*
U.S. Cl. 117—45 **6 Claims**



A printing method, the ink used therein and the product formed thereby.

The printing method is a method for producing simulated wood grain, or other patterned surfaces, preferably comprising the steps of

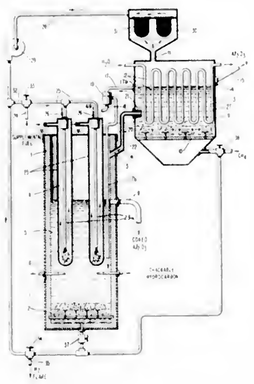
a. coating a substrate with a ground coat
b. applying to the dried ground coat a graining ink comprising a conventional graining ink but additionally containing from about 0.1 percent to about 3 percent by weight of a silicone fluid
c. coating the grain-printed, ground-coated substrate with a conventional protective top coat.

The silicone tends to repel the top coat, forming a three dimensional grained or patterned effect.

3,811,916
METHOD FOR CARBON IMPREGNATION OF ALUMINA

Allen S. Russell, New Kensington; Noel Jarrett, Lower Burrell; Marshall J. Bruno, Greensburg, and John A. Remper, Lower Burrell, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sept. 7, 1971, Ser. No. 178,079
Int. Cl. B44d *1/02*
U.S. Cl. 117—46 CB **33 Claims**



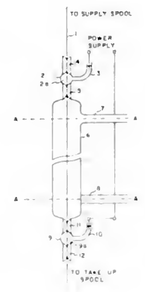
Process for the preparation of selectively constituted carbon impregnated alumina through the thermal cracking of hydrocarbon in contact with a fluidized bed of particles of precoated high surface area alumina in a first zone to deposit carbon in situ thereon in conjunction with the deposition of residual crackable hydrocarbon from the first zone gaseous effluent on particles of uncoated high surface area alumina in a second zone and prior to their introduction into said first zone, and minimization of the amounts of free hydrogen attendant the resultant carbon impregnated product.

3,811,917
BORON DEPOSITION ON CARBON MONOFILAMENT

Russell J. Diefendorf, Elnora, N.Y., assignor to Great Lakes Carbon Corporation, New York, N.Y.

Filed Oct. 5, 1970, Ser. No. 78,061
Int. Cl. C23c *11/00*
U.S. Cl. 117—47 R **4 Claims**

Amorphous boron is deposited in uniform thickness on continuous lengths of carbon monofilament substrate by contacting the substrate with boron trichloride and hydrogen (4:6) at 1,400–1,450°C. by admitting the reactive gases in tangential



flow around the filament, useful for forming boron filaments of up to 4 times the diameter of the carbon substrate.

3,811,918
PROCESS FOR PRODUCING PROTECTIVE GLASS COATINGS

Leon Levene, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 20, 1971, Ser. No. 210,104
Int. Cl. C03c *17/02*; B32b *15/00*
U.S. Cl. 117—47 H **24 Claims**

A process for providing a silicate glass coated and protected inorganic substrate which comprises applying a substantially gel resistant, mineral acid stabilized, clear solution having a pH of less than about 1.5 of a substrate compatible glass composition in the form of a glass precursor onto the substrate and then heating the precursor to a temperature and for a time sufficient to convert the precursor into a silicate glass coating on the substrate. The precursor is prepared by hydrolyzing prescribed silicon alkoxides with less than a stoichiometric amount of water so as to prepare a clear solution of a partially hydrolyzed silicon alkoxide, which partially hydrolyzed silicon alkoxide solution is then reacted with an aqueous solution of a metal oxide forming compound so as to form a solution of the precursor or with a metal alkoxide so as to form a clear solution of a further hydrolyzable metallosiloxane, which latter clear solution of the further hydrolyzable metallosiloxane is then reacted with either a quantity of water sufficient to hydrolyze residual alkoxy groups or with an aqueous solution of a metal compound which is convertible to a metal oxide so as to form a solution of the glass precursor.

3,811,919
NEW PROCESS FOR IMPROVING THE RESISTANCE OF SURFACES AGAINST EROSION

Pierre Lescop, Le Kremlin-Bicetre; Pierre Michel Teysseyre, Paris, and Joel Olivier Vigneau, Corbeil, all of France, assignors to Societe Nationale D'Etude & de Construction de Moteurs D'Aviation (SNECMA), Paris, France

Filed June 1, 1971, Ser. No. 149,016
Claims priority, application France, June 6, 1970, 70.20826
Int. Cl. B44d *1/14*
U.S. Cl. 117—62 **7 Claims**

There is disclosed a process for improving the resistance of the surface of a substrate against erosion and wear. The process includes coating the substrate with a coating consisting of fibers in a plastic matrix, the fibers being selected from materials wherein at least the surfaces thereof are coated with boron, boron carbide, or silicon carbide. At least a portion of the plastic matrix is removed from the surface, thereby exposing some of the embedded fibers. The surface is then coated with a polyurethane material containing a quantity of particulate material wherein at least the surfaces thereof are of boron, boron carbide, or silicon carbide.

3,811,920
SILICON CARBIDE SURFACED FILAMENTS WITH TITANIUM CARBIDE COATING

Francis S. Galasso, Manchester, and Bernarr A. Jacob, Torrington, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 5, 1972, Ser. No. 215,593
Int. Cl. D02g *3/00, 3/02*
U.S. Cl. 117—69 **2 Claims**



A composite filament suitable for use as a reinforcement in titanium or nickel matrices comprises a filamentary substrate having a silicon carbide surface layer and a thin, adherent outer layer consisting essentially of titanium carbide.

3,811,921
METHOD OF COATING GLASS SURFACE AND PRODUCTS PRODUCED THEREBY

James E. Crawford, and Richard H. Russell, both of Adrian, Mich., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 9, 1971, Ser. No. 206,494
Int. Cl. C03c *17/32*; B44d *1/20*
U.S. Cl. 117—72 **1 Claim**

The lubricity and the scratch resistance of a glass surface are improved by applying a pyrolyzable tin or titanium compound to the hot glass surface to form a substantially colorless tin or titanium oxide layer thereon, and then applying, directly upon the oxide layer, an aqueous solution of a water-soluble thermosetting polyamide which is a reaction product of (a) a diamino alkane having from two to eight carbon atoms and (b) a polycarboxylic acid or anhydride of the class consisting of aliphatic dicarboxylic acids and anhydrides having not more than six carbon atoms and benzene carboxylic acids and anhydrides having from three to four carboxyl groups, drying and setting the polyamide to produce a transparent, substantially colorless insoluble coating layer. The resulting dual coating has high lubricity, and affords scratch resistance which is much greater than that which would be imparted by either coating alone.

3,811,922
PROCESS FOR PRODUCING FOAM RUBBER-BACKED TEXTILES

Roy Clark, and Donald Westfield, both of Sarnia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada

Continuation of Ser. No. 79,650, Oct. 9, 1970, abandoned. This application July 10, 1972, Ser. No. 269,981
Claims priority, application Canada, Nov. 5, 1969, 66680
Int. Cl. B44d *1/14*; D05c *15/04*
U.S. Cl. 117—76 T **9 Claims**

In the manufacture of carpets having an attached layer of latex foam rubber, it was known to apply a precoat of a compounded liquid latex onto the underside of the carpet before applying the foamed latex layer. It has now been found that the slow drying or poor foam structure at the carpet/foam rubber interface encountered in such prior processes can be overcome by use of a foamed precoat. The foamed precoat can be applied in much smaller amounts than the prior liquid precoats.

3,811,923
FIBER FLEECE CONTAINING A POLYMERIC REINFORCING MATERIAL

Klaus-Dieter Hammer, Finthen; Herbert Porrmann, Niedernhausen, and Ludwig Klenk, Hallgarten, all of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrick, Germany

Filed Oct. 27, 1971, Ser. No. 192,899
Claims priority, application Germany, Oct. 30, 1970, 2053497; Oct. 30, 1970, 2053442
Int. Cl. B32b *27/02*; B44d *1/14*
U.S. Cl. 117—76 T **11 Claims**



This invention relates to a fiber fleece based on synthetic fibers and containing a polymeric organic reinforcing material, and having, at a proportion of polymeric elastic reinforcing material of at least 10 per cent by weight and not more than 80 per cent by weight, calculated on the total weight of a base fleece having a density between 0.1 and 0.28 g/cm³, a tensile strength of at least 0.01 kg/mm², a tear propagation resistance of at least 7 kg/mm (according to IUP 8), and a tensile stress or not more than 0.03 kg/mm², measured in a tensile elongation test at an elongation of 10 per cent.

3,811,924
ARTICLE OF MANUFACTURE HAVING A GLOSSY SUBSTRATE SURFACE COATED WITH A MATTE SURFACE COATING

John F. Gallagher, and Martin Salo, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 123,019, March 10, 1971, Pat. No. 3,733,293. This application Dec. 7, 1972, Ser. No. 313,045
Int. Cl. B44d *1/14*
U.S. Cl. 117—76 P **7 Claims**

It has been discovered that certain blends of polymers can be applied from an aqueous system to glossy surfaces and dried to yield coated surfaces that have a pleasing degree of roughness or "matte" and that are waterproof, abrasion resistant, anti-blocking, and essentially completely transparent to visible light.

The coatings are applied to the glossy surface in the form of an aqueous lacquer composition comprising

a. water;
b. dissolved in the water, an effective amount of ammonium salt of a copolymer of ethyl methacrylate and methacrylic acid; and
c. dispersed in the form of a latex through the solution of (b) in (a), an effective amount of a higher molecular weight poly(vinyl acetate).

3,811,925
METHOD OF APPLYING A HOT LUSTER COATING TO GLASS BY ELECTROSTATIC MEANS

Edward P. Nesteruk, c/o Engelhard Industries, 430 Mountain Ave., Murray Hill, N.J.

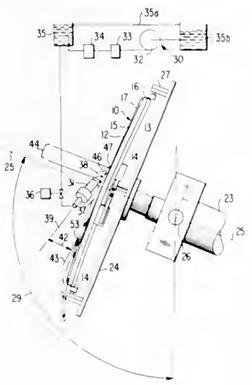
Filed Oct. 28, 1971, Ser. No. 193,547
Int. Cl. B05b *5/00*; C03c *17/20*
U.S. Cl. 117—93.4 R 20 Claims

Hot, stable, solid substrates, e.g. glass, are coated by contact with an electrostatically-charged dispersion of an organic vehicle solution containing thio compounds of gold and silver, and one or more of iron 1,3-beta diketonate, bismuth alcoholate or caroxylate and silicon alcoholate. Preferred ingredients of the solution include gold and silver mercaptides and iron acetylacetonate, and a preferred solvent is methylene chloride.

3,811,926
METHOD FOR COATING ONLY THE CONVEX MAJOR SURFACE OF AN APERTURED MASK FOR A CATHODE-RAY TUBE

Bradford Knox Smith, Lititz, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,476
Int. Cl. B44d *1/08*
U.S. Cl. 117—101 7 Claims



A method for coating the convex major surface of a curved apertured mask for a cathode-ray tube including coating portions substantially filling and completely closing the final-sized apertures without coating the opposite concave major surface. The mask is rotated about an axis substantially normal to and passing through the central portion of the mask at a rotation rate insufficient to cause liquid coating material to fly off the surface by centrifugal force, the axis being inclined at about 100° to 130° measured from a vertical downward 0° reference. A stream of liquid material in excess of the amount required to coat the mask is projected into an upward trajectory and into contact with the convex surface of the rotating mask. The stream contacts the mask on an area above the axis with the stream substantially at the top of its upward trajectory, making an angle of less than 15° with a tangent to the contacted area. The excess liquid coating is allowed to drain from the rotating mask by gravity. After at least one revolution, the stream is removed from contact with the rotating mask, and the mask rotation is increased to a rotation rate sufficient to cause excess liquid to fly off the mask surface by centrifugal force.

3,811,927
PROCESS FOR VAPOR DEPOSITION ON GLASSY-CARBON SUBSTRATE

Louis A. Joo, Johnson City; Thomas W. Martin, and John A. McKee, both of Elizabethton, all of Tenn., assignors to Great Lakes Carbon Corporation, New York, N.Y.

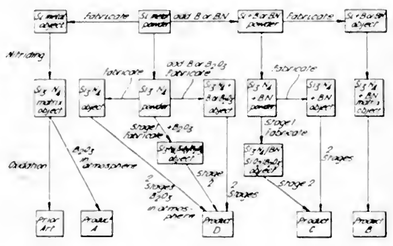
Filed Mar. 10, 1971, Ser. No. 122,993
Int. Cl. C23c *13/04*
U.S. Cl. 117—106 R 2 Claims

Glassy-carbon monofilament containing additional sulfur in combined form, has "high-temperature creep" properties useful in the deposition of boron, boron carbide, silicon carbide, and pyrolytic graphite thereupon.

3,811,928
SILICON NITRIDE CERAMICS

John William Henney, Abingdon, and James William Samuel Jones, Blewbury, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Oct. 15, 1971, Ser. No. 189,583
Claims priority, application Great Britain, Oct. 20, 1970, 49855/70
Int. Cl. C04b *35/58*
U.S. Cl. 117—106 8 Claims

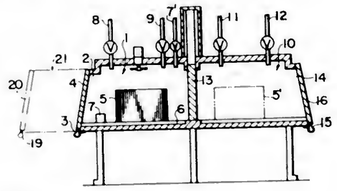


Shaped ceramic objects of silicon nitride are protected from oxidation by a coating comprising silica and boric oxide. The coating may be formed by heating a shaped mixture of silicon nitride and boron nitride in air to convert part to silica and boric oxide and causing a silica/boric oxide glass to flux and protect the object from further oxidation. The boron may be incorporated during oxidation but is preferably added to the silicon before nitriding.

3,811,929
METALLIC CEMENTATION

Norio Kanetake, Tokyo, Japan, assignor to Kabushiki Kaisha Kito, Kawasaki-shi, Kanagawa-ken, Japan

Filed Mar. 2, 1971, Ser. No. 120,180
Claims priority, application Japan, Mar. 4, 1970, 45-17944; Mar. 5, 1970, 45-18271; Mar. 24, 1970, 45-24235
Int. Cl. C23c *11/04*
U.S. Cl. 117—107.2 R 5 Claims

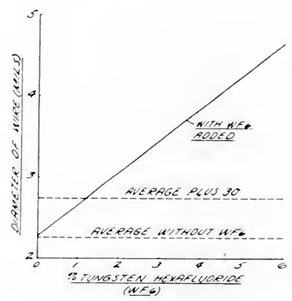


Process for cementation of iron or steel by heat treatment in a chamber with fine particles of chromium, titanium or silicon halide suspended in an inert atmosphere.

3,811,930
PROCESS FOR PYROLYTIC DEPOSITION OF BORON ON A METAL SUBSTRATE

Donald K. Kuehl, Manchester, Conn.; Roy Fanti, Springfield, Mass., and Salvatore F. Galasso, Manchester, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation of Ser. No. 540,091, April 4, 1966, abandoned. This application Nov. 24, 1969, Ser. No. 872,475
Int. Cl. C23c *13/02*
U.S. Cl. 117—107.2 R 3 Claims



This invention provides a process for the pyrolytic deposition of boron on a substrate comprising bringing a pyrolytically decomposable gaseous boron-containing compound and a pyrolytically decomposable metal-containing gas into contact with a substrate, including a reducing gas at an elevated temperature sufficient to pyrolytically decompose both the boron-containing compound and the metal-containing gas, whereby the boron is deposited on the substrate at a rate higher than could be obtained in the absence of the metal-containing gas.

3,811,931
METAL CONTAINER COATED WITH PHOTODEGRADABLE COMPOSITION

James Edwin Guillet, Don Mills, Ontario, Canada, assignor to Ecoplastics Limited, Thornhill, Ontario, Canada

Filed Feb. 7, 1972, Ser. No. 224,334
Claims priority, application Great Britain, Feb. 15, 1971, 4682/71
Int. Cl. B32b *15/08*; C09d *3/62*
U.S. Cl. 117—132 B 5 Claims

A disposable substrate of degradable material, such as a metal container, is provided with a photodegradable polymeric coating. The coating is water impermeable initially, but upon exposure to ultraviolet light degrades to become water permeable allowing water to contact and assist in degradation of the substrate. Suitable coatings are polymers containing side chain ketone groups, such as copolymers of vinyl monomers and vinyl ketones.

3,811,932
ANTIMICROBIAL TREATMENT OF FIBRE PRODUCTS WITH PHENYLTHIOUREAS

Adolf Hubele, Riehen, Switzerland, assignor to Ciba-Geigy AG, Basle, Switzerland

Division of Ser. No. 34,594, May 4, 1970, abandoned. This application May 8, 1972, Ser. No. 250,939
Claims priority, application Switzerland, May 7, 1969, 7008/69; July 25, 1969, 11440/69
Int. Cl. A61l *13/00*; D06m *13/40*
U.S. Cl. 117—138.5 16 Claims

β-Chlorallylthioureas as well as their derivatives obtained by adding Cl_2 or Br_2 at the chlorallyl group are effective microbicides. They may be used as active agents in detergents or for the purpose of imparting to fibrous materials anti-microbial and anti-mycotic resistance as well as for controlling plant-pathogenic bacteria and fungi.

3,811,933
OIL AND GREASE RESISTANT PAPER PRODUCTS AND PROCESS FOR TREATING CELLULOSIC MATERIALS

Melville W. Uffner, Media, and Dewey G. Holland, Allentown, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

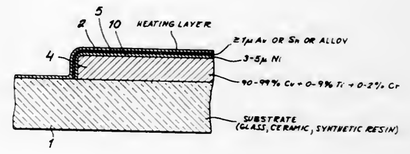
Division of Ser. No. 885,290, Dec. 15, 1969, abandoned. This application Dec. 1, 1971, Ser. No. 203,881
Int. Cl. D21h *1/40*
U.S. Cl. 117—155 UA 17 Claims

Functional surface coating compositions, prepared by blending a mixture of a fluorine containing polymer and a non-fluorine containing material in aqueous medium, impart solvent, grease and oil resistance to cellulosic materials.

3,811,934
HEATING MEMBER

Hans-Joachim Glaser, Gelsenkirchen, Germany, assignor to Flachglas Aktiengesellschaft Delog-Detag, Gelsenkirchen, Germany

Filed Aug. 30, 1971, Ser. No. 176,116
Claims priority, application Germany, Sept. 9, 1970, 2044675
Int. Cl. B44d *1/18*
U.S. Cl. 117—212 11 Claims



A heating plate comprises a generally refractory substrate of, for example, glass upon which is deposited by flame spraying, a contact member occupying a limited portion of a surface of the substrate for connecting the heating element in an electric circuit. The contact member is preferably copper or a copper-based alloy (e.g. 90 - 99 percent by weight copper, 0 - 9 percent by weight titanium and 0 - 2 percent by weight chromium). A protective metal (conductive) layer is provided on the contact member which is directly formed on the substrate and a heating element is constituted of a further conductive layer applied over the remainder of the substrate surface and on the protective layer covering the contact member.

3,811,935
ELECTROCONDUCTIVE RECORDING MEDIUM AND PROCESS OF MAKING THE SAME

Floyd T. Gould, Sudbury, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.

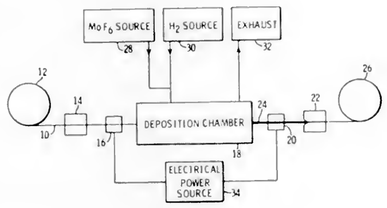
Continuation of Ser. No. 103,325, Dec. 1, 1970, abandoned. This application Oct. 13, 1972, Ser. No. 297,562
Int. Cl. B44d *1/18*
U.S. Cl. 117—215 20 Claims

A novel electroconductivity additive, potassium formate, is suspended in an aqueous solution and applied to paper during the papermaking process. The resulting impregnated paper is in one embodiment coated with a dielectric during the papermaking process thereby producing a low cost electrographic paper.

3,811,936
METHOD FOR PRODUCING REFRACTORY METAL MEMBERS BY VAPOR DEPOSITION, AND RESULTING PRODUCT

David H. Archer, Pittsburgh; Lee E. Brecher, Irwin; Joe P. Morris, Verona; Francis Talko, Irwin, and Herbert L. Taylor, Murrysville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 22, 1971, Ser. No. 210,951
Int. Cl. B44d *1/18*
U.S. Cl. 117—217 4 Claims



Method of preparing tungsten, molybdenum or zirconium members such as can be used in light sources wherein a metallic member has vapor-deposited thereon additional metal by a chemical vapor deposition process. For the process of fabrication of tungsten filament wire, the required dopants can also be chemically vapor deposited in the desired concentration. There is also provided the product produced by this process. The method of chemical vapor deposition of members is particularly adapted to continuous production techniques wherein after deposition, the member is mechanically reduced to its original cross-section area and wherein a portion of the mechanically reduced material has deposited thereon additional material to provide a continuous chemical vapor deposition method preparation.

3,811,937
LOW TEMPERATURE FIRED ELECTRICAL COMPONENTS AND METHOD OF MAKING SAME

Caleb H. Maher, Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Continuation-in-part of Ser. No. 91,706, Nov. 23, 1970, Pat. No. 3,682,766, which is a continuation-in-part of Ser. No. 767,046, Sept. 26, 1968, Pat. No. 3,619,220, which is a continuation-in-part of Ser. No. 626,245, March 27, 1967, abandoned. This application Dec. 9, 1971, Ser. No. 206,402
Int. Cl. B44d *1/18*; B32b *15/00*; H01g *3/07*; B32b *17/06*
U.S. Cl. 117—217 11 Claims



A low temperature fired glass-ceramic system encompassing a series of temperature compensating bodies having temperature coefficients that cover a wide range and possessing dielectric constants of from 30 to 125. This system consists of a mixture of a prefired blend of baria, titania and rare earth oxides, and a low firing glass formulation wherein the mixture is fired within the temperature range of 1,800°F to 2,100°F. A slip suspension of this mixture can be used to manufacture monolithic capacitors that utilize a relatively inexpensive palladium-silver electrode.

3,811,938
PRODUCTION OF BARIUM TITANATE CERAMICS HAVING A POSITIVE TEMPERATURE COEFFICIENT OF ELECTRICAL RESISTANCE

Namio Hirose; Yoshihiro Matsuo, and Shigeru Hayakawa, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed June 9, 1972, Ser. No. 261,330
Int. Cl. B44d *1/02*, *1/06*
U.S. Cl. 117—224 2 Claims

A process for improving the electrical properties of barium titanate ceramics having a positive temperture coefficient of electrical resistance comprises providing barium titanate ceramics having a positive temperature coefficient of electrical resistance, coating said barium titanate ceramics with at least one compound selected from the group consisting of silver compound and lithium compound; and heating the coated barium titanate ceramics at a temperature of 700°C to 1,200°C.

3,811,939
METHOD FOR THE MANUFACTURE OF HETEROGENEOUS PENETRATION COMPOUND METAL

Heinrich Hassler, Wendelstein, and Horst Schreiner, Nurnberg, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Berlin and Erlangen, Germany

Filed Dec. 28, 1971, Ser. No. 213,205
Claims priority, application Germany, Jan. 13, 1971, 2101414
Int. Cl. B44d *1/02*
U.S. Cl. 117—227 6 Claims

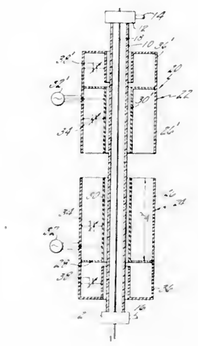
In a protective gas atmosphere, at least one metal of high vapor pressure (diffusion metal) is admitted as an alloying component through diffusion into the impregnating metal of lower melting point such as silver or copper contained in the pores of the frame metal, such as tungsten, rhenium or molybdenum. The diffusion temperature is chosen so that the impregnating metal exists in the liquid phase at least after the diffusion of the diffusion metals. The diffusion takes place, preferably, at 20 to 240°C above the melting temperature of the impregnating metal or the alloy formed between the impregnating metal and the diffusion metal. As the diffusion metal is used at least one of the metals bismuth, cadmium, gallium, indium, lead, tin and tellurium.

3,811,940
HIGH FREQUENCY HEATING METHOD FOR VAPOR DEPOSITION OF COATINGS ONTO FILAMENTS

Frank C. Douglas, Granby; Thomas K. Gregory, East Granby, and Robert W. Stielau, Portland, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation of Ser. No. 865,157, Oct. 9, 1969, abandoned. This application Feb. 10, 1972, Ser. No. 225,350
Int. Cl. C23c *13/04*
U.S. Cl. 117—228 9 Claims

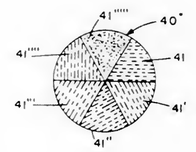
A method for the pyrolytic deposition of a coating on a filament axially moving through a pyrolytic vapor deposition chamber comprising establishing a radio frequency electric field to heat a selected length of the filament and cause deposition thereon and regulating the density of the electric field to maintain a temperature profile of desired uniformity along the selected length.



3,811,941
ARTICLE FOR PROCESSING ELECTROMAGNETIC WAVE ENERGY

Frederic R. Morgenthaler, Wellesley Hills, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. Nos. 645,947, June 14, 1967, Pat. No. 3,530,302, and Ser. No. 740,751, June 27, 1968, Pat. No. 3,609,596. This application Aug. 23, 1971, Ser. No. 173,884
Int. Cl. H01f *10/02*
U.S. Cl. 117—234 10 Claims



A device for processing electromagnetic wave energy by converting the wave energy to spin waves and/or elastic waves, the present disclosure being particularly directed to the concept of providing a device made up of a single-crystal material which contains non-uniform material parameters to give graded values of material saturation $4\pi M_s$. The material discussed in greatest detail is YIG and the non-uniform material parameters are furnished by doping the YIG with gallium. The graded material parameters in combination with an external magnetic bias field H result in an internal magnetic bias field H. The electromagnetic energy as it enters the material is acted upon in a manner that is influenced greatly by the contour of H. The contour of H in the present disclosure, in turn, is predetermined to present gradations in H which will allow the conversion mentioned and which allow predetermination of the wavenumber k of the magnons and/or phonons thereby formed. Furthermore, the place or space within the crystal at which conversion occurs can be somewhat determined by the profile of H thereby provided.

3,811,942
PHOSPHORUS-MODIFIED FERROMAGNETIC CHROMIUM DIOXIDE

Philip Jackson Rennolds, Wilmington, Del., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.

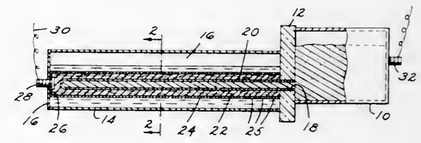
Filed Dec. 28, 1971, Ser. No. 212,988
Int. Cl. C01g *37/02*
U.S. Cl. 117—235 10 Claims

Ferromagnetic chromium dioxide of selected coercivity having a rutile-type tetragonal crystal structure in which a controlled amount of phosphorus is included as an integral part of the crystal structure is provided by reacting a mixture comprising at least one compound of chromium combined with oxygen having a valence other than four, phosphorus or a phosphorus-containing compound, and water at an elevated temperature.

3,811,943
MASS TRANSPORTATION ELECTRODE FOR ENERGY CONVERSION DEVICE

Robert W. Minck, Lathrup Village, and Ragnar P. Tischer, Troy, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 16, 1971, Ser. No. 115,455
Int. Cl. H01m *35/00*
U.S. Cl. 136—6 FS 12 Claims

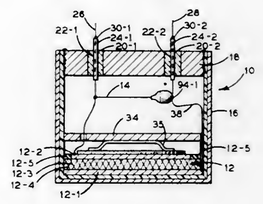


An electronically conductive perforated metal sheet contacts the exterior of a thin layer of graphite felt that has its interior in contact with the polysulfide side of the solid electrolyte in a sodium-sulfur energy conversion device. The perforated metal sheet is spaced away from the container wall to define an open space of considerable volume and is connected to an exterior terminal. Reactants and reaction products mix readily in the open space and flow easily through the perforations in the metal sheet to exchange electrons with the graphite felt.

3,811,944
ELECTRIC CELL WITH CAPACITANCE BUFFER

Charles C. Liang, Andover, Mass.; Bruce McDonald, Westcon, Conn., and William F. Vierow, Acton, Mass., assignors to R. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Mar. 12, 1973, Ser. No. 340,499
Int. Cl. H01m *43/00*
U.S. Cl. 136—6 R 10 Claims

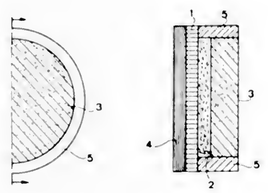


An electric cell or battery is electrically combined with a capacitor in a common case, so the capacitor can serve as a buffer for the cell or battery. The case protects both and eliminates the need for a separate case for the capacitor.

3,811,945
ELECTRIC BATTERY

Mario De Rossi, Rome, Italy, assignor to Consiglio Nazionale Delle Ricerche, Rome, Italy

Filed Aug. 24, 1972, Ser. No. 283,488
Int. Cl. H01m 39/06
U.S. Cl. 136—10 24 Claims



An electric battery is disclosed comprising a plurality of cells arranged in series, each cell comprising an aqueous electrolyte of zinc bromide circulated through the cells during charging and discharging, a bipolar electrode having a zinc anode deposited on one side and a bromine cathode and active cathodic mass on the other side. The active cathodic mass contains an active cathodic substance which is substantially insoluble in water and which is capable of combining with cathodic bromine to form solid addition products. Additive substances are dissolved in the electrolyte to reduce the solubility of the active cathodic substance, to increase the conductivity and acidity of the electrolyte, and to encourage the zinc to deposit in a thin and uniform layer.

3,811,946
BATTERY ELECTROLYTE COMPOSITION CONTAINING THE REACTION PRODUCT OF AN AMINE AND AN ALDEHYDE

Hans-Gerhard Creutz, Westland; Edward A. Romanowski, Troy, and Philip C. Symons, Birmingham, all of Mich., assignors to Occidental Energy Development Company, Madison Heights, Mich.

Filed Nov. 18, 1971, Ser. No. 200,229
Int. Cl. H01m 43/02, 43/06
U.S. Cl. 136—30 2 Claims

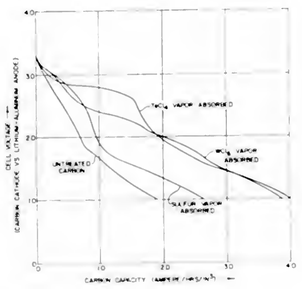
An electrolyte composition for use in an electrical storage device such as a battery, and particularly a rechargeable secondary-type battery, comprising an aqueous solution containing a metal halide and a dendrite reducing amount of a soluble reaction product of an amine and an aldehyde.

3,811,947
ELECTRICAL ENERGY STORAGE DEVICE UTILIZING AN ELECTRODE COMPOSED OF AN AMORPHOUS CARBON AND SULFUR-CARBON COMPLEX

Joseph E. Metcalfe, III, Bedford Heights; Robert A. Rightmire, Northfield, and Allan V. Marse, Independence, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation of Ser. No. 126,807, March 22, 1971, Pat. No. 3,762,954. This application Jan. 22, 1973, Ser. No. 325,389
Int. Cl. H01m 35/02
U.S. Cl. 136—6 LF 6 Claims

The energy storage capacity of a carbon electrode can be increased by advantageously incorporating additive elements into the electrode by the process of initially heat-treating the carbon electrode at a temperature between 700° and 1,000° C under a partial vacuum; subsequently exposing the electrode to the vapors of the desired compound under a slightly positive pressure and at a temperature below about 1,000° C; followed by cycling the electrode alternately in a charge and discharge direction in a cell containing a fused salt electrolyte



composed of the halides of alkali metals or alkaline earth metals or their mixtures.

3,811,948
INORGANIC THERMAL REACTION BATTERY

James F. Bald, Jr., Jersey City, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 22, 1972, Ser. No. 228,292
Int. Cl. H01m 21/14
U.S. Cl. 136—83 T 6 Claims

A thermally activated electrical storage device including a non-conducting solid material capable of being thermally decomposed or pyrolyzed to form a liquid conductive electrolyte in combination with a means for heating the non-conducting solid material to at least its thermal decomposition or pyrolytic temperature, and is useful in the field of ordnance projectiles, missiles and the like.

3,811,949
HYDRAZINE FUEL CELL AND METHOD OF OPERATING SAME

Margarete Jung, Kelkheim/Taunus, Germany, assignor to Varta A.G., Frankfurt/Main, Germany

Filed July 1, 1970, Ser. No. 51,544
Claims priority, application Germany, July 3, 1969, 1933778
Int. Cl. H01m 27/04
U.S. Cl. 136—86 D 6 Claims

An amalgamated metal, like nickel, iron or cobalt to use hydrazine electrochemically, or mixtures and alloys, an electrode, a fuel cell and battery, and methods of using same.

3,811,950
BIOCHEMICAL FUEL CELL AND METHOD OF OPERATING SAME

Dominic C. Avampato, 241 Quinnipiac Ave., New Haven, Conn.; Robert N. Dibella, 8 Stevens Ln., Glastonbury, Conn., and Roger E. Vasas, 120 Retreat Ave., Hartford, Conn.

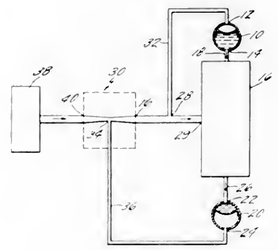
Filed Jan. 26, 1972, Ser. No. 220,901
Int. Cl. H01m 31/00, 27/30
U.S. Cl. 136—86 E 13 Claims

A chemical fuel cell is presented wherein electrical energy is generated by the reaction of enzymes, substrates and nucleotides, the reaction being, in part, similar to parts of the tricarboxylic acid cycle in the human body.

3,811,951
VENTURI TUBE REGULATOR FOR A FUEL CELL

James K. Stedman, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed June 9, 1972, Ser. No. 261,210
Int. Cl. H01m 27/12
U.S. Cl. 136—86 B 2 Claims

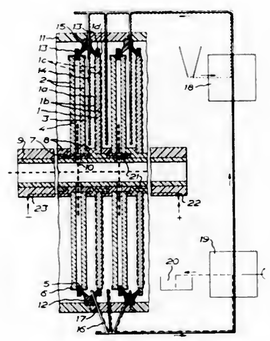


Hydrogen is provided at constant pressure to a fuel cell through a Venturi tube. A highly concentrated solution of electrolyte is introduced into the cell from one bladder valve and diluted electrolyte is removed from the cell to a second bladder valve in proportion to the reduction of pressure at the throat of the Venturi tube.

3,811,952
METHOD AND APPARATUS FOR SUPPLYING ENTIRELY OR SUBSTANTIALLY ENTIRELY CONSUMABLE METALLIC MATERIAL TO A MAGNETIC ELECTRODE IN A METAL/OXYGEN OR METAL/AIR CELL

Olle Lennart Siwersson, and Karl Gunnar Tell, both of Helsingborg, Sweden, assignors to AB St. Powercell, Helsingborg, Sweden

Continuation of Ser. No. 185,943, Oct. 4, 1971, abandoned. This application June 20, 1973, Ser. No. 371,618
Claims priority, application Sweden, Oct. 8, 1970, 13627/70
Int. Cl. H01m 27/00
U.S. Cl. 136—86 A 11 Claims

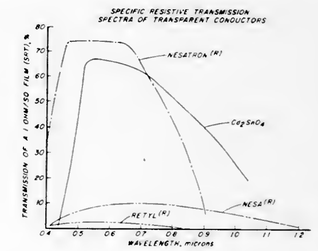


A method and apparatus for supplying substantially entirely consumable metallic material to a magnetic electrode in a metal/oxygen cell which also includes an oxidizing agent electrode and an electrolyte, comprises supplying the metallic material in the form of particles having ferromagnetic properties and in such proximity to the magnetic electrode that the particles are attracted by and retained to it.

3,811,953
LIGHT-TRANSMITTING ELECTRICALLY CONDUCTING CADMIUM STANNATE AND METHODS OF PRODUCING SAME

Arthur Jack Nozik, Westport, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Sept. 20, 1971, Ser. No. 181,916
Int. Cl. C01g 11/00; B01k 1/00; H01l 15/02
U.S. Cl. 136—89 21 Claims

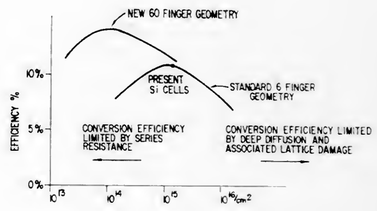


Cadmium stannate (Cd_2SnO_4) is shown to provide a light-transmitting electrically conducting composition in which the electrical conductivity can be varied from 10^{-7} ohm^{-1}cm^{-1} to 10^4 ohm^{-1}cm^{-1} by controlling the oxygen vacancy concentration of the material. Amorphous and crystalline films of Cd_2SnO_4 can be disposed on cold and/or hot substrates and they exhibit high optical transparency as well as high electrical conductivity. Other useful forms and configurations of semiconducting Cd_2SnO_4 are disclosed.

3,811,954
FINE GEOMETRY SOLAR CELL

Joseph Lindmayer, Bethesda, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Sept. 28, 1971, Ser. No. 184,393
Int. Cl. H01l 15/02
U.S. Cl. 136—89 18 Claims

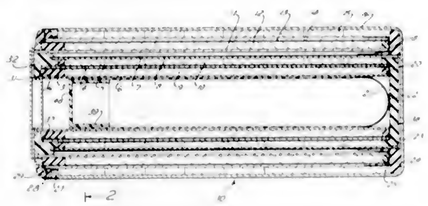


A fine geometry solar cell having a top surface contact comprising substantially more and finer metallic fingers spaced close together for collecting photocurrent. Junction depth and/or impurity concentration may be reduced significantly. The method for making the fine geometry solar cell, comprises in ordered steps, the processes of diffusion, oxidation, photolithography, metallization and plating.

3,811,955
HIGH DISCHARGE RATE MERCURY CELL

Robert E. Ralston, Spring Valley, and Yung Ling Ko, Peekskill, both of N.Y., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Continuation-in-part of Ser. No. 777,773, Nov. 21, 1968, abandoned. This application Aug. 7, 1972, Ser. No. 279,107
Int. Cl. H01m *21/00*
U.S. Cl. 136—107 2 Claims

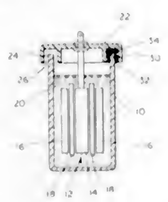


The present invention provides a primary battery for high current loads. In order to fulfill the electrochemical parameters for giving high current discharge, it is necessary that the electrode area be increased extensively. Provision is thus made for compensating for gas evolution within the battery by including a pressure gradient device within said battery. This device is incorporated within a large void space within the battery and comprises an electrolyte dispenser in combination with a flexible, unperforated tube having a sealed end and an open end. The open end is closed by means of an electrolyte dispenser comprising a tight-fitting plastic cap having an aperture therethrough. This pressure gradient device is disposed concentrically within the cell, generally within one of the inner conductors of the cell, such as the anode conductor.

3,811,956
SEALANT FOR GALVANIC BATTERIES AND CELLS

Donald G. Reinert, Emmaus, Pa., assignor to ESB Incorporated, Philadelphia, Pa.

Filed Nov. 2, 1972, Ser. No. 303,018
Int. Cl. H01m *1/02*
U.S. Cl. 136—133 8 Claims



A galvanic cell and battery sealant is described in which the sealant between container and cover has a permanent foam structure. The sealant may be any of the available sealant materials known to the art, having the properties of adherence, foamability, permanence and inertness to the battery electrolyte. The foamed sealant is equally suitable for batteries closed by sealant alone without a cover. Typical sealant materials are foamed epoxy, foamed phenolic, foamed furan and foamed polyester. The density of the foamed material may be chosen to be between 2 and 50 lbs. per cubic ft. A method for sealing galvanic batteries and cells also form a part of the invention. The foam sealant is readily removeable for battery repair.

3,811,957
BATTERY SEPARATORS MADE FROM POLYMERIC FIBERS

Robert R. Buntin, Baytown, Tex., assignor to Esso Research and Engineering Company, Linden, N.J.

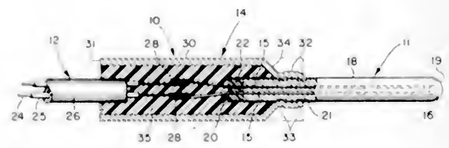
Continuation-in-part of Ser. No. 843,839, July 22, 1969, abandoned, which is a continuation-in-part of Ser. No. 787,258, Dec. 26, 1968, abandoned. This application June 29, 1972, Ser. No. 267,325
Int. Cl. H01m *3/00*
U.S. Cl. 136—146 17 Claims

A battery separator and the process for preparing it, having excellent abrasion resistance, stiffness, porosity, pore size, and electrical resistance is produced from a non-woven mat of randomly laid, self-bonded polymeric fibers. The mat is produced by a melt-blowing process. The non-woven mat is then compacted, in a critical manner, preferably at temperatures for polypropylene of from 290° to 310° F., using relatively low pressures, i.e., 10 psi/in² or less, to obtain a battery separator meeting precise and essential specifications.

3,811,958
MECHANICALLY FASTENED TRANSITION FITTING

James Herbert Maurer, McHenry, Ill., assignor to Pneumo Dynamics Corporation, Cleveland, Ohio

Filed Feb. 24, 1972, Ser. No. 227,782
Int. Cl. H01v *1/02*
U.S. Cl. 136—233 9 Claims



A thermocouple assembly in which the sensing element is encased in a metallic sheath and joined to extension wires within a tubular transition fitting which is swaged to the sheath and which may be filled with encapsulation material.

3,811,959
CORROSION RESISTANT COATING SYSTEM

Martin Weinstein, San Antonio, Kenneth K. Speirs, Universal City, and Robert B. Baer, San Antonio, Tex., assignors to Chromalloy American Corporation, New York, N.Y.

Original application May 17, 1971, Ser. No. 143,842, now Patent No. 3,729,295. Divided and this application Aug. 24, 1972, Ser. No. 283,380
Int. Cl. B32b *15/18*
U.S. Cl. 148—6.15 R 11 Claims

Ferrous metal articles are provided having improved resistance to corrosion in highly saline and/or marine atmospheres, the articles being characterized by a protective duplex coating comprised of a sacrificial thermally aluminized ferrous metal surface in a combination with a special barrier type non-metallic overcoat. One method of providing the foregoing system is to apply an adherent layer from a liquid of a soluble silicate salt or compound onto a thermally aluminized layer, the silicate layer be-

ing preferably thereafter cured. In a preferred embodiment, a conversion coating is applied to the silicate layer



and cured *in situ* to further enhance the resistance to corrosion.

3,811,960
PROCESS OF PRODUCING NICKEL CHROMIUM ALLOY PRODUCTS

Philip James Parry, Birmingham, and Peter Lindsay Twigg, Worcs, England, assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Jan. 11, 1973, Ser. No. 322,610
Claims priority, application Great Britain, Jan. 17, 1972, 2,170/72
Int. Cl. C22f *1/10, 1/11*
U.S. Cl. 148—11.5 F 6 Claims

Wrought corrosion-resistant nickel-chromium alloy products having high strength and ductility at elevated temperatures are produced by hot-working a two-phase nickel-chromium alloy containing, by weight, from 47 to 65% chromium, from 0 to 12% cobalt, from 0.02 to 0.1% carbon, from 0 to 0.01% boron, one or more of titanium, aluminum, molybdenum, tungsten, tantalum and niobium in amounts in the ranges from 1 to 6% titanium, from 0.5 to 5% aluminum, from 1 to 10% molybdenum, from 2 to 10% tungsten, from 2 to 10% tantalum and from 0.5 to 10% niobium, and such that

$3\times(\text{percent Ti})+3\times(\text{percent Al})+5\times(\text{percent Mo})+2.5\times(\text{percent W})+2.5\times(\text{percent Ta})+5\times(\text{percent Nb})-12\geqslant 0$

with the provisos that

(i) the sum of the aluminum and titanium contents does not exceed 6%;
(ii) the sum of the aluminum, titanium, niobium and tantalum contents does not exceed 15%; and
(iii) the sum of the tungsten and molybdenum contents does not exceed 10%

and one or more of zirconium, cerium, yttrium and hafnium in a total amount exceeding that required to combine with all the nitrogen present and sufficient to form a eutectic with the nickel, but not exceeding 4%, the balance, except for impurities including nitrogen in an amount not exceeding 0.1%, being nickel in an amount of at least 25%, to break down its cast structure and then solution-heating it at a temperature within the range of 50° C. below its solidus temperature for from ½ to 20 hours.

3,811,961
BORIDIZED STEEL-BONDED CARBIDES

Martin Weinstein, San Antonio, Tex., Subhash C. Singhal, Monroeville, Pa., and John L. Ellis, White Plains, N.Y., assignors to Chromalloy American Corporation, San Antonio, Tex.

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,282
Int. Cl. B23p *3/00*
U.S. Cl. 148—34 2 Claims

A surface-hardened cemented carbide shape is provided consisting essentially of primary grains of a refractory metal carbide distributed through a metal matrix, the metal matrix adjacent the surface between the carbide grains having a boridized layer characterized metallographically by the presence of an iron-group metal boride.

3,811,962
LARGE GRAIN COBALT-SAMARIUM INTERMETALLIC PERMANENT MAGNET MATERIAL STABILIZED WITH ZINC AND PROCESS

Mark G. Benz, Burnt Hills, N.Y., assignor to General Electric Company

Filed Apr. 17, 1972, Ser. No. 244,423
Int. Cl. H01f *1/02*
U.S. Cl. 148—103 13 Claims

An alloy of cobalt and samarium is cast to produce a cast body having grains ranging in size from about 100 microns to 1000 microns. The cast body is annealed in an atmosphere in which it is substantially inert at a temperature ranging from about 900° C. up to a temperature below its melting point for a period of time ranging from about 5 minutes to 24 hours. To get significantly useful permanent magnet properties, it should be annealed at a particular annealing temperature for a period of time sufficient for the resulting free grains to show at room temperature, after being magnetized to at least approach saturation magnetization, a relative magnetization value of $4\pi J/B_r$ of at least 50 percent at a demagnetizing field of −4 kilooersteds with relative magnetization $4\pi J/B_r$, by definition, being 1.00 at zero demagnetizing field. The annealed body is then comminuted to a grain size corresponding to or smaller than the grain size of the cast body and ranging from about 50 microns to 200 microns. The free annealed grains are admixed with 1–15% by weight zinc powder and the resulting mixture is heated to melt the zinc powder to form a continuous coating of zinc on the individual grains.

3,811,963
METHOD OF EPITAXIALLY DEPOSITING GALLIUM NITRIDE FROM THE LIQUID PHASE

Frank Zygmunt Hawrylo, Trenton, and Jacques Isaac Pankove, Princeton, N.J., assignors to RCA Corporation

Filed Feb. 20, 1973, Ser. No. 333,528
Int. Cl. H01l *7/38*
U.S. Cl. 148—172 7 Claims

An epitaxial layer of gallium nitride is deposited from a melt containing a small concentration of gallium and a large concentration of a metal or mixture of metals which do not form a stable compound with nitrogen. The melt is subjected to an atmosphere containing nitrogen so as to form gallium nitride in the melt. A substrate is brought into contact with the gallium nitride containing melt and the melt is cooled to deposit gallium nitride from the melt onto the substrate. The substrate is then separated from the melt.

3,811,964
SOLID PROPELLANT WITH NON-METALLIC BURNING RATE CATALYSTS

David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,155
Int. Cl. C06d *5/06*
U.S. Cl. 149—19.1 **6 Claims**

A new group of burning rate catalysts used in solid composite propellant compositions. These catalysts are non-metallic high molecular weight aldehydes or ketones preferably having at least eight carbon atoms per molecule, or non-metallic substituted phenols. Typical compounds of this type of catalyst are octadecenylaldehyde, *beta* - methylumbelliferone, 3,3,5 - trimethylhexaldehyde, *normal* - decylaldehyde, *para* - hydroxypropiophenone, 2-ethylhexaldehyde, octadecyl aldehyde, 8-heptadecylketone, pentachlorophenol, and *para*-hydroxybenzaldehyde.

3,811,965
PROPELLANTS CONTAINING COMBINATION BURNING RATE SYNERGIST AND CURING AGENT OF EPOXYALIPHATIC CARBORANE

David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Sept. 6, 1967, Ser. No. 667,049
Int. Cl. C06d *5/06*
U.S. Cl. 149—19.2 **10 Claims**

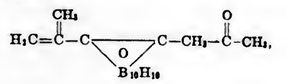
A novel curing (chainextender) agent for carboxylated polybutadiene and acrylate binders which also functions as a burning rate synergist for use in composite propellant compositions. Specifically, the use of 1-(2,3-epoxyaliphatic)carboranes such as 1-(2,3-epoxybutyl)carborane and 1,2-bis(2,3-epoxyaliphatic)carboranes such as 1,2-bis (2,3-epoxypropylcarborane as novel curing agents for use in composite propellant compositions is disclosed. The aliphatic group should have at least 3 carbon atoms in the chain.

3,811,966
COMPOSITE MODIFIED DOUBLE-BASE PROPELLANTS WITH VERY HIGH BURNING RATES

William E. Hill and Lew R. Beason, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed June 24, 1969, Ser. No. 836,177
Int. Cl. C06d *5/06*
U.S. Cl. 149—19.2 **5 Claims**

Composite modified double-base propellants with very high burning rates result when 11-isopropenyl, 12-prop-(2-one)-yl-carborane



(IPCA), a liquid ketone derivative of isopropenylcarborane, is employed as the burning rate catalyst for the propellant composition.

3,811,967
HIGHLY LOADED CAST POLYURETHANE PROPELLANTS CONTAINING ALUMINUM

Charles J. Strickler, Carmichael, and Aubrey J. Hammond, Sacramento, Calif., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Oct. 20, 1966, Ser. No. 588,692
Int. Cl. C06d *5/06*
U.S. Cl. 149—19.4 **2 Claims**

A castable solid rocket propellant having increased solids-to-binder ratio for use in volume limited missile systems.

3,811,968
POLYMERIZATION CROSSLINKING AGENT FOR POLYBUTADIENE PROPELLANT PREPOLYMERS

David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed July 21, 1967, Ser. No. 655,737
Int. Cl. C06d *5/06*
U.S. Cl. 149—19.9 **9 Claims**

A novel crosslinking agent for crosslinking carboxyl-terminated polybutadiene propellant prepolymers. The invention employs *tert*-butylperoxyisopropyl carbonate in conjunction with various difunctional or trifunctional aziridinyl chain extension agents (e.g., the butyleneimine adduct of trimesic acid) to simultaneously chain extend and crosslink the polybutadiene propellant prepolymers. The elastomer product is useful as a binder for solid propellants.

3,811,969
FUSE POWDER COMPOSITION

Yves Bertrand and Robert Grebert, Saint-Medard-en-Jalles, France, assignors to Etat Francais represente par le Ministre d'Etat Charge de la Defense Nationale, Paris, France

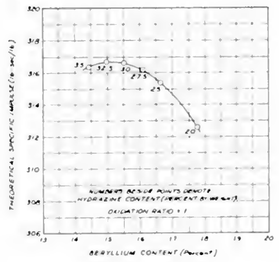
Filed Mar. 7, 1972, Ser. No. 232,493
Claims priority, application France, Mar. 8, 1971, 7107863
Int. Cl. C06b *11/00*
U.S. Cl. 149—20 **5 Claims**

Novel fuse powder compositions which burn very rapidly without decomposition comprise zirconium, barium chromate, ammonium perchlorate, and ammonium dichromate.

3,811,970
GELLED HYDRAZINE PROPELLANT COMPOSITIONS CONTAINING HYDRAZINE NITRATE AND A FINELY DIVIDED METAL

Charles B. Henderson, Alexandria, Va., assignor to Atlantic Research Corporation, Fairfax County, Va.

Filed Nov. 9, 1964, Ser. No. 410,022
Int. Cl. C06d *5/06, 5/10*
U.S. Cl. 149—36 **9 Claims**



1. A heterogeneous propellant composition consisting essentially of hydrazine; hydrazine nitrate; finely-divided metallic fuel selected from the group consisting of beryllium, aluminum, magnesium, zirconium, hafnium, alloys of the aforesaid metals, hydrides of the aforesaid metals, and mixtures thereof; and a gelling agent capable of maintaining a stable hydrazine gel structure in the presence of hydrazine nitrate, said composition having an oxidation ratio of about .94 to about 1.50 as defined by the formula:

$$\text{Oxidation ratio} = \frac{O}{C + M\left(\frac{v}{2}\right)}$$

wherein O equals the total amount of oxygen in said composition; C equals the total amount of carbon; M equals the total amount of metal; and v equals the valence of the metal, said O, C, and M being expressed in terms of the number of atomic equivalents, and wherein said metallic fuel is present in said composition in an amount at least sufficient to provide a flame temperature at least equal to the melting temperature of the metal oxide produced upon burning of said composition.

3,811,971
METHOD OF BLASTING UNDER HIGH PRESSURE CONDITIONS AT ELEVATED AND NORMAL TEMPERATURES

Melvin Alonzo Cook, Albert G. Funk, and Gary L. Hansen, Salt Lake City, Utah, assignors to Ireco Chemicals

No Drawing. Continuation of abandoned application Ser. No. 157,660, June 28, 1971. This application July 5, 1973, Ser. No. 376,286
Int. Cl. C06b *15/02*
U.S. Cl. 149—92 **7 Claims**

A method of blasting in deep wells, where explosive compositions are subject to high ambient pressures and temperatures ranging from normal to as high as 300° F., includes preparing a fluid explosive composition comprising a blend of polynitrated aromatic hydrocarbon of normally solid high explosive type such as trinitrotoluene at least partially dissolved in a liquid nitrated aromatic hydrocarbon such as nitrobenzene, mononitrotoluene and dinitrotoluene and mixture of these. The composition is prepared at a temperature high enough to render it pumpable due to sufficient dissolution of the high explosive polynitrated hydrocarbon in the liquid hydrocarbon. While the composition remains fluid, it is pumped into the deep well or borehole.

3,811,972
PROCESS FOR MAKING A LITHIUM DOPED BERYLLIUM HYDRIDE COMPOSITE

Leonard M. Niebylski, Birmingham, Mich., and Gottfried J. Brendel, Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Filed June 2, 1969, Ser. No. 830,222
Int. Cl. C06b *15/00*
U.S. Cl. 149—109 **22 Claims**

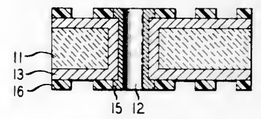
Lithium-doped amorphous beryllium hydride slurried with relatively small amounts of an inert liquid slurry medium can be crystallized by exposure for a sufficient time to elevated temperature and pressure. Suitable solvents are high-boiling hydrocarbons. A vitreous composite suitable for use in this crystallization process can be prepared by compressing lithium-doped, amorphous beryllium hydride and heating the resulting compact.

3,811,973
TECHNIQUE FOR THE FABRICATION OF A BI-LEVEL THIN FILM INTEGRATED CIRCUIT

Nathan George Lesh, Bethlehem, Pa., and Peter Joseph O'Day, Spring Lake, and Burton Abram Unger, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 11, 1972, Ser. No. 280,055
Int. Cl. C23f *1/02*
U.S. Cl. 156—3 **5 Claims**

Bilevel thin film circuits having gold metallized through holes require protection from attack by gold conductor etchants. A novel procedure for effecting this end involves plating an etch stop such as rhodium or platinum upon the walls of the through holes and around the entrance and exit ports. Since rhodium plating is normally required in the fabrication of such circuits for

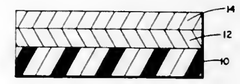


solderable components, the through hole protection and rhodium plating may be performed simultaneously.

3,811,974
SILICON NITRIDE-SILICON OXIDE ETCHANT

Anthony S. Squillace, Cypress, Albert E. Martin, Lynwood, and Jerald J. Rudmann, Anaheim, Calif., assignors to North American Rockwell Corporation

Filed July 19, 1971, Ser. No. 163,630
Int. Cl. H01l *7/50*
U.S. Cl. 156—8 **5 Claims**

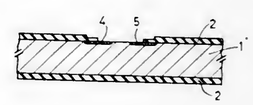


This invention discloses a chemical etchant and a process for chemically etching silicon nitride-silicon oxide composite structures which may be used, for example in microelectronic devices. The etching process or system utilizes a mixture of phosphoric acid and a fluoborate anion containing compound such as fluoboric acid. The etch rate of the silicon nitride relative to the etch rate of the silicon oxide can be controlled to the desired etch rate by varying the temperature of the etchant and/or adjusting the ratio mixture of the phosphoric acid and the fluoboric acid.

3,811,975
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE AND DEVICE MANUFACTURED BY THE METHOD

Joseph Gijsbertus van Lierop, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 16, 1971, Ser. No. 208,706
Claims priority, application Netherlands, Jan. 8, 1971, 7100275
Int. Cl. H01l *7/50*
U.S. Cl. 156—13 **7 Claims**



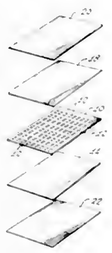
A method of gettering a semiconductor device having an insulating layer of which at least a part must not be covered with a gettering material, for example with phos-

phorsilicate glass, at the gettering temperature. According to the invention, the gettering material is provided on the whole semiconductor body and on the insulating layer at such a low temperature that substantially no gettering occurs, and the gettering material is then removed from at least a part of the insulating layer, after which the gettering step is carried out as the last treatment carried out at high temperature. Application in particular in gettering MOS transistors.

3,811,976
METHOD FOR MANUFACTURING POROUS METAL FIBER FELTS
Josef Schlömer, Sinsheim, and Georg Hof, Kuchen, Germany, assignors to Wurttembergische Metallwerke, Geislingen an der Steige, Germany
No Drawing. Filed May 30, 1972, Ser. No. 257,894
Int. Cl. B32b *5/16, 15/00*
U.S. Cl. 156—62.8 **6 Claims**

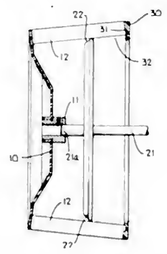
A method is described for manufacturing porous metal fiber materials of uniform constitution by screening comminuted metal fibers on to a carrier support and thereby distributing the comminuted metal fibers using a rotary movement and the one or more layers distributed on to a support are then coated with an adhesive or binding agent applied to this first layer, whereupon one or more subsequent fiber layers are applied and these processes are continued until the desired thickness of the resultant mat on the support has been obtained, whereupon the mat so formed is then dried and the solvent present in the adhesive or binding agent is driven off, and then the products are subjected to heat treatment if required after compacting. Very uniform distribution is achieved if the comminuted metal fibers are distributed using a rotary movement and subsequent vibratory treatment, and the comminuted metal fibers may be classified before the distribution step, for purpose of more reliable control of the desired properties of the material to be produced.

3,811,977
STRUCTURE AND METHOD OF MAKING MAGNETIC CARDS
David C. Kramer, Redondo Beach, Calif., assignor to Rusco Industries, Inc., Los Angeles, Calif.
Filed Apr. 17, 1972, Ser. No. 244,488
Int. Cl. B32b *31/00;* **G11b** *5/80*
U.S. Cl. 156—108 **1 Claim**



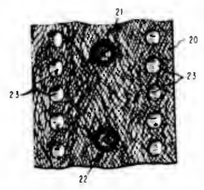
A single plastic sheet is formed from a number of sheets that include a central core sheet having a plurality of windows, in each of which is a strip of magnetic material of the thickness thereof. The core sheet is first tacked to an opaque sheet, upon which the magnetic strips are laid when placed in the windows. Then a second opaque sheet is placed over the core sheet, and clear sheets on which desired information is printed are placed on the opaque sheets. All the sheets are fused into a single sheet with the strips embedded therein, and is then cut into individual cards having respective strips at the same locations thereinto facilitate encoding and acceptance in an appropriate reader.

3,811,978
METHOD OF FORMING CENTRIFUGAL BLOWER WHEEL
John A. Wooden, Indianapolis, Ind., assignor to Brookside Corporation, McCordsville, Ind.
Filed Aug. 21, 1972, Ser. No. 282,336
Int. Cl. B32b *31/00*
U.S. Cl. 156—160 **2 Claims**



Disclosed is a centrifugal blower wheel including an end plate and blades extending from it. The wheel is given a conical configuration by inserting a tool having a circular periphery into the cylindrical space defined by the inner side margins of the blades. The tool is moved toward the end plate, forcing the blades to flare outwardly and placing them under bending stress. This blade stress tends to be relieved by centrifugal force acting on the blades during operating rotation of the wheel.

3,811,979
PEG-ROLL SOFTENING OF FIBRILLATED SHEET
James Joseph Dempsey, Richmond, Va., and Drexel Kermit Smith, Hendersonville, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 16, 1970, Ser. No. 98,676
Int. Cl. D04h *3/00*
U.S. Cl. 156—181 **3 Claims**



A nonwoven sheet of fibrillated organic polymer material is softened by passage through the nip formed between two parallel rolls each bearing a multiplicity of square-ended pegs, the locus of the ends of all pegs on each roll lying on a cylinder whose axis coincides with the roll axis, the said rolls being engaged such that an array of pegs of one roll interpenetrates an array of pegs on the opposite roll by an amount that is at least equal to the thickness of the nonwoven sheet.

3,811,980
PROCESS FOR MIXED SOLVENT PRIMING AND CEMENTING OF PRESSURE PIPES OF POLYVINYL CHLORIDE
Bernhard Roderhoff, Dusseldorf-Holthausen, Germany, assignor to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany
No Drawing. Filed May 3, 1972, Ser. No. 250,036
Claims priority, application Germany, May 26, 1971, P 21 26 081.1
Int. Cl. C09j *5/02;* **F16l** *13/10*
U.S. Cl. 156—308 **2 Claims**

In the process for the cementing of polyvinyl chloride pipes, which comprises the steps of applying a coating consisting of polyvinyl chloride dissolved in a solvent to the pipe surfaces to be cemented, joining the coated pipe surfaces to each other, and drying off the solvent; the improvement which comprises treating the surfaces to be cemented, prior to their actually being coated with said coating, with a mixture consisting essentially of (a) 90 parts by volume of butanone, (b) 3 to 20 parts by volume of cyclohexanone and (c) 0 to 3 parts by volume of tetrahydrofuran.

3,811,981
PROCESS FOR GLUING PAPER
Andre Guillaume, Lyon, and Charles Schneider, Vernaison, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Continuation of abandoned application Ser. No. 58,150, July 24, 1970. This application Apr. 5, 1972, Ser. No. 241,468
Claims priority, application France, July 28, 1969, 6925746
Int. Cl. C09j *3/14;* **B32b** *27/10, 27/28*
U.S. Cl. 156—332 **5 Claims**

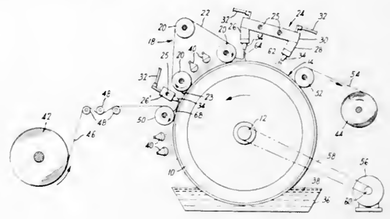
Paper is advantageously bonded by the melt adhesive technique with a terpolymer of a vinyl ester of a lower aliphatic acid, e.g. vinyl acetate, an unsaturated acid, e.g. crotonic acid, and a vinyl ester of a higher aliphatic acid.

3,811,982
APPARATUS FOR MANUFACTURING LARGE, BONDED PANEL ELEMENTS SUCH AS WALL ELEMENTS FOR HOUSING CONSTRUCTION
Karl Olav Jacobsen, 2 Ovre Fjellvei, 2010 Strommen, Norway
Filed June 20, 1972, Ser. No. 264,664
Claims priority, application Norway, June 22, 1971, 2,365/71
Int. Cl. B32b *31/04*
U.S. Cl. 156—382 **9 Claims**



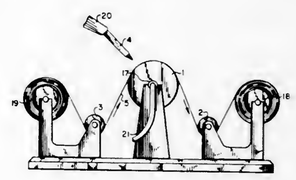
An apparatus for manufacturing large, bonded panel elements is disclosed, consisting of a box having a movable top and bottom sealed around the edges against the box wall. The bottom is movably supported by jack means. The elements to be bonded are placed in the box and the interior of the box is put under vacuum, whereby the top is pressed towards the elements, thereby exerting a pressure on the faces to be bonded together.

3,811,983
METHOD FOR PRODUCING RETROREFLECTIVE SHEETING
William P. Rowland, Southington, Conn., assignor to Rowland Development Corporation, Kensington, Conn.
Filed June 23, 1972, Ser. No. 265,736
Int. Cl. B29d *7/08;* **G02b** *5/12*
U.S. Cl. 156—245 **8 Claims**



Retroreflective sheeting is produced by bonding a multiplicity of cube corner formations to sheet material. Cube corner formations are produced on a mold having a surface in which is formed an array of minute, contiguous cube corner recesses. Shrinkage of the resin formulation initially deposited in the recesses causes depressions in the base portions of the cube corner formations; the depressions are filled with a bonding material which serves not only to level the cube corner formations, but also to bond them to the sheet material. The apparatus utilized is a continuously moving mold surface and has a plurality of stations for effecting the several steps of the process.

3,811,984
METHOD FOR PREPARING TUBULAR THERMOPLASTIC FILAMENTS
Paul Joonase, 23 E. Earle St., Greenville, S.C. 29609
Original application Apr. 3, 1970, Ser. No. 29,381, now abandoned. Divided and this application Dec. 16, 1971, Ser. No. 209,002
Int. Cl. B32b *31/00*
U.S. Cl. 156—251 **5 Claims**



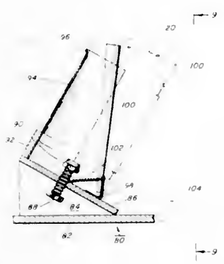
According to the invention, superior filaments having beaded edges and which are suitable for twisting and weaving are prepared from thermoplastic film by severing the film with flame as it is selectively cooled while passing over a cooled, grooved roll. Alternately, the film may be cooled and the flame selectively applied as with a gas flame fitted with a slitted heat shield. By using a double wound film, tubular filaments are prepared when the film is heat severed and the edges of two or more filaments fuse together.

3,811,985
METHOD FOR MAKING PRICE SHIELDS OR THE LIKE
Max Lehner-Stirnemann, Hauptstrasse 1001, CH-5722, Granichen, Switzerland
Filed Jan. 27, 1971, Ser. No. 110,159
Claims priority, application Switzerland, Feb. 2, 1970, 1,451/70
Int. Cl. B65c *9/14, 9/20, 11/02*
U.S. Cl. 156—277 **4 Claims**



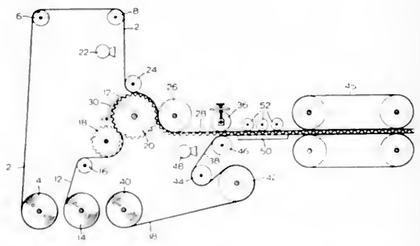
There is disclosed a method and apparatus for fabricating price shields or the like which consist of a price tag or label printed by a balance or weighing device and a label support or carrier, which is manifested by the features that individual label carriers are brought into the region of a price label-delivery location and at such location retained in a holder until a price label has been printed out by the balance or weighing device and delivered to this delivery location. Thereafter the label support or carrier and the price label itself are guided towards one another and by being pressed against one another united, and the thus formed price shield is then ejected.

3,811,986
BAND LABEL APPLYING AND CONTAINER POSITIONING APPARATUS
Peter D. Mare, 23 Fox Hill, Upper Saddle River, N.J. 07458, and Albert L. Ross, 11 Bonaire Drive, Suffolk, N.Y. 11746
Continuation-in-part of abandoned application Ser. No. 105,840, Jan. 12, 1971. This application May 26, 1971, Ser. No. 147,029
Int. Cl. B32b *31/04;* **B65b** *13/02*
U.S. Cl. 156—494 **4 Claims**



A label applying and container positioning apparatus is shown wherein blow-molded containers or bottles may be readily guided into a slightly stretched band label made of a relatively thin film strip. After the label is positioned on the container, the label is released so as to grip the sidewall of the container after which the labeled container is slid from the positioning apparatus with the label snugly in its desired mounted condition on the container. Three embodiments of the invention are shown. In a first embodiment, round or elliptical bottles are labeled with the apparatus usually in a vertical condition. In a second embodiment, square or rectangular bottles are labeled also with the apparatus usually in a vertical condition. In a third embodiment, the container positioning apparatus is disposed at an angle such as thirty degrees from the vertical and a spring-biased label stretching guide or tongue directs and assists in the entry of the bottle into the label applying apparatus.

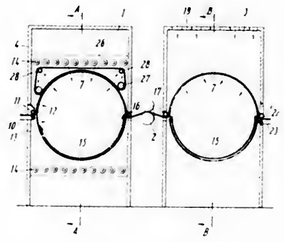
3,811,987
APPARATUS FOR BONDING THERMOPLASTIC MATERIALS AND PRODUCTS THEREOF
Michael C. Wilkinson, St. Louis, Mo., and Leo Blais, Shawinigan, Quebec, and Wilhelm N. Martin and Silvano Tesalner, Grand'Mere, Quebec, Canada, assignors to Consolidated Paper (Bahamas) Limited, Nassau, Bahamas
Original application Apr. 28, 1969, Ser. No. 819,752, now abandoned. Divided and this application Feb. 22, 1972, Ser. No. 227,959
Claims priority, application Canada, Feb. 24, 1969, 43,756
Int. Cl. B31f *1/00*
U.S. Cl. 156—497 **3 Claims**



This invention relates to the bonding of thermoplastic material, and more particularly to apparatus for forming corrugated paperboard by firstly applying a coating or film of thermoplastic material to the surfaces to be bonded and then heating the thermoplastic material by the direct application of an open flame to the thermoplastic surface. The open flame heats a surface layer of the thermoplastic material to render it bondable with the other element of the laminate. The disclosure also relates to an apparatus including means for supplying, corrugating and bonding coated paper to form corrugated paperboard, and to apparatus for uniting the paper and holding it together while the bonds cool and harden.

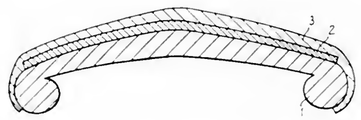
3,811,988
APPARATUS FOR CONTINUOUS BONDING OF FELT MATERIALS BY SEQUENTIAL HEATING AND COOLING OPERATIONS
Heinz Fleissner, Egelsbach, near Frankfurt am Main, Germany, assignor to Vepa AG, Basel, Switzerland
Application Feb. 14, 1969, Ser. No. 799,479, now Patent No. 3,616,031, which is a continuation-in-part of application Ser. No. 642,496, May 31, 1967, now Patent No. 3,619,322. Divided and this application Nov. 6, 1970, Ser. No. 87,606
Claims priority, application Germany, Feb. 14, 1968, P 16 60 795.7
Int. Cl. B32b *31/20;* **F26b** *3/10, 11/02*
U.S. Cl. 156—498 **28 Claims**

The present disclosure relates to a process and apparatus for bonding felts or felt-like materials which comprises adding to the materials to be bonded a synthetic bonding fiber thereby forming a fiber blend and fuse-bonding the fiber blend by heat-treating said blend to the sticking or melting point of the bonding fibers and setting the fiber blend by cooling down the bonded fibers, said heat-treatment and cooling down stages being effected



shock-like by passing at least part of the heating and cooling treatment medium through the material being treated. The present disclosure is particularly directed to the use of steam during the treatment process as well as to the application of pressure to the fiber blend while said blend is in a heated state.

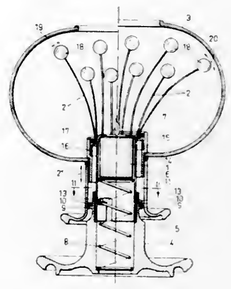
3,811,989
DECORATIVE TRIM STRIPS
Robert Renner Hearn, Woking, England, assignor to Creators Limited, Surrey, England
Filed May 15, 1972, Ser. No. 253,406
Int. Cl. B32b *3/02, 15/08, 31/30*
U.S. Cl. 161—5 **3 Claims**



This invention relates to decorative trim strips having a surface displaying a metallized finish and which comprise a substrate extruded of a heat-resistant plastics material to the front face of which is bonded a metal or metallized strip to provide the metallized finish. A protective layer of clear plastics material may cover the metal or metallized strip. The invention also provides processes of making these strips.

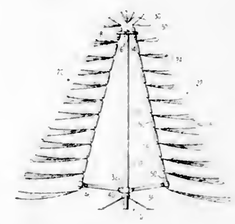
3,811,990
THERMALLY ACTUATED MOBILE
Werner Stoff, Cologne, Germany, assignor to Ge-Na-Geschenke Gebr. Nagel KG, Wesseling, Germany
Filed Oct. 18, 1972, Ser. No. 298,787
Claims priority, application Germany, Apr. 1, 1972, G 72 12 519.0
Int. Cl. A47g *33/08*
U.S. Cl. 161—12 **12 Claims**

An upright tube is adapted to contain a candle or other heat source and is surrounded by a sleeve, with end portions of flexible bimetallic strips being mounted intermediate the tube and the sleeve so that the arms extend outwardly of both and can swing radially, carrying at their outer free ends respective weights. The sleeve can be raised and lowered with reference to the tube, or vice



versa, to vary the swingable free length of the respective bimetallic strips.

3,811,991
COLLAPSIBLE ARTIFICIAL SHRUB
Percy Dieffenbach, Blakely, Pa., assignor to Masterpiece, Inc., Blakely, Pa.
Filed Mar. 8, 1973, Ser. No. 339,468
Int. Cl. A47g *33/06*
U.S. Cl. 161—24 **8 Claims**



A vertically extending rod-like trunk member carries a plurality of limb assemblies in a circumferential array with each limb assembly including a straight main limb and a number of cross limbs extending outwardly therefrom at spaced longitudinal positions. The upper end of each main limb is coupled to the tree. At some distance below this coupling point for each limb assembly, an axially shiftable collar pivotably supports a radial array of arms which, in turn are pivotably coupled to the main limb of each limb assembly. Shifting of the axially shiftable member causes the main limbs to move from a substantially parallel inboard position relative to the rod-like trunk member to an outboard position in which the main limbs incline downwardly and outwardly to complete a shrub of conical configuration.

3,811,992
FIRE-PROOF LAMINATED PLYWOOD CORE
Takashi Handa and Minoru Saito, Tokyo, Japan, assignors to Adachi Plywood Co., Ltd., Tokyo, Japan
No Drawing. Continuation-in-part of application Ser. No. 37,418, Apr. 15, 1970, which is a continuation of application Ser. No. 607,621, Jan. 6, 1967, both now abandoned. This application Dec. 8, 1971, Ser. No. 206,148
Claims priority, application Japan, Jan. 14, 1966, 41/1,812
Int. Cl. B32b *21/06*
U.S. Cl. 161—267 **4 Claims**

Provided is a composition for rendering the core of a laminated plywood structure fire-proof. The composi-

tion in paste form comprises a viscosity builder, which is admixed with an aqueous solution consisting of tricresyl, glycerine, or guanidine phosphate, ammonium halide, zinc chloride, urea, or a compound thereof, a small amount of ammonium sulfate, a weak acid compound such as boric acid, ammonium borate or ammonium phosphate and a small amount of an antimony compound. After pretreating the core with a silicate or deliquescent composition and if necessary, providing a large number of scars on the surface of the core, the composition is applied to the surface of the core whereinafter permeation of the composition into the core is effected. After drying of the core, the untreated thin front and back veneers are applied by gluing to the surfaces of the core, thus providing a fire-proof plywood structure of a self-extinguishing untreated surface veneer and treated core, which has excellent varnish-brushability.

3,811,993
SYSTEM TO AVOID THERMAL DEGRADATION OF CHEMICAL COMPOUNDS DURING THE TREATMENT OF WOOD CHIPS
Pietro Ghisoni, Brezzo di Bedero, Italy, assignor to Vita Mayer & C. gia F. Lli Vita S.a.s., Milan, Italy
Filed July 7, 1972, Ser. No. 269,751
Claims priority, application Italy, July 10, 1971, 26,881/71
Int. Cl. D21c *3/24, 3/26*
U.S. Cl. 162—18 **1 Claim**

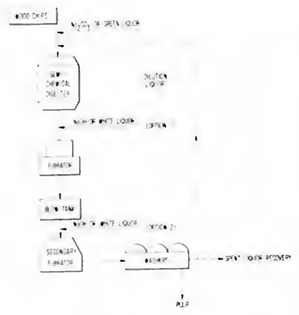
A system to avoid the decomposition of thermo-degradable compounds such as sodium borohydride used in the treatment of ligincellulosic material for the production of a high brightness and high yield pulp for use in paper making. Wet chips of lignincellulosic material are pressed to reduce the water content. The pressed chips are passed into an impregnation chamber which contains an alkaline solution and then are pressed a second time and the expressed liquid is recovered. Pressing raises the temperature of the liquid which is then cooled and is recirculated to the impregnation chamber. Compounds absorbed by the chips are added to the recovered liquid as it flows from the cooling station to the impregnation chamber.

3,811,994
METHOD OF CONTINUOUS CELLULOSE DIGESTION AND DIGESTER ADAPTED FOR PERFORMING THE METHOD
Bengt Sven Erik Ostberg, Karlstad, Sweden, assignor to Kamyr Aktiebolag, Karlstad, Sweden
Filed June 29, 1971, Ser. No. 157,855
Claims priority, application Sweden, June 29, 1970, 9,004/70
Int. Cl. D21c *3/24*
U.S. Cl. 162—19 **7 Claims**

In a continuous cellulose digester impregnation of chips with digesting liquor takes place in a top zone and digestion takes place in a lower zone. A comparatively low temperature is maintained over at least the greater part of the impregnating zone by preventing heated liquor from the digesting zone to enter the impregnating zone due to convection. In a transition zone cooled liquid is brought to flow radially and horizontally over the entire cross-section of the chips column in order to separate the two zones in temperature respects.

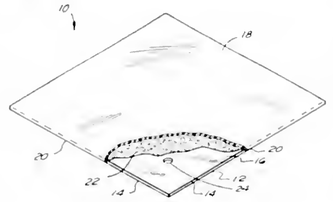
3,811,995
METHOD OF HIGH YIELD SEMICHEMICAL PULP PRODUCTION
Michael B. Ringley, Charleston Heights, S.C., assignor to Westvaco Corporation, New York, N.Y.
Filed Sept. 5, 1972, Ser. No. 286,184
Int. Cl. D21c *3/26*
U.S. Cl. 162—19 **10 Claims**

A process is set forth for producing pulp at a yield of 60 to 85% which comprises: combining in a pressure vessel, either the batch or continuous type, comminuted wood with a solution of cooking liquor comprising sodium ions wherein 60–100% thereof, measured as sodium oxide, is sodium carbonate and 0 to 30% thereof is sodium sulfide; cooking the mixture under pressure and heat until 40–15% of the organic components of the wood are solubilized; adding sufficient sodium hydroxide, either as so-



dium hydroxide or in the form of kraft white liquor, to the cooked mixture to raise the pH between 9 and 13; and mechanically fiberizing in the presence of the sodium hydroxide and spend cooking liquor, the cooked comminuted wood. The resulting pulps are useful for making unbleached structural paper, such as fluted medium for corrugated board, like 9 point corrugated medium.

3,811,996
THREE-DIMENSIONAL COMPOSITE TILES FOR USE AS WALL COVERINGS
Edgwin R. Polk, Fords, N.J., assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany
Filed June 27, 1972, Ser. No. 266,528
Int. Cl. B32b *1/04, 3/26, 5/18*
U.S. Cl. 161—44 **3 Claims**

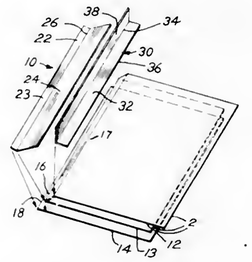


In a three dimensional composite artificial tile formed from a backing sheet of relatively stiff plastic material having a cover sheet of flexible plastic material superimposed on one side of the backing sheet and secured to the periphery thereof, an intermediate layer of resilient material is positioned between the stiff backing sheet and the flexible cover sheet to give the tile a three dimensional appearance.

3,811,997
SMOKE AND FLAME RESISTANT LAMINATE ARTICLES
Edward L. Yuan, Philadelphia, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Mar. 22, 1971, Ser. No. 126,926
Int. Cl. B32b *3/12, 17/04, 27/12*
U.S. Cl. 161—68 **2 Claims**

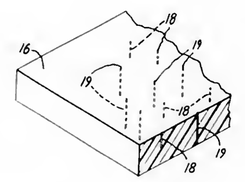
Smoke and flame resistant structural laminate articles comprised of a film of an aromatic polyamide or polyimide laminated over an impregnated fibrous reinforced cloth which may optionally be laminated over a honeycomb structure.

3,811,998
END PAPER ASSEMBLY
Fred James, Des Moines, Iowa, assignor to Library Binding Service, Inc.
Filed Sept. 22, 1972, Ser. No. 291,309
Int. Cl. B32b *3/04*
U.S. Cl. 161—100 **5 Claims**



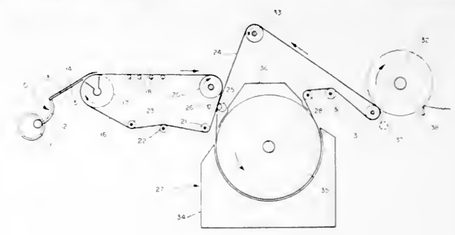
A method of binding and an end paper assembly for use in the binding of books includes a cover sheet and top and inside sheets and the cover and top sheets are attached to the inside sheet along a line adjacent to but spaced from the edge of the inside sheet to define a margin. A back liner material is then attached to the cover sheet and a portion of the liner material extends freely from the sheets. To bind the pages of the book, the end sheet assembly is first attached along its margin to the pages of the book, the cover sheet is folded back to cover the bound margin and the freely extending portion of the back liner material is folded over and adhesively bonded to the back of the book pages.

3,811,999
ETCHABLE COPOLYMER BODY
Robert L. Fleischer and Paul B. Price, Schenectady, N.Y., assignors to General Electric Company
Application Nov. 19, 1970, Ser. No. 91,140, now Patent No. 3,677,844, which is a continuation of abandoned application Ser. No. 702,366, Feb. 1, 1968. Divided and this application Jan. 28, 1972, Ser. No. 221,781
Int. Cl. B32b *3/10;* **B29c** *17/08;* **B01d** *39/16*
U.S. Cl. 161—109 **5 Claims**



A shaped copolymer comprised of etchable polymer and unetchable polymer contributing desired properties to the copolymer is bombarded with charged particles. As the particles pass through the shaped copolymer, they form substantially straight tracks of damaged copolymer. The bombardment of the copolymer with the individual charged particles is so highly localized that it damages only the track defining portions of the copolymer leaving the remainder of the copolymer substantially unaffected. The copolymer is then contacted with an agent to etch, i.e. extract, the tracks of damaged copolymer, and any additional desired portion of adjacent undamaged copolymer, leaving a substantial number of recesses or apertures depending upon the particular bombarding procedure and the thickness of the copolymer. The aperture-containing copolymer product of the present invention includes properties usually associated with non-etchable polymer. It is useful as a filter.

3,812,000
SOFT, ABSORBENT, FIBROUS, SHEET MATERIAL FORMED BY AVOIDING MECHANICAL COMPRESSION OF THE ELASTOMER CONTAINING FIBER FURNISHED UNTIL THE SHEET IS AT LEAST 80% DRY
Joseph L. Salvucci, Jr., Drexel Hill, Pa., and Peter N. Yiannos, Wilmington, Del., assignors to Scott Paper Company, Delaware County, Pa.
Filed June 24, 1971, Ser. No. 156,282
Int. Cl. B31f *1/14;* **D21f** *9/02;* **D21h** *3/64*
U.S. Cl. 162—111 **33 Claims**

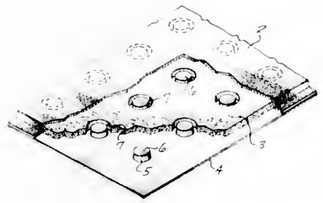


A fibrous web or sheet material, formed by deposition from an aqueous slurry and characterized by unusually high bulk and softness, achieved at least in part by the addition of an elastomeric bonding material to the aqueous slurry and by the avoidance of mechanical compression of the web until it is at least 80% dry, so that the elastomeric bonding material creates many of the interfiber bonds within the sheet material. In some instances, the web is subjected to differential creping techniques by adhering it in a printed pattern to the creping surface. In some embodiments, additional elastomeric bonding material is added in the printed pattern. The unusually high bulk of the web is demonstrated by very low average calculated density through its thickness under no load of less than 0.300 grams per cubic centimeter. Another significant feature indicative of the bulk and softness of the web is demonstrated by its relatively high TEA-to-stiffness ratio of greater than 1.50×10^{-4}. A method for forming such webs or sheet material is also disclosed, in which lignocellulosic fibers are mixed with water and with an elastomeric bonding material into a fiber furnish, which furnish is formed into a web. Water is removed from the web without mechanical compression of the web and, when the web is at least 80% dry, it is adhered to a creping surface and creped therefrom.

3,812,001
CUSHIONED ABSORBENT PAD
Arthur Sensor Ryan, Kelso, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed Dec. 17, 1971, Ser. No. 209,213
Int. Cl. A61f *13/16;* **B32b** *3/10*
U.S. Cl. 161—114 **3 Claims**

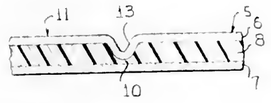
An absorbent pad has a layer of absorbent material together with a plurality of load-bearing members positioned therein that are generally equal to the thickness of

the absorbent layer. The load applied to the overall pad is taken primarily by the load-bearing members allowing



the absorbent material to remain in a relatively uncompressed state and free to absorb liquid.

3,812,002
LAMINATE CONSTRUCTION
Randolph D. Lurie, Park Forest, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Continuation of abandoned application Ser. No. 379,650, July 1, 1964. This application Dec. 6, 1971, Ser. No. 205,283
Int. Cl. B32b *3/00*
U.S. Cl. 161—119 **5 Claims**



This disclosure relates to a novel method of forming a tear line in a laminate as well as the laminate per se and methodwise includes the steps of providing a tool having a heated edge, applying the heated edge to a laminate under pressure to effect a heating and flowing of a stiffening layer thereof, and effecting relative movement of the laminate and the tool along a predetermined line to form a weakening line in the stiffening layer.

Preferably though not necessarily the article is composed solely of a metal foil layer and a thermoplastic resin stiffening layer with the thermoplastic resin stiffening layer having a weakening line molded in the surface thereof remote from the foil layer.

3,812,003
POLYURETHANE COMPOSITION AND LAMINATES MADE THEREWITH
William M. Larson, Hudson, and Newell R. Bender, Cuyahoga Falls, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Continuation-in-part of application Ser. No. 9,131, Feb. 11, 1970, which is a continuation of application Ser. No. 833,855, May 29, 1969, which in turn is a continuation of application Ser. No. 360,753, Apr. 17, 1964, all now abandoned. This application Jan. 12, 1972, Ser. No. 217,230
Int. Cl. B32b *7/04*
U.S. Cl. 161—156 **1 Claim**

This invention relates to an adhesive for use in forming laminates of polyester impregnated fiberglass. This adhesive comprises a reaction mixture of 100 parts of a reactive hydrogen containing polymeric material of about 700 to 4500 molecular weight selected from the class consisting of polyester polyols, polyether polyols and polyester amides, an organic polyisocyanate, at least 5 parts to no more than about 200 parts of an inert powdery filler with the proviso that the filler shall not exceed that amount which renders the resulting mixture unspreadable and sufficient monomeric nitrogen containing polyol having 3 to 6 hydroxyls to be essentially equivalent to the excess polyisocyanate. Catalysts of the tin and amine type may be utilized, if desired. Amounts of 38, 52 and 80 parts of organic polyisocyanate per 100 parts of the polymeric material are some of the levels used in some of the examples.

3,812,004
NATURALLY CRIMPED TEXTILE FIBERS
Suresh Natvarlal Chinai, New York, and Edmund Brigmanis, Brooklyn, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
Continuation of abandoned application Ser. No. 736,350, June 12, 1968. This application Apr. 2, 1971, Ser. No. 130,810
Int. Cl. D02g *3/00, 3/02*
U.S. Cl. 161—173 **6 Claims**



A synthetic textile fiber having incorporated therein at least 1 percent (on the weight of fiber) of silica particles in the form of elongated aggregations having a length-to-width ratio of at least 10/1. Such fibers have improved anti-soiling properties and, preferably, are naturally crimped. Acrylonitrile polymer fibers of this type are made by forming loose aggregates of such silica particles in the spinning composition prior to spinning. During spinning, these loose aggregates become elongated.

3,812,005
SELF-STICKING MATERIAL AND A PROCESS FOR PRODUCING THE SAME
Keizo Katagiri, Mamoru Sakaguchi, and Tokumaro Kamata, Katsuta, Japan, assignors to Nippon Kakoh Seishi K.K., Tokyo, Japan
Filed Apr. 3, 1972, Ser. No. 240,610
Int. Cl. B32b *27/22, 27/28, 15/40*
U.S. Cl. 161—247 **28 Claims**



A self-sticking material comprising a base sheet (**5**) with or without an adhesive (**10**) and a film of self-sticking composition (**4**) provided thereon with or without a releasing paper (**3**), and said self-sticking composition comprises 100 parts, by weight, of ethylene-vinyl acetate/vinyl chloride graft polymer (known as EVA/VC) and 31 to 100 parts of a plasticizer.

Said self-sticking material is used for preparing stickers and protecting sheets or the like.

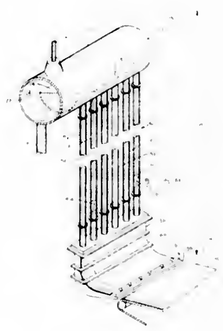
ERRATA

For Classes 162—18, 162—19 and 162—111 see: Patents Nos. 3,811,939 thru 3,811,995 and 3,812,000

3,812,006
REPLACEMENT FOR LEATHER AND METHOD FOR MAKING SAME
Walter E. Schortmann, West Hartford, Conn., Michael A. Derose, Springfield, Mass., and Donald A. Ward, Wheaton, Ill., assignors to Texon, Inc., South Hadley Falls, Mass.
No Drawing. Continuation-in-part of abandoned application Ser. No. 843,238, July 18, 1969. This application Dec. 14, 1971, Ser. No. 207,969
Int. Cl. D21d *3/00*
U.S. Cl. 162—146 **8 Claims**

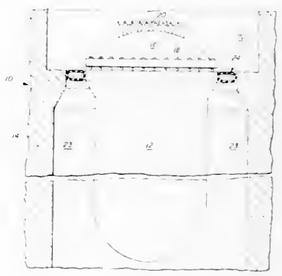
A replacement for leather which is a homogeneous sheet formed by the combination of fibrous material, a water base polyurethane latex binder and a hydrogen bonder. The leather replacement is produced by treating a fibrous web with a water base polyurethane latex and with a solution containing a hydrogen bonder.

3,812,007
CONDUIT SYSTEM FOR CONVEYING FIBROUS STOCK FROM DEAERATOR CHAMBER TO HEADBOX IN PAPERMAKING MACHINE
Robert G. Kaiser, Hohokus, N.J., assignor to Clark & Vicario Corporation, North Tarrytown, N.Y.
Continuation-in-part of abandoned application Ser. No. 813,646, Apr. 4, 1969. This application Sept. 29, 1971, Ser. No. 184,839
Int. Cl. B01d *19/00;* **D21f** *1/06*
U.S. Cl. 162—343 **17 Claims**



Papermaking apparatus in which deaerated papermaking stock is gravity fed from the evacuated chamber of a stock receiver to paper web-forming means through dropleg supply conduit system interconnecting the bottom of this chamber and the exit slot or slice of paper web-forming headbox, the dropleg conduit system having entry communication with the receiver chamber along a substantial part of a major lateral expanse of the bottom portion of the deaerated stock collecting zone thereof, the droplet conduit system preferably having exit communication with the delivery passage of the paper web-forming headbox transversely in the direction of the transverse length of the exit slice. The conduit system is provided such that its flow course between the stock receiver and the web-forming headbox delivery passage has no course deviation laterally of the web-forming means axis. The dropleg conduit system may be provided in the form of a plurality of closely spaced parallel arranged pipes, the entry ends thereof being connected to the chamber collecting zone and the exit ends thereof being connected to the delivery passage. The dropleg conduit system also may be provided as a single, relatively wide chute having its passage connected by an elongated slot extending along a substantial portion of a major lateral expanse of the bottom of the chamber collecting zone. Various forms of flow control valves may be embodied in the dropleg supply conduit system to restrict selectively their effective size for correspondingly regulating the rate of flow of the deaerated stock to the paper web-forming headbox in accordance with the demand for the particular grade of paper being made.

3,812,008
SEAL RING FOR NUCLEAR REACTORS
Edward R. Fryer, 506 Magnolia Ave., Frederick, Md. 21701
Filed May 20, 1970, Ser. No. 39,027
Int. Cl. G21c *19/02*
U.S. Cl. 176—30 **1 Claim**



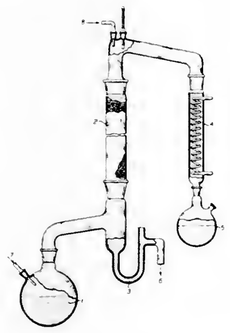
An inflatable seal ring for use between the annular surface of a nuclear reactor vessel and its surrounding biological shield, which forms part of the housing for the reactor vessel. The seal is used during refueling of the vessel to prevent water maintained in the refueling canal above the reactor vessel from entering the reactor cavity.

3,812,009
STEREOSPECIFIC PROCESS FOR THE PREPARATION OF L-3,4-DIHYDROXYPHENYLALANINE (L-DOPA) AND ANALOGS THEREOF
Frank E. Semersky, Oregon, Ohio, assignor to Owens-Illinois, Inc.
No Drawing. Filed Jan. 10, 1972, Ser. No. 216,796
Int. Cl. C12d *1/00*
U.S. Cl. 195—29 **6 Claims**

Stereospecific process for the preparation of L-3,4-dihydroxyphenylalanine and N-derivatives thereof from substrate materials by enzymatic oxidation of said substrate materials with insolubilized tyrosinase followed by reduction and hydrolysis of the oxidation products as needed. The substrate materials which can be used in the process of this invention can be L-tyrosine and certain N-derivatives thereof. Ordinarily, the biocatalytic oxidation of these substrate materials will generally yield an oxidation product consisting essentially of either the corresponding o-dihydric compound of the substrate material or the corresponding o-quinone of this substrate material and mixtures thereof. Since tyrosinase is capable of biocatalytic oxidation of these o-dihydric compounds, the

supernatant containing these oxidation products is separated from the tyrosinase in order to prevent further oxidation of these compounds and especially prior to reduction of more completely oxidized substrate materials to the o-dihydric form. In certain limited instances, for example, where N-acetyl-L-tyrosine is the substrate material, the hydrolysis of N-acetyl-L-3,4-dihydroxyphenylalanine to L-Dopa can be accomplished enzymatically through the contacting of the N-substituted compound with either carboxypeptidase A or acylase. The L-3,4-dihydroxyphenylalanine thus prepared has therapeutic value in the treatment of Parkinson's disease, and other diseases of the central nervous system.

3,812,010
METHOD OF PRODUCING FRUCTOSE AND GLUCOSE FROM SUCROSE
Ernst Nitsch, Linz, Austria, assignor to Laevosan-Gesellschaft Chem.-Pharm. Industrie Franck & Dr. Freudl, Linz, Austria
Continuation-in-part of abandoned application Ser. No. 713,366, Mar. 15, 1968. This application Aug. 4, 1971, Ser. No. 168,973
Int. Cl. C13k *1/00, 3/00, 9/00*
U.S. Cl. 195—31 F **13 Claims**



Method for producing fructose and glucose from a mixture thereof in a mineral acid-free aqueous solution. Water is evaporated from said solution at a temperature between 50° C. and 120° C. A low boiling point alcohol is added to said solution, and glucose and fructose then precipitated. The water content of said solution is not greater than 1% when fructose is precipitated therefrom. The invention also includes a method of preparing said mixture in said solution from sucrose by conversion thereof to invert sugar.

3,812,011
METHOD OF CONVERTING STARCH TO β-CYCLODEXTRIN
Shigetaka Okada, Nara, and Naoto Tsuyama, Okayama, Japan, assignors to Hayashibara Biochemical Laboratories, Incorporated, Okayama-ken, Japan
No Drawing. Filed Mar. 29, 1972, Ser. No. 239,347
Claims priority, application Japan, Sept. 30, 1971, 46/76,485
Int. Cl. C12b *1/00;* **C07g** *7/02*
U.S. Cl. 195—31 R **5 Claims**

The cell-free broth of a culture of *Bacillus megaterium* T 5 (ATCC 21737) or the enzyme recovered therefrom converts starch predominantly to β-cyclodextrin, and the latter can be obtained in high yields practically free of α- and γ-cyclodextrin by interrupting the fermentation at a suitable stage.

3,812,012
METHOD OF DEGRADING NATURAL PLANT MATERIAL WITH AN ENZYME PREPARATION
Lothar Buschmann, Hofheim, Taunus, Paul Prave, Neuenhain, Taunus, and Dieter Sukatsch, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Original application Nov. 5, 1971, Ser. No. 196,175, now abandoned. Divided and this application July 24, 1973, Ser. No. 382,220
Claims priority, application Germany, Nov. 7, 1970, P 20 54 948.8
Int. Cl. A61k *19/00*
U.S. Cl. 195—33 **1 Claim**

A method degrading natural plant material with an enzyme preparation obtained by the cultivation of *Bacillus polymyxa* and and containing pectic acid trans-eliminase as the effective ingredient thereof.

3,812,013
SOLUBLE CELLULASE ENZYME PRODUCTION
Winthrop D. Bellamy, Schenectady, and Ananda M. Chakrabarty, Latham, N.Y., assignors to General Electric Company
Filed Mar. 1, 1972, Ser. No. 230,666
Int. Cl. C07g *7/02*
U.S. Cl. 195—66 R **7 Claims**

A process for the preparation of an improved soluble cellulase material is described. Optimum activity for this cellulase enzyme occurs over a broader range of pH and at a higher temperature than the cellulase produced by mesophilic fungi.

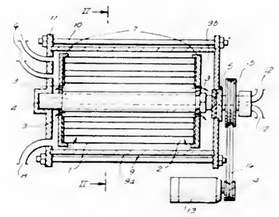
3,812,014
PROCESS FOR PREPARING LINCOMYCIN
Alexander D. Argoudelis, Portage, and John H. Coats, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Aug. 8, 1972, Ser. No. 278,784
Int. Cl. C12d *9/00*
U.S. Cl. 195—80 R **3 Claims**

A microbiological process for preparing the antibiotic lincomycin without the concomitant production of lincomycin B (4'-depropyl-4'-ethyllincomycin). The absence of lincomycin B in the fermentation beer results in increased lincomycin recovery efficiency from the fermentation beer.

3,812,015
DETERMINATION OF ORNITHINE-CARBAMYL-TRANSFERASE
Roger Prost, Versailles, France, assignor to Lucien International, Colombes, France
No Drawing. Filed Feb. 9, 1973, Ser. No. 331,125
Claims priority, application France, Feb. 29, 1972, 7206918
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 R **8 Claims**

The level of ornithine-carbamyl-transferase in serum is determined by reaction with a composition containing sufficient ethylenediaminetetraacetate buffer that a pH of 7.7 is produced on dilution to a concentration of 0.2 M; dilithium carbamyl phosphate; L-ornithine hydrochloride; and urease in an amount at least equivalent to the urea in the serum but less than that which would produce an ornithine-carbamyl-transferase activity of 2 mIU/ml. under the conditions of the analysis. The citrulline so produced is then determined colorimetrically by adding trichloroacetic acid and then reacting with diacetyl monoxime and thiosemicarbazide. As a control, an identical sample of serum is reacted with a composition which does not contain the L-ornithine hydrochloride but which is otherwise identical.

3,812,016
CULTURE-GROWING APPARATUS
Hans Muller, Im Allmendli, Erlenbach, Zurich 139, Switzerland
Filed July 21, 1972, Ser. No. 274,063
Claims priority, application Switzerland, Aug. 13, 1971, 11,986/71; Apr. 6, 1972, 5,095/72; Apr. 28, 1972, 6,457/72
Int. Cl. C12b *1/10*
U.S. Cl. 195—139 **11 Claims**



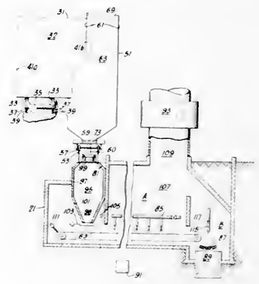
A vessel has a chamber in which media requisite for growing of a desired culture are to be accommodated. A horizontal shaft extends through this chamber and is rotatable about its own longitudinal axis. A spiral carrier element is mounted on the shaft for rotation therewith, being composed of a plurality of convolutions and consisting of glass, of metal coated with vitreous enamel or of synthetic plastic.

3,812,017
DESULFURIZED CHAR WITH PHOSPHORIC ACID
Joseph G. Santangelo, Brookville, Pa., and Thomas P. Dorchak, Nahnasset, Mass., assignors to Kennecott Copper Corporation, New York, N.Y.
No Drawing. Filed July 26, 1972, Ser. No. 275,119
Int. Cl. C10b *57/00*
U.S. Cl. 201—17 **8 Claims**

Crushed coal may be desulfurized by slurrying with a phosphoric or phosphorus acid or mixture thereof, removing excess liquid, and heating the mixture at an elevated temperature to drive the sulfur from the coal.

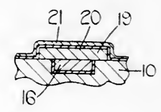
3,812,018
MULTI-STAGE COKE COOLER
Basil W. Hinchliffe, Pittsburgh, Pa., assignor to Koppers Company, Inc.
Continuation-in-part of applications Ser. No. 794,485, Jan. 28, 1969, now Patent No. 3,580,813, and Ser. No. 145,640, May 21, 1971, now abandoned. This application Apr. 19, 1973, Ser. No. 352,409
Int. Cl. C10b *39/00*
U.S. Cl. 202—230 **4 Claims**

A continuous, multi-stage coke cooling apparatus is presented for use with a conventional coke oven battery. Hot, incandescent coke is cooled to a predetermined temperature in a plurality of closed cooling zones. Each cooling zone has a coke conveyor means for conveying a uniform layer of hot coke therethrough and a water spraying means for cooling the coke. The first cooling zone includes a receiving means for receiving the hot coke from a hot coke receiving car and for holding the hot coke while portions of the hot coke are being metered onto the coke conveying means. The later cooling zone includes detecting means for determining the temperature of the hot coke after it has been initially cooled with water in the first cooling zone. The water sprays in the later



cooling zone are responsive to the heat detecting means which regulates the necessary quantity of water that is sprayed onto the initially cooled coke to cool it to the final, predetermined temperature.

3,812,019
METHOD OF PRODUCING ELECTRIC WIRING ARRANGEMENT
Victor Needham, Balsall Common, and Brian Francis Bowen, Hall Green, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England
Filed July 14, 1972, Ser. No. 271,729
Claims priority, application Great Britain, July 14, 1971, 32,931/71
Int. Cl. C23b *5/48;* **B41m** *3/08;* **H05k** *1/00*
U.S. Cl. 204—15 **32 Claims**



A method of producing an electric wiring arrangement of the kind having a plurality of conductors formed as thin films on an insulating base, and wherein the conductors crosses one another and are mutually insulated at the crossover point, includes forming channels in the base at the crossover points, filling the channels with conductive material, applying insulating material which covers part of the material in the channels and extends on to the adjacent insulating base, and applying a pattern of conductive material which extends over the insulating material to form the crossover and also contacts the exposed material in the channels.

3,812,020
ELECTROLYTE AND METHOD FOR ELECTROPLATING AN INDIUM-COPPER ALLOY AND PRINTED CIRCUITS SO PLATED
John E. Vander Mey, Stirling, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Aug. 11, 1969, Ser. No. 849,193
Int. Cl. C23b *5/32, 5/34, 5/48*
U.S. Cl. 204—24 **11 Claims**

This invention relates to a novel electroplating bath for the electrodeposition of metal ions from an acid solution of said metal ions and indium ions. The plating baths of this invention produce a bright, ductile, more refined

grained metal coating and allow a higher limiting current density. Preferably the bath is a copper plating bath comprising a mixture of a copper salt, indium salt and an acid selected from the group consisting of sulfuric, phosphoric, fluoboric and mixtures thereof, each being present in an amount which upon dissolution in an aqueous bath provides a copper concentration from 5 to 35 grams per liter, an indium concentration such that the weight ratio of indium to copper ranges from 0.002 to 4.0 and an acid concentration from 100 to 700 grams per liter. The copper plating baths have particular efficacy in the copper plating of recessed areas, such as perforated substrates, for use as printed circuit boards.

3,812,021
INORGANIC COATINGS FOR ALUMINOUS METALS
H. Lee Craig, Jr., Miami, Fla., and Harold J. Coates, Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.
No Drawing. Filed Dec. 11, 1972, Ser. No. 314,209
Int. Cl. C23b *9/02*
U.S. Cl. 204—58 **10 Claims**

Siliceous coatings having good adhesion, hardness and smoothness and corrosion resistance are produced on the surface of an aluminous metal by immersing the metal in an aqueous bath of an alkali silicate, containing an alkali chromate, molybdate, or tungstate, and further containing an alkali carbonate, phosphate, or borate, and passing current through said bath at a voltage predominantly positive and sufficient to cause a uniform scintillation or flashing at the anode surface. The coating thus obtained is decorative and scratch-resistant and also provides a good base for a cover coating such as a plastic.

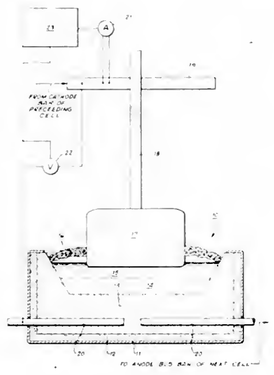
3,812,022
PIGMENTED SILICEOUS COATINGS FOR ALUMINOUS METALS
Charles M. Rogers and Daniel J. Schardein, Jr., Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.
No Drawing. Filed Dec. 11, 1972, Ser. No. 314,203
Int. Cl. C23b *9/02*
U.S. Cl. 204—58 **6 Claims**

Pigmented siliceous coatings having good adhesion, hardness and smoothness are produced on the surface of an aluminous metal by immersing the metal as anode in an aqueous bath of an alkali metal silicate containing an insoluble pigment, and passing full-wave rectified alternating current through said bath at a voltage sufficient to cause dissociation of the bath constituents by multiple spark discharging at the anode surface. The bath may contain an alkali chromate, molybdate or tungstate, and may further contain an alkali carbonate, phosphate or borate. The colored coating thus obtained is decorative and useful on building trim, aluminum shingles and siding, and the like.

3,812,023
ANODIC PRODUCTION OF PIGMENTED SILICEOUS COATINGS FOR ALUMINOUS METALS
Daniel J. Schardein, Jr., and Charles M. Rogers, Richmond, Va., and H. Lee Craig, Jr., Miami, Fla., assignors to Reynolds Metals Company, Richmond, Va.
No Drawing. Filed Dec. 11, 1972, Ser. No. 314,045
Int. Cl. C23b *9/02*
U.S. Cl. 204—58 **6 Claims**

Pigmented siliceous coatings having good adhesion, hardness and smoothness are produced on the surface of an aluminous metal by immersing the metal as anode in an aqueous bath of an alkali metal silicate containing an insoluble pigment, and passing full-wave rectified alternating current through said bath at a voltage sufficient to cause dissociation of the bath constituents by multiple spark discharging at the anode surface. The bath also contains an alkali chromate, molybdate or tungstate, and an alkali carbonate, phosphate or borate. The colored coating thus obtained is decorative and useful on building trim, aluminum shingles and siding, and the like.

3,812,024
CONTROL OF AN ALUMINUM REDUCTION CELL
Warren H. Goodnow, Palo Alto, Calif., Sidney L. Cauvin, Jr., New Orleans, La., and Joseph G. C. Simard, Ravenswood, W. Va., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Mar. 20, 1972, Ser. No. 236,481
Int. Cl. C22d *3/12*
U.S. Cl. 204—67 **4 Claims**



A process for controlling the feeding of alumina to a reduction cell comprising determining a smoothed cell resistance, comparing the cell resistance with the lowest base level resistance and, when the difference exceeds a predetermined amount ΔR^*, feeding alumina to the cell. The value of ΔR^* is varied according to the noise level of the cell.

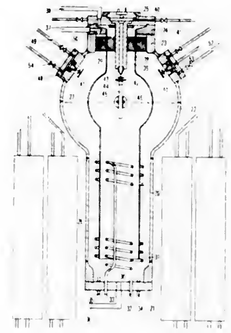
3,812,025
CROSSLINKING OR OLEFIN COPOLYMERS CONTAINING KETONE GROUPS USING HIGH ENERGY RADIATION
James Edwin Guillet, 31 Sagebrush Lane, Don Mills, Ontario, Canada
No Drawing. Continuation of abandoned application Ser. No. 763,980, Sept. 30, 1968. This application Sept. 30, 1971, Ser. No. 185,447
Claims priority, application Great Britain, Oct. 4, 1967, 45,217/67
Int. Cl. B01j *1/10, 1/12*
U.S. Cl. 204—159.14 **4 Claims**

Olefin copolymers containing ketone groups are crosslinked by treatment with high energy radiation such as γ-rays or electron beams.

3,812,026
PRESSURIZED ELECTROLYZER INCLUDING GAS PRODUCT-ELECTROLYTE SEPARATING MEANS
Gerard Bertrand, Fontaine, Paul Perroud, Meylan, and Martial Sylvestre-Baron, St.-Martin d'Heres, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed Jan. 25, 1972, Ser. No. 220,648
Claims priority, application France, Jan. 26, 1971, 7102460
Int. Cl. B01k *3/00*
U.S. Cl. 204—270 **5 Claims**

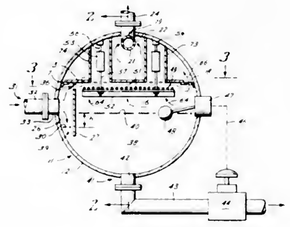
The electrolyzer is constituted by a plurality of cylindrical unitary cells which are independent, leak-tight and withstand the rated pressure.

The unitary cells are of the single-pole or double-pole type and are connected electrically in series, supplied



in parallel with electrolyte and in turn supply two-phase mixtures in parallel to a spherical-head, constant-level separator.

3,812,027
SEPARATOR FOR OIL-CONTINUOUS DISPERSIONS
Howell R. Jarvis and Ernest A. Cole, Jr., Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.
Filed Oct. 17, 1972, Ser. No. 299,494
Int. Cl. B03c *5/02*
U.S. Cl. 204—302 **13 Claims**

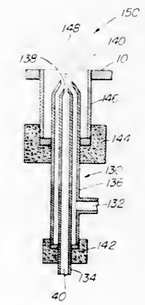


A separator for oil-continuous dispersions containing a dispersed water phase. A horizontal vessel contains a horizontal non-pressure baffle forming an outlet zone superimposed above an electric field treatment zone. Openings along one side of the baffle provide fluid communication between these zones. An open-bottom inlet zone, extending longitudinally along the other side of the vessel, is formed by a vertical non-pressure baffle extending downwardly from the horizontal baffle to adjacent the bottom of the vessel. A water separation zone extends upwardly to a horizon intermediate the open bottom of the inlet zone and the horizontal baffle to define the electrical field treatment zone. Passageways in the vertical baffle deliver dispersion from the inlet zone into the electric field treatment zone with volumes of bulk water phase being discharged downwardly through the open bottom of the inlet zone into the water separation zone. Electric field resolution produces a dry oil phase passing into the outlet zone for removal from the vessel. Accumulating water phase is removed through an outlet from the water separation zone.

3,812,028
HYDROTREATMENT OF FOSSIL FUELS
Arnold N. Wennerberg, Chicago, and Alvin W. Frazier, Chicago Heights, Ill., assignors to Standard Oil Company, Chicago, Ill.
Continuation-in-part of application Ser. No. 144,472, May 18, 1971, now Patent No. 3,715,303, dated Feb. 6, 1972. This application Feb. 5, 1973, Ser. No. 329,877
Int. Cl. C10g *13/06, 37/06;* **B10j** *11/06*
U.S. Cl. 208—112 **19 Claims**

Fossil fuels containing polynuclear aromatics are hydrotreated at hydrogen partial pressures in excess of 2200 p.s.i.g. by passing such a fossil fuel through a zone maintained at elevated temperatures and including a catalyst comprising activated carbon and a metallic component.

3,812,029
DEVICE FOR INJECTING EASILY COKED FLUIDS INTO A HIGH TEMPERATURE VESSEL
Paul W. Snyder, Jr., Pitman, N.J., assignor to Mobil Oil Corporation
Filed Oct. 13, 1972, Ser. No. 297,548
Int. Cl. C10g *9/16, 11/18*
U.S. Cl. 208—113 **8 Claims**

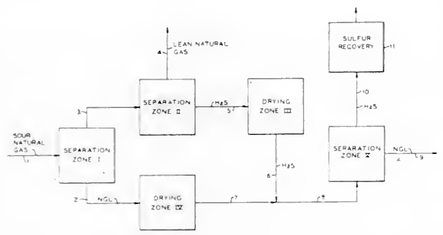


Novel oil injector assembly comprising an inner tube, a concentric outer tube, an inner nozzle terminating the inner tube, an outer nozzle terminating the outer tube concentric and forward of the inner nozzle, a vessel into which said nozzles project, means for introducing an easily coked fluid into said inner tube, through said inner nozzle and into said vessel, and means for introducing water, at a temperature and flow rate lower than the temperature and flow rate respectively of said easily coked fluid, into said outer tube, through said outer nozzle and into said vessel.

3,812,030
PROCESS FOR THE TRANSPORTATION OF ACID GASES IN NATURAL GAS LIQUIDS STREAMS
Harris A. Clay, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Oct. 13, 1972, Ser. No. 297,361
Int. Cl. C10g *5/00*
U.S. Cl. 208—340 **9 Claims**

A process for the preparation and transportation of an at least partially dehydrated acid gas/natural gas liquids mixture is described which comprises separating a sour

field natural gas stream into a natural gas stream, an acid gas stream and a natural gas liquids stream, drying the separated acid gas stream and natural gas liquids stream, mixing the dried acid gas stream and dried natural gas

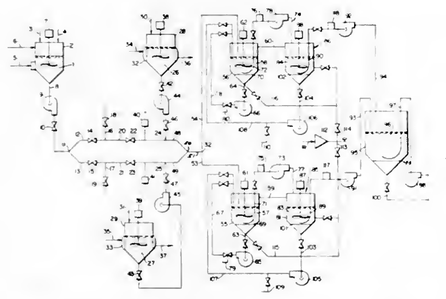


liquids stream, transporting the dried acid gas and natural gas liquids mixture through a pipe line to a separation zone and recovering therein the acid gas content of said gas and natural gas liquids mixture.

3,812,031
SELECTIVE ADSORPTION OF PHENOLS FROM SOLUTION IN WATER
Frederic C. McCoy, Beacon, and Raymond C. Schlicht, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 59,344, July 29, 1970. This application Sept. 20, 1972, Ser. No. 290,686
Int. Cl. B01d *15/06*
U.S. Cl. 210—30 **11 Claims**

Extraction of phenolic materials from aqueous solutions by means of polyurethane foam.

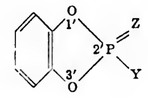
3,812,032
PROCESS FOR TREATING DOMESTIC AND INDUSTRIAL LIQUID WASTES
George M. Chappell, Drakes Island, Box 96, Wells, Maine 04090
Filed Aug. 6, 1971, Ser. No. 169,739
Int. Cl. C02b *1/20*
U.S. Cl. 210—52 **21 Claims**



A process for treating domestic, municipal or industrial liquid waste to reduce B.O.D. of the waste comprising adding a sufficient amount of an acid formula and a sufficient amount of an alkaline formula to said waste, to thereby cause evolution of heat and cause flocculation of solids, and separating the resulting solids from the liquid. The novel acid formula and alkaline formula are disclosed. Liquid wastes treated by the process of this invention can be safely discharged into rivers, lakes and streams. In addition the process is extremely efficient since flocculation is rapid, and in many instances starts immediately upon the addition of either formula to the liquid waste.

3,812,033
LUBRICATING COMPOSITIONS CONTAINING BENZO-(1',3',2'-)DIOXAPHOSPHOLES
Lothar G. Dulog, Sint Artens Latem, and Sylvain A. R. Dewaele, Evergem, Belgium, assignors to S.A. Texaco Belgium N.V.
No Drawing. Original application Sept. 30, 1971, Ser. No. 185,387. Divided and this application Jan. 18, 1973, Ser. No. 324,631
Int. Cl. C10m *1/48*
U.S. Cl. 252—46.7 **4 Claims**

Phosphorus derivatives of o-dihydroxybenzenes effective as lubricant additives are defined by the formula:



wherein Z represents oxygen or sulfur or may be absent; Y represents NHR or NR_2, where R is alkyl having up to 30 carbon atoms in the chain or aryl or aralkyl having up to 22 carbons. The compounds are useful in lubricating compositions when present therein in an amount ranging from about 0.01 to 50 percent by weight of the composition.

3,812,034
POUR POINT DEPRESSION
Alexander Gaydasch, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Sept. 8, 1972, Ser. No. 287,375
Int. Cl. C10m *1/28*
U.S. Cl. 252—57 **8 Claims**

Hydrocarbon oil which loses fluidity at low temperature containing, in a pour point depressant concentration, a copolymer of aryl-C_2–C_{22}-alkylene and unsaturated ester. Specific pour point depressants are copolymer of styrene-methylmethacrylate or copolymer of styrene-vinyl acetate.

3,812,035
LUBRICATING OILS
Robert A. Krenowicz and William P. Scott, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed May 17, 1972, Ser. No. 254,015
Int. Cl. C10m *1/16*
U.S. Cl. 252—59 **4 Claims**

Lubricating oil compositions comprising certain synthetic alkaryl hydrocarbon lubricants and mineral lubricating oils have improved properties, such as oxidation stability and pour point. A typical synthetic alkaryl hydrocarbon lubricant contains from 61 to 92 weight percent di-n-alkylbenzenes and 5 to 30 weight percent trialkyl-substituted tetrahydronaphthalenes. Because of their low pour points, the lubricating oil compositions are useful in certain specific low temperature (i.e., Arctic) operations. In addition, the lubricating oil compositions are useful in preparing lubricating greases for low temperature operations.

3,812,036
PREPARATION OF SYNTHETIC HYDROCARBON LUBRICATION
Hugh E. Romine, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed Oct. 2, 1972, Ser. No. 293,965
Int. Cl. C10m *1/16, 1/18*
U.S. Cl. 252—59 **20 Claims**

A process for preparing a synthetic hydrocarbon lubricant, said lubricant comprising a mixture of long-chain, substantially linear, alkyl-substituted aryl compounds, containing a total of 12 to 42 carbon atoms in the long-chain alkyl group or groups, and linear mono-olefin oligomers, said process comprising: (a) contacting an admixture of C_6–C_{16} linear mono-olefins and mononuclear aromatic compounds with a mild Friedel-Crafts catalyst under reaction-promoting conditions of time and temperature and (b) recovering from the reaction product of step (a) the desired product. If desired, the mixture of step (a) can contain a minor amount of mononuclear aromatic compounds containing a C_6–C_{16} straight-chain alkyl group. The product has excellent low temperature viscosity and pour point properties, as well as an excellent viscosity index. The product is especially suitable as a lubricant for low temperature (i.e. below —40° F.) conditions.

3,812,037
LIQUID DEVELOPER COMPOSITION
Yasuo Tamai, Seiichi Taguchi, Kiyoshi Yamada, and Nobuo Yamamoto, Asaka, Japan, assignors to Xerox Corporation, Stamford, Conn.
No Drawing. Filed Jan. 21, 1972, Ser. No. 219,903
Int. Cl. G03g *9/00*
U.S. Cl. 252—62.1 **4 Claims**

A liquid developer for electrophotography to be used for developing an electrostatic latent image comprising a finely divided gelatin toner and a finely divided material of a substituted α-chloro-β-(p-methoxy-phenoxy)-β-carboxy-acrolein contained in a carrier liquid having a specific dielectric constant of less than about 3.5.

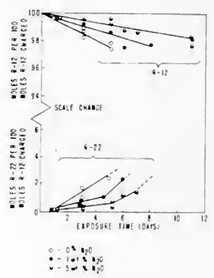
3,812,038
ELECTROLYTES
Daniel J. Anderson, Indianapolis, Ind., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.
No Drawing. Application July 9, 1969, Ser. No. 840,504, now Patent No. 3,670,212, which is a continuation-in-part of abandoned application Ser. No. 648,251, June 23, 1967. Divided and this application Mar. 22, 1971, Ser. No. 127,055
Int. Cl. H01g *9/02*
U.S. Cl. 252—62.2 **10 Claims**

An electrolyte comprising a binary organic system which forms in the correct proportions an azeotropic composition having a boiling point higher than that of either of the system's pure components and a solvent inert to the azeotropic mixture.

3,812,039
ELECTROLYTE FOR ELECTROLYTIC CAPACITOR
Shinichi Niwa, Osaka, Japan, assignor to Sanyo Electric Co., Ltd., Osaka-fu, Japan
No Drawing. Filed Feb. 25, 1972, Ser. No. 229,572
Claims priority, application Japan, Feb. 25, 1971, 46/9,520; June 30, 1971, 46/48,292; Sept. 1, 1971, 46/67,590
Int. Cl. H01g *9/02*
U.S. Cl. 252—62.2 **2 Claims**

An electrolyte for electrolytic capacitors which comprises N-methylformamide as a solvent and at least one of ammonium, amine and alkali metal acid maleate as a solute dissolved therein. The electrolyte has a stable, low viscosity and a high conductivity so that an electrolytic capacitor using the same shows a high performance over a wide range of temperature for a long period of time.

3,812,040
HEAT TRANSFER FLUIDS
Hans J. Borchardt, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of abandoned application Ser. No. 190,938, Oct. 20, 1971. This application Aug. 11, 1972, Ser. No. 279,834
Int. Cl. C09a *3/02*
U.S. Cl. 252—68 **9 Claims**



An improved heat transfer process carried out with a circulating fluid selected from dichlorodifluoromethane, 1,2-dichloro - 1,1,2,2 - tetrafluoroethane, 1,1-difluoroethane and mixtures thereof, which process comprises circulating as the heat transfer medium said fluid admixed with about 0.1–10 weight percent, based on the fluid weight, of nitrous oxide.

3,812,041
NON-GELLING HEAVY DUTY LIQUID LAUNDRY DETERGENT
Jack Thomas Inamorato, Westfield, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed June 23, 1972, Ser. No. 265,721
Int. Cl. C11d *1/83*
U.S. Cl. 252—89 **17 Claims**

A clear non-gelling liquid synthetic organic heavy duty laundry detergent composition comprising a nonionic detergent having the molecular configuration of the condensation product of a higher fatty alcohol and ethylene oxide, an anionic detergent higher fatty alkyl polyethenoxy sulfate, a brightening agent, water and a lower monohydric alcohol. Small proportions of sequestering agents and salt-forming bases may also optionally be present in the composition. The detergent composition is a single phase clear stable liquid but may be made opaque, creamy or opalescent if desired. Furthermore, the composition is substantially neutral or only slightly alkaline when measured at a 1% concentration in water and cleans soiled laundry to a degree comparable with that obtained utilizing phosphate built alkaline detergents. In addition, the liquid detergent composition is biodegradable.

3,812,042
CLEAR LIQUID DETERGENT PACKAGE
Denise Verdier, Le Bourget, France, assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed June 23, 1972, Ser. No. 265,566
Int. Cl. C11d *17/00*
U.S. Cl. 252—90 **9 Claims**

A detergent package comprising a transparent, plastic container and a clear, stable liquid detergent composition therein consisting essentially of about 10 to 60% by weight of a C_{10} to C_{20} alkyl sulphonate solubilized in an aqueous liquid vehicle which may include up to 15% by weight of urea, C_2 to C_3 alkanol and/or sulphonated hydrotrope as a solubilizing agent.

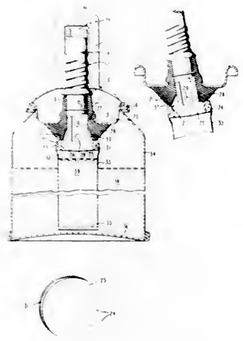
3,812,043
PACKAGE FOR DISPENSING AN ICE-REMOVING COMPOSITION

Willem B. van der Linde, Cherry Hill, N.J., and Clinton A. Weslager, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 85,808, Oct. 30, 1970, which is a continuation-in-part of application Ser. No. 660,346, Aug. 14, 1967, both now abandoned. This application Dec. 26, 1972, Ser. No. 318,504

Int. Cl. C09k *3/18*

U.S. Cl. 252—70 **10 Claims**

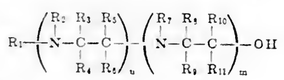


A package adapted for preparing and dispensing a heated de-icer composition comprising a container having an outlet and a valve adapted to control the dispensing of said composition therefrom, and containing

(A) at least one water-soluble ice-melting substance selected from the group consisting of monohydric C_1–C_3 saturated aliphatic alcohols, ethylene glycol, propylene glycol, diethylene glycol, acetone, methylethyl ketone or mixtures of the foregoing,

(B) a peroxide containing compound capable of reacting with rapid generation of heat when contacted with an initiator,

(C) at least one initiator capable of initiating, at the storage temperature of the package, the heat-generating reaction of said peroxide containing compound, said initiator selected from the group consisting of sulfite salts of alcohol amines having the structure



wherein:

R_1, R_2 and R_7 can be the same as each other or different from each other and are selected from the group consisting of: H, CH_3, C_2H_5, C_3H_7, C_4H_9, C_2H_4OH, C_3H_6OH, or C_4H_8OH,

R_3, R_4, R_5, R_8 and R_9, R_{10}, R_{11} can be the same as each other or different from each other and are selected from the group consisting of H, CH_3, or C_2H_5,

m can be 0 through 5, n can be 1 through 6 provided that n and m are selected so that $m+n$ is no greater than about 6,

at least one of the materials (B) ad (C) being isolated when said valve is closed,

(D) a propellent capable of providing sufficient fluid pressure to dispense substance (A) from said outlet when said valve is open, and

(E) means to provide intimate contact between materials (A), (B) and (C) while (A) is being conveyed toward said outlet.

3,812,044
DETERGENT COMPOSITION CONTAINING A POLYFUNCTIONALLY-SUBSTITUTED AROMATIC ACID SEQUESTERING AGENT

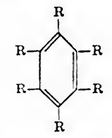
Daniel S. Connor and Harry Karl Krummel, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,159

Int. Cl. C11d *1/10, 3/20*

U.S. Cl. 252—89 **2 Claims**

A detergent composition is provided comprising a water-soluble organic synthetic detergent, and as a detergency aid, a sequestering agent which is a water-soluble salt of a polyfunctionally-substituted aromatic acid compound having the formula



wherein at least two R's are different functional groups of the type described.

3,812,045
DISHWASHING COMPOSITION AND METHOD OF MAKING SAME

Frederick William Gray, Summit, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 780,244, Nov. 29, 1968. This application Oct. 7, 1971, Ser. No. 187,525

Int. Cl. C11d *7/56*

U.S. Cl. 252—99 **5 Claims**

A dishwashing composition is prepared by first converting an alkali-metal trimetaphosphate to the alkali-metal tripolyphosphate hexahydrate by reaction with sodium hydroxide in the presence of a sulfonated alkyl naphthalene wetting agent and formulating the product with various components to form a dishwashing composition having highly desirable characteristics.

3,812,046
GERMICIDAL LIQUID CLEANER

Albert Jay Lancz, Piscataway, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Nov. 18, 1970, Ser. No. 90,826

Int. Cl. C11d *1/10, 1/62, 3/48*

U.S. Cl. 252—106 **5 Claims**

A phosphate-free germicidal liquid cleaner contains an alkyl dimethyl benzyl ammonium chloride, a nonionic surfactant, nitrilotriacetic acid trisodium salt builder, and sodium bicarbonate stabilizer.

3,812,047
DIHALOBUTENE DIOL CONTAINING COMPOSITIONS

Gaetano F. D'Alelio, South Bend, Ind., and Erich Kuehn, Wilmington, Del., assignors to ICI America Inc., Wilmington, Del.

No Drawing. Filed Mar. 10, 1971, Ser. No. 123,109

Int. Cl. C08g *22/16*

U.S. Cl. 252—182 **7 Claims**

Polyol blends which comprise a mixture of dihalobutene diol and polyhydroxy compounds wherein the hydroxyl number of the mixture is from about 200 to 800 are disclosed. A process for preparing polyol blends and flame-retardant polyurethane compositions using the polyol blends are also disclosed.

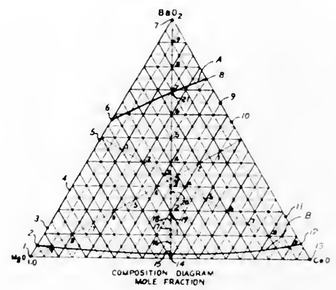
3,812,048
OXYGEN PROCESS PELLETS

Lester G. Massey, Moreland Hills, Ohio, and Paul B. Tarman, Elmhurst, and Jack Huebler, Deerfield, Ill., assignors to Consolidated Natural Gas Service Co., Inc., Cleveland, Ohio

Filed Apr. 7, 1972, Ser. No. 241,957

Int. Cl. C01b *13/08*

U.S. Cl. 252—186 **36 Claims**



Special oxygen acceptor compositions in pellet form for the production of oxygen in a modified Brin-type process, and method for the production of the pellets. The compositions comprise a physical mixture of finely ground dolomitic quicklime and barium peroxide (DQL-BaO_2) preferably pelletized in a dry process not employing binders. The pellets have high crushing strength which permits larger reactor size. At the same time, the pellets have good porosity which permits use of relatively large size pellets which exhibit low pressure drop without loss of activity. The pellets show very long life (over 40,000 cycles) without disintegration, and without loss of chemical activity. Typical operation is at 1–200 p.s.i.a. and 1300–1600° F. The pellets exhibit increased strength after use. In contrast to fluidized bed operation using powder mixtures, the active BaO_2 in pelleted form with DQL cannot plate out in use. The pellets of this invention are relatively insensitive to humidity in preparation, shipment and storage. In addition to increased oxygen production per mole of barium peroxide and reduction in cycle times, a significant reduction in the amount of barium oxides required to produce oxygen at any given rate is exhibited by the pelleted compositions.

3,812,049
PRECIPITATION DELAYING PROCESS EMPLOYING A SYNERGISTIC MIXTURE OF COMPLEXING AGENTS

Arend Jaman Noothout, Oosterbeek, Johannes Bastiaan Willem Kanij, Zevenaar, and Otakar Votocek, Arnhem, Netherlands, assignors to Reactor Centrum Nederland, The Hague, Netherlands

No Drawing. Filed Apr. 28, 1971, Ser. No. 138,285

Claims priority, application Netherlands, Apr. 29, 1970, 7006258

Int. Cl. C01g *43/02*

U.S. Cl. 252—301.1 S **6 Claims**

An improvement of a method is disclosed for the preparation of particles of so-called sol-gel material. The improvement consists of avoiding premature precipitation of mixtures of metal salt solutions and ammonia liberating agents by employing a complex forming substance which consists of urea in combination with salicylic acid, substituted salicylic acid, amino sulphonic acid, ethylene glycol, or glycolic acid.

The particles of the sol-gel material produced can be converted by thermal treatment into ceramic nuclear fuel particles.

3,812,050
PRODUCTION OF POROUS CERAMIC NUCLEAR FUEL EMPLOYING DEXTRIN AS A VOLATILE PORE FORMER

Bernard Robert Steele, Watford, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Jan. 12, 1973, Ser. No. 323,229

Claims priority, application Great Britain, Jan. 13, 1972, 1,586/72

Int. Cl. C01g *43/02*

U.S. Cl. 252—301.1 R **2 Claims**

To produce low density sintered uranium dioxide fuel pellets uranium dioxide powder is mixed with dextrin which is removed during subsequent sintering of pellets formed from the mixture.

3,812,051
DAYLIGHT FLUORESCENT PIGMENTS AND PROCESS FOR THEIR PREPARATION

Kurt Merkle, Hofheim, Taunus, Otto Fuchs and Helmut Tröster, Frankfurt am Main, and Siegfried Noetzel, Mainz, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Apr. 12, 1971, Ser. No. 133,355

Claims priority, application Germany, Apr. 14, 1970, P 20 17 765.5

Int. Cl. C09k *1/02*

U.S. Cl. 252—301.2 R **4 Claims**

Daylight fluorescent pigments on the basis of condensate resins in fluorescent dyestuffs of the benzoxanthane and thio-benzoxanthane series. These daylight fluorescent pigments may be used for preparing fluorescent paints or printing inks and for coloring plastics, especially vinyl polymers. They show an intense bluish green to yellow fluorescence and have a very good fastness to light.

3,812,052
FLUORESCENT COMPOSITION CONTAINING A COUMARONE-INDENE RESIN

Norma Ann Weston, Annandale, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Dec. 18, 1970, Ser. No. 178,526

Int. Cl. C09k *1/00*

U.S. Cl. 252—301.2 R **5 Claims**

This invention relates to compositions of matter useful for marking and identification purposes comprising a solvent, a fluorescent material and a coumarone-indene resin and a method of marking and identifying objects therewith.

3,812,053
DAYLIGHT FLUORESCENT PIGMENTS AND PROCESS FOR PREPARING THEM

Siegfried Noetzel, Mainz, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 20, 1972, Ser. No. 219,517

Claims priority, application Germany, Jan. 22, 1971, P 21 02 942.5

Int. Cl. C09k *1/02*

U.S. Cl. 252—301.2 R **4 Claims**

New daylight fluorescent pigments which contain an organic fluorescent dyestuff and a cross-linked, hydroxyl group containing polyester or a cross-linked copolymer of olefinically unsaturated compounds containing hydroxyl

groups and of olefinically unsaturated compounds free from hydroxyl groups, and a process for their preparation which comprises incorporating the organic fluorescent dyestuff into the resin. These daylight fluorescent pigments may be employed for preparing fluorescent paints, for example air-drying lacquers on the basis of alkyd resin or physically drying lacquers on the basis of acrylic resins, as well as for preparing fluorescent printing inks such as inks for screen printing, intaglio printing, book printing and offset-litho printing. Due to their high resistance to heat, they are particularly suitable for fluorescent dyeing of plastics and enamels.

3,812,054

DAYLIGHT FLUORESCENT PIGMENTS AND PROCESS FOR PREPARING THEM

Siegfried Noetzel, Mainz, and Edgar Fischer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 20, 1972, Ser. No. 219,518
Claims priority, application Germany, Feb. 2, 1971, P 21 04 717.6
Int. Cl. C09k *1/02*
U.S. Cl. 252—301.2 R **4 Claims**

New daylight fluorescent pigments which contain an organic fluorescent dyestuff and a cross-linked, hydroxyl group containing polyester or a cross-linked copolymer of olefinically unsaturated compounds containing hydroxyl groups and of olefinically unsaturated compounds free from hydroxyl groups, and a process for their preparation which comprises incorporating the organic fluorescent dyestuff into the resin. These daylight fluorescent pigments may be employed for preparing fluorescent paints, for example air-drying lacquers on the basis of alkyd resin or physically drying lacquers on the basis of acrylic resins, as well as for preparing fluorescent printing inks such as inks for screen printing, intaglio printing, book printing and offset-litho printing. Due to their high resistance to heat, they are particularly suitable for fluorescent dyeing of plastics and enamels.

3,812,055

MIXED ALUMINA DISPERSIONS

Ronald A. Carstens, Anacortes, and William J. Butcher, Vancouver, Wash., assignors to Key Chemicals, Inc., Anacortes, Wash.

Filed Nov. 24, 1971, Ser. No. 201,899
Int. Cl. B01j *13/00*
U.S. Cl. 252—313 **8 Claims**

Mixed alumina compositions comprising positively charged colloidal aqueous dispersions whose solids content comprises 25 to 75% of a first alumina component having an ultimate dispersed particle size no more than about one-fifth as great as a second alumina composition comprising 75–25% of the solids content, and method for their use as anti-slip or pitch control agents in paper manufacturing.

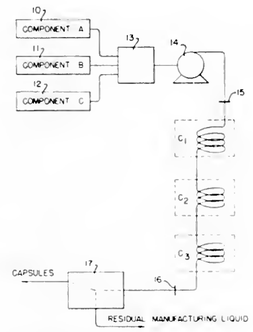
3,812,056

CONTINUOUS ENCAPSULATION

Leandro J. de la Torriente and Victor A. Crainich, Jr., Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed July 5, 1972, Ser. No. 268,989
Int. Cl. B44d *1/02*; **B01j** *13/02*
U.S. Cl. 252—316 **3 Claims**

Continuous encapsulation in a liquid capsule manufacturing vehicle by a process of liquid-liquid phase separation is disclosed. The continuous encapsulation is performed in a capsule manufacturing conduit which has only a single material entrance end and a single material exit end and has a substantially constant cross-sectional shape and area throughout its length. A mixture of all of the components required for encapsulating is continuously fed into one end of the conduit, is passed through the



conduit in turbulent-flow, steady-state, conditions and emerges from the other end of the conduit as a dispersion of minute capsules in the manufacturing vehicle.

3,812,057

REGENERATION OF COBALT-MOLYBDENUM CATALYST USED FOR THE REMOVAL OF DIOLEFINS AND ACETYLENES FROM AN OLEFINIC FEED

Johnathan D. Morgan and Roy A. Ramsey, Borger, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

No Drawing. Filed Jan. 3, 1972, Ser. No. 215,156
Int. Cl. B01j *11/30, 11/02*
U.S. Cl. 252—416 **1 Claim**

A regenerated cobalt-molybdenum catalyst is cooled, contacted with steam and therafter purged with a purging gas for improving the operation of the catalyst.

3,812,058

ACTIVATION OF OLEFIN POLYMERIZATION CATALYSTS

Benny E. Nasser, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,950
Int. Cl. B01j *11/06, 11/32*
U.S. Cl. 252—458 **10 Claims**

A method of activating a moisture-containing composition to produce a composition active as a polymerization catalyst which involves heating the composition to a temperature of maximum moisture release therefrom and then increasing the temperature of the composition to the activation temperature.

3,812,059

PERFUME COMPOSITIONS CONTAINING 6-PROPYL-3-CYCLOHEXENE CARBALDEHYDES

David de Rijke, Naarden, and Harmannus Boelens, Huizen, Netherlands, assignors to Naarden International N.V.

No Drawing. Filed Apr. 27, 1972, Ser. No. 248,127
Claims priority, application Netherlands, Apr. 27, 1971, 7105711
Int. Cl. A61k *7/00*; **C11b** *9/00*
U.S. Cl. 252—522 **8 Claims**

Perfume compositions containing substituted 6-propyl-3-cyclohexene carbaldehydes which are prepared by reacting 2-hexene-1-al with pentadienes or hexadienes by means of a Diels-Alder-reaction.

3,812,060

TOILET BARS

Allan Alsbury, Wirral, England, assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Continuation of application Ser. No. 84,485, Oct. 27, 1970, which is a continuation of application Ser. No. 868,656, Oct. 22, 1969, which in turn is a continuation of application Ser. No. 618,333, Feb. 24, 1967, all now abandoned. This application Jan. 12, 1972, Ser. No. 217,221
Int. Cl. C11d *1/14*
U.S. Cl. 252—555 **3 Claims**

A toilet bar consisting essentially of a mixture of C_{10-20} straight-chain primary alkane sulphonate and C_{14-24} alkene sulphonate, the weight ratio of alkane sulphonate to alkene sulphonate being between 4:1 and 2:3. Preferably the alkane sulphonate contains at least 75% by weight of C_{10-16} material and the alkene sulphonate consists predominantly of C_{14-18} material.

3,812,061

METHOD OF PREPARING ANION EXCHANGE RESINS WITH SULFURYL CHLORIDE

James H. Barrett, Cornwells Heights, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Apr. 27, 1972, Ser. No. 248,150
Int. Cl. C08f *27/03*
U.S. Cl. 260—2.1 E **15 Claims**

A novel method of preparing anion exchange resins is presented which utilizes the chlorination of vinyl aromatic polymers having pendant methyl groups, e.g., cross-linked poly(vinyltoluene). Sulfuryl chloride is used as the chlorinating agent in the presence of a free radical catalyst. Reaction is highly selective and only trace amounts of ring halogenation are observed.

3,812,062

PRODUCTION OF FOAM PLASTICS FROM HIGH MOLECULAR WEIGHT OLEFIN POLYMERS

Hermann Tatzel, Leutershausen, and Gilbert Beck, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed May 17, 1972, Ser. No. 253,937
Claims priority, application Germany, May 29, 1971, P 21 26 812.2
Int. Cl. C08f *29/02, 47/10*
U.S. Cl. 260—2.5 E **4 Claims**

The production of foam plastics from olefin polymers of high molecular weight whose X-ray crystallinity at 25° C. is more than 50% by weight by mixing the olefin polymer at a temperature which is from 50° to 100° C. above the crystallite melting point of the olefin polymer at a shear rate of from 20 to 200 sec.$^{-1}$ at superatmospheric pressure with an aromatic hydrocarbon, homogenizing the mixture in a zone at a temperature between the crystallite melting point of the olefin polymer and a maximum of 50° C. above the same and at a shear rate of from 500 to 1500 sec.$^{-1}$ with from 5 to 40% by weight of a hydrocarbon and/or halohydrocarbon at a pressure which prevents foaming of the mixture, cooling the resultant homogeneous gel to a temperature which is from 10° to 60° C. below the crystallite melting point of the olefin polymer, and expressing the homogeneous gel into a zone in which a pressure prevails which is below the vapor pressure of the expanding agent in the gel. The products are used as insulation materials and packaging inserts.

3,812,063

POLYESTER PREPOLYMER USEFUL FOR COATING AND A METHOD OF PREPARING THE SAME

Tadasu Kimura and Juichi Kobayashi, Otake, and Hideo Nakamoto, Yamaguchi, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

No Drawing. Filed Mar. 8, 1971, Ser. No. 122,150
Int. Cl. C08g *39/10*
U.S. Cl. 260—9 **29 Claims**

A polyester prepolymer which is cross-linkedly hardened by radiation of radioactive energy comprises a backbone chain formed from a non-crystalline polyester of a molecular weight of 300 to 500 having a hydroxyl value of 20 to 200 mg. KOH/g.; and a pendent side chain attached to the backbone chain in a proportion of not lower than 0.5 but not exceeding 7.0 of the side chain with respect to 1,000 molecular weight of the backbone chain and containing at least two ester groups and at least one α,β-olefinically unsaturated group.

3,812,064

POLYANHYDRIDES USEFUL AS FLEXIBILIZING CURING AGENTS FOR EPOXY RESINS

Gus Nichols, Edwardsville, Pa., assignor to General Electric Company

No Drawing. Filed Mar. 15, 1972, Ser. No. 235,027
Int. Cl. C08g *17/16*
U.S. Cl. 260—18 EP **14 Claims**

Relates to polyanhydrides suitable for use as flexibilizing curing agents for epoxy resins. Prepared by reacting abietic acid or a dehydrated castor oil fatty acid with maleic anhydride, maleic acid, methyl maleic acid, itaconic anhydride or fumaric acid and a high molecular weight polyoxylene polyol or polyoxylene polyamine.

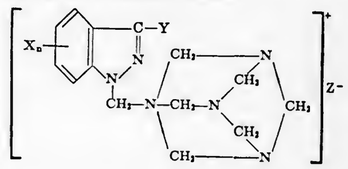
3,812,065

SURFACE-COATING COMPOSITIONS CONTAINING N-(SUBSTITUTED INDAZOLYL-N^1-METHYL) HEXAMETHYLENETETRAAMONIUM HALIDES

Pasquale P. Minieri, Woodside, N.Y., assignor to Tenneco Chemicals, Inc., Saddle Brook, N.J.

No Drawing. Original application Nov. 22, 1971, Ser. No. 201,178, now Patent No. 3,730,954. Divided and this application Nov. 3, 1972, Ser. No. 303,488
The portion of the term of the patent subsequent to Dec. 11, 1990, has been disclaimed
Int. Cl. C09d *3/64, 3/74, 5/14*
U.S. Cl. 260—22 R **9 Claims**

Surface-coating compositions contain as biocide a compound having the structural formula



wherein X represents halogen, nitro, amino, acetamino, or (halobenzylidene)amino; Y represents hydrogen or halogen; Z represents halogen; and *n* represents an integer in the range of zero to 2.

3,812,066

SMOKE SUPPRESSANTS FOR COPOLYMERS OF ETHYLENE AND CHLOROTRIFLUOROETHYLENE

Herman Stone, Convent, Arthur B. Robertson, Succasunna, and Marvin T. Tetenbaum, Convent, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed June 23, 1971, Ser. No. 156,055
Int. Cl. C08f *19/14, 21/04*
U.S. Cl. 260—23 XA **4 Claims**

Certain metal-containing organic compounds can be added to ethylene-chlorotrifluoroethylene copolymers to reduce the amount of smoke emitted by the polymer upon exposure to a flame.

3,812,067

STOVING LACQUERS

Themistoklis Katsimbas, Hamburg, Horst Dalibor, Harksheide, and Peter Quednau, Hamburg, Germany, assignors to Reichhold-Albert-Chemie Aktiengesellschaft, Hamburg, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 229,183, Feb. 24, 1972. This application Apr. 12, 1973, Ser. No. 350,396
Claims priority, application Switzerland, Feb. 26, 1971, 2,866/71; Jan. 25, 1972, 1,057/72
Int. Cl. C08f *15/40*
U.S. Cl. 260—28.5 R **15 Claims**

The present invention relates to stoving lacquers for the coil coating procedure comprising organic solvents and film-forming copolymers of styrene, acrylic acid or methacrylic acid, N-alkoxyalkylacrylic acid amides or N-alkoxyalkylmethacrylic acid amides, hydroxyalkylacrylate or hydroxyalkyl methacrylates, ethylacrylate and methylmethacrylate, the copolymers of which are still soluble in organic solvents and have been produced in a two-step method. These stoving lacquers are used for lacquering rolled tinplate for strips of tin-plate which can be coiled up and shaped and punched by the processor, with the lacquering remaining undamaged even on stretched and punched surfaces (coil coating process).

3,812,068

SOLUTIONS OF RESOL CONDENSATES OF UNSATURATE-RESORCINOL POLYMERS

Robert Lee Wright, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 186,782, Oct. 5, 1971, which is a continuation-in-part of application Ser. No. 159,453, July 2, 1971, which in turn is a continuation-in-part of application Ser. No. 59,720, July 30, 1970, all now abandoned. This application May 22, 1972, Ser. No. 255,851
Int. Cl. C08g *51/24*
U.S. Cl. 260—29.3 **15 Claims**

Unsaturate-resorcinol polymers comprising alkylene-bridged resorcinol units resulting from introducing olefinic unsaturated radicals of 3–10 carbon atoms into the nucleus of the resorcinol are condensed with resol which condensation products are adhesives for bonding textiles material to rubber.

3,812,069

MAKING AQUEOUS SOLVENT MIXTURES OF ALKALI METAL SALT OF POLYAMIDE ACID

Edith M. Boldebuck, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

No Drawing. Filed May 28, 1971, Ser. No. 148,153
Int. Cl. C08g *20/32, 31/24;* **C23b** *13/00*
U.S. Cl. 260—29.2 M **9 Claims**

A method is provided for electrocoating aqueous mixtures of certain polyamide acid salts of alkali metal compounds, resulting from the neutralization of polyamide acid reaction products of organic anhydrides and organic diamines. The aqueous polyamide acid salt mixtures can be in the form of a solution or a dispersion. A method for making such materials also is provided.

3,812,070

COMPOSITION COMPRISED OF A WATER-INSOLUBLE N - METHYLOL-AMIDE-ACRYLIC ACID ESTER COPOLYMER WITH A POLYALKYLENE GLYCOL

Louis E. Kelley, Wyncote, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation of applications Ser. No. 36,499, May 11, 1970, now abandoned, and Ser. No. 182,877, Sept. 22, 1971. This application Dec. 16, 1971, Ser. No. 208,971
Int. Cl. C08f *29/50, 45/26*
U.S. Cl. 260—29.4 UA **9 Claims**

Fibers in non-woven fibrous products are bonded together by a binder comprising the heat-cured product of a water insoluble copolymer of (i) an N-methylolamide which is N-methylolacrylamide or N-methylolmethacrylamide, and (ii) an acrylic acid ester of acrylic acid or methacrylic acid and a C_1 to C_8 alkanol, modified with (iii) a polyalkylene glycol of the formula

$$HO—(RO)_n—H$$

wherein R is an alkylene group of 2 to 6 carbon atoms and *n* is a number having an average value of 4 to 50. Preferred acrylic acid esters are ethyl acrylate and butyl acrylate, and the preferred polyalkylene glycol is a polyethylene glycol characterized by a molecular weight in the range of 300 to 2000. The copolymer may also contain units derived from unsaturated aliphatic carboxylic acids. Preferably the copolymer contains units derived from itaconic acid. The itaconic acid stabilizes aqueous dispersions of the copolymer and adds stiffness to the treated fibrous products without detracting from resilience and solvent resistance.

3,812,071

METHOD OF MANUFACTURING HYDROGELS

Artur Stoy, Prague, Czechoslovakia, assignor to Ceskoslovenska Akademie ved, Prague, Czechoslovakia

No Drawing. Filed Sept. 2, 1971, Ser. No. 177,495
Claims priority, application Czechoslovakia, Sept. 8, 1970, 6,148/70
Int. Cl. C08f *1/86, 45/24*
U.S. Cl. 260—29.6 TA **6 Claims**

Strong, elastic hydrogels are made by copolymerizing acrylonitrile or methacrylonitrile or mixtures thereof with co-monomers having hydrophilic side-groups, such as acrylamide, methacrylamide, acrylic acid, methacrylic acid and vinyl pyrrolidone or with mixtures of such co-monomers. The copolymerization is carried out in presence of free radicals and in an inorganic solvent which does not undergo any substantial chain transfer such as concentrated aqueous zinc chloride solution or nitric acid.

3,812,072

PROCESS FOR THE PREPARATION OF PAPER COATING COMPOSITIONS

Alfred Kühlkamp and Karl Josef Rauterkus, Kelkheim, Taunus, Horst Schaefer, Schwalbach, Taunus, and Detlev Seip, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,311
Claims priority, application Germany, Feb. 16, 1971, P 21 07 287.7
Int. Cl. C08f *37/18*
U.S. Cl. 260—29.6 RW **4 Claims**

In paper coating compositions, synthetic resin dispersions of the basis of vinyl acetate/ethylene copolymers

which may contain a minor proportion of further comonomers, such as acrylic acid esters or amides, dienes, cross-linking agents, can be combined with water-soluble binders, such as starch, casein, and polyvinyl alcohol. This is achieved by adding to the dispersions after the polymerization, or to any one of the components of the coating composition in the course of its preparation, a non-ionic wetting agent which is a polyethylene oxide or a polypropylene oxide, or block copolymer of ethylene oxide and propylene oxide, or an oxethylated alkyl phenol or alcohol or acid, or a graft polymer of vinyl acetate and certain other monomers on polyethylene oxide. The resulting coating compositions exhibit a high pigment content at a relatively low viscosity.

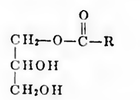
3,812,073

PROCESS FOR PRODUCING VINYL CHLORIDE RESIN

Ikoh Ito, Takeshi Sekihara, Tomoyuki Emura, and Takeshi Ueda, Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed Feb. 20, 1973, Ser. No. 333,661
Claims priority, application Japan, Mar. 2, 1972, 47/21,780, 47/21,781
Int. Cl. C08f *45/32, 47/00*
U.S. Cl. 260—30.4 R **9 Claims**

An antistatic vinyl chloride resin is produced by subjecting vinyl chloride, or a mixture thereof with a minor amount of ethylenically unsaturated monomers copolymerizable therewith, to an aqueous suspension polymerization in the presence of 1 to 5% by weight, based on the weight of said monomer or the mixture thereof, of a monoglyceride represented by the general formula,



wherein R is a saturated or unsaturated hydrocarbon residue having 13 to 19 carbon atoms, or 1 to 5% by weight of the said monoglyceride and 0.01 to 5% by weight of a plasticizer, based on the said monomer or the mixture thereof. The vinyl chloride resin thus obtained is excellent in processability and thermal stability.

3,812,074

PRE-FABRICATED GEL COATS

Stanley Oswitch, University Heights, and Kevin K. Kipp, Cleveland Heights, Ohio, assignors to Ferro Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 199,752, Nov. 17, 1971, which is a continuation of application Ser. No. 43,213, June 3, 1970, now abandoned. This application Jan. 8, 1973, Ser. No. 321,584
Int. Cl. C08g *51/38, 51/16, 41/04*
U.S. Cl. 260—31.8 M **10 Claims**

A pre-fabricated gel coat is disclosed in the form of a dry sheet that can be easily handled and preshaped as for lining a mold. The pre-fabricated gel coat comprises a layer of partially cured, curable, thermosetting polyester resin, and a fibrous reinforcing medium of thermoplastic fibers. The fibers have a softening temperature no higher than that of a heating operation to which the gel coat is to be subjected such as a molding operation. When heated, the partially cured resin and the thermoplastic fibers soften to permit the gel coat to flow and accommodate itself to a desired, nonplanar configuration with subsequent final cure of the thermosetting polyester resin in the desired nonplanar configuration. Preferably, the gel coat is used to line a mold in which a heat-settable resin and curable polyester resin may be cured substantially simultaneously to form a product of the heat-settable resin having a covering of the gel coat. Simultaneous cure of a heat-settable resin and the gel coat within a mold avoids the messiness and nonuniform thickness resulting from brushing or spray coating molds prior to molding and considerably reduces the time required for the total molding operation. The thermosetting polyester resin preferably contains an unsaturated cross-linker that is solid at room temperatures to facilitate retention of a dry form for the pre-fabricated gel coat. The thermoplastic fibers comprise a resin compatible with the thermosetting polyester resin of the gel coat, such as a thermoplastic, saturated polyester resin.

3,812,075

PROCESS FOR THE PRODUCTION OF A DISPERSION OF A POLYMER IN AN ORGANIC LIQUID

Marion Burdett, Wokingham, and Derek John Walbridge, Beaconsfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,206
Int. Cl. B01f *3/12;* **C08f** *45/28, 47/20*
U.S. Cl. 260—33.60 A **7 Claims**

A dispersion of a polymer of one or more vinyl or vinylidene monomers in a non-solvent organic liquid is stabilized by carrying out the polymerization of the monomers in the liquid in the presence of a stabilizer precursor obtained by alkylating a melamine formaldehyde resin and reacting it with a reagent having a double bond copolymerizable with the monomer and also having a group capable of undergoing a condensation reaction with the melamine formaldehyde resin.

3,812,076

METHOD OF ADDING SMALL AMOUNTS OF SOLID PARTICULATE ADMIXTURES TO HYDRAULIC CEMENT COMPOSITIONS

Robert W. Previte, Lawrence, and David Chin, Charlestown, Mass., assignors to W. R. Grace & Co., Cambridge, Mass.

Filed Feb. 20, 1973, Ser. No. 333,839
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 AL **15 Claims**

Low addition rate, hygroscopic, difficult-to-dissolve, solid particulate admixtures for hydraulic cement compositions (e.g. polymers of ethylene oxide) are incorporated in the cement composition by a process wherein the desired amount to be added is first measured, the measured quantity introduced (e.g. by siphoning) to a moving confined stream of gas such as air which is under pressure to form a solid-gas mixture, transferring the solid-gas mixture to a mixing zone which is under a lower pressure, and releasing the mixture into the mixing zone along with at least one other component of the cement composition, preferably the aggregate component.

3,812,077

FIBER REINFORCED COMPOSITE MATERIALS

Stanley Y. Hobbs, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,500
Int. Cl. C08g *51/04*
U.S. Cl. 260—40 R **19 Claims**

Crystalline polymer-fiber composites are disclosed in which the polymer crystallites are oriented in planes perpendicular to the fiber axis. Also disclosed is a method of making the crystalline polymer-fiber composite by coating the fibers with a nucleating agent for the polymer, forming a mixture of the polymer and the coated fibers, and then molding the polymer and coated fiber mixture at a temperature above the melting point of the polymer and cooling the composite to nucleate and crystallize the polymer in planes perpendicular to the fiber axis.

3,812,078
PLASTIC MATRIX AND RESIN COMPOSITION USED FOR PREPARING SAME

Yasuyuki Takimoto, Takatsuki, and Toshikazu Yoshikawa, Hirakata, Japan, assignors to Nippon Paint Co., Ltd., Osaka-fu, Japan

No Drawing. Filed Feb. 16, 1972, Ser. No. 226,942
Int. Cl. C08f 45/04, 45/06
U.S. Cl. 260—42.29 2 Claims

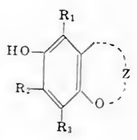
A plastic matrix prepared by shaping a resin composition comprising (a) a thermosetting polymerizable modified 1,2-polybutadienediol resin, (b) at least one lower temperature decomposable polymerization catalyst, (c) at least one higher temperature decomposable polymerization catalyst and (d) a filler into a sheet, molding the resulting sheet while contacting with an original plate and, after removal of the original plate completing the curing of the molded sheet. The plastic matrix can be molded at a relatively low temperature for a comparatively short time so that the original plate is not damaged or deformed even when made of a material being inferior in heat stability.

3,812,079
STABILIZED LINEAR POLYESTERS

Toshimitsu Okutsu, Nobuo Tsuji, Reiichi Ohi, and Tokiharu Kondo, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Feb. 29, 1972, Ser. No. 230,504
Claims priority, application Japan, Mar. 3, 1971, 46/11,076
Int. Cl. C08g 51/58
U.S. Cl. 260—45.8 A 12 Claims

A polyester composition comprising a polyester which is the reaction product of terephthalic acid as the predominant acid component and ethylene glycol as the predominant glycol component and a compound represented by the general formula (I),



(I)

wherein R_1, R_2 and R_3 are the same or different and represent a hydrogen atom, an alkyl radical or a phenyl radical, with the proviso that all of R_1, R_2 and R_3 are not simultaneously hydrogen atoms, and wherein Z represents a methylene chain containing 2 or 3 carbon atoms, said methylene chain being both unsubstituted or substituted is disclosed.

3,812,080
NICKEL AND COBALT DICYCLOHEXYLDITHIOPHOSPHINATES AS FLAME-RETARDANTS FOR STYRENE POLYMERS

Allan Murray Feldman, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 11, 1973, Ser. No. 359,389
Int. Cl. C08f 45/62
U.S. Cl. 260—45.75 R 6 Claims

Nickel and cobalt dicyclohexyldithiophosphinates have been found to be excellent flame-retardant additives for styrene polymers. Styrene polymers containing these additives and a method for the flame-proofing of styrene polymers with said additives, are disclosed.

3,812,081
QUATERNARY AMMONIUM SALT CATALYST

William E. Dennis and George E. Vogel, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed May 3, 1973, Ser. No. 357,044
Int. Cl. C08f 11/04
U.S. Cl. 260—46.5 R 6 Claims

Organosilicon resins containing silicon-bonded hydroxyl groups are cured by heating with quaternary ammonium salts of strong acids. This type of catalyst is latent in that there is little or no coasting or curing of the resin at room temperature and only slow curing under 100° C. For example, a molding compound based on a phenylmethyl silicone resin is cured by heating with benzyltriethyl ammonium chloride at a temperature of 170° C. The catalyzed resin has a shelf life of more than one year at room temperature.

3,812,082
COMPLIANT POLYIMIDES

Robert J. Jones, Los Angeles, Calif., assignor to TRW Inc., Redondo Beach, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 147,596, May 27, 1971. This application Dec. 18, 1972, Ser. No. 315,786
Int. Cl. C08g 20/32
U.S. Cl. 260—49 3 Claims

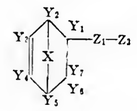
A compliant polyimide having superior thermo-mechanical properties can be produced by reacting amine or isocyanate terminated polyaliphatic ethers with an aromatic tetracarboxylic acid or dianhydride. These polyimides display a long term thermo-oxidative stability and a high percent elongation to break, and they are suitable for use as films, fibers, coatings, adhesives, structures, and sealants.

3,812,083
THERMOSETTING PERHALOGENATED POLYMERS

Robert J. Jones, Hermosa Beach, and Eugene A. Burns, Palos Verdes Peninsula, Calif., assignors to TRW Inc., Redondo Beach, Calif.

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,771
Int. Cl. C08f 15/04, 15/06
U.S. Cl. 260—63 UY 10 Claims

Resins having excellent thermal and chemical stability can be made by curing chemically stable alicyclic endo end capped prepolymers. The prepolymers can be made by end capping an aromatic or aliphatic perhalogenated polymer with an alicyclic endo compound having the formula:



wherein Y_1–Y_7, inclusive, can be hydrogen, halogen, nitro, aryl, alkyl, alkyl ether, or alkyaryl; X can be carbonyl, oxygen, sulfur, methylene, halogen substituted methylene, alkyl substituted methylene, or aryl substituted methylene; Z_1 can be an arylene or an alkylene or halogen substituted alkylene group having 0 to 4 carbon atoms; and Z_2 is a vinyl or substituted vinyl. The end capping compounds are synthesized by reacting a cyclo diolefin with an olefinic compound according to a Diels-Alder reaction.

3,812,084
GLYOXALATED 2-VINYL-1-CYCLOAMIDINE-PROPIONAMIDE POLYMERS

Laurence Lyman Williams, Stamford, and Anthony Thomas Coscia, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Division of application Ser. No. 107,586, Jan. 18, 1971, now Patent No. 3,772,259. Continuation-in-part of applications Ser. No. 471,463, July 12, 1965, now abandoned, and Ser. No. 745,485, July 17, 1968, now Patent No. 3,556,932. This application May 11, 1973, Ser. No. 359,390
Int. Cl. C08g 20/40
U.S. Cl. 260—67 R 2 Claims

Water-soluble cationic substantially linear polymers which consist essentially of 2-vinyl-1-cycloamidine-propionamide linkages are effective flocculants for solids suspended in aqueous state. When carrying a sufficient number of glyoxal substituents to be thermosetting, the polymers are wet-strengthening agents for paper. Wet strength paper made by use of this polymer loses about half of its wet strength on normal wet weathering, thus alleviating the litter problem.

3,812,085
AROMATIC POLYAMIDE COMPOSITIONS CONTAINING AROMATIC SULFONIMIDE HAVING AN AFFINITY FOR BASIC DYES

Gerhard Dieter Wolf, Dormagen, Günter Blankenstein, Stommeln, and Günther Nischk, Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 9, 1971, Ser. No. 161,285
Claims priority, application Germany, July 11, 1970, P 20 34 477.8
Int. Cl. C08g 20/38
U.S. Cl. 260—78 R 7 Claims

Polyamide compositions comprising an aromatic polyamide and an aromatic disulphonimide compound. The polyamide compositions are useful for the production of readily basic dyeable fibres.

3,812,086
PROCESS FOR POLYMERIZING VINYL CHLORIDE

Roy E. Stack, Bethel Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,302
Int. Cl. C08f 3/30, 15/08, 15/30
U.S. Cl. 260—87.1 7 Claims

Vinyl chloride is polymerized in the presence of trichloroethylene containing from 0.0001–0.5 weight percent of a phenolic compound, such as hydroquinone monomethyl ether. The resin produced does not discolor excessively when subjected to heat.

3,812,087
VULCANIZATION OF EPDM ELASTOMERS

Jean-Paul Dillenschneider, Beaumont, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France

No Drawing. Continuation-in-part of abandoned application Ser. No. 114,389, Feb. 10, 1971. This application Feb. 11, 1972, Ser. No. 225,624
Claims priority, application France, Feb. 10, 1970, 7004742
Int. Cl. C08f 27/06
U.S. Cl. 260—79.5 C 6 Claims

Vulcanizates of EPDM elastomers having good bonding strength when directly bonded to metal parts, such as brass-plated steel cables used in automobile tires, are obtained from vulcanizable compositions comprising an EPDM elastomer, sulfur, zinc oxide or cadmium oxide and either a directly added or, preferably, an in situ prepared dialkyl dithiocarbamate of a metal of Group 1*a* or Group 2*a* of the Mendeleev Periodic Table.

3,812,088
POLYMERIZATION OF VINYL AROMATIC COMPOUNDS

Donald Alfred Bennett, Beaulieu, England, assignor to The International Synthetic Rubber Company Limited, Southampton, England

Filed Nov. 30, 1971, Ser. No. 203,292
Claims priority, application Great Britain, Dec. 10, 1970, 58,757/70
Int. Cl. C08f 7/02, 7/04
U.S. Cl. 260—93.5 R 24 Claims

A process for the anionic polymerization of at least one vinyl aromatic monomer selected from styrene and hydrocarbyl substituted styrenes comprising polymerizing the monomer in the presence of a catalyst comprising a metal of Group 1–A of the Periodic Table or a hydride or hydrocarbyl thereof characterized in that the feedstock for the polymerization is the hydrocarbon effluent of a dehydrogenation reaction comprising at least 5% by weight of said monomer and in that at least a proportion of the heat of polymerization is retained in the reaction mixture whereby the temperature of the mixture is caused to rise and is for at least part of the reaction time in excess of 100° C.

3,812,089
PRODUCTION OF OLEFIN POLYMERS

Kijuro Tashiro, Masuzo Yokoyama, and Shoji Kitazume, Ami-machi, Japan, assignors to Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan

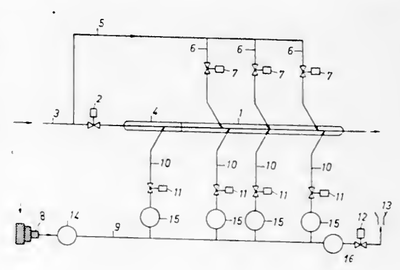
No Drawing. Filed Dec. 21, 1970, Ser. No. 100,434
Claims priority, application Japan, Dec. 28, 1969, 45/105,108
Int. Cl. C08f 1/56, 3/10
U.S. Cl. 260—93.7 4 Claims

At least one olefin is polymerized by contact with a catalyst comprising a combination of (1) a reaction product insoluble in hydrocarbons, prepared by reacting the two essential components of a Ziegler-type catalyst and at least one metal halide compound and (2) an organic metal compound of a metal of Group I, II, or III of the Periodic Table. The above metal halide compound is a halide of Li, K, Ca, Fe, Ga, Zr, Mo, Rh, Ag, Sn, Sb, Ba, La, Ce, Hf, Au, Tl, or Th.

3,812,090
PROCESS FOR PERFORMING GAS-PHASE REACTIONS UNDER PRESSURE

Henning Peters, Brugge, Germany, assignor to Friedrich Uhde GmbH, Dortmund, Germany

Filed Aug. 30, 1972, Ser. No. 285,035
Claims priority, application Germany, Apr. 3, 1971, P 21 16 374.6
Int. Cl. C08f 1/60, 3/04
U.S. Cl. 260—94.9 R 3 Claims



A mixture of gaseous initiator and carrier gas is fed directly to a closed reactor, at points suitable for initiating and maintaining the gas-phase reaction in the reactor. The rate of injection of such mixture at each point

is controlled in accordance with the temperature in the

R^2 represents alkylene, cycloalkylene, or alkylene-NHCO-

is controlled in accordance with the temperature in the reactor at such point, to maintain a constant temperature at such point.

3,812,091
D-ANALOGS OF SECRETIN
Miguel A. Ondetti, North Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 811,259, Mar. 27, 1969. This application May 25, 1972, Ser. No. 256,952
Int. Cl. C07c *103/52*; **C07g** *7/00*
U.S. Cl. 260—112.5 **2 Claims**

Analogs of the gastrointestinal hormone secretin wherein the 1-His and optionally the 2-Ser, 6-Phe, 12-Arg, 14-Arg, 18-Arg, or 21-Arg is replaced by the corresponding D-amino acid possess secretin-like activity and are useful as antacids in hyperacidic conditions of the stomach and duodenum. The compounds of the invention are resistant to enzymes which degrade secretin.

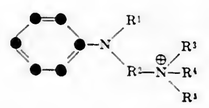
3,812,092
INTERMEDIATES IN THE PREPARATION OF SECRETIN
Miklos Bodanszky, Princeton, Miguel A. Ondetti, Highland Park, Malcolm H. von Saltza, Millstone, and Venkatachala L. Narayanan and Seymour D. Levine, North Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Continuation of application Ser. No. 736,880, Apr. 12, 1968, which is a division of application Ser. No. 553,290, May 27, 1966, now Patent No. 3,400,118. This application Oct. 20, 1970, Ser. No. 82,510
Int. Cl. C07c *103/52*
U.S. Cl. 260—112.5 **5 Claims**

This invention relates to intermediates and their salts useful in the preparation of the gastrointestinal hormone, secretin. The intermediates of this invention comprise partial sequences of amino acids which, when combined, form the secretin molecule. The novel protective peptides corresponding to these partial sequences are:

(1) Protected L-histidyl-L-seryl-L-aspartglyglycine; (amino acids 1 to 4);
(2) Protected L-threonyl-L-phenylalanyl-L-threonyl-L-serine hydrazide; (amino acids 5 to 8);
(3) Protected L-glutamyl-L-leucyl-L-seryl-L-arginyl-L-leucine hydrazide; (amino acids 9 to 13); and
(4) Protected L-arginyl-L-aspartyl-L-seryl-L-alanyl-L-arginyl-L-leucyl-L-glutaminyl-L-arginyl-L-leucyl-L-glutaminylglycyl-L-leucyl-L-valinamide; (amino acids 14 to 27).

3,812,093
CATIONIC THIADIAZOLYL MONOAZO DYES
John G. Fisher and Gary T. Clark, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Aug. 29, 1972, Ser. No. 284,531
Int. Cl. C09b *29/08*
U.S. Cl. 260—146 R **7 Claims**

This invention relates to cationic monoazo dyestuffs containing a diazotized 2-amino-1,3,4-thiadiazole coupled with selected quaternized dialkylaniline couplers having the formula



wherein

R^1 represents hydrogen; alkyl; alkyl substituted with cyano, phenyl or alkoxy; phenyl or phenyl substituted with alkyl or alkoxy;

R^2 represents alkylene, cycloalkylene, or alkylene-NHCO-alkylene;

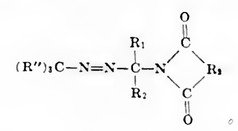
R^3, R^4, and R^5 may be the same or different and each represents lower alkyl; and

A represents a basic dye anion.

These dyes impart fast orange to bluish-red shades to acrylic, modacrylic and acid-modified polyester and polyamide fibers.

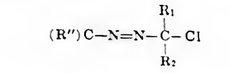
3,812,094
TERTIARY ALIPHATIC ALPHA-(IMIDO)AZO COMPOUNDS
Ronald Edward MacLeay, Williamsville, Harold Carl Lange, Grand Island, and Chester Stephen Sheppard, Tonawanda, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 725,180, Apr. 29, 1968, which is a continuation of application Ser. No. 616,158, Feb. 15, 1967, which in turn is a continuation of application Ser. No. 409,306, Nov. 5, 1964, all now abandoned. This application Nov. 9, 1970, Ser. No. 88,120
Int. Cl. C07c *107/02*
U.S. Cl. 260—152 **8 Claims**

Novel t-aliphatic α-(imido) azo compounds:



(I)

processes for preparing I by reacting t-aliphatic α-(chloro) azo compounds:



(II)

with salt or salt solutions of imides; and the use of compounds I as polymerization initiators for vinyl monomers and as curing agents for resins. For example, 2-t-butylazo-2-phthalimidopropane is prepared by reacting potassium phthalimide and 2-t-butylazo-2-chloropropane; and the product is used to cure an unsaturated polyester/styrene resin at 115° C. and to polymerize styrene at 115° C.

3,812,095
COMPOUNDS HAVING PEROXY AND ALIPHATIC AZO GROUPS AND METHODS USING THESE AS INITIATORS
Chester Stephen Sheppard, Tonawanda, and Ronald Edward MacLeay, Williamsville, N.Y., and Richard Anthony Bafford, Aiken, S.C., assignors to Pennwalt Corporation, Philadelphia, Pa.
No Drawing. Continuation-in-part of abandoned application Ser. No. 703,241, Feb. 6, 1968. This application May 14, 1970, Ser. No. 37,310
Int. Cl. C07c *107/02*
U.S. Cl. 260—192 **9 Claims**

(I) Compounds having independent peroxidic (X) and aliphatic azo groups of the formula

$$[(R—N=N—R')_m—X]_n$$

Example: di-t-butylperoxy ester of cis-4,4'-azobis-(4-cyanovaleric acid).

(II) A method of making a block polymer where vinyl monomer is initiated sequentially to produce in one instance: a polymer having azo-carbon linkages present, which is then reacted with vinyl monomer under conditions to rupture the azo-carbon linkages, and in another instance: a polymer having peroxy-carbon linkages present, which is then reacted with vinyl monomer under conditions to rupture the peroxy carbon linkages.

3,812,096
N-DEMETHYLCELESTICETIN DERIVATIVES
Alexander D. Argoudelis, Portage, and John H. Coats and Oldrich K. Sebek, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed June 12, 1972, Ser. No. 261,724
Int. Cl. C07c *129/18*
U.S. Cl. 260—210 R **4 Claims**

New antibiotics, N-demethyl-7-O-demethylcelesticetin (IV) and N-demethylcelesticetin (IVa), are produced concomitantly by the controlled fermentation of the new micro-organism *Streptomyces caelestis* strain 22218a in an aqueous nutrient medium. These antibiotics are antibacterially active and also can be converted to various antibacterially active analogues.

3,812,097
AMMONIUM SALTS OF 3β{(2-O-β-D-GLUCOPYRANURONOSYL-α-D-GLUCOPYRANURONOSYL) OXY} OLEAN-12-EN-30-OIC ACID
John S. Baran, Morton Grove, and Barnett S. Pitzele, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.
No Drawing. Filed July 17, 1972, Ser. No. 272,329
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 R **4 Claims**

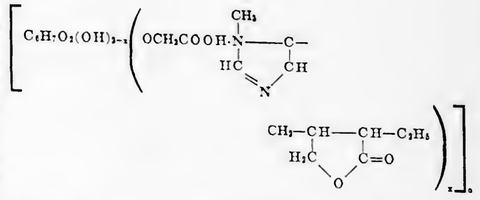
Ammonium salts of 3β-{(2-O-β-D-glucopyranuronsyl-α - D-glucopyranuronosyl)oxy} olean - 12-en-30-oic acid herein described have potent antiarrhythmic activity and they are also useful sweetening agents. These substances are prepared from the monoammonium salt of 3β-{(2-O-β - D - glucopyranuronosyl-α-D-glucopyranuronosyl)oxy} olean-11-oxo-12-en-30-oic acid by conversion of the 11-oxo function to an 11-methylene function. The reduction is followed by replacement of the carboxylic acid hydrogens with the ammonium ion under appropriate condition to provide hydrated ammonium salts. Alternately, the reduced monoammonium salt is acidified to form the triacid. The triacid is then made anhydrous and converted to the anhydrous mono, di, and tri-ammonium salts.

3,812,098
O²,2'-ANHYDRO - 1 - (β-D-ARABINOFURANOSYL)-CYTOSINE DERIVATIVES AND METHODS OF MAKING AND RELATED PROCEDURES
John G. Moffatt, Los Altos, and Alan F. Russell, San Francisco, Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.
No Drawing. Continuation-in-part of application Ser. No. 21,206, Mar. 19, 1970, now Patent No. 3,709,874. This application Mar. 3, 1972, Ser. No. 231,711
Int. Cl. C07d *51/52*
U.S. Cl. 260—211.5 R **15 Claims**

5'-O-dioxolanyl derivatives of O²,2'-anhydro-1-(3'-O-acyl-β-D-arabinofuranosyl) - cytosines; methods of preparing such compounds, methods of selectively cleaving the 5'-O-dioxolanyl or 3'-O-acyl group from such derivatives and methods of preparing 1-(β-D-arabinofuranosyl)-cytosines. The aforementioned compounds are prepared and isolated as pharmaceutically acceptable salts. The 3'-O-acyl-5'-O-dioxolanyl derivatives are prepared by treating the corresponding cytosine ribonucleosides with an α-acyloxy acyl halide. The 3'-O-acyl-5'-O-dioxolanyl derivatives are converted to the corresponding O²,2'-anhydro-1-(3' - O - acyl-β-D-arabinofuranosyl)-cytosines and/or O²,2'-anhydro - 1 - (β-D-arabinofuranosyl)-cytosines by selective acid hydrolysis. The aforementioned 5'-O-dioxolanyl derivatives can also be converted to the corresponding 1-(β-D-arabinofuranosyl) - cytosines by basic hydrolysis. The aforementioned compounds and salts exhibit anti-viral and cytotoxic activity and are useful for the treatment of mammals where such agents are indicated.

3,812,099
POLYMER DERIVATIVE OF 1-METHYL-5/5-OXO-4-ETHYL-TETRAHYDROFURYL - (3) - METHYL/IMIDAZOLE WITH CELLULOSE GLYCOLIC ACID
Nadezhda Alexandrovna Kashkina, ulitsa Talsu 99/11, kv. 22; Milda Yanovna Pormale, ulitsa Suvorova 104, kv. 10; Arvid Yanovich Kalninch, ulitsa Sverdlova 8, kv. 3; Yanis Shusters, ulitsa Kveles 15, korpus 4, kv. 30; Guna Robertowna Dambite, ulitsa Gorkogo 37, kv. 20; Ipatiya Marcewna Reinberg, ulitsa Pumpura 5, kv. 8; Idea Wladimirowna Walkowa, ulitsa Mersroga 7, kv. 2; Wiya Aleksandrowna Tipaine, ulitsa Juglas 53, kv. 10; Antons Petrowich Skutelis and Stanislaws Kazimirowich Yankowskis, both of ulitsa Marupes 17, kv. 32; and Inese Petrowna Olina, ulitsa Lachplesha 36, kv. 21, all of Riga, U.S.S.R.
No Drawing. Continuation of application Ser. No. 68,009, Aug. 28, 1970. This application June 23, 1972, Ser. No. 265,693
Int. Cl. C08b *11/14*, *15/06*
U.S. Cl. 260—213 **3 Claims**

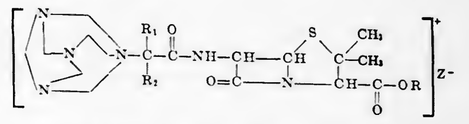
The present invention relates to a new compound which is a polymer derivative of 1-methyl-5-/5-oxo - 4 - ethyl-tetrahydrofuryl - (3) - methyl/-imidazole with cellulose glycolic acid of the general formula



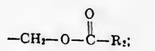
where x is substitution degree from 75 to 100, n is polymerization degree from 30 to 120. The method of the invention for producing said polymer derivative of 1-methyl - 5 - /5 - oxo - 4 - ethyl - tetrahydrofuryl-(3)-methyl/-imidazole with cellulose glycolic acid consists in that 1-methyl-5-/5-oxo - 4 - ethyl-tetrahydrofuryl-(3)-methyl/-imidazole is reacted with cellulose glycolic acid in an aqueous medium, and the desired product is subsequently isolated. Said compound is an active principle of a medicinal preparation featuring M-cholinomimetic action.

3,812,100
6-[(3,5,7 - TRIAZA - 1-AZONIA-1-ADAMANTYL) ACETAMIDO]PENICILLANIC ACID HALIDES AND SULFONATES
Hermann Breuer, Burgweinting, Germany, assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Filed Sept. 24, 1971, Ser. No. 183,692
The portion of the term of the patent subsequent to Mar. 13, 1990, has been disclaimed
Int. Cl. C07d *99/16*
U.S. Cl. 260—239.1 **7 Claims**

New 6-[(3,5,7-triaza-1-azonia-1-adamantyl)acetamido] penicillanic acid halides and sulfonates of the following general formula



wherein R is hydrogen, lower alkyl, aralkyl or the group



R_3 is hydrogen, lower alkyl, cyclo-lower-alkyl-

R_1 is hydrogen, lower alkyl, cyclo-lower alkyl, unsaturated cyclo-lower alkyl, aryl, aralkyl, adamantyl, cyclo-heptatrienyl or a heterocyclic group; R_2 is hydrogen or lower alkyl; R_3 is lower alkyl, aryl or aralkyl and Z is a halogen or sulfonate group; are useful as antibacterial agents.

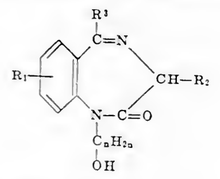
3,812,101

NOVEL PROCESS FOR PREPARING I-SUBSTITUTED BENZODIAZEPINE DERIVATIVES

Hisao Yamamoto, Nishinomiya, Shigeho Inaba, Takarazuka, Toshiyuki Hirohashi, Ashiya, Michihiro Yamamoto, Toyonaka, Kikuo Ishizumi and Mitsuhiro Akatsu, Ikeda, Isamu Maruyama, Minoo, Yoshiharu Kume, Takarazuka, Kazuo Mori, Kobe, and Takahiro Izumi, Takarazuka, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

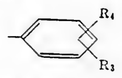
No Drawing. Filed June 14, 1971, Ser. No. 153,030
Claims priority, application Japan, June 30, 1970, 45/57,650
The portion of the term of the patent subsequent to Dec. 11, 1990, has been disclaimed
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 D **4 Claims**

Novel process for preparing 1-substituted benzodiazepine derivatives represented by the formula

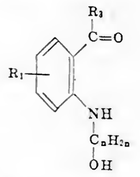


(I)

wherein R_1 represents hydrogen, halogen, nitro, C_1–C_4 alkoxy, trifluoromethyl or cyano; R_2 represents hydrogen, C_1–C_4 alkyl, phenyl or aralkyl; R_3 represents pyridyl or a group of the formula,

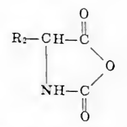


(where R_4 and R_5 are independently hydrogen, halogen, C_1–C_4 alkyl, trifluoromethyl or cyano); and n represents an integer of 1 to 4, which comprises reacting an aminophenylketone derivative represented by the formula,



(II)

wherein R_1, R_3 and n are the same as defined above, with an oxazolid-2,5-dione derivative represented by the formula



(III)

wherein R_2 is the same as defined above.

The 1-substituted benzodiazepine derivatives represented by the formula (I) have prominent effects as tranquilizer, muscle relaxant, antispasmodic, anticonvulsant and hypnotic.

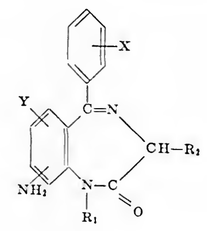
3,812,102

PROCESS FOR PRODUCING BENZODIAZEPINE DERIVATIVES

Kikuo Ishizumi, Ikeda, Kazuo Mori, Kobe, Shigeho Inaba, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

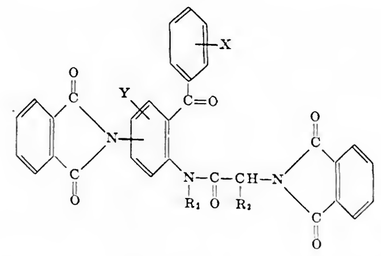
No Drawing. Filed Aug. 16, 1971, Ser. No. 172,299
Claims priority, application Japan, Aug. 25, 1970, 45/74,702
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 D **3 Claims**

A novel process for producing benzodiazepine derivatives represented by the formula,



(I)

wherein R_1 is a hydrogen atom, or a lower alkyl or cycloalkylmethyl group, R_2 is a hydrogen atom or a lower alkyl group, X and Y are individually hydrogen or halogen atoms or lower alkyl groups, or acid salts thereof, which comprises reacting a diphthalimidobenzophenone derivative represented by the formula,



(II)

wherein R_1, R_2, X and Y are the same as defined above, with a hydrazine derivative to obtain the benzodiazepine derivatives of the formula (I).

The benzodiazepine derivatives represented by formula (I) have excellent effects as sedatives, muscle-relaxant, anti-spasmodics, and hypnotics.

3,812,103

2,3-DIHYDRO-1,4-BENZODIAZEPINES

Werner Metlesics, Clifton, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Apr. 11, 1967, Ser. No. 629,934
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 D **9 Claims**

1,4-Benzodiazepines which are substituted in the 1-position with a carboxamide or thiocarboxamide radical and methods for their preparation. The 1,4-benzodiazepines which are substituted in the 1-position with a thiocarboxamide radical are useful as an anticonvulsant, whereas the 1,4-benzodiazepines which are substituted in the 1-position with a carboxamide radical are useful as muscle relaxants, psychosedatives, hypnotics, sedatives, anticonvulsants, and analgesics.

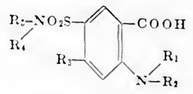
3,812,104

5-ARYLSULFAMYL-ANTHRANILIC ACIDS

Lincoln Harvey Werner, Summit, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 157,046, June 25, 1971, which is a continuation-in-part of application Ser. No. 149,027, June 1, 1971, both now abandoned, which is a continuation-in-part of application Ser. No. 91,224, Nov. 19, 1970, which is a continuation-in-part of application Ser. No. 832,029, June 10, 1969, now Patent No. 3,658,990, dated Apr. 25, 1972, which is a continuation-in-part of abandoned application Ser. No. 675,330, Oct. 16, 1967, which in turn is a continuation-in-part of abandoned application Ser. No. 598,980, Dec. 5, 1966. This application July 29, 1971, Ser. No. 167,531
Int. Cl. C07d *5/16*
U.S. Cl. 260—239.6 **6 Claims**

5-arylsulfamyl-4-halo-anthranilic acids, e.g. those of the formula



R_1=aliphatic or araliphatic radical
$R_{2,4}$=H or R_1
R_3=Cl or Br
R_5=carbo- or heterocyclic aryl

and functional derivatives thereof, exhibit diuretic effects.

3,812,105

19-NOR-PROGESTERONE DERIVATIVES

Arthur F. Marx and Hermanus J. Kooreman, Delft, Netherlands, assignors to Koninklijke Nederlandsche Gist-En Spiritusfabriek N.V., Delft, Netherlands

No Drawing. Continuation of abandoned application Ser. No. 856,475, Sept. 9, 1969. This application Apr. 21, 1972, Ser. No. 246,215
Claims priority, application Great Britain, Sept. 11, 1968, 43,295/68
Int. Cl. C07c *169/34*
U.S. Cl. 260—239.55 C **17 Claims**

New 14α,17α-alkylidenedioxy- and 14α,17α-benzylidenedioxy-19-nor-progesterone compounds are disclosed. The new compounds possess progestational activity

---

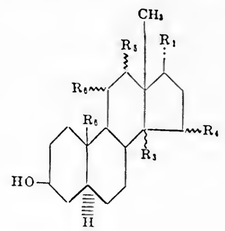
3,812,106

3β - HYDROXY - 5α-CARDENOLIDES AND -BUFADIENOLIDES AND PROCESS FOR THEIR MANUFACTURE

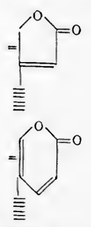
Ulrich Stache, Hofheim, Taunus, Kurt Radschelt, Kelkheim, Taunus, Werner Fritsch, Neuenhain, Taunus, and Werner Haede, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 6, 1971, Ser. No. 160,220
Claims priority, application Germany, July 7, 1970, P 20 33 599.3
Int. Cl. C07c *173/02, 173/04*
U.S. Cl. 260—239.57 **2 Claims**

A process for the manufacture of 3β-hydroxy-5α-cardenolides and 3β-hydroxy-5α-bufadienolides of the general Formula I

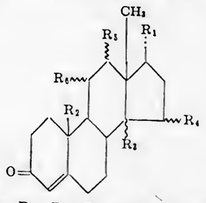


in which R_1 represents the butenolide ring or the α-pyrone ring



R_2 represents CH_3, CH_2OH or

R_3 represents a hydrogen atom in α- or β-position or a hydroxy group which may be esterified; R_4 represents a hydrogen atom; or R_3 and R_4 together represent a 14(15)-double bond or an epoxy group in 14,15β- or 14,15α-position; R_5 and R_6 each represents a hydrogen atom or a hydroxy group in α- or β-position which may be esterified, which process comprises reducing 3-oxo-4(5)-dehydro-cardenolides or -bufadienolides of the general formula



in which R_1, R_2, R_3, R_4, R_5 and R_6 have the meanings given above and R_2 may additionally represent the aldehyde group CHO, and R_5 and R_6 may represent the oxo group, with organometallic reducing agents or reducing agents having a similar effect, the reducing power of which are superior to that of sodium boron hydride, in the presence of organic nitrogen bases at temperatures of from −30° to +60° C.

Cardioactive 3β-hydroxy-5α-cardenolides and bufadienolides obtained by this process.

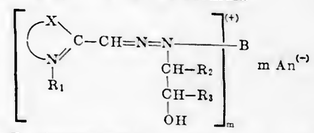
3,812,107

β-HYDROXYALKYLATED HYDRAZONE DYESTUFFS

Gunther Boehmke, Leverkusen-Grossendriesch, and Ernst Schmitt, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 2, 1972, Ser. No. 249,649
Claims priority, application Germany, May 4, 1971, P 21 22 038.2
Int. Cl. C09b *23/00*
U.S. Cl. 260—240 G **13 Claims**

Hydrazone dyestuffs of the formula



wherein R_1 denotes alkyl, aralkyl, aryl, cycloalkyl or a radical of the formula



R_2 and R_3 denote hydrogen, alkyl or alkenyl, R_4 and R_5 denote hydrogen, alkyl, alkenyl, alkinyl, aryl, aralkyl or

carboxyl, X denotes the residual constituent of a 5-membered or 6-membered heterocyclic ring, which may contain

substituted naphthyl, lower alkyl or cycloalkyl. These

carboxyl, X denotes the residual constituent of a 5-membered or 6-membered heterocyclic ring, B denotes an aromatic or heterocyclic radical, *m* denotes the numbers 1 or 2 and $An^{(-)}$ denotes an anion, are valuble for dyeing and printing of natural and synthetic materials.

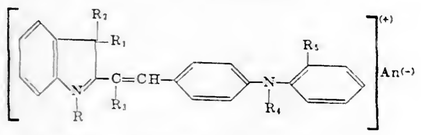
3,812,108

CATIONIC DYESTUFFS, THEIR MANUFACTURE AND USE

Alfred Brack, Leverkusen, and Walter Gomm, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 17, 1972, Ser. No. 272,174
Claims priority, application Germany, July 17, 1971, P 21 35 834.9
Int. Cl. C07d *27/38*
U.S. Cl. 260—240.9 **8 Claims**

Cationic dyestuffs of the formula



wherein R denotes an alkyl, aryl or aralkyl group, R_1, R_2 and R_4 denote an alkyl group, or R_1 and R_2 conjointly denote a carbocyclic ring, R_3 denotes hydrogen or an alkyl group, R_5 denotes an alkyl or alkoxy group and $An^{(-)}$ denotes an Anion, are used for dyeing and printing natural and synthetic materials.

3,812,109

SUBSTITUTED INDENYL GLUCORONIDE ESTERS

Tsung-Ying Shen, Westfield, and Howard Jones, Holmdel, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed July 21, 1972, Ser. No. 273,904
Int. Cl. C07d *7/14*
U.S. Cl. 260—240 R **2 Claims**

New substituted indenyl esters, anhydrides and salts thereof, which have anti-inflammatory, anti-pyretic and analgesic activity. Also included herein are methods of preparing said indenyl esters and anhydrides pharmaceutical compositions having said indenyl esters and anhydrides as an active ingredient and methods of treating inflammation by administering these particular compositions to patients.

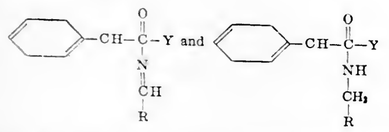
3,812,110

7-(1,4-CYCLOHEXADIENYL-ACYLAMINO) CEPHALOSPORINS

Bong Kuk Lee, Old Bridge, N.J., Dewey D. Y. Ryu, Holliston, Mass., and Gennaro John Miraglia, East Brunswick, Harold I. Basch, Somerset, and Barid B. Mukherjee, East Windsor, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 229,170, Feb. 24, 1972. This application Aug. 21, 1972, Ser. No. 282,096
Int. Cl. C07d *99/24*
U.S. Cl. 260—240 G **8 Claims**

This invention relates to new cephalosporin derivatives and methods for preparing the same, said derivatives having the structure



wherein Y is 7-ACA or 7-ADCA, or an ester or salt thereof, and R is phenyl, substituted phenyl, naphthyl, substituted naphthyl, lower alkyl or cycloalkyl. These compounds are useful as antibacterial agents.

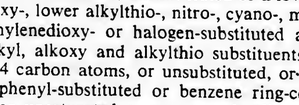
3,812,111

IMIDAZOLINE TRANQUILIZING AGENTS

Herbert L. Wehrmeister, Terre Haute, Ind., assignor to Commercial Solvents Corporation, Terre Haute, Ind.

No Drawing. Filed Dec. 4, 1972, Ser. No. 312,077
Int. Cl. C07d *49/34*
U.S. Cl. 260—240 D **5 Claims**

Imidazolines corresponding to the formula



where R is isopropyl, phenyl, or hydroxyethyl and R^1 is hydrogen or chlorine. The compounds have utility as tranquilizing agents for warm-blooded animals

---

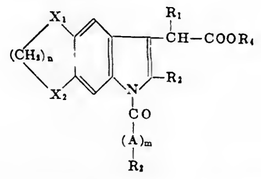
3,812,112

INDOLYLACETIC ACID DERIVATIVES

Michio Kimura, Minoo, Shigeho Inaba, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed Aug. 20, 1971, Ser. No. 173,700
Claims priority, application Japan, Aug. 26, 1970, 45/75,198; Aug. 27, 1970, 45/75,818; Oct. 3, 1970, 45/86,964; Dec. 9, 1970, 45/109,768, 45/109,769, 45/109,771; Feb. 15, 1971, 46/6,887; Dec. 16, 1971, 46/7,492
Int. Cl. C07d *27/56*
U.S. Cl. 260—240 J **11 Claims**

Novel indolylacetic acid derivatives, which have excellent anti-inflammatory, antipyretic and analgesic activities, represented by the formula,

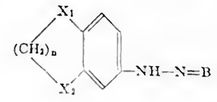


(I)

wherein X_1 and X_2 each is a member selected from the group consisting of oxygen and methylene; *A* is a member selected from the group consisting of unsubstituted saturated hydrocarbon chain having up to 5 carbon atoms, unsubstituted unsaturated hydrocarbon chain having up to 5 carbon atoms and substituted saturated or substituted ethylenically unsaturated hydrocarbon chain having up to 5 carbon atoms, in which the substituents are selected from the group consisting of halogen or phenyl, the hydrocarbon chain being straight or branched one; *m* is 0 or 1; *n* is 1 or 2; R_1 and R_2 each is a member selected from the group consisting of hydrogen and alkyl having up to 4 carbon atoms; R_3 is a member selected from the group consisting of alkyl having up to 4 carbon atoms, unsubstituted or a lower alkyl-, lower alkoxy-, lower alkylthio-, nitro-, cyano-, methylenedioxy-, ethylenedioxy- or halogen-substituted aryl, each of said alkyl, alkoxy and alkylthio substituents containing up to 4 carbon atoms, or unsubstituted, or halogen-, alkyl- or phenyl-substituted or benzene ring-condensed, saturated or unsaturated mono- or poly-alicyclic group, or alkyl group substituted by said alicyclic group, or unsubstituted or methyl-, ethyl- or halogen-substituted 5- or 6-membered heterocyclic ring group containing oxygen, sulfur or nitrogen atom; R_4 is a member selected from the group consisting of alkyl having up to 4 carbon

atoms or hydrogen, or a group of M (wherein M is a cation).

The indolylacetic acid of the formula (I) is prepared by reacting a compound of the formula,



(IV)

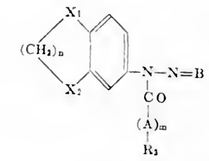
wherein X_1, X_2 and *n* are the same as defined above and *B* is a member selected from the group consisting of



and Z (wherein Z is a nitrogen protecting system comprising at least one readily removable group), with an acid halide represented by the formula,

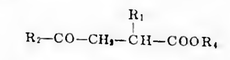
$$R_3—(A)_m—CO—hal \quad (V)$$

wherein R_3, *A* and *m* are the same as defined above and hal is halogen, to obtain N^1-acylated compound of the formula,



(II)

wherein X_1, X_2, R_3, *A*, *B*, *m* and *n* are the same as defined above, then reacting the resultant N^1-acylated compound (II) with an aliphatic acid derivative represented by the formula,



(III)

wherein R_1, R_2 and R_4 are the same as defined above.

3,812,113

SILICON SUBSTITUTED AZASPIRANES

Leonard M. Rice, Columbia, Md., assignor to Geschickter Fund for Medical Research, Washington, D.C.

No Drawing. Continuation-in-part of abandoned application Ser. No. 6,561, Jan. 28, 1970. This application Sept. 8, 1971, Ser. No. 178,827
Int. Cl. C07d *27/04*
U.S. Cl. 260—240 R **4 Claims**

Novel azaspiranes containing silicon, their acid addition and bis-quaternary salts, as well as intermediate azaspirodiones. The azaspiranes are particularly useful for their cytotoxic activities.

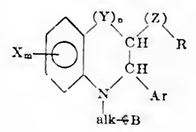
3,812,114

BENZOTHIAZINES

John Krapcho, Somerset, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

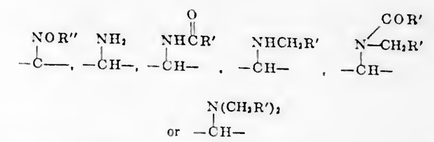
No Drawing. Filed Sept. 29, 1971, Ser. No. 184,954
Int. Cl. C07d *93/10*
U.S. Cl. 260—243 R **9 Claims**

Compounds of the formula



I

wherein X may be hydrogen, halogen, alkyl, haloalkyl, alkoxy, haloalkoxy, hydroxy, alkylthio, haloalkylthio, nitro, alkylsulfonyl, amino, alkanoylamino, or mono- or dialkylamino wherein any of the foregoing alkyl or substituted alkyl radicals may contain up to 8 carbon atoms; *m* may be 1, 2, 3 or 4; Y may be —S—, —SO—, $—SO_2—$, *n* may be 0 or 1; alk may be a straight or branched alkyl radical of up to 6 carbon atoms; B may be a basic nitrogen containing radical; R may be straight or branched alkyl radical of from 1 to 8 carbon atoms, cycloalkyl of from 3 to 8 carbon atoms, or aryl or arylalkyl of from 6 to 10 carbon atoms; Z may be



wherein R'' may be hydrogen, alkyl of from 1–4 carbons or acyl of from 1–4 carbons; R' may be hydrogen or alkyl of from 1 to 4 carbons; Ar may be phenyl, X-substituted phenyl, wherein X is as defined above, pyridyl, thienyl, furyl, naphthyl, or alkylenedioxyphenyl; and pharmaceutically acceptable acid-addition or quaternary ammonium salts thereof and N-oxides and pharmaceutically acceptable acid-addition salts thereof, are useful as anti-inflammatory agents.

3,812,115

PROCESS FOR THE PREPARATION OF 1,8-NAPHTHALDEHYDIC ACID

Henry Bader, Newton Center, and Yunn H. Chiang, Woburn, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Feb. 28, 1973, Ser. No. 336,797
Int. Cl. C07d *7/00*
U.S. Cl. 260—343.2 R **7 Claims**

Naphthaldehydic acid is synthesized by alkaline cleavage at close to room temperature using a solvent system of water and certain aprotic organic solvents.

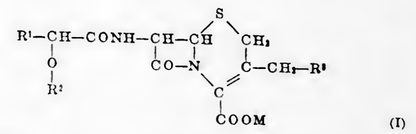
3,812,116

7-ACYLATED 3-SUBSTITUTED CEPHALOSPORIN COMPOUNDS

Tadayoshi Takano, Hirakata, Kazuo Kariyone, Kyoto, Masaru Kurita, Takatsuki, Hisatoyo Yazawa and Hitoshi Nakamura, Toyonake, and Mitsunori Hasegawa, Ikeda, Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

No Drawing. Filed July 2, 1971, Ser. No. 159,485
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C **12 Claims**

Compounds of the formula



(I)

in which

R^1 is hydrogen, lower alkyl, aryl, thienyl or furyl,
R^2 is acyl containing more than one carbon atom,
R^3 is hydrogen, azido or heterocyclic thio, and
M is hydrogen or a pharmaceutically acceptable, substantially non-toxic cation,

have strong anti-bacterial activity and are active on oral administration.

3,812,117
CERTAIN PHOSPHORUS-CONTAINING IMINO OXAZOLIDINES, THIAZOLIDINES AND PERHYDROOXAZINES

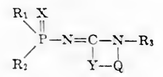
Edmund J. Gaughan, Kensington, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Application Mar. 23, 1970, Ser. No. 22,039, now Patent No. 3,714,176, which is a continuation-in-part of application Ser. No. 705,017, Feb. 13, 1968, which in turn is a continuation-in-part of application Ser. No. 673,993, Oct. 9, 1967, both now abandoned. Divided and this application Oct. 26, 1972, Ser. No. 301,016

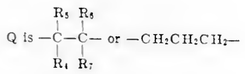
Int. Cl. C07d *93/10*

U.S. Cl. 260—243 R **3 Claims**

New compounds corresponding to the formula



wherein X and Y are independently oxygen or sulfur, R_1 is lower alkyl, lower alkoxy, lower alkylthio; R_2 is lower alkyl, lower alkoxy, lower alkylthio, chloro lower alkyl, carbethoxy methylthio, allylthio, chlorophenylthio, nitrobenzyloxy, phenyl or substituted phenoxy in which said substituents are nitro, cyano, methylthio, chloro or *tert.*-butyl; R_2 is lower alkyl, benzyl, phenyl, lower alkoxyalkyl, alkenyl, chloroalkenyl or 2-propynyl;



in which R_4 is hydrogen, lower alkyl, cyclohexyl or vinyl, R_5, R_6 and R_7 are independently hydrogen or lower alkyl; provided that when Q is $—CH_2CH_2CH_2—$ then R_3 is other than benzyl.

The above-mentioned compounds are biologically effective as pesticides, especially against insects and acarids, and as herbicides. Representative compounds are:

2-[N-(O,O-dimethylphosphonothiono)-amino]-3-ethyl-5-methyl-1,3-oxazolidine,
2-[N-(O,O-diethylphosphonothiono)-imino]-3-ethyl-5-methyl-1,3-oxazolidine,
2-[N-(O,S-dimethylphosphonothiolo)-imino]-3-ethyl-5-methyl-1,3-oxazolidine,
2-(diethylthiophosphinoimino)-3-methyl oxazolidine,
2-(O,O-dimethylthiophosphorylimino)-3-methyl thiazolidine, and
2-(O,O-dimethylthiophosphoryl-imino)-3-allyl-perhydro-1,3-oxazine.

3,812,118
2(1H)-QUINAZOLINONES BY REACTION OF 2-CARBAMOYLINDOLES WITH HALOGEN

Michihiro Yamamoto, Nishinomiya, Shigeaki Morooka, Masao Koshiba, and Shigeho Inaba, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed June 5, 1972, Ser. No. 259,691
Claims priority, application Japan, Oct. 26, 1971, 46/84,861
Int. Cl. C07d *51/48*

U.S. Cl. 260—247.1 **2 Claims**

2(1H)-quinazolinone derivatives are obtained by treating a 2-carbamoylindole derivative with a halogen in the presence of an alkyli. The quinazolinone derivatives have excellent pharmacological actions such as anti-inflammatory, analgesic, uricosuric, diuretic and antiviral actions.

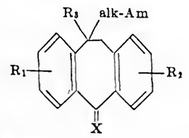
3,812,119
DIBENZOCYCLOHEPTENES

Gordon Northrop Walker, Morristown, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 878,914, Nov. 21, 1969. This application Aug. 28, 1970, Ser. No. 68,037
Int. Cl. C07d *87/40*

U.S. Cl. 260—247 **5 Claims**

10-(1-aminoalkyl)-10,11-dihydro - 5H - dibenzo[a,d] cycloheptenes, e.g. those of the formula



Am=an amino group
alk=lower alkylidene
X=2H, HOH or O
$R_{1,2}$=H, alkyl, alkoxy, alkylmercapto, halo, CF_3, NO_2 or amino
R_3=H, lower alkyl

and salts thereof are antidepressants.

3,812,120
TRISUBSTITUTED-s-TRIAZINES

Logan C. Bostian, Convent Station, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Oct. 24, 1969, Ser. No. 869,378, now Patent No. 3,704,112. Divided and this application July 18, 1972, Ser. No. 272,811
Int. Cl. C07d *55/20*

U.S. Cl. 260—249.8 **1 Claim**

Novel adducts of 2-alkylamino-4-amino-6-chloro-s-triazines with chloroacetaldehydes are prepared by reacting the amino substituted-s-triazine with di- or trichloroacetaldehyde in an inert solvent. Reaction temperatures of 40 to 100° C. for one-half to one hour are preferred. The reaction mixture may be cooled to separate the product; evaporation of the solvent at advanced temperatures should be avoided as this may form undesirable by-products. The products are highly selective herbicides.

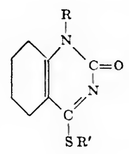
3,812,121
TETRAHYDROTHIOQUINAZOLINONES

John Paul Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 18, 1971, Ser. No. 172,914
Int. Cl. C07d *51/46*

U.S. Cl. 260—251 A **7 Claims**

Compounds and their preparation of the formula



wherein R is selected from the group consisting of alkyl with from 1–6 carbon atoms, mono- and dihalophenyl and benzyl; and wherein R′ is an aliphatic hydrocarbon radical of from 1 to 12 carbon atoms. The compounds are useful as biocides and plant growth regulators.

3,812,122
PROCESS FOR MAKING OXYALKYLATED POLYAMINO-1,3,5-TRIAZINES

Wolfgang Lengsfeld, Limburgerhof, Germany, assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed Apr. 12, 1972, Ser. No. 243,476
Claims priority, application Germany, Apr. 16, 1971, P 21 18 868.1
Int. Cl. C07d *55/20, 55/24*

U.S. Cl. 260—249.6 **5 Claims**

A process for making oxyalkylated polyamino-1,3,5-triazines wherein the oxyalkylation is carried out at elevated temperatures in the presence of N,N-dialkyl acid amides is disclosed.

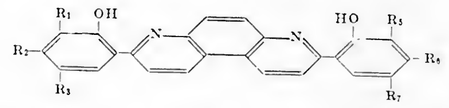
3,812,123
U.V.-ABSORBING ORTHO-HYDROXYPHENYL SUBSTITUTED PHENANTHROLINES

Jan-Erik Anders Otterstedt, Simrishamn, Sweden, and Richard Pater, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Feb. 24, 1969, Ser. No. 801,842, now Patent No. 3,660,404. Divided and this application Dec. 13, 1971, Ser. No. 207,617
Int. Cl. C07d *39/14*

U.S. Cl. 260—288 P **5 Claims**

Ultraviolet absorbing phenanthroline of the formula



wherein R_{1-3} and R_{5-7} are selected from H, Cl, OH, C_{1-18} alkyl, C_{1-18} alkoxy and C_{1-18} acyloxy, and process for preparing same.

3,812,124
METHOD FOR PREPARING THIAMINE SALTS

Hozumi Tanaka, Ashiya, Kenji Ikawa, Osaka, and Fumitaka Takami, Higashiosaka, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 8,427, Feb. 3, 1970. This application June 2, 1972, Ser. No. 259,303
Claims priority, application Japan, Feb. 25, 1969, 44/14,103
Int. Cl. C07d *99/12*

U.S. Cl. 260—256.6 **1 Claim**

Thiamine salts of high purity are obtained by treating thiamine monothiocyanate with hydrochloric acid or nitric acid and heating the mixture under reduced pressure until the produced hydrogen monothiocyanate is expelled from the reaction mixture.

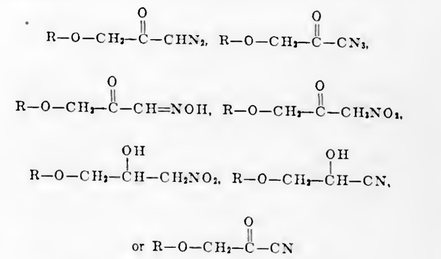
3,812,125
3-DIAZINYL-4-(3-SECONDARY AMINO-2-HYDROXYPROPOXY)-1,2,5-THIADIAZOLES

Burton Kendall Wasson, Valois, Quebec, Canada, assignor to Charles E. Frosst & Co., Kirkland, Quebec, Canada

No Drawing. Application Apr. 21, 1969, Ser. No. 818,090, now Patent No. 3,655,663, which is a continuation-in-part of abandoned application Ser. No. 731,333, May 22, 1968. Divided and this application Sept. 9, 1971, Ser. No. 179,146
Int. Cl. C07d *51/70*

U.S. Cl. 260—268 H **4 Claims**

4-[3-(substituted amino) - 2 - hydroxypropoxy]-1,2,5-thiadiazole compounds, substituted by an N-containing heterocyclic group in the 3-position of the thiadiazole nucleus which exhibit β-adrenergic blocking properties and thus are useful in the management of angina pectoris are described. The products are prepared by one of three principal methods (1) reaction of a 4-hydroxy-1,2,5-thiadiazole with epihalohydrin to provide 4-(3-halo-2-hydroxypropoxy)-1,2,5-thiadiazole which, upon treatment with alkali, forms the epoxide which is then reacted with an amine to provide the desired product; (2) reaction of a 3-chloro (or bromo)-4-(3-substituted amino-2-hydroxypropoxy)-1,2,5-thiadiazole with an N-containing heterocycle that replaces the 3-chloro group; (3) reductive alkylation of an



wherein R is the 1,2,5-thiadiazole-4-yl group.

3,812,126
[1-[4-[3-(p-FLUOROBENZOYL)-PROPYL] - 1 - PIPERAZINYL]-ALKYL] - 3 - ALKYL - 2 - IMIDAZOLIDINONES

Armin Züst, Birsfelden, Basel-Land, and Walter Schindler, deceased, by Leonhard Gysin, executor, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 1, 1971, Ser. No. 203,870
Claims priority, application Switzerland, Dec. 7, 1970, 18,133/70
Int. Cl. C07d *51/70*

U.S. Cl. 260—268 H **13 Claims**

Compounds of the class of 1-[2-[4-[3-(p-fluorobenzoyl)-alkyl] - 1 - piperazinyl]-ethyl] - 3 - alkyl-2-imidazolidinone which may be substituted in the 4-position of the imidazolidinone ring by an alkyl group having 1 to 4 carbon atoms and pharmaceutically acceptable acid addition salts thereof have an anti-emetic action and also a moderate central depressant action, e.g. they inhibit motility. They moreover exhibit no cataleptic inherent action. Such compounds can be prepared for instance by reaction of 1-[2-(1-piperazinyl)-ethyl]-3-methyl - 2 - imidazolidinone with 4 - chloro-4′-fluorobutyrophenone. The compounds are active ingredients of pharmaceutical compositions.

3,812,127
4-(QUINOLIN-4-YL)PIPERAZINE-1-CARBOXYLIC ACID ESTERS

Timothy H. Cronin, Niantic, and Hans-Jurgen E. Hess, Old Lyme, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Application Mar. 17, 1970, Ser. No. 20,381, now Patent No. 3,702,849, dated Nov. 14, 1972, which is a division of application Ser. No. 678,191, Oct. 26, 1967, now Patent No. 3,517,005, dated June 23, 1970, which in turn is a continuation-in-part of abandoned application Ser. No. 590,494, Oct. 31, 1966. Divided and this application June 2, 1972, Ser. No. 259,113
Int. Cl. C07d *51/70*

U.S. Cl. 260—268 BQ **3 Claims**

Substituted 6,7 - dialkoxyquinazolines, 4-(6,7-dialkoxyquinolin-4-yl)-piperazine-1-carboxylic acid, esters, and 1-amino-6,7-dialkoxyisoquinolines and their pharmaceutically-acceptable acid addition salts. Compounds manifest bronchodilator activity and anti-hypertensive response with minimal adverse effects upon administration to afflicted subjects.

3,812,128
N-ACYL SYDNONIMINE DERIVATIVES

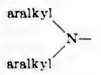
Katsutada Masuda, Ashiya, and Yoshio Imashiro, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Application Sept. 14, 1970, Ser. No. 72,211, which is a continuation-in-part of abandoned application Ser. No. 651,137, July 5, 1967. Divided and this application Mar. 6, 1972, Ser. No. 232,253
Claims priority, application Japan, July 4, 1966, 41/43,449
The portion of the term of the patent subsequent to Apr. 4, 1984, has been disclaimed
Int. Cl. C07d *85/50*
U.S. Cl. 260—268 N **8 Claims**

Derivatives of the sydnonimines according to U.S. Pat. No. 3,312,690, wherein the imino group is replaced by N-formyl, N-acetyl, N-propionyl, N-monochloro acetyl, N-dichloro acetyl, N-trichloro acetyl, N-trifluoro acetyl, N-phenoxy acetyl, N-phenoxy propionyl, N-phenyl acetyl, N-phenyl propionyl, N-cinnamoyl, N-benzoyl, N-ethoxy carbonyl, N-benzyloxy carbonyl, N-methyl carbamoyl, N-ethyl carbamoyl, N-phenyl carbamoyl, N-nicotinoyl, N-isonicotinoyl, N-(N'-carbobenzyloxy alanyl), N-methyl sulfonyl, N-phenyl sulfonyl, N-p-chlorophenyl sulfonyl, N-nitroso, etc., and pharmaceutically acceptable salts thereof have superior utility as hypotensive drugs, coronary and peripheral vessel dilators or muscle relaxants. The 3-positioned



group may also be an



group, each aralkyl having 7 to 9 carbon atoms.

3,812,129
PIPERAZINYL SUBSTITUTED ALKOXY BENZOPHENONES

Albrecht Edenhofer, Riehen, Henri Ramuz, Birsfelden, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application May 21, 1970, Ser. No. 39,505, now Patent No. 3,706,755, dated Dec. 19, 1972, which is a continuation-in-part of abandoned application Ser. No. 567,354, July 25, 1966. Divided and this application Apr. 19, 1972, Ser. No. 245,610
Claims priority, application Switzerland, July 30, 1965, 10,769/65
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 PH **8 Claims**

Novel benzophenone derivatives bearing a piperazinyl substituted lower alkoxy group are disclosed together with processes for preparing these compounds. These novel benzophenones are useful as psychosedative agents.

3,812,130
PROCESS FOR PREPARING NAPHTHALENE-1,8-DICARBOXYLIC ACID IMIDE

Josef Landler, Hofheim, Taunus, and Ernst Spietschka, Oberauroff, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 24, 1972, Ser. No. 274,331
Int. Cl. C07d *39/00*
U.S. Cl. 260—281 **1 Claim**

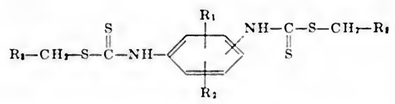
Process for preparing naphthalene-1,8-dicarboxylic acid-imide, wherein solid naphthalene-1,8-dicarboxylic acid-anhydride is reacted with gaseous ammonia at elevated temperatures. This process yields naphthalene-1,8-dicarboxylic acid imide in an almost quantitative yield and in a high purity, so that it may be directly used for the preparation of perylene-tetracarboxylic acid-diimide pigments.

3,812,131
PHENYLENE-BIS-DITHIOCARBAMIC ACID ESTERS

Manfred Schorr, Frankfurt am Main, Walter Durckheimer, Hattersheim am Main, Lothar Behrendt, Konigstein, Taunus, and Dieter Duwel, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main-Hoechst, Germany

No Drawing. Original application Sept. 8, 1970, Ser. No. 70,485, now Patent No. 3,676,446, dated July 11, 1972. Divided and this application Apr. 17, 1972, Ser. No. 244,981
Claims priority, application Germany, Sept. 20, 1969, P 19 47 746.4
Int. Cl. C07d *33/60, 35/44*
U.S. Cl. 260—283 S **3 Claims**

Anthelmintically active phenylene-bis-dithiocarbamic acid esters of the formula



in which R_1 and R_2 are equal or different and represent hydrogen, halogen, alkyl or alkoxy having from 1 to 6 carbon atoms and R_3 is pyridyl, quinolyl or isoquinolyl which may be substituted by one or more alkyl radicals having from 1 to 6 carbon atoms. A process for their preparation.

3,812,132
REDUCTION OF THEBAINE

Edward Leon Grew and Alastair Agnew Robertson, Edinburgh, Scotland, assignors to Macfarlan Smith Limited, Edinburgh, Scotland

No Drawing. Filed Dec. 2, 1971, Ser. No. 204,298
Claims priority, application Great Britain, Dec. 11, 1970, 58,926/70
Int. Cl. C07d *43/28*
U.S. Cl. 260—285 **12 Claims**

A process for the preparation of 8:14-dihydrothebaine from thebaine, in which the thebaine is reduced by heating it with at least one of the thermally decomposable compounds selected from an aryl or substituted aryl sulphonic acid hydrazide, an alkyl or substituted alkyl sulphonic acid hydrazide, an aralkyl or substituted aralkyl sulphonic acid hydrazide or disodium azodicarboxylate, provided that when disodium azodicarboxylate is used, a proton supplying substance is present. The 8:14-dihydrothebaine may be hydrolyzed to dihydrocodeinone.

3,812,133
N-PHENYLPROPYLENE SUBSTITUTED TETRAHYDRO-ISOQUINOLINES

John Mervyn Osbond, Hatfield, and Graham Alwyn Fothergill, Knebworth, England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Nov. 22, 1971, Ser. No. 203,100
Int. Cl. C07d *35/28*
U.S. Cl. 260—289 R **9 Claims**

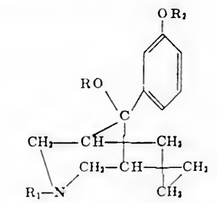
Novel tetrahydro-isoquinolines bearing in the 2-position a substituted phenylpropylene group and processes for the preparation thereof are disclosed. These novel derivatives are useful as analgesic and antitussive agents and to reduce intestinal motility.

3,812,134
4β-ALKOXY-4α-(3'-HYDROXYPHENYL)-3α,5α-PROPANOPIPERIDINE DERIVATIVES

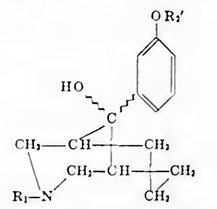
Issei Iwai, Eiji Ohki, Sadao Oida, Hiromu Takagi, and Yoshihiko Ohashi, Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

No Drawing. Filed Nov. 8, 1972, Ser. No. 304,810
Claims priority, application Japan, Nov. 18, 1971, 46/92,574
Int. Cl. C07d *39/00*
U.S. Cl. 260—293.54 **5 Claims**

4β-alkoxy-4α-(3' - hydroxyphenyl) - 3α,5α - propanopiperidine derivatives having the formula



wherein R represents an alkyl group having 1–5 carbon atoms, R_1 represents an alkyl group having 1–5 carbon atoms or a phenylalkyl group having 1–5 carbon atoms in the alkyl moiety and R_2 represents hydrogen atom or an alkyl group having 1–5 carbon atoms. The piperidine derivatives are useful as analgesics and antitussives and prepared by reacting 4β (or α)-hydroxy-4α (or β)-(3'-hydroxyphenyl) - 3α,5α - propanopiperidine derivative having the formula



wherein R_1 is the same as above and R_2' represents R_2 or an alkoxyalkyl group having 1–5 carbon atoms in each alkyl moiety with an alkanol having the formula

R—OH

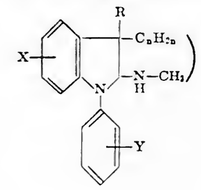
wherein R is the same as above in the presence of an acid.

3,812,135
PYRROLOINDOLE AND PYRIDOINDOLE DERIVATIVES

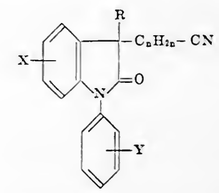
Tadashi Okamoto, Ashiya, Takeshi Akase, Nishinomiya, Takahiro Izumi and Shigeho Inaba, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company Limited, Osaka, Japan

No Drawing. Filed Feb. 28, 1972, Ser. No. 230,035
Claims priority, application Japan, Mar. 6, 1971, 46/11,966
Int. Cl. C07d *27/36*
U.S. Cl. 260—293.55 **2 Claims**

Novel indole derivatives of the formula



wherein X and Y are each hydrogen, halogen, lower alkyl or lower alkoxy; R is hydrogen or lower alkyl; and *n* is 1 or 2, or salts thereof having high anti-inflammatory activity. The indole derivatives are prepared by reducing a 2-oxyindole derivative of the formula,



wherein X, Y, R and *n* are as defined above.

3,812,136
TRI-SUBSTITUTED IMIDAZOLES

John J. Baldwin, Lansdale, and Frederick C. Novello, Berwyn, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed May 5, 1972, Ser. No. 250,505
Int. Cl. C07d *31/46*
U.S. Cl. 260—294.9 **5 Claims**

This relates to a new class of imidazoles which are substituted at the 2-carbon by an aryl or heterocyclic moiety and which are substituted at the 4 and 5 carbons by cyano, carboxy, alkoxycarbonyl, carbamoyl or N-substituted carbamoyl. These products have utility as anti-hyperuricemic agents in the treatment of gout.

3,812,137
CATALYTIC PRODUCTION OF ANILINE AND OTHER AMINES FROM CARBOXYLIC ACIDS AND AMMONIA

Francis Clyde Rauch and Gregory Gerasimos Arzoumanidis, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 29, 1971, Ser. No. 202,786
Int. Cl. C07d *31/42*
U.S. Cl. 260—296 R **25 Claims**

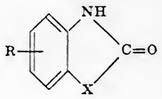
Aromatic and heterocyclic carboxylic acids are converted to amines by reaction with ammonia or a primary or secondary aromatic or aliphatic amine and a polyvalent metal compound using heat and pressure. Examples include conversion of benzoic acid to aniline, nicotinic acid to aminopyridine, etc. Preferred metal compounds include cupric oxide. Ammonia is the preferred amino reactant. The metal compound is reduced in the reaction but the reduced species is easily oxidized for use in subsequent reactions to provide an essentially catalytic process.

3,812,138
PROCESS FOR PREPARING BENZOXAZOLONES-(2) AND BENZOTHIAZOLONES-(2)

Hartm .t Heise, Neuenhain, Taunus, and Bernhard Mees, Konigstein, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed June 23, 1972, Ser. No. 265,604
Claims priority, application Germany, June 24, 1971, P 21 31 366.6
Int. Cl. C07d *85/38, 91/44*
U.S. Cl. 260—304 **2 Claims**

A process for preparing benzoxazolones-(2) and benzothiazolones-(2) having the general formula

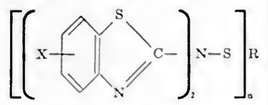


wherein R is a hydrogen or halogen atom, preferably a chlorine or bromine atom, an alkyl group having 1 to 3 carbon atoms, preferably a methyl group, an alkoxy group having 1 to 3 carbon atoms, preferably a methyl group and X is oxygen or sulfur.

The benzoxazolones-(2) or the benzothiazolones-(2) thus obtained are valuable intermediates for pharmaceutical products, for example analgetics, hypnotics, antipyretics and especially for dyestuffs such as azo dyestuffs.

3,812,139
N,N-DI(2-BENZOTHIAZOLYL)SULFENAMIDES USEFUL AS VULCANIZATION ACTIVATORS
Kamel Boustany and John J. D'Amico, Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Original application Jan. 28, 1971, Ser. No. 110,658, now Patent No. 3,689,467. Divided and this application Apr. 3, 1972, Ser. No. 240,841
Int. Cl. C07d *91/46*
U.S. Cl. 260—305 **6 Claims**

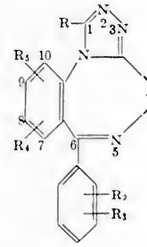
Compounds of the formula



wherein X is hydrogen, alkyl, alkoxy, nitro, halo, or hydroxy and *n* is one or two; when *n* is one R is alkyl, cycloalkyl, aralkyl or aryl; when *n* is two R is alkylene which compounds are delayed action cure activators for rubber.

3,812,140
4H-1,2,4-TRIAZOLOBENZOPHENONE COMPOUNDS
Jackson B. Hester, Jr., Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Original application Feb. 9, 1971, Ser. No. 114,049, now Patent No. 3,709,898, dated Jan. 6, 1973. Divided and this application May 11, 1972, Ser. No. 252,504
Int. Cl. C07d *55/06*
U.S. Cl. 260—308 R **3 Claims**

A multistep process for the production of triazolobenzodiazepines of the formula I:



I

wherein R is selected from the group consisting of hydrogen and alkyl of 1 to 3 carbon atoms, inclusive; wherein R_1 is hydrogen or alkyl defined as above; and wherein R_2, R_3, R_4, and R_5 are selected from the group consisting of hydrogen, alkyl defined as above, fluorine, chlorine, bromine, nitro, cyano, trifluoromethyl, alkoxy of 1 to 3 carbon atoms, inclusive, amino, alkanoylamino in which the alkanoyl group is of 1 to 3 carbon atoms, inclusive, alkylthio, in which the alkyl group is defined as above, alkylsulfinyl, in which the alkyl group is defined as above, and dialkylamino, in which the alkyl group is defined as above, and for some of intermediates is claimed. The final compounds and intermediates are tranquilizers and sedatives and are useful in mammals, including man and birds.

3,812,141
METHODS OF PREPARING 2-CYANO-1-SUBSTITUTED-5-NITROIMIDAZOLES
Jay Donald Albright, Nanuet, and Robert Gordon Shepherd, South Nyack, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Original application June 16, 1969, Ser. No. 833,683, now Patent No. 3,652,555. Divided and this application Sept. 23, 1971, Ser. No. 183,243
Int. Cl. C07d *49/36*
U.S. Cl. 260—309 **2 Claims**

Methods of preparing 2-cyano-1-substituted-5-nitroimidazoles which find utility as intermediates to produce antibacterial agents such as 2-(2-amino-1,3,4-thiadiazol-5-yl)-1-methyl-5-nitroimidazole.

3,812,142
IMIDAZOLYL KETONES
Werner Meiser, Karl Heinz Buchel, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Jan. 20, 1972, Ser. No. 219,556
Claims priority, application Germany, Feb. 5, 1971, P 21 05 490.0
Int. Cl. C07d *49/36*
U.S. Cl. 260—309 **33 Claims**

Imidazole derivatives of alkyl, cycloalkyl or aryl ketones are antimycotic agents. The compounds, of which 1-imidazolyl-1-(4'-chlorophenoxy)-3,3-dimethylbutan - 2-one is a typical embodiment, can be obtained from the corresponding hydroxy or halo ketone through treatment with imidazole.

3,812,143
PROCESS FOR 2,3-DIHYDRO-5-PHENYL-5H-IMIDAZO[2,1-a]ISOINDOLES
Werner Metlesics, Clifton, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application Mar. 7, 1968, Ser. No. 711,202, now Patent No. 3,717,658, dated Feb. 20, 1973. Divided and this application Oct. 5, 1972, Ser. No. 295,413
Int. Cl. C07d *49/34*
U.S. Cl. 260—309.6 **3 Claims**

Processes involving (a) The preparation of 3'-phenylspiro[imidazolidine-2,1'-phthalans] I or the tautomers 2-[2'-(α-hydroxyphenylmethyl)-phenyl]-2 - imidazolines II by the reduction of the corresponding 2-benzoyl-phenyl-2-(2-imidazolines) III; (b) The treatment of phthalans I or II with a strong base or acid to obtain 5-phenyl-2,3-dihydro-5H-imidazo[2,1-a]isoindoles VIII which upon oxidation yield the corresponding 5-phenyl-2,3-dihydro-5-hydroxy-5H-imidazo[2,1-a]isoindoles IV or the tautomers 2-benzoyl-phenyl-2-(2-imidazolines) III; (c) The preparation of imidazolines III and IV by the oxidation of 2-hydroxy-methylbenzhydrols to 2-benzoyl-benzaldehydes VI, treatment of VI with a diamine to form imidazolines VIII which are then oxidized to form imidazolines III and IV; and (d) The treatment of o-cyano-diphenylmethanes with a halogenating agent followed by reaction with a diamine to give imidazolines VIII. The phthalans I and II are also useful as antidepressants. The imidazolines III and IV are useful as psychostimulants.

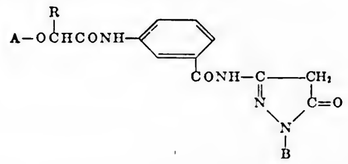
3,812,144
DERIVATIVES OF p-AMINOALKYLBENZENE SULFONAMIDE
Henri Dietrich, Arlesheim, and Claude Lehmann, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Mar. 10, 1969, Ser. No. 805,843
Int. Cl. C07d *49/30*
U.S. Cl. 260—309.7 **10 Claims**

1-(p-aminoalkylphenylsulfonyl) - 2 - imino - imidazolidines, substituted at the heterocyclic ring and at the nitrogen atom of the p-aminoalkyl group are prepared; these

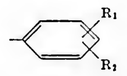
compounds and the pharmaceutically acceptable acid addition salts thereof have hypoglycemic activity; pharmaceutical compositions comprising said compounds and methods of producing hypoglycemic effects in mammals are provided; an illustrative embodiment is 1-{p-[2-(m-methoxybenzamido) - ethyl] - phenylsulphonyl}-2-imino-3-cyclohexyl-imidazolidine.

3,812,145
PROCESS FOR THE PREPARATION OF PYRAZOLONE DERIVATIVES
Hiroshi Sato, Daijiro Nishio, and Takeshi Takahashi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed Dec. 3, 1971, Ser. No. 204,685
Claims priority, application Japan, Dec. 4, 1970, 45/106,715
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 A **17 Claims**

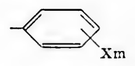
A process for the preparation of pyrazolone derivatives represented by the following formula



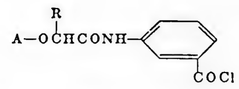
wherein R represents a member selected from the group consisting of a hydrogen atom or an alkyl group having 1–6 carbon atoms, A represents



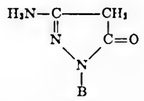
wherein R_1 is a member selected from the group consisting of a hydrogen atom or an alkyl group and R_2 is an alkyl group, and B represents



wherein X, which may be the same or different, represents at least one member selected from the group consisting of a hydrogen atom, an alkyl group, an alkoxy group, an aryl group, an aryloxyl group, a cyano group, or a halogen atom and *m* is 1–5, which comprises condensing, in acetonitrile, a compound represented by the general formula



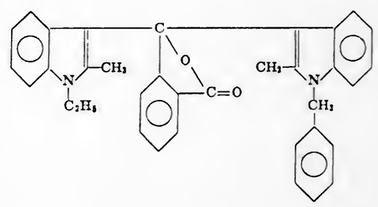
wherein A and R have the same meanings as defined above, with a compound represented by the general formula



wherein B has the same meaning as defined above.

3,812,146
PHTHALIDE
Sheldon Farber, Appleton, Wis., and Arthur J. Wright, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
No Drawing. Filed May 12, 1972, Ser. No. 252,785
Int. Cl. C07d *5/06, 27/56*
U.S. Cl. 260—326.14 R **1 Claim**

The phthalide, 3 - (1 - ethyl-2-methylindol-3-yl)-3-(1-benzyl-2-methylindol-3-yl) phthalide, is disclosed. This phthalide is represented by the structure:



This compound is used in pressure-sensitive record material and in mark-forming manifold systems.

3,812,147
ACYLXYLIDIDE LOCAL ANAESTHETICS
Herbert J. F. Adams, Westboro, and George H. Kronberg and Bertil H. Takman, Worcester, Mass., assignors to Astra Pharmaceutical Products, Inc., Worcester, Mass.
No Drawing. Continuation-in-part of abandoned application Ser. No. 100,777, Dec. 22, 1970. This application July 19, 1971, Ser. No. 164,022
Int. Cl. C07c *103/18;* **C07d** *27/04*
U.S. Cl. 260—326.3 **10 Claims**

The 2-alkyl-2-alkylamino - 2',6' - acetoxylidide compounds are useful as long lasting local anaesthetics.

3,812,148
PREPARATION OF 2-PYRROLIDONE
Elmer J. Hollstein, Wilmington, Del., and Walter A. Butte, Jr., West Chester, Pa., assignors to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Filed July 21, 1972, Ser. No. 274,039
Int. Cl. C07d *27/08*
U.S. Cl. 260—326.5 FN **7 Claims**

A process for preparing 2-pyrrolidone which comprises reacting succinic acid or its precursor, hydrogen, and ammonia in an aqueous system at a mole ratio of ammonia to acid of 1.3:1 to 1.7:1, at a temperature of from about 250° C. to about 275° C., at a pressure of from about 1500 to 2000 p.s.i.g., for a time of about 1 to 4 hours, and in the presence of a catalyst of ruthenium.

3,812,149
PREPARATION OF 2-PYRROLIDINONE
Elmer J. Hollstein, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Filed July 21, 1972, Ser. No. 274,120
Int. Cl. C07d *27/08*
U.S. Cl. 260—326.5 FN **7 Claims**

A process for preparing 2-pyrrolidinone which comprises reacting succinic acid or its precursor, hydrogen, and ammonia in an aqueous system at a mole ratio of ammonia to acid of about 1.1:1 to about 1.7:1, at a temperature of from about 250° C. to about 275° C., at a pressure of from about 1500 to 2000 p.s.i.g., for a time of about 3 to about 6 hours, and in the presence of a rhodium catalyst.

3,812,150

3,3-DISUBSTITUTED-BENZODIOXEPINS

Burton K. Wasson, Valois, Quebec, and Haydn W. R. Williams, Dollard des Ormeaux, Quebec, Canada, assignors to Charles E. Frosst & Co., Montreal, Quebec, Canada

No Drawing. Original application June 9, 1969, Ser. No. 832,897, now Patent No. 3,700,691. Divided and this application May 1, 1972, Ser. No. 249,422

Int. Cl. C07d *27/56*

U.S. Cl. 260—326.15 **5 Claims**

3-hydroxy-3-(substituted-aminoalkyl)-3,4-dihydro-2H-1,5-benzodioxepin products are described that exhibits β-adrenergic stimulating properties and are therefore suitable for use as bronchodilating agents. The products are prepared essentially by four principal routes from 3-oxo-3,4-dihydro-2H-1,5-benzodioxepins. By one route the 3-oxobenzodioxepin is treated with a nitroalkane to give a 3-hydroxy - 3-nitroalkyl-benzodioxepin the nitro group of which is reduced to an amine and the resulting compound reacted with an aldehyde or ketone under hydrogenating conditions to introduce the desired substituent into the amino function. By a second route the 3-oxobenzodioxepin is reacted with an alkali metal nitrile to form the cyanhydrin which upon reduction forms the 3 - hydroxy-3-aminoalkyl-benzodioxepin that can be treated with a ketone or aldehyde to give the desired products or can be reacted with sodium nitrite or other agents to form a 3-spiro-benzodioxepin-2'-oxirane which upon reaction with an amine provides the desired product. The 3-spiro-benzodioxepin-2'-oxirane also can be obtained by treatment of the 3-oxo-benzodioxepin with a sulfurylide. A fourth method involves forming a benzodioxepin-3-spiro-5'-oxazolidin-2'-one which upon treatment with dilute alkali gives the desired 3-hydroxy-3-(substituted aminoalkyl)-3,4-dihydro-2H-1,5-benzodioxepin. The intermediate oxazolidinone compounds can be treated if desired with various agents to attach substituents on the benzenoid moiety of the starting substance. These oxazolidinone exhibit β-stimulating and skeletal muscle relaxant properties.

3,812,151

β-(2,4,6-TRIIODO-3-ACETAMIDINOPHENYL)-PROPIONIC ACIDS

Heinrich Pfeiffer, Karl Heinz Kolb, Alois Harwart, and Paul E. Schulze, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

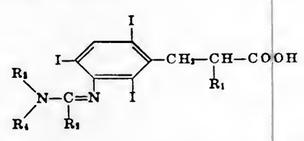
No Drawing. Filed Nov. 6, 1970, Ser. No. 87,612

Claims priority, application Germany, Nov. 8, 1969, P 19 56 844.6

Int. Cl. C07d *27/04;* **C07c** *101/44*

U.S. Cl. 260—326.47 **17 Claims**

Amidines of the formula



wherein R_1 is hydrogen or lower alkyl, R_2 is lower alkyl, and R_3 and R_4, which can be alike or different, each is a hydrogen atom or lower alkyl, or collectively with the nitrogen atom to which they are attached, a heterocyclic ring containing 0–1 additional hetero atoms selected from oxygen and nitrogen, including the physiologically acceptable salts thereof, are useful as radiopaque agent.

3,812,152

NOVEL DIBENZOFURAN AND DIBENZOTHIOPHENE DERIVATIVE

Kurt Hofer, Muenchenstein, Basel-Land, and Anton Voykowitsch, Binningen, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Mar. 11, 1971, Ser. No. 123,397

Claims priority, application Switzerland, Mar. 13, 1970, 3,754/70

Int. Cl. C07d *63/24, 5/44*

U.S. Cl. 260—329.3 **14 Claims**

This invention is directed to new heterocyclic compounds for stabilizing organic materials. The basic structural unit of these compounds is dibenzofuran or dibenzothiophene, to which at least one alkyl-substituted phenol group is bound through a methylene bridge.

3,812,153

PROCESS FOR PRODUCING MONOALKANOYL-FLUORESCEINS

Harvey Gurien, Maplewood, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 5, 1972, Ser. No. 312,386

Int. Cl. C07d *7/42*

U.S. Cl. 260—335 **5 Claims**

Higher monoalkanoylfluoresceins are prepared by a process wherein a higher alkanoyl halide and fluorescein are reacted in a suitable aprotic solvent and the product, higher monoalkanoylfluorescein, substantially free of undesirable contaminants and co-products is isolated. The higher alkanoylfluoresceins are useful in fluorometric methods for determining lipolytic hemolysis.

3,812,154

DIOXATRICYCLODECANES

Peter Willibrord Thies, Hannover, Germany, assignor to Kali-Chemie Aktiengesellschaft, Hannover, Germany

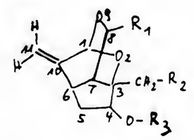
Filed Dec. 7, 1970, Ser. No. 97,420

Claims priority, application Germany, Dec. 8, 1969, P 19 61 433.6; June 6, 1970, P 20 27 890.4

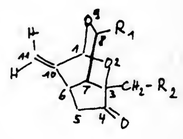
Int. Cl. C07d *15/04*

U.S. Cl. 260—340.3 **3 Claims**

A 2,9-dioxatricyclo-(4,3,1,0,^{3,7})-decane of the formulae Ia and Ib



Ia



Ib

in which R_1 is alkoxy or aralkoxy, R_2 is hydrogen, halogen or —SCN, R_3 is hydrogen or acyl, and the 10,11-double bond may also be hydrogenated.

The compounds are hypotensive and centrally depressant and analgetic agents and are useful for treating arteriosclerotic diseases and as psychopharmaceuticals.

3,812,155

PRODUCTION OF DIDEOXYZEARALANE

Herbert L. Wehrmeister and Donald E. Robertson, Terre Haute, Ind., assignors to Commercial Solvents Corporation

No Drawing. Continuation of abandoned application Ser. No. 729,409, May 15, 1968. This application Oct. 7, 1970, Ser. No. 78,925

Int. Cl. C07d *9/00*

U.S. Cl. 260—343.2 F **8 Claims**

The new compounds 3-(9-decenylidene)phthalide; 3-(9 - decenyl)phthalide; 3-(9-hydroxydecyl)phthalide; 2-(1,10-dihydroxyundecyl)benzoic acid; and 2-(10-hydroxyundecyl)benzoic acid; and a racemic mixture of dideoxyzearalane are provided; animal feeds containing growth promoting amounts of the racemic mixture of dideoxyzearalane are provided; and processes for producing the new compounds, the racemic mixture of dideoxyzearalane, and dideoxyzearalane are provided.

A racemic mixture of (±)-dideoxyzearalane can be prepared by condensing 10-undecenoic anhydride with phthalic anhydride to produce 3-(9-decenylidene)phthalide (Compound A). The internal double bond of Compound A is reduced to produce 3-(9-decenyl)phthalide (Compound B). The terminal double bond of Compound B is hydrated to produce 3-(9-hydroxydecyl)phthalide (Compound C) which is saponified to produce the salt of Compound D [2-(1,10-dihydroxyundecyl)benzoic acid]. The salt of Compound D is subjected to hydrogenolysis to produce 2-(10-hydroxyundecyl)benzoic acid (Compound E) which is subjected to lactonization to provide (±)-dideoxyzearalane. The specific (+)-dideoxyzearalane or (−)-dideoxyzearalane compounds can be produced by resolving racemic mixtures.

3,812,156

PROCESS FOR PREPARING LOWER ALKYL FLAVONE-7-OXYACETATES

Giuseppe Bonola, San Donato Milanese, and Enrico Sianesi, Milan, Italy, assignors to Recordati SA Chemical and Pharmaceutical Company, Lugano, Switzerland

No Drawing. Filed Oct. 21, 1971, Ser. No. 191,479

Claims priority, application Italy, Feb. 19, 1971, 20,755/71

Int. Cl. C07d *7/34*

U.S. Cl. 260—345.2 **6 Claims**

Lower alkyl esters of flavone-7-oxyacetic acid are made by reacting chloroacetonitrile with resacetophenone to give 2'-hydroxy-4'-cyanomethoxy acetophenone, reacting the latter compound with benzoyl chloride to give 1-(2-hydroxy-4-cyanomethoxy phenyl)-3-phenyl propane-1,3-dione and then reacting the latter compound with an anhydrous lower alkanol in the presence of a mineral acid.

3,812,157

BENZOPYRAN COMPOUNDS

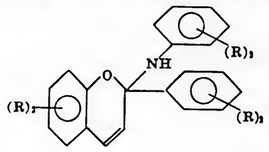
Chao-Han Lin and Arthur J. Wright, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed Mar. 31, 1972, Ser. No. 240,112

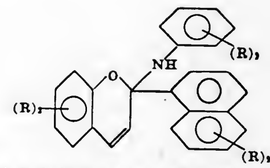
Int. Cl. C07d *7/26*

U.S. Cl. 260—345.2 **7 Claims**

Colorless, but colorable benzopyran compounds are disclosed, which are represented by the formula:



or



wherein each R is hydrogen, an alkyl radical having 1 to 5 carbon atoms, an alkoxy radical having 1 to 5 carbon atoms, a dialkylamino radical wherein each alkyl radical has 1 to 5 carbon atoms, an amino radical, a nitro radical or a halogen. These compounds are used in pressure-sensitive record material and in mark-forming manifold systems.

3,812,158

PREPARATION OF DIHYDROFURAN FROM 3,4-EPOXY-1-BUTENE, 3,4 - DIHYDROXY-1-BUTENE, OR 1,4-DIHYDROXY-2-BUTENE

Alfio J. Besozzi, Stone D. Cooley, and Fred E. Potts III, Houston, Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed Dec. 17, 1970, Ser. No. 99,278

Int. Cl. C07d *5/08*

U.S. Cl. 260—346.1 R **15 Claims**

2,5-dihydrofuran is prepared by contacting 3,4-epoxy-1-butene, 3,4-dihydroxy-1-butene or 1,4-dihydroxy-2-butene with soluble mercury salt such as $HgSO_4$ in a hydroxylic solvent (e.g. water or butanol) which is neutral or acidic at a moderate temperature, e.g., 20 to 110° C. Yields as high as 33 mole percent based on the starting material charged have been achieved.

3,812,159

POLYBASIC AROMATIC CARBOXYLIC ACIDS, ESTERS AND ANHYDRIDES

Hyman R. Lubowitz, Hawthorne, Calif., assignor to TRW Inc., Redondo Beach, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 799,106, Feb. 13, 1969. This application June 11, 1971, Ser. No. 152,439

Int. Cl. C07c *63/02, 63/48*

U.S. Cl. 260—346.3 **9 Claims**

This invention relates to novel aromatic polycarboxylic acids, the anhydrides and isomers thereof and more particularly to the use of said acids and anhydrides for the preparation of thermally stable high-molecular weight polymers including, for example, the polyamides, polybenzimidazoles, polyimidazopyrrolones, polyimides, polyesters and the like. These acids and/or anhydrides are obtained by reacting stoichiometric amounts of an alkali metal C_1–C_8 mono- or poly-alkyl substituted phenoxide with bis(chlorophenyl) sulfone to obtain bis(alkyl-substituted phenoxyphenyl) sulfone intermediates which are oxidized to the corresponding bis(carboxyphenoxyphenyl) sulfones.

3,812,160

BIS-META-PHENYLENE UREAS

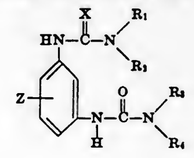
Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Original application Oct. 12, 1970, Ser. No. 80,120, now Patent No. 3,707,556. Divided and this application Oct. 2, 1972, Ser. No. 294,111

Int. Cl. C07d *5/16*

U.S. Cl. 260—347.3 **3 Claims**

Bis-meta-phenylene ureas having the formula:



in which X represents oxygen or sulfur, R_1 represents lower alkyl or lower alkenyl, R_2 is hydrogen, R_3 represents alkyl, alkenyl, chloroacetyl, phenyl and chloro substituted phenyl, R_4 represents hydrogen, lower alkyl and furfuryl, and Z represents hydrogen or lower alkyl. The compounds of this invention are useful as herbicides.

3,812,161

PROCESS FOR PREPARING PRIMARY FURFURYL AMINES

Albert Bouniot, Melle, France, assignor to Melle-Bezons, Melle, Deux-Sevres, France

No Drawing. Original application Feb. 28, 1968, Ser. No. 708,756, now Patent No. 3,565,954. Divided and this application Sept. 10, 1970, Ser. No. 71,210

Claims priority, application France, Mar. 8, 1967, 97,742

Int. Cl. C07d *5/16*

U.S. Cl. 260—347.7 **29 Claims**

The process for preparation of primary amines by reaction of a carbonyl compound with an auxiliary amine in the liquid phase to produce an imine which is then catalytically hydrogenated in the presence of ammonia to produce the primary amine in which the auxiliary amine may be regenerated as a by-product of the reaction for recycling to produce the imine and in which the operations can be carried out batchwise or in a continuous operation.

3,812,162

AZIDES

Nicholas J. Clecak, San Jose, and Robert J. Cox, Los Gatos, Calif., and Wayne M. Moreau, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Original application Sept. 29, 1970, Ser. No. 76,398, now Patent No. 3,695,886. Divided and this application May 15, 1972, Ser. No. 253,651

Int. Cl. C07c *117/00*

U.S. Cl. 260—349 **4 Claims**

Light sensitive photoresist compositions particularly useful for projection exposure applications include a photocrosslinkable polymer and novel sensitizers which are bis-p-azido cinnamylidene derivatives of cyclic and linear ketones.

3,812,163

METHOD FOR THE PREVENTION OF THE FORMATION OF SOLID RESIDUES ON THERMAL TREATMENT OF FUFURAL OR FURFURAL-EXTRACT MIXTURES

Ulrich Lohmüller, Salzbergen, Germany, assignor to Wintershall Aktiengesellschaft, Kassel, Germany

No Drawing. Filed Dec. 22, 1971, Ser. No. 211,036

Int. Cl. C07d *5/22*

U.S. Cl. 260—347.9 **2 Claims**

The formation of solid residues during thermal treatment of furfural or furfural-extract mixtures is prevented by passing the furfural or furfural-extract mixtures at a temperature of 120 to 220° C. through a layer of porous coarse-grained gas coke, the grains having a diameter of 3 to 10 cm, using a charge of 0.1 to 10 volumes of furfural or furfural-extract mixture per volume of porous gas coke layer.

3,812,164

SILICONE ELASTOMERS WITH PAINTABLE SURFACE

Jay R. Schulz, Bangor Township, Bay County, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 16, 1973, Ser. No. 333,425

Int. Cl. C08g *51/04*

U.S. Cl. 260—375 B **14 Claims**

Mixing a hydroxyl endblocked polydimethylsiloxane, a filler, an alkoxy silicon compound, such as, n-propylorthosilicate,



$$(RO)_3Si(CH_2)_4SCH_2CH_2\overset{O}{\overset{\|}{C}}NH_2$$

and a metal carboxylate provides a room temperature vulcanizable silicone elastomer composition which cures to provide an elastomer whose surface can be painted with either a latex base paint or an oil base paint.

3,812,165

18-METHYL-5α-H-ANDROSTANE DERIVATIVES AND PROCESS OF MAKING THE SAME

Hans-Detlef Berndt, Hermann Steinbeck, and Rudolf Wiechert, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

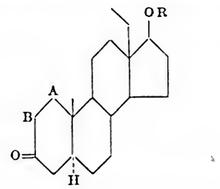
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,158

Claims priority, application Germany, Feb. 24, 1968, P 16 68 687.6

Int. Cl. C07c *169/22*

U.S. Cl. 260—397.4 **17 Claims**

An androstane derivative having the formula:



wherein A–B is a group selected from the following:

$$-CH_2-CH_2-,\ -CH=CH-,\ -\overset{CH_3}{\overset{|}{C}}=CH-\ \text{or}\ -\overset{OR'}{\overset{|}{C}}H-CH_2-$$

and R and R′ are the same or different and are hydrogen or an acyl residue. The compounds have a strong anabolic action and show a good dissociation of the anabolic main action from the undesired androgenous side effect.

The compounds are made by reducing the 4,5-position of a Δ^4,1-2-saturated corresponding steroid and, if desired, dehydrogenating the 1,2-position or introducing a methyl group into the 1-position.

3,812,166

DICHLORO-SUBSTITUTED ESTRADIENE

Rudolf Wiechert and Hermann Steinbeck, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

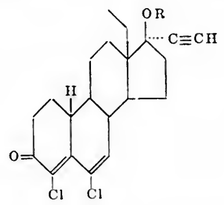
No Drawing. Filed Aug. 27, 1969, Ser. No. 853,480

Claims priority, application Germany, Sept. 13, 1968, P 17 93 422.4

Int. Cl. C07c *169/22*

U.S. Cl. 260—397.4 **14 Claims**

A racemic or optically active, 4,6-dichloro-4,6-estradiene of the formula



(I)

wherein R is hydrogen, alkyl, tetrahydropyranyl or an acid residue.

To form the compounds, the 4-unsubstituted 6-chloroestradiene is subjected to the action of an agent furnishing positive and negative chlorine, thereby forming the 6,6,7-trichloro-substituted compound, followed by treatment of the latter compound with a base.

The compounds have a very high progesterone activity.

3,812,167

GERMANIUM DERIVATIVE

Ung Soo Pahk, % U.S. Pahk Heart Foundation, 1028 Connecticut Ave. NW., Washington, D.C. 20036

No Drawing. Filed Oct. 8, 1971, Ser. No. 187,877

Claims priority, application Canada, Aug. 27, 1971, 121,624

Int. Cl. C07f *7/00*

U.S. Cl. 260—429 R **3 Claims**

There is disclosed the carboxyethyl germanium sesquioxide which is useful in the treatment of hypertension.

3,812,168

2-(N′-METHOXY-N′-METHYL-UREIDO)-BENZAMIDE

Karl Hoegerle, Basel, Switzerland, Jean-Claude Muller, St. Louis, France, and Christian Vogel and Jurg Rumpf, Binningen, near Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Mar. 24, 1969, Ser. No. 809,978, now Patent No. 3,646,136. Divided and this application Nov. 19, 1971, Ser. No. 200,599

Claims priority, application Switzerland, Mar. 29, 1968, 4,710/68

Int. Cl. C07c *119/00*

U.S. Cl. 260—453 R **1 Claim**

2-Ureido-benzamides of the formula



(I)

wherein:

R_1 represents halogen, lower alkyl or lower alkoxy of at most 5 carbon atoms,

R_2 represents hydrogen or lower alkyl of at most 5 carbon atoms,

R_3 represents hydrogen, lower alkyl or lower alkoxy of at most 5 carbon atoms,

R_4 represents an alkyl, alkenyl or alkynyl radical with at most 8 carbon atoms, lower halogen-alkyl, alkyoxy-alkyl or alkylmercaptoalkyl of at most 5 carbon atoms or cycloalkyl having 3 to 10 carbon atoms as ring members, and

n represents a whole number from 0 to 3,

are disclosed as herbicidally active compounds of enhanced toxicity to undesireable plant growth and improved selectivity. A method for controlling undesirable plant growth with such compounds and compositions containing them as active ingredients are also disclosed.

3,812,169

PREPARATION OF AROMATIC ISOCYANATES IN A TUBULAR REACTOR

Philip D. Hammond, North Haven, Conn., and John A. Scott, Joliet, Ill., assignors to Olin Corporation, New Haven, Conn.

Filed Oct. 24, 1972, Ser. No. 300,143

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 PC **8 Claims**

Aromatic isocyanates are produced directly from aromatic nitro compounds in a continuous process in which carbon monoxide and aromatic nitro compounds are reacted in a tubular reactor in the presence of a solvent and catalyst at an elevated temperature and pressure.

3,812,170

N-(3,3-DIPHENYL-3-CYANOPROPYL)-UREAS

Hermann Bretschneider, Wilhelm Klotzer, and Rudolf Franzmair, Innsbruck, Austria, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Aug. 1, 1969, Ser. No. 846,916, now Patent No. 3,665,012. Divided and this application Oct. 8, 1971, Ser. No. 187,834

Int. Cl. C07c *121/78*

U.S. Cl. 260—465 D **2 Claims**

Novel 2-iminopyrrolidines substituted in the 1-position are prepared from 2-amino-Δ′-pyrrolines. The novel pyrrolidines are useful as anti-diabetic and hypoglycemic agents since they effect a lowering of the blood sugar content in warm blooded animals.

3,812,171

PRODUCTION OF NITRILES BY AMMOXIDATION

William C. Neikam, West Chester, and Robert L. James, Springfield, Pa., assignors to Sun Research and Development Co., Marcus Hook, Pa.

No Drawing. Filed June 29, 1972, Ser. No. 267,303

Int. Cl. C07c *121/02*

U.S. Cl. 260—465 C **8 Claims**

In the process of carrying out ammoxidation reactions using V_2O_5 as catalyst, the improvement which comprises employing said V_2O_5 in the form of a molten eutectic mixture with K_2O.

3,812,172

15-METHYL AND 15-ETHYL DIHYDRO-PGE$_1$

Gordon L. Bundy, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 34,518, May 4, 1970, now Patent No. 3,728,382. This application May 24, 1972, Ser. No. 256,337

Int. Cl. C07c *61/32*

U.S. Cl. 260—468 D **5 Claims**

Prostaglandin 13,14 - dihydro - PG_1-type and PG_3-type compounds with a methyl or an ethyl substituent at C–15. These are useful for the same pharmacological purposes as the unsubstituted prostaglandins.

3,812,173

ORTHO-PHENYLENEDIAMINE DERIVATIVES

Raymond Giraudon, Lesigny, France, assignor to Rhone-Poulenc S.A., Paris, France

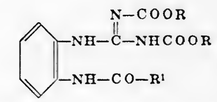
No Drawing. Filed Apr. 7, 1971, Ser. No. 132,203

Claims priority, application France, Apr. 9, 1970, 7012837; Oct. 9, 1970, 7036616

Int. Cl. C07c *129/12*

U.S. Cl. 260—471 C **10 Claims**

Compounds of the formula:



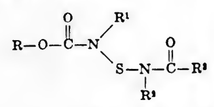
wherein the symbols R represent identical alkyl radicals of 1 through 4 carbon atoms, and the symbol R^1 represents hydrogen, alkyl of 1 through 6 carbon atoms, or alkoxy of 1 through 4 carbon atoms, possess fungicidal and anthelmintic properties.

3,812,174
SUBSTITUTED ARYL CARBAMATES

Melancthon S. Brown and Gustave K. Kohn, Berkeley, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed July 14, 1970, Ser. No. 54,854
Int. Cl. C07c *161/00*
U.S. Cl. 260—479 C **10 Claims**

Carbamates of the formula



wherein R is aryl or aralkyl of 6 to 14 carbon atoms optionally substituted with halogen atoms, nitro groups, alkoxy groups, alkylthio groups or dialkylamino groups; R^1 is hydrogen or alkyl of 1 to 4 carbon atoms; R^2 is alkyl of 1 to 10 carbon atoms or cycloalkyl of 3 to 10 carbon atoms either being optionally substituted with halogen atoms; R^3 is hydrogen alkyl of 1 to 10 carbon atoms or cycloalkyl of 3 to 10 carbon atoms, the alkyl or cycloalkyl being optionally substituted with halogen atoms with the proviso that R^2 and R^3 may be joined to form a linear alkylene radical of 3 to 5 carbon atoms which is bound to the carbonyl and nitrogen to form a ring. The carbamates find use as insecticides.

3,812,175
MULTIPLE STAGE CARBONYLATION PROCESS

John Happel, Hastings-on-Hudson, N.Y., and Sumio Umemura, Ube-shi, Japan, assignors to National Lead Company, New York, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,612
Int. Cl. C07c *51/14, 69/54*
U.S. Cl. 260—486 AC **6 Claims**

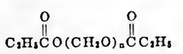
A carbonylation process for production of methyl methacrylate using a two reaction system in which each of the individual reaction systems supplies a reagent necessary for the other reaction system, more particularly, there is employed a first reaction system which produces nickel carbonyl from a nickel salt and carbon monoxide in the presence of a methanol and methacrylic acid solvent system, the latter being consumed by esterification with methanol, and being replaced by by-product methacrylic acid produced in a second reaction system which produces methyl methacrylate and methacrylic acid from methyl acetylene, carbon monoxide and the nickel carbonyl from the first reaction system in the presence of a methanol and water solvent system, the methacrylic acid being passed to the first reaction system, and the nickel carbonyl consumed in the reaction to make methyl methacrylate being replaced by nickel carbonyl made in the first reaction system, all the above system being carried out under critical conditions of pressure, temperature, concentrations, feed and flow rates and recycle control.

3,812,176
METHYLENE AND OXYMETHYLENE BIS-ESTER PRODUCTION

Seymour J. Lapporte, Orinda, and William G. Toland, San Rafael, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of application Ser. No. 221,415, Jan. 24, 1972, now Patent No. 3,720,706. This application Oct. 30, 1972, Ser. No. 302,373
The portion of the term of the patent subsequent to Mar. 13, 1990, has been disclaimed
Int. Cl. C07c *67/00*
U.S. Cl. 260—494 **11 Claims**

Methylene and oxymethylene bis-esters, e.g.,



wherein n is 1 to 5, are produced by the reaction of a carboxylic acid, ethylene, carbon monoxide and formaldehyde in the presence of a rhodium catalyst and an iodide or bromide promoter. In a preferred modification of the process, methylene and oxymethylene bisalkanoates are produced directly from ethylene, carbon monoxide, water and formaldehyde in the presence of the rhodium catalyst and the iodide or bromide promoter.

3,812,177
2-(2-PHENYL-1,1,2,2-TETRAFLUOROETHYL)-BENZYLAMINES

Edward L. Engelhardt, Gwynedd Valley, and Marcia E. Christy, Perkasie, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 799,945, Feb. 2, 1969, which is a continuation-in-part of application Ser. No. 712,616, Mar. 13, 1968, both now abandoned. This application Dec. 28, 1970, Ser. No. 102,130
Int. Cl. C07c *87/28*
U.S. Cl. 260—501.21 **7 Claims**

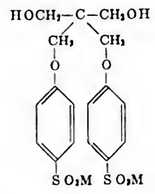
New fluoro derivatives of aralkylamine compounds, particularly 2-(2-phenyl-1,1,2,2-tetrafluoroethyl)benzylamine as well as the N-alkyl and the N,N-dialkyl derivatives thereof are prepared by reaction of 2-bromobenzonitrile with benzylmagnesium chloride to produce 2′-bromo-2-phenylacetophenone; oxidation of said acetophenone with selenous acid to produce 2-bromobenzil; conversion of the benzil compound by treatment with sulfur tetrafluoride to the corresponding 2-bromo-$\alpha,\alpha,\alpha',\alpha_2$-tetrafluorobenzyl; followed by reaction of the 2-bromobibenzyl compound with a metal cyanide to produce the corresponding 2-(2-phenyl-1,1,2,2 - tetrafluoroethyl)benzonitrile. This nitrile compound is then reduced with lithium aluminum hydride to produce the corresponding benzylamine, which is then converted, if desired, to the N-alkyl and/or N,N-dialkyl 2-(2-phenyl-1,1,2,2-tetrafluoroethyl)benzylamine. Alternatively, the nitrile or the precursor bromobibenzyl can be converted by Grignard reactions to the corresponding α-alkyl or α,α-dialkylbenzylamine which can then be converted if desired to the corresponding N-alkyl and/or N,N-dialkyl substituted benzylamine compound. The phenyltetrafluoroethylbenzylamine as well as its N-alkyl and N,N-dialkyl derivatives are active as antiarrhythmic agents.

3,812,178
POLYESTERS WITH IMPROVED DYEABILITY

Gene Clyde Weedon, Richmond, Va., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Nov. 16, 1971, Ser. No. 199,353, now Patent No. 3,753,949, dated Aug. 21, 1973. Divided and this application Apr. 30, 1973, Ser. No. 355,830
Int. Cl. C07c *143/42*
U.S. Cl. 260—512 R **1 Claim**

Compounds useful for the production of cationic dyeable linear polyesters, having the formula:



wherein M is selected from the group consisting of alkali metals and ammonium.

3,812,179
15-METHYL AND ETHYL PGE_2

Gordon L. Bundy, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 34,518, May 4, 1970, now Patent No. 3,728,382. This application May 23, 1972, Ser. No. 256,174
Int. Cl. C07c *61/36*
U.S. Cl. 260—514 D **3 Claims**

Prostaglandin E_2-type compounds with a methyl or an ethyl substituent at C–15. There are useful for the same pharmacological purposes as the unsubstituted prostaglandins.

3,812,180
1-METHYL-SULFINYLBENZYLIDENE - 1,3,4,5-TETRAHYDRO - 5 - OXO-BENZ-(c,d)-INDENE-3-CARBOXYLIC ACID AND ESTERS

Tsung-Ying Shen, Westfield, and Howard Jones, Holmdel, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed July 21, 1972, Ser. No. 273,897
Int. Cl. C07c *145/00*
U.S. Cl. 260—515 A **2 Claims**

New substituted benzylidene benzindenyl acids and derivatives thereof which have anti-inflammatory, antipyretic and analgesic activity. Also included herein are methods of preparing said benzylidene benzindenyl acids, pharmaceutical compositions having said benzylidene benzindenyl acids as an active ingredient and methods of treating inflammation by administering these particular compositions to patients.

3,812,181
O-(α-HYDROXYCINNAMOYL)BENZOIC ACID AND RELATED COMPOUNDS

Willy Leimgruber, Montclair, and Manfred Weigele, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,790
Int. Cl. C07c *65/02, 65/14, 65/20*
U.S. Cl. 260—520 **3 Claims**

A novel class of reagents react with primary amine-containing compounds, preferably polypeptides and amino acids, to form highly fluorescent products. This reaction serves as a basis for a rapid and highly sensitive assay method for primary amine-containing compounds.

3,812,182
S-BIS-(2-LOWER ALKYL AMINO HYDROXY-METHYLETHOXY)-METHANES

Leonard M. Weinstock, Belle Mead, Roger J. Tull, Metuchen, and Dennis M. Mulvey, Whitehouse Station, N.J., assignors to Charles E. Frosst & Co., Kirkland, Quebec, Canada

No Drawing. Application Aug. 16, 1971, Ser. No. 172,232, which is a division of application Ser. No. 818,474, Apr. 21, 1969, now Patent No. 3,657,237. Divided and this application June 18, 1973, Ser. No. 370,994
Int. Cl. C07d *87/46*
U.S. Cl. 260—584 R **2 Claims**

Preparation of S-3-X-4-(3-substituted amino-2-hydroxypropoxy) - 1,2,5 - thiadiazole beta adrenergic blocking agents using as starting material an optically active alkamine in the sinister configuration, or a derivative of said alkamine, which is reacted with an 3-X-4-chloro-1,2,5-thiadiazole. Novel 3-morpholino - 4 - chloro-1,2,5-thiadiazoles and novel alkamines and their preparation also are described.

3,812,183
PREPARATION OF MONOHALOACETYL HALIDES

Virgil W. Gash and Donald E. Bissing, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 185,402, Sept. 30, 1971. This application July 31, 1972, Ser. No. 276,280
The portion of the term of the patent subsequent to Feb. 26, 1991, has been disclaimed
Int. Cl. C07c *53/02, 51/58*
U.S. Cl. 260—544 Y **1 Claim**

A process for the preparation of monohaloacyl halides by halogenating ketenes in the presence of an alkoxyalkyl ester.

3,812,184
2-NITRO-5-(HALOPHENOXY)BENZOYL CHLORIDES

Robert J. Theissen, Westfield, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 194,481, Nov. 1, 1971, which is a division of application Ser. No. 819,412, Apr. 25, 1969, now Patent No. 3,652,645. This application Feb. 22, 1973, Ser. No. 334,526
Int. Cl. C07c *79/46*
U.S. Cl. 260—544 M **5 Claims**

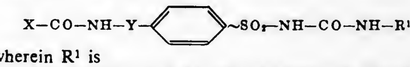
2-nitro-5-(halophenoxy)benzoic acids and esters, salts, amides, and acyl halides thereof comprise a class of compounds that are highly effective pre- and post-emergence herbicides.

3,812,185
BENZENESULFONYL UREAS

Helmut Weber, Frankfurt am Main, Walter Aumüller and Karl Muth, Kelkheim, Taunus, and Rudi Weyer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of applications Ser. No. 641,146, May 25, 1967, and Ser. No. 749,609, Aug. 2, 1968, both now abandoned. This application May 25, 1970, Ser. No. 41,161
Claims priority, application Germany, May 28, 1966, F 49,329; Apr. 18, 1967, F 52,152
Int. Cl. C07c *127/00*
U.S. Cl. 260—553 DA **10 Claims**

Benzenesulfonyl-ureas having hypoglycemic activities corresponding to the formula



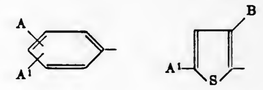
wherein R^1 is

(a) norcaran-7-yl, bicyclo-[3,1,0]-hexyl, bicyclo-[5,1,0]-octyl, or bicyclo-[6,1,0]-nonyl;

(b) 4,7-endomethylene - perhydroindan-5-yl; 4,7-endomethylene-6-chloro-perhydroindan-5-yl; 4,7-endomethylene-perhydroindan - 2 - yl; 2,6-endomethylenecycloheptyl; 2,5-endocyclobutylene-1,2-cyclohexyl; exo-tricyclo-(3,2,1,$0^{2,4}$)-octanyl;

(c) spiro-(2-cyclopropane) - cyclopentyl; spiro-(2-cyclobutane)-cyclopentyl; spiro-(2-cyclopentane)-cyclopentyl; spiro-(2-cyclohexane)-cyclopentyl; or spiro-(5,5)-undecyl-3;

X is



in which
A stands for hydrogen, halogen, trifluoromethyl, phenoxy, lower alkyl or lower alkoxy both having 1–4 carbon atoms,
A^1 stands for hydrogen, halogen or lower alkyl of 1–4 carbon atoms and
B stands for hydrogen or lower alkoxy of 1–4 carbon atoms
Y is a hydrocarbon chain of 1–3 carbon atoms

or a physiologically tolerable salt thereof.

3,812,186

WATER-SOLUBLE, NONIONIC IODOMETHANESULFONAMIDE DERIVATIVES OPAQUE TO X-RAYS

Hans Suter, Dorflingen, and Hans Zutter and Hans Rudolf Muller, Schaffhausen, Switzerland, assignors to Eprova Aktiengesellschaft, Schaffhausen, Switzerland

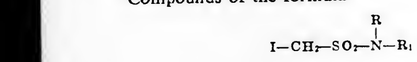
No Drawing. Continuation-in-part of abandoned application Ser. No. 224,297, Feb. 7, 1972. This application July 21, 1972, Ser. No. 274,079

Claims priority, application Switzerland, Mar. 23, 1971, 4,317/71; Nov. 17, 1971, 16,746/71, 16,747/71

Int. Cl. C07c *143/74*

U.S. Cl. 260—556 A **6 Claims**

Compounds of the formula



wherein R is hydrogen or methyl, and R_1 is β-hydroxyethyl, β - (β' - hydroxyethoxy) - ethyl, β,γ - dihydroxypropyl, or α,γ - dihydroxyisopropyl are very readily soluble in water without forming ions. Their concentrated aqueous solutions may be mixed with cerebrospinal fluid in body cavities for roentgenographic examination of the cavities, and are well tolerated.

3,812,187

HYDRAZIDES

Sandor Karady, Elizabeth, Seemon H. Pines, Murray Hill, Manuel G. Ly, New Brunswick, and Meyer Sletzinger, North Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Feb. 5, 1970, Ser. No. 9,052, now Patent No. 3,715,382. Divided and this application June 24, 1971, Ser. No. 156,548

Int. Cl. C07c *103/86*

U.S. Cl. 260—557 B **5 Claims**

Diastereomers of N-acyl α-hydrazino-β-(substituted or unsubstituted phenyl)alkanoic acid derivatives which can be separated and hydrolyzed to give compounds useful as decarboxylase inhibitors.

3,812,188

PURIFICATION OF 7-CHLOROTETRACYCLINE

William M. Ziegler, Clementon, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,702

Int. Cl. C07c *103/19*

U.S. Cl. 260—559 AT **10 Claims**

This disclosure describes a process for the purification of 7-chlorotetracycline free base or an anionic salt thereof by suspending the free base or the anionic salt thereof in a concentrated aqueous solution of urea thus forming 7-chlorotetracycline-urea complex and selectively removing the impurities, and regenerating purified 7-chlorotetracycline free base or a mineral acid salt thereof from the resultant complex.

3,812,189

N-(2,2-DILOWERALKOXYALKYL) - 2,2 - DILOWERALKOXYLOWERALKANAMIDINES AND THEIR ACID ADDITION SALTS

Jackson Pollard English, Grantham, N.H., and Gerald Berkelhammer, Princeton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed July 24, 1972, Ser. No. 274,560

Int. Cl. C07c *123/00*

U.S. Cl. 260—564 R **5 Claims**

The compounds N - (2,2-diloweralkoxyalkyl)-2,2-diloweralkoxyloweralkanamidines, the acid addition salts thereof and a method for their preparation, are described. A process for the preparation of imidazole-2-carboxaldehyde and 2-imidazolylalkyl ketones utilizing the above described compounds as intermediates are also described. The latter compounds are useful as intermediates in the preparation of 2-amino-5-(2-imidazolyl)-1,3,4-thiadiazoles, which are highly effective antibacterial and antiprotozoal agents.

3,812,190

CONVERSION OF ACROLEIN DIMER TO CYCLOPENTANONE

John P. Petrovich, Creve Coeur, and Donald A. Tyssee, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,833

Int. Cl. C07c *45/00*

U.S. Cl. 260—586 A **8 Claims**

Cyclopentanone is prepared in high yields from acrolein dimer by a process comprising contacting acrolein dimer with a dehydrogenation catalyst on an acidic support at a temperature of from about 150° C. to about 400° C. Examples of a dehydrogenation catalyst include silica-alumina, oxides of nickel, oxides of copper, palladium, and mixed oxides of cobalt and nickel. Examples of an acidic support include silica, alumina, oxides of nickel, and silica-alumina. Cyclopentanone is an article of commerce useful in the production of glass-reinforced plastics, caulking compounds, perfumes and flavoring agents as well as an effective solvent for polyvinyl chloride resins.

3,812,191

PROCESS FOR PRODUCING DEVELOPERS FOR SILVER HALIDE IMAGE PATTERNS

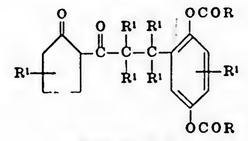
Henry Bader, Newton Center, and Michael Feingold, Pinehurst, Mass., and Edwin G. Jahngen, Jr., Burlington, Vt., assignors to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed July 19, 1971, Ser. No. 164,102

Int. Cl. C07c *49/82*

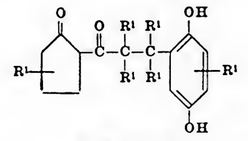
U.S. Cl. 260—590 **10 Claims**

A novel process for producing compounds especially useful as developers for silver halide image patterns. Essentially, the process of the invention involves the saponification of a compound of the following formula:



FORMULA 1.

in a non-aqueous alkaline medium followed by acidification to provide a compound conforming to the following formula:



FORMULA 2.

wherein the —OCOR groups at the ortho and para positions of the phenyl ring represent groups that can be substituted with or converted to hydrogen so as to provide hydroxy moieties in the ortho and para positions and R^1 represents a substituent which can be the same or different and which does not affect the functionality of the compound as a silver halide developing agent.

3,812,192

PROCESS FOR THE MANUFACTURE OF POLYTHIOBISPHENOLS

Rudolf Gabler, Uitikon-Waldegg, and Josef Studinka, Zurich, Switzerland, assignors to Inventa AG fur Forschung und Patentverwertung, Zurich, Switzerland

No Drawing. Filed May 15, 1972, Ser. No. 253,304

Claims priority, application Switzerland, May 26, 1971, 7,653/71

Int. Cl. C07c *149/18*

U.S. Cl. 260—608 **8 Claims**

A phenol which is unsubstituted at the position para to the hydroxy group or unsubstituted at at least one of the positions ortho to the hydroxy group is dissolved in a solvent, in the absence of hydrogen sulfide and catalysts, and while cooling to a temperature below 30° C. is reacted with disulfur dichloride. The solvent is an acid amide whose nitrogen atoms are completely alkylated. Polythiobisphenols are obtained in high yield.

3,812,193

PREPARATION OF 3,3',5,5'-TETRA-ISOPROPYL-4,4'-HYDROXYDIPHENYL

Donald Richard Randell, Stockport, and Peter Miles and Allan Geoffrey Virgin, Manchester, England, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Aug. 9, 1971, Ser. No. 170,243

Claims priority, application Great Britain, Aug. 8, 1970, 38,316/70

Int. Cl. C07c *37/00*

U.S. Cl. 260—620 **4 Claims**

3,3',5,5'-tetra-isopropyl - 4,4' - dihydroxydiphenyl is prepared by oxidizing 2,6-di-isopropyl phenol with a ferric salt of a nonoxidizing acid. The compound is used as a stabilizer for gasoline.

3,812,194

NOVEL PROCESS FOR PREPARING 6-HALO-3-METHYLPHENOLS

Ira Starer, Somerville, Carroll Sherman Montgomery, Piscataway, and Edward John O'Bara, Manville, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Jan. 6, 1970, Ser. No. 1,036

Int. Cl. C07c *39/26*

U.S. Cl. 260—623 R **2 Claims**

This disclosure describes a multistep process for the preparation of 6-halo-3-methylphenols from 6-nitro-3-methylphenol; the products of the process being useful in the preparation of anti-allergenic agents.

3,812,195

PREPARATION OF DIMETHYL BERYLLIUM

Roy J. Laran, Greenwell Springs, and Paul Kobetz, Baton Rouge, La., and Robert W. Johnson, Jr., Savannah, Ga., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Original application Apr. 23, 1965, Ser. No. 451,694. Divided and this application Apr. 26, 1967, Ser. No. 651,333

Int. Cl. C07f *3/00*

U.S. Cl. 260—665 R **1 Claim**

A process of reacting aluminum trialkyls or alkali metal aluminum tetraalkyls with a beryllium halide to form a beryllium dialkyl, which may be pyrolyzed to form beryllium hydride, is disclosed. Beryllium hydride is a fuel component of solid propellants and also a source of hydrogen and of pure beryllium metal.

3,812,196

CATALYTIC STEAM DEALKYLATION

Masao Uchiyama and Norio Kaneko, Ibaraki, Japan, assignors to Mitsubishi Petrochemical Company Limited, Chiyoda-ku, Tokyo-to, Japan

No Drawing. Filed Nov. 26, 1971, Ser. No. 202,640

Claims priority, application Japan, Nov. 30, 1970, 45/105,709, 45/105,710, 45/105,711

Int. Cl. C07c *3/58*

U.S. Cl. 260—672 **9 Claims**

An alkylaromatic hydrocarbon is dealkylated by contacting it, in the presence of steam and at a temperature ranging from 350 to 500° C., with a catalyst comprising nickel, and at least one metal selected from palladium, iron, iridium, rhodium, thallium, cerium, selenium, antimony, cadmium, tungsten, barium, sodium, potassium, and rhenium, supported on a carrier, preferably alumina.

3,812,197

METHOD FOR DISPROPORTIONATING HYDROCARBONS

Robert M. Suggitt, Wappingers Falls, and John M. Crone, Jr., Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

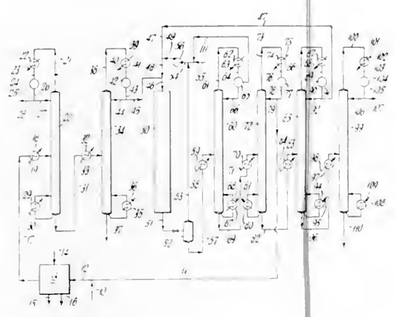
Filed Aug. 25, 1972, Ser. No. 283,678

Int. Cl. C07c *3/62*

U.S. Cl. 260—672 T **13 Claims**

The method of this invention permits disproportionation of a methyl benzene, such as toluene, to form a

product stream typically containing benzene and xylene



and the recovery of these products in high purity.

3,812,198

COMPLEXATION OF 2,6-DIMETHYLNAPHTHALENE WITH p-NITROBENZOIC ACID

John A. Hedge, Wilmington, Del., assignor to Sun Research and Development Co., Marcus Hook, Pa.

No Drawing. Filed Dec. 20, 1972, Ser. No. 317,013

Int. Cl. C07c *7/02*

U.S. Cl. 260—674 N **17 Claims**

2,6-dimethylnaphthalene can be separated from other like hydrocarbons by complexing with p-nitrobenzoic acid.

3,812,199

DISPROPORTIONATION OF PARAFFIN HYDROCARBONS

Nai Yuen Chen, Cherry Hill, and Stanley J. Lucki, Runnemede, N.J., assignors to Mobil Oil Corporation

No Drawing. Filed July 2, 1968, Ser. No. 741,916

Int. Cl. C07c *3/00*

U.S. Cl. 260—676 R **8 Claims**

Disproportionation of paraffin hydrocarbons by contacting a paraffin hydrocarbon charge under disproportionation conditions with a crystalline zeolite catalyst and separating therefrom disproportionation products comprising products having a higher molecular weight than the paraffin hydrocarbon charge and products having a lower molecular weight than the hydrocarbon charge.

3,812,200

PROCESS FOR REACTIVATION OF SODA-LIME

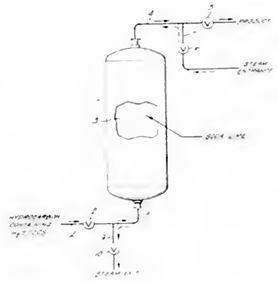
Edward H. Grey, Media, and Robert C. Shufelt, Brookhaven, Pa., assignors to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed Aug. 23, 1972, Ser. No. 283,255

Int. Cl. C07c *11/00*

U.S. Cl. 260—677 A **4 Claims**

A moisturizing medium, e.g. steam is injected into a soda-lime treatment bed after the soda-lime therein has been used to remove H_2S and/or COS impurities from a normally gaseous hydrocarbon feed stream. The soda-



lime is thereby reactivated resulting in a longer cycle life of the bed.

3,812,201

TEXTILE FINISHING COMPOSITION AND PROCESS

Alvin E. Bey, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 25, 1972, Ser. No. 229,482

Int. Cl. C08g *37/38, 47/10*

U.S. Cl. 260—824 R **9 Claims**

Application of a composition consisting essentially of a durable press resin and a carboxy functional siloxane to some textiles has been found to impart improved tear strength, abrasion resistance and flat appearance.

3,812,202

REACTION PRODUCT OF ACRYLAMIDE POLYMERS AND POLYPHENOLIC PRECURSOR

Howard J. Wright, Kansas City, Mo., assignor to Cook Paint and Varnish Company, Kansas City, Mo.

No Drawing. Filed Oct. 8, 1971, Ser. No. 187,878

Int. Cl. C08g *45/10, 37/16*

U.S. Cl. 260—834 **11 Claims**

A resinous coating composition comprising the reaction product of (A) a polyphenolic precursor containing at least two phenolic hydroxyl groups obtained by reacting a phenol having at least two phenolic hydroxyl groups with a polyepoxide compound and (B) an acrylic copolymer of methylol acrylamide or methylol diacetone acrylamide with another ethylenically unsaturated monomer.

3,812,203

CHLOROPRENE RUBBER COMPOSITION AND METHOD OF PRODUCING THE SAME

Takashi Kadowaki, Kenji Itoyama, and Shoya Matsuzawa, Nishikubiki, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Original application Sept. 17, 1970, Ser. No. 73,174, now Patent No. 3,703,568. Divided and this application May 9, 1972, Ser. No. 264,701

Claims priority, application Japan, Sept. 24, 1969, 44/75,364

Int. Cl. C08d *9/10;* **C08g** *37/16*

U.S. Cl. 260—845 **3 Claims**

Chloroprene rubber composition consisting mainly of a mixture of 100 parts by weight of chloroprene polymer and 0.1 to 20 parts by weight of polyvinyl alcohol. The chloroprene rubber composition can be used alone as an adhesive. An adhesive composition having a more excellent stability against the layer separation is obtained by adding a metal oxide, and a modified phenol resin and conventional additives to the rubber composition.

3,812,204

POLYMERIC COMPOSITION COMPRISING POLYVINYL CHLORIDE

Giulio Natta, Enrico Beati, and Febo Severini, Milan, and Silvio Toffano, Bergamo, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation of application Ser. No. 12,462, Feb. 19, 1970, which is a continuation-in-part of application Ser. No. 375,663, June 16, 1964, both now abandoned. This application Apr. 28, 1972, Ser. No. 248,592

Int. Cl. C08f *15/00*

U.S. Cl. 260—878 R **1 Claim**

Polymeric compositions comprising graft copolymers of vinyl chloride and from 2% to 25% by weight of an amorphous ethylene copolymer, which compositions are directly useable as produced, without solvent extraction, in the manufacture of shaped articles having commercially acceptable mechanical properties including impact strength, are provided. The compositions are obtained by polymerizing vinyl chloride in contact with the amorphous ethylene copolymer and an initiator of the vinyl chloride polymerization.

3,812,205

PROCESS FOR PREPARING GRAFTLINKED HETEROPOLYMER FILM

David L. Dunkelberger, Levittown, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 27,995, Apr. 13, 1970. This application Sept. 20, 1972, Ser. No. 290,678

Int. Cl. B32b *27/30;* **C08f** *15/18*

U.S. Cl. 260—885 **16 Claims**

Production of heteropolymer latex particles wherein the particles consist essentially of a first-stage rubbery crosslinked emulsion polymer having a T_g below 10° C. comprising at least one C_1 to C_8 alkyl acrylate and a graftlinker and a second-stage thermoplastic polymer having a T_g above about 60° C. comprising a hard alkyl ester of methacrylic acid graftlinked to said first-stage by adding gradually a stream of said second-stage monomer to said first-stage and polymerizing rapidly the second-stage monomer. The polymer particles are preferably isolated, dried and converted into film using heat and pressure.

3,812,206

POLYFLUOROPOLYMERS

Ronald Eric Banks, Hazel Grove, and Robert Neville Haszelding, Disley, England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

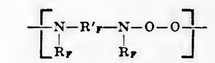
No Drawing. Filed Jan. 30, 1973, Ser. No. 327,840

Claims priority, application Great Britain, Jan. 31, 1972, 4,383/72

Int. Cl. C08f *29/16*

U.S. Cl. 260—890 **22 Claims**

A process for cross-linking a polyfluoropolymer containing pendant perfluorovinyl groups including the step of treating the polyfluoropolymer with an effective amount of a cross-linking agent including the structural unit:



wherein R'_F is a divalent polyfluoroalkylene group having a chain length of from 1 to 4 carbon atoms which may be substituted at one or more positions with chloro- or polyfluoroalkyl, chlorofluoroalkyl or polyfluorocycloalkyl groups containing up to six carbon atoms, and R_F is a monovalent straight or branched chain, or cyclic, polyfluoroalkyl group or a chlorofluoroalkyl group containing up to ten carbon atoms and the R_F groups are the same or different or is a divalent polyfluoroalkylene group having a chain length of from 1 to 4 carbon atoms which may be substituted at one or more positions with chloro- or polyfluoroalkyl, chlorofluoroalkyl or polyfluorocycloalkyl groups containing up to six carbon atoms; and the R_F groups are interconnected to form a cyclic structure.

3,812,207

MOLDING COMPOSITIONS HAVING IMPROVED ENVIRONMENTAL STRESS-CRACK RESISTANCE AND LOW-TEMPERATURE IMPACT STRENGTH

Rudolf Glaser, Ludwigshafen, Juergen Schmidtchen, Frankenthal, and Peter Bauer, Luwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Original application Oct. 22, 1971, Ser. No. 191,770. Divided and this application Nov. 24, 1972, Ser. No. 308,992

Int. Cl. C08f *37/04*

U.S. Cl. 260—897 A **5 Claims**

Compositions of matter having improved environmental stress-crack resistance and low-temperature impact strength comprising (a) polyethylene, (b) polyisobutylene and (c) N,N'-distearoylethylenediamine. The compositions are used for electrical insulating purposes and the production of moldings.

3,812,208

STRUCTURAL ELEMENTS OF REDUCED INFLAMMABILITY

Franz Esser, Gundernhausen, Friedrich Hanstein, Gross-Zimmern, and Ludwig Hosch and Dieter Mueller, Darmstadt, Germany, assignors to Rohm GmbH, Darmstadt, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 9,253, Sept. 2, 1969. This application July 1, 1971, Ser. No. 159,031

Claims priority, application Germany, Aug. 31, 1968, P 17 94 058.8

Int. Cl. B29c *25/00;* **C09k** *3/28*

U.S. Cl. 260—899 **9 Claims**

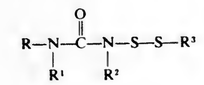
Structural elements, such as for buildings, made of acrylates having enhanced flame resistance, said acrylates being mechanically worked, e.g. biaxially stretched, and having flame-inhibiting phosphorus compounds incorporated therein.

3,812,209
1-HYDROCARBYLDITHIO-3-ARYL UREAS

Melancthon Starr Brown, deceased, late of Berkeley, Calif. (by Gustave K. Kohn, administrator), assignor to Chevron Research Company, San Francisco, Calif.

Filed Nov. 9, 1970, Ser. No. 88,106
Int. Cl. C07c *119/00*
U.S. Cl. 260—453 R **6 Claims**

Compounds of the formula



wherein R is phenyl optionally substituted with halogens nitro groups, lower alkyl groups or lower alkoxy groups, R^1 and R^2 are hydrogen or lower alkyl and R^3 is a hydrocarbyl group of 1 to 14 carbon atoms free of aliphatic unsaturation optionally substituted with halogen atoms, nitro groups or alkoxy groups. The compounds are herbicidal.

3,812,210
VAPOR PHASE DECOMPOSITION OF METHYL FORMATE TO YIELD METHANOL

Buster W. Higdon, Gray; Charles C. Hobbs, and Michael J. Onore, both of Corpus Christi, all of Tex., assignors to Celanese Corporation, New York, N.Y.

Filed Aug. 13, 1971, Ser. No. 171,718
Int. Cl. C07c *27/00, 29/00*
U.S. Cl. 260—638 R **5 Claims**

An improved process is provided for the thermocatalytic decomposition of methyl formate to yield methanol and carbon monoxide as the major decomposition products. Methyl formate while in the gaseous phase and at a temperature of about 200° to 500°C. (preferably 250° to 400°C.) is contacted with a solid catalyst (described in detail herein) capable of promoting the desired decomposition reaction. In a preferred embodiment of the process a gaseous stream of methyl formate is continuously passed through a fixed bed of the catalyst while at the temperature indicated.

3,812,211
PROCESS FOR THE REACTION OF BROMOALKANES WITH INORGANIC CHLORIDES

Morris A. Johnson, and Kang Yang, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed July 16, 1971, Ser. No. 163,438
Int. Cl. C07c *17/20*
U.S. Cl. 260—658 R **2 Claims**

The present invention relates to a method for conducting the reaction between bromoalkanes and inorganic chlorides wherein the reactions are heated in a reaction vessel in the presence of an activated charcoal catalyst.

3,812,212
PROCESS FOR INCREASING SELECTIVITY TO 1-BROMOALKANE IN THE ADDITION OF HYDROGEN BROMIDE TO OLEFINS

Ronnie D. Gordon, Richardson, Tex., assignor to Continental Oil Company, Ponca City, Okla.

Filed June 21, 1972, Ser. No. 265,075
Int. Cl. C07c *17/08*
U.S. Cl. 260—663 **5 Claims**

1-Bromoalkanes may be produced with improved selectivity by reacting anhydrous hydrogen bromide and a 1-olefin in the presence of a free radical initiator and an organic quaternary salt.

3,812,213
PREPARATION OF DIALKYL BERYLLIUM AND RECOVERY BY DISTILLATION

Crayton G. Hall, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed Sept. 27, 1963, Ser. No. 312,835
Int. Cl. C07f *3/00*
U.S. Cl. 260—665 R **11 Claims**

1. In the process for preparing a dialkylberyllium compound which comprises reacting an anhydrous beryllium halide wherein the halogen has an atomic number of from 17 to 53, inclusive, with an alkyl magnesium halide wherein the halogen has an atomic number of from 17 to 53, inclusive, and wherein the alkyl group contains from three to eight carbon atoms, in a solvent comprising an ether selected from the group consisting of aliphatic, alicyclic and heterocyclic ethers containing up to six carbon atoms in each hydrocarbon group, and separating the dialkylberyllium product from the crude reaction product, the improvement which comprises carrying out the separation step by diluting said reaction product with a hydrocarbon chaser having an initial boiling point in the range of 250° to 300°C. and a final boiling point in the range of 350° to 450°C., distilling off essentially all of the uncomplexed ether, and then distilling the dialkylberyllium product under reduced pressure, the quantity of said hydrocarbon chaser being sufficient to maintain in suspension the solid residue from the distillation of the said dialkylberyllium product.

3,812,214
HARDENABLE COMPOSITION CONSISTING OF AN EPOXY RESIN AND A METAL ACETYLACETONATE

Mark Markovitz, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 193,551, Oct. 28, 1971, abandoned. This application Mar. 13, 1973, Ser. No. 340,796
Int. Cl. C08g *45/00*
U.S. Cl. 260—830 TW **7 Claims**

The cure rate of 1,2-epoxy resins containing more than one epoxy group per molecule can be controlled over a wide range of times by a catalytic hardener comprising from 0.025 to 5.0 percent based on the weight of the epoxy resin of a metal acetylacetonate and up to 15.0 percent by weight of the epoxy resin of a phenolic accelerator.

3,812,215
METHOD FOR MANUFACTURING VINYL CHLORIDE GRAFT POLYMERS

Shuniche Koyanagi; Hajima Kitamura, and Akiyoshi Maruyama, all of Niigata-ken, Japan, assignors to Shinetsu Chemical Company, Tokyo, Japan

Continuation of Ser. No. 163,430, July 16, 1971, abandoned, which is a continuation of Ser. No. 843,747, Sept. 8, 1969, abandoned. This application Mar. 20, 1973, Ser. No. 342,937
Claims priority, application Japan, July 31, 1968, 43-53640
Int. Cl. C08f *15/40*
U.S. Cl. 260—878 R **5 Claims**

A vinyl chloride graft polymer is obtained by polymerization of a vinyl chloride monomer with a multi-functional monomeric ester in the presence of an ethylenevinyl ester copolymer. Thus obtained graft polymer is improved in such properties as impact strength, weathering resistance and workability, and besides, minimizes the lowering of softening temperature and improved its gellation property and fluidity in molding.

3,812,216
SYNTHETIC RUBBER COMPOSITION

Hisatake Sato, and Hideo Hayashi, both of Yokohama, Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed Oct. 5, 1971, Ser. No. 186,769
Claims priority, application Japan, Oct. 20, 1970, 45-91653
Int. Cl. C08d *9/08*; **C08f** *41/12*
U.S. Cl. 260—887 **6 Claims**

A synthetic rubber composition of excellent tackiness which comprises 100 parts by weight of a synthetic rubber and from 3 to 30 parts by weight of phenol modified resin obtained by polymerization of 100 parts by weight of hydrocarbon mixture, boiling within the range of 140° to 280° C, containing unsaturated hydrocarbons by-produced in cracking of petroleum and from 3 to 15 parts by weight of a phenolic compound, using from 0.05 to 5 parts by weight of boron trifluoride, its complex compound or aluminum chloride as catalyst.

3,812,217
POLYFLUOROCYCLOALKYL PHOSPHATES

Ronald C. Moyer, North Kingstown, R.I., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 39,175, May 20, 1970, abandoned, which is a continuation-in-part of Ser. No. 844,197, July 23, 1969, abandoned. This application Mar. 22, 1972, Ser. No. 236,978
Int. Cl. C07f *9/08, 9/14*
U.S. Cl. 260—924 **23 Claims**

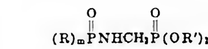
Polyfluorocycloalkyl phosphate compounds, the method of preparing these polyfluorocycloalkyl phosphate compounds, and the use of these polyfluorocycloalkyl phosphate compounds as grease and oil resistant sizes are disclosed.

3,812,218
DIALKYL ALKYL AND CYCLIC PHOSPHORAMIDOMETHYL PHOSPHONATES

Peter Golborn, Lewiston, and James J. Duffy, Buffalo, both of N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Mar. 30, 1972, Ser. No. 239,799
Int. Cl. C07f *9/02*; **C07d** *105/04*
U.S. Cl. 260—926 **6 Claims**

New compounds are disclosed of the formula:



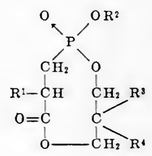
wherein R′ is phenyl, lower alkenyl and halogen substituted and unsubstituted lower alkyl of 1–6 carbon atoms, *m* is an integer from 1–2 wherein when *m* is 2, R is alkoxy of 1–8 carbon atoms and when *m* is 1, R is alkylene dioxy of 2–8 carbon atoms. The compounds of this invention are useful as flame retardant agents for textile materials and in the production of polymers and copolymers which possess flame retardant properties.

3,812,219
RING PHOSPHONATES

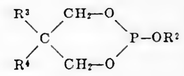
James S. Clovis, and Francis R. Sullivan, both of Warminster, Pa., assignors to Rohm and Hass Company, Philadelphia, Pa.

Filed May 3, 1971, Ser. No. 139,949
Int. Cl. C01d *105/04*; **C08f** *45/58*
U.S. Cl. 260—936 **3 Claims**

A nine-membered ring phosphonate compound having the formula



wherein R^1 is hydrogen or methyl, R^2 is phenyl or substituted phenyl wherein the substitution is one or more of halogen, nitro, lower alkyl, cyclohexyl, alkoxy, naphthoxy or phenyoxy and R^3 and R^4 are the same or different and are lower alkyl of up to eight carbon atoms, preferably methyl, is formed by the reaction of acrylic or methacrylic acid with a compound of the general formula



wherein R^2, R^3 and R^4 are as above. The ring phosphonates are useful for forming flame-retardant compositions from mixtures comprising the phosphonate and methyl methacrylate.

3,812,220
PHOSPHATE ESTERS OF HINDERED PHENOLS

Michael Robin, Colonia, N.J., and Sheldon R. Schulte, Columbus, Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

Filed May 15, 1972, Ser. No. 252,983
Int. Cl. C07f *9/12*; **B01j** *1/18*
U.S. Cl. 260—953 **5 Claims**

Reaction products of a phosphate ester-forming compound such as a phosphorous oxyhalide and a hindered bis phenol are obtained. Such products are useful as antioxidants in various compositions and materials.

3,812,221
PREPARATION OF W-AMINO-ALKANE PHOSPHONIC AND PHOSPHINIC ACID DERIVATIVES

Rudolf Braden, Odenthal-Scheuren; Udo Hendricks; Gunter Oertel, and Reinhard Schliebs, all of Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed June 29, 1971, Ser. No. 158,088
Claims priority, application Germany, July 2, 1970, 2032712
Int. Cl. C07f *9/28*
U.S. Cl. 260—968 **1 Claim**

Preparation of the title derivatives by hydrogenation of a salt of the corresponding ω-cyano-alkane phosphonic or phosphinic acid derivative.

3,812,222
PROCESS FOR THE MANUFACTURE OF ALKANE PHOSPHONIC ACID DIESTERS

Hans-Jerg Kleiner, Bad Soden/Taunus, and Siegbert Rittner, Frankfurt am Main, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Dec. 14, 1970, Ser. No. 98,052
Claims priority, application Germany, Dec. 16, 1969, 1963014; Sept. 2, 1970, 2043520
Int. Cl. C07f *9/40*
U.S. Cl. 260—970 **9 Claims**

The known production of alkane phosphonic acid diesters from olefins and dialkylphosphites in the presence of free radical generators is improved by using α-olefins having an extremely low content of sulfur. Thus high yields and pure products are obtained within short reaction times. The known products are foam depressants, anticorrosives, oiladditives, dyeing adjuvants and organic intermediates, expecially for plant protecting agents.

3,812,223
PROCESS FOR PRODUCING THIO-OR DITHIO-PHOSPHORIC ACID SALTS

Hiroshi Tsuchiya, Oita, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed July 19, 1971, Ser. No. 164,090
Claims priority, application Japan, July 22, 1970, 46-64638
Int. Cl. C07f *9/02*
U.S. Cl. 260—987 **5 Claims**

Thio- or dithio-phosphoric acid salts, which are indispensable intermediates for producing phosphoric acid esters of the thiol or dithiol type useful as agricultural chemicals, are produced by reacting a thionophosphoric acid ester with an alkali metal salt of a dithiocarbamic acid at 50° to 150°C in the presence of a solvent such as an aqueous or anhydrous alcohol, a Cellosolve, dimethylformamide, dimethyl sulfoxide, or the like.

3,812,224
PROCESS FOR THE PRODUCTION OF POROUS POLYMERIC MATERIALS

Albert Ernest Smith, and James Charles Ingram, both of Sarnia, Ontario, Canada, assignors to Polysar Limited, Sarnia, Ontario, Canada

Continuation of Ser. No. 22,387, March 24, 1970, abandoned. This application Mar. 13, 1972, Ser. No. 234,318
Claims priority, application Canada, May 5, 1969, 050500
Int. Cl. B29d *27/00*
U.S. Cl. 264—28 **6 Claims**

A porous cellular composition is made by freezing a plastically deformable or pourable system containing a solid polymer and a compatible liquid which is capable of freezing to a crystalline state and then subliming the liquid.

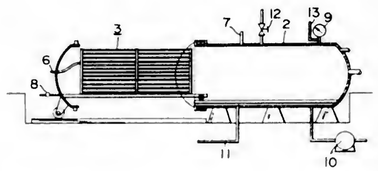
The composition contains interconnecting cells of not more than 1,000 microns in width and is suitable for the production of leather-like breathable sheets, filter elements and non-woven fabrics.

3,812,225
METHOD OF MANUFACTURING FOAMED CROSS-LINKED POLYOLEFIN SLABS INVOLVING MULTIPLE EXPANSION TECHNIQUES AND DIRECT GAS PRESSURE

Kirokuro Hosoda, and Naonori Shiina, both of Tokyo, Japan, assignors to The Furukawa Electric Company Limited, Tokyo, Japan

Division of Ser. No. 778,443, Nov. 25, 1968, Pat. No. 3,651,183, which is a continuation-in-part of Ser. Nos. 442,523, March 24, 1965, abandoned, and Ser. No. 610,880, Jan. 23, 1967, abandoned, and Ser. No. 645,444, June 12, 1967, abandoned, and Ser. No. 792,180, Oct. 18, 1968, abandoned. This application Aug. 4, 1971, Ser. No. 169,037
Int. Cl. B29d *27/00*
U.S. Cl. 264—54 **21 Claims**

A method of manufacturing polymer foam of polyolefin, rubber, or plastics other than polyolefin, such as polyvinyl chloride, polystyrene, polyacrylic acid, or the like, or mixtures thereof, and particularly for manufacturing such foam in the form of a foamed slab or foamed sheet, is disclosed. The foamed slab is produced by extruding a matrix containing a cross-linking agent and blowing agent, subjecting the matrix to heat and pressure to decompose the blowing agent, and cross-linking agent, and thereafter heating the partially expanded

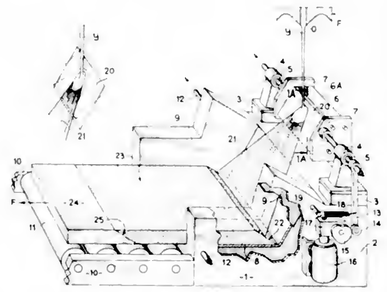


matrix under atmospheric or other pressure to effect a secondary expansion. The foamed sheet is made by extruding a matrix containing a cross-linking agent and blowing agent and introducing same onto a support which contacts the surface of the matrix at a plurality of spaced locations to leave spaced regions of the matrix exposed, and thereafter subjecting the matrix to heat to cross-link and foam. A surface treatment for both the slab and sheet is provided to effect cross-linking of the surface regions prior to foaming.

3,812,226
METHOD FOR PRODUCING OBJECTS FROM A MOLTEN CERAMIC PRODUCT

Jacques Marie Yves Le Clerc De Bussy, Bussy, 80 Piox, France

Continuation-in-part of Ser. No. 38,697, May 19, 1970, abandoned. This application Mar. 30, 1972, Ser. No. 239,612
Int. Cl. B22c *23/08*
U.S. Cl. 264—6 **9 Claims**

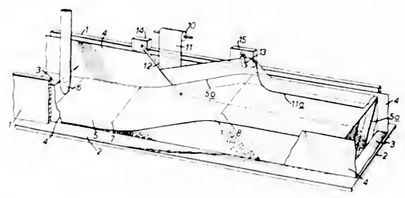


Method and device for producing objects from a continuous stream of molten ceramic product in which a shower of particles of the product is produced by allowing the stream of product to fall onto a cooled surface wherefrom a shower of particles produced is directed onto the object in course of formation. The heat of the particles causes them to weld to the already-formed part of the object.

3,812,227
METHOD OF PRODUCING A FLAT TOP SLAB OF FOAMED POLYURETHANE

James Brian Blackwell; Dennis Killen, and Victor Francis Hodgson, all of Yew St., Stockport, England

Continuation-in-part of Ser. No. 719,957, April 9, 1968, abandoned. This application Jan. 21, 1972, Ser. No. 219,645
Claims priority, application Great Britain, Dec. 13, 1967, 56752/67; June 9, 1967, 26718/67; Apr. 12, 1967, 16670/67
Int. Cl. B29d *27/04*
U.S. Cl. 264—54 **6 Claims**

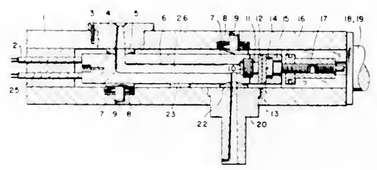


A method for the continuous production of slabs of polymeric foam. Slabs of foam are produced by depositing liquid foam reactants onto an open-topped continuous trough conveyor and a flat top surface on the foam is achieved by introducing guide sheets between the sides of the trough conveyor and the foam and raising and controlling the guide sheets so that they are always in accurate registration with the rising foam. The guide sheets are introduced downwardly into the trough conveyor and then passed around respective straight fold bars the attitudes of which are adjustable. The guide sheets thereafter follow upwardly-inclined paths, corresponding to the rising level of the foam, and are advanced by pull rolls which are also adjustable in attitude. The positions along the trough conveyor of the fold bars and the pull rolls can be adjusted. Preferably, the guide sheets are sheets of thin plastic material, e.g. polyethylene.

3,812,228
INJECTION MOLDING OF FOAMABLE THERMOPLASTIC POLYMERS USING A RETRACTABLE HOT RUNNER

Wladyslaw H. Skoroszewski, Manchester, England, assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 55,651, June 17, 1970, Pat. No. 3,644,053. This application Jan. 17, 1972, Ser. No. 218,474
Claims priority, application Great Britain, July 17, 1969, 35994/69
Int. Cl. B29d *27/00*; **B29f** *1/04, 1/05*
U.S. Cl. 264—54 **2 Claims**

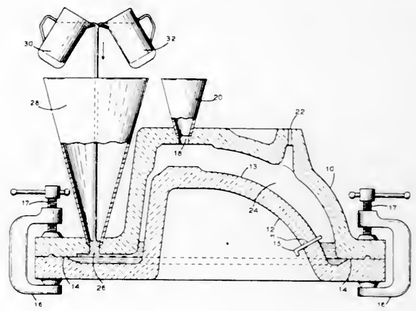


A mold feed system for injection molding thermoplastic materials comprises (1) an apertured back plate having a passage for reception of molten thermoplastic materials from an injection nozzle, (2) a feedplate having at least one feed passage adapted to supply thermoplastic material to at least one mold cavity and disposed between said feedplate and said back plate a movable runner member having a single or manifold channel to register communication between the back plate passage and each feedplate passage, said runner member being disposed in heat transfer relation to a source of heat and adapted to form a pressure tight seal of said channel and all of said passages when slid away from the said open position.

3,812,229
PROCESS FOR FORMING CERAMIC SANITARY WARE HAVING A STONE-LIKE APPEARANCE

Warren Gregory Anderson, New Orleans, La., assignor to American Standard Inc., New York, N.Y.

Division of Ser. No. 846,142, July 30, 1969, Pat. No. 3,634,179. This application Feb. 8, 1971, Ser. No. 113,712The portion of the term of this patent subsequent to Jan. 11, 1989, has been disclaimed.
Int. Cl. B28b *1/26*
U.S. Cl. 264—60 **7 Claims**

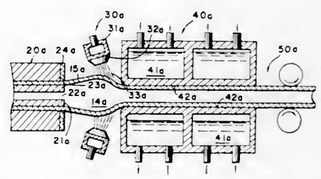


This invention comprises a process for making china or ceramic sanitary ware such as toilets, lavatories, bidets, and urinals, and similar articles which are provided with an appearance resembling natural stone or marble.

3,812,230
METHOD FOR CONTINUOUSLY MAKING A HOLLOW BOARD ARTICLE OF THERMOPLASTIC RESIN

Keiichi Takahashi, Ichikawa, Japan, assignor to Takan Kogyo Company Limited, Tokyo, Japan

Filed Sept. 24, 1971, Ser. No. 183,455
Claims priority, application Japan, Sept. 29, 1970, 45-84671; Sept. 29, 1970, 45-84672
Int. Cl. B29c *17/07, 25/00*
U.S. Cl. 264—89 **6 Claims**



A hollow board article consisting of two opposed surface walls and integral partition walls interconnecting these two

surface walls and dividing the space therebetween into a plurality of cavities can be manufactured smoothly and rapidly by an apparatus comprising an extruder having a die provided with a die opening corresponding in shape to the cross section of said hollow board article. Shape-modifying means are disposed between the extrusion die and a size-forming device for modifying the shape of the freshly extruded article. The shape-modifying means is provided with fluid supply means to cool the hollow board article emerging from the die while said article is in a hot and deformable state, and to enlarge the angle of entry thereof into the size-forming device.

3,812,231
PROCESS FOR STABILIZING THE DRAWPOINT ON A FEED GODET ROLL IN DRAWING POLYESTER FILAMENTS

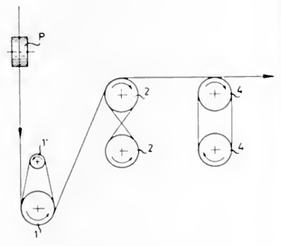
Klaus Hirschberg, and Lothar Kramer, both of Bad Hersfeld, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Feb. 7, 1972, Ser. No. 223,885

Claims priority, application Germany, Feb. 9, 1971, 2106020

Int. Cl. B29c *17/02*

U.S. Cl. 264—290 T **2 Claims**



A process is described according to which filaments made of synthetic linear polyesters and having coarse titers are drawn at a high running speed from heated pairs of feed godets. One of the two feed godets is maintained at a temperature lower than that of the other godet. The difference in temperature is in the range of from 1° to 35°C. The draw point is stabilized on the hotter godet and regularity of the filaments is improved.

3,812,232
SOLVENT EXTRACTION PROCEDURE FOR SEPARATING SAMARIUM FROM NEODYMIUM

Donald J. Bauer; Roald E. Lindstrom, both of Reno, and Lawrence E. Schultze, Sparks, all of Nev., assigners to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Aug. 15, 1972, Ser. No. 280,923

Int. Cl. C01f *17/00*

U.S. Cl. 423—21 **3 Claims**

Separation of mixtures of metals, particularly complex lanthanide mixtures, in aqueous solution is accomplished by means of a process comprising total extraction of metal values into an organic extractant, and subsequent selective stripping of one or more of the metal values into an aqueous phase.

3,812,233
PROCESS FOR SEPARATING CERIUM CONCENTRATE FROM ORES

Larry K. Duncan, Chattanooga, Tenn., assignor to W. R. Grace & Co., New York, N.Y.

Filed Dec. 29, 1965, Ser. No. 517,346

Int. Cl. C01g *57/00*; **C22b** *59/00*

U.S. Cl. 423—21 **5 Claims**

A process for separating cerium from the other rare earth values in bastnasite ore by roasting the ore followed by leaching with dilute hydrochlorde acid under carefully controlled conditions.

3,812,234
PROCESS FOR THE PRODUCTION OF ALKALI-CHROMATE

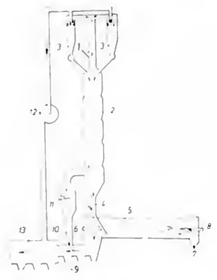
Heinrich Schafer, Opladen, and Hans Georg Nieder-Vahrenholz, Cologne, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 38,426, May 18, 1970, abandoned. This application Feb. 9, 1972, Ser. No. 224,980

Claims priority, application Germany, May 24, 1969, 1926660

Int. Cl. C01g *37/00*

U.S. Cl. 423—61 **7 Claims**



Process for the production of alkali chromate from chromium containing materials, e.g. chromium ore under oxidising conditions with alkali, e.g. sodium carbonate, sodium hydroxide, sodium hydrogen carbonate, potassium carbonate and the like optionally in the presence of the usual diluents, e.g. dolomite, iron oxide and/or recycled treatment residue previously recovered from the process at temperatures between about 900° and 1,200° C in directly heated furnaces, wherein the chromium containing material is initially heated under fluidising conditions in a separate heating zone bypassing countercurrent to the exhaust gases from the directly heated furnace to temperatures of from about 500° to 1,100° C.

3,812,235
PROCESS FOR TREATING MAGNESIUM-BASE WASTE SULFITE LIQUOR

Murry Clinton Robinson, Don Mills, Ontario, Canada, assignor to Spring Chemicals Limited, Toronto, Ontario, Canada

Continuation-in-part of Ser. No. 798,616, Feb. 12, 1969, abandoned. This application Sept. 22, 1971, Ser. No. 182,913

Claims priority, application Canada, Feb. 12, 1968, 12199

Int. Cl. D21c *11/00*

U.S. Cl. 423—158 **4 Claims**

The amount of calcium contained in magnesium-base waste sulfite liquor is reduced by precipitating the calcium as calcium sulfite and separating the precipitate from the remaining waste sulfite liquor solution. The precipitation is caused by dissolving in the waste sulfite liquor (1) additional calcium, (2) additional magnesium, and (3) a source of sulfite ions. By "additional" calcium and magnesium is meant amounts greater than that contained in the magnesium-base waste sulfite liquor obtained from the pulping process.

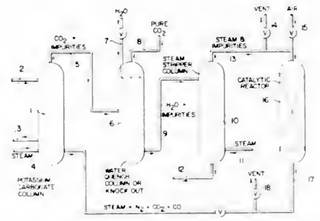
3,812,236
REMOVAL OF AMMONIA AND ORGANIC IMPURITIES FROM AN AMMONIA PLANT EFFLUENT

Harry A. Adams, Bedford Heights; Kumar Kunchal, North Ridgeville, and James L. Callahan, Bedford Heights, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed June 22, 1972, Ser. No. 265,163

Int. Cl. B01d *53/34*

U.S. Cl. 423—237 **5 Claims**



Ammonia and organic impurities are removed from an ammonia plant effluent consisting mainly of steam by treating the effluent with an oxidation catalyst which oxidizes the impurities to harmless products of nitrogen, water and carbon dioxide.

3,812,237
BERYLLIUM HYDRIDE CONTAINING STABILIZING AGENTS

Warren B. Kirsch, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 775,580, Nov. 8, 1968, abandoned. This application Dec. 17, 1971, Ser. No. 209,473

Int. Cl. C01b *6/00*

U.S. Cl. 423—266 **10 Claims**

Beryllium hydride is stabilized against hydrolysis by the addition to the hydride or to the water of a small quantity of a suitable additive. Preferred additives are (1) alkali or alkaline earth metal salts of long-chain aliphatic carboxylic acids, (2) alkali metal salts of inorganic oxy acids, (3) aliphatic or cycloaliphatic alcohols or phenols or (4) alkali metal, magnesium or calcium salts of alkylbenzene sulfonic acids.

3,812,238
EXTRACTION OF BORON FROM AQUEOUS SOLUTIONS WITH SALICYIC ACID DERIVATIVES AND ISOAMYL ALCOHOL

Edward A. Grannen, Upland, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.

Filed Aug. 25, 1971, Ser. No. 175,007

Int. Cl. B01j *9/22*

U.S. Cl. 423—283 **11 Claims**

A process for extracting boron from aqueous boron containing solutions by contacting the aqueous solution with a substantially water immiscible salicylic acid derivative or a salt thereof, nuclear substituted with an alkyl, aryl, alkaryl, or cycloakyl radical wherein the derivative has at least 11 carbon atoms in a water immiscible solvent comprising isoamyl alcohol in the range of from 10 to 100% by volume. Preferably, the balance of the solvent is an inexpensive water immiscible petroleum cut. Boron is sequestered by the salicylic acid derivative and the isoamyl alcohol has a synergistic effect in enhancing the proportion of boron extracted.

3,812,239
PREPARATION OF SUBMICRON TITANIUM CARBIDE

Larry R. Swaney, Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 860,966, Sept. 25, 1969, which is a continuation-in-part of Ser. No. 762,821, Sept. 26, 1968, Pat. No. 3,485,586. This application Aug. 24, 1970, Ser. No. 66,176The portion of the term of this patent subsequent to Dec. 23, 1986, has been disclaimed.

Int. Cl. C01b *31/30*

U.S. Cl. 423—440 **14 Claims**

Titanium carbide, predominantly in the form of small cubic crystals and having a weight average particle size in the range of from 0.04 to 0.9 micron, is formed by reacting, in the vapor state, titanium halide, reducing agent and carbon source at carbide-forming temperatures. Control and variation of the weight average particle size produced in the above range is accomplished by introducing into the reaction zone from 1 to 100 moles of auxiliary gas per mole of titanium halide reactant.

3,812,240
PRODUCTION OF HIGHLY ORDERED GRAPHITE PARTICLES

Mack P. Whittaker, Johnson City, and Lloyd I. Grindstaff, Elizabethton, both of Tenn., assignors to Great Lakes Carbon Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 26,142, April 6, 1970, abandoned. This application Oct. 13, 1971, Ser. No. 188,941

Int. Cl. C01b *31/04*

U.S. Cl. 423—448 **5 Claims**

Highly ordered graphite particles are prepared by heating a mesophase-forming pitch to form discrete mesophase spherulites, separating, and thereafter carbonizing and graphitizing the mesophase spherulites while preventing coalescence thereof. Coalescence is prevented by coating, surface oxidizing, or carbonizing the mesophase spherulites in such a manner so as to isolate each spherulite. The graphite product is particularly useful in the fabrication of nuclear fuel elements.

3,812,241
PROCESS FOR PREPARING ALUMINUM TRICHLORIDE

Luigi Piccolo, Milan; Marcello Ghirga, Bresso, and Benedetto Calcagno, Milan, all of Italy, assignors to Societa Italiana Resine S.I.R. S.p.A., Milan, Italy

Filed Apr. 24, 1972, Ser. No. 246,784

Claims priority, application Italy, Apr. 30, 1971, 23910/71

Int. Cl. C01f *7/58*

U.S. Cl. 423—495 **6 Claims**

Anhydrous aluminium chloride is made by the action of chlorine or gaseous hydrogen chloride on a fluidised bed of aluminium particles in the presence of a powdered inert material having a specific surface area of 0.01 to 0.1 sq.m/g and a bulk density of 1.1 to 2.4 g/cc.

3,812,242
PROCESS FOR THE SIMULTANEOUS PRODUCTION OF SULPHUR DIOXIDE AND CONCENTRATED AQUEOUS SULPHURIC ACID

Filippo Barilli; Giorgio Cozza, and Vittorio Bareggi, all of Milan, Italy, assignors to Societe Italiana Resine S.p.A., Milan, Italy

Continuation of Ser. No. 28,936, April 15, 1970, abandoned. This application Apr. 14, 1972, Ser. No. 244,248

Claims priority, application Italy, Apr. 19, 1969, 15796/69

Int. Cl. C01b *17/72*, *17/50*

U.S. Cl. 423—530 **4 Claims**

Ferrous sulphate heptahydrate by-product is 40–60% dehydrated, then converted to the monohydrate by heating with decomposition gases from subsequent roasting with pyrites. SO_3 is then removed from the gases by washing with sulphuric acid of at least 75% concentraton.

3,812,243
COMBINED PROCESS FOR RECOVERING S FROM H_2S IN CLAUS PLANT AND TREATING TAILGAS TO REMOVE H_2S AND SO_2

Leslie H. Landrum, Kansas City, Mo., and Robert L. Huppe, Shawnee Mission, Kans., assignors to J. F. Pritchard and Company, Kansas City, Mo.

Continuation-in-part of Ser. No. 44,790, June 6, 1970, abandoned. This application Apr. 13, 1972, Ser. No. 243,660
Int. Cl. C01b *17/04*
U.S. Cl. 423—574 **8 Claims**

Discharge of sulfur compounds into the air in the tailgas from a Claus plant is substantially eliminated by first burning the acid gas delivered thereto with less than an amount of oxygen required to oxidize one-third of the H_2S supplied so that the ratio of H_2S to SO_2 in the hot tailgas is greater than normal and preferably of the order of about 4:1 up to about 10:1. The hot tailgas is next quenched with water to lower the underflow from the quench up to about 130° F. or lower thereby condensing sulfur to solid form and water vapor to liquid thus producing a gaseous effluent substantially devoid of SO_2 since the excess of H_2S with respect to SO_2 in the tailgas drives the reaction therebetween to substantial completion. Sulfur in solid form is recovered from the underflow effluent while the overhead quench effluent is treated with a regenerable quinone absorption agent to remove residual sulfur compounds therefrom. Sulfur is removed from the absorption agent in conjunction with regeneration thereof and then combined with the sulfur removed from the water quench underflow.

3,812,244
PREPARATION OF ALUMINUM HYDRIDE

Donald L. Schmidt, Midland; Arthur L. Daniels, Coleman, and Ronald V. Petrella, Midland, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 414,052, Nov. 20, 1964, abandoned. This application Mar. 22, 1966, Ser. No. 538,170
Int. Cl. C01b *6/00*
U.S. Cl. 423—645 **2 Claims**

A novel method for preparing metal hydrides, particularly aluminum hydride and aluminum halohydrides, by the direct reaction of a metal hydride with a metal chloride. In one embodiment carrier liquids which are a non-solvent for the metal hydride reactant can be employed.

3,812,245
NOVEL COMPOSITIONS FOR RADIOTRACER LOCALIZATION OF DEEP VEIN THROMBI

Mary Ann Dugan, Philadephia, Pa., assignor to Research Corporation, New York, N.Y.

Filed Aug. 21, 1972, Ser. No. 282,100
Int. Cl. A61k *27/04*; **G01t** *1/20*
U.S. Cl. 424—1 **11 Claims**

There are provided radiolabeled enzymes, namely 99^mTc-Streptokinase and Urokinase which have thrombolytic activity and in view of their propensity to accumulate at the location of the thrombi provide an effecient means of locating said thrombi.

3,812,246
COSMETIC SKIN COLORING COMPOSITIONS CONTAINING AMINATED γ-DIALDEHYDES

Guy Vanlerberghe, Montjay-la-Tour par Claye-Souilly, and Georges Rosenbaum, Asnieres, both of France, assignors to Societe Anonyme dite L'Oreal, Paris, France

Filed Dec. 20, 1971, Ser. No. 210,217
Claims priority, application Luxembourg, Dec. 24, 1970, 62317
Int. Cl. A61k *9/06*; **A61l** *23/00*; **A61k** *7/02*
U.S. Cl. 424—59 **3 Claims**

Aminated γ-dialdehyde and the quaternary ammonium salts thereof are prepared by acid hydrolysis of their respective corresponding 2.5-dialkoxy 3-amino 4-hydroxy tetrahydrofurans or by acid hydrolysis of their respective corresponding tetraalkyl acetals. The aminated γ-dialdekydes and the quaternary ammonium salts thereof are usefully employed in cosmetic composition to tan the skin or to strengthen or restructure the hair.

3,812,247
METHOD OF OXIDATIVE TREATMENT OF HUMAN HAIR

Arnold Heinz, Hilden, and Dieter Kuhling, Monheim, both of Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthauser, Germany

Filed Aug. 2, 1971, Ser. No. 168,404
Claims priority, application Germany, July 31, 1970, 2038106
Int. Cl. A61k *7/12*
U.S. Cl. 424—62 **9 Claims**

The method of oxidative treatment of human hair which comprises treating said hair with an aqueous solution of (1) water-soluble peroxyhydrates or hydrogen peroxide and (2) an activator diacylated 2,5-diketopiperazine.

3,812,248
ANTI-HERPES VIRUS TREATMENT

William Regelson, Richmond, Va., assignor to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 54,022, July 10, 1970, abandoned, and a continuation-in-part of Ser. No. 716,257, March 6, 1968, abandoned, and a continuation-in-part of Ser. No. 577,675, Sept. 7, 1966, abandoned. This application Jan. 14, 1972, Ser. No. 218,026
Int. Cl. A61k *27/00*
U.S. Cl. 424—78 **2 Claims**

Certain water-soluble copolymers prepared from divinyl ether and maleic anhydride have been found to suppress herpes virus. Administration of said copolymers not only suppresses growth in infected animals but also increases resistance to virus infection in healthy animals by stimulating the production of interferon.

3,812,249
ANTIBIOTIC BL580

John Henry Edward James Martin, New York, N.Y., and Sidney Kantor, Lawrence Township, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 24, 1972, Ser. No. 309,383
Int. Cl. A61l *2/00*
U.S. Cl. 424—121 **4 Claims**

This disclosure describes two new antibiotics, designated BL580α and BL580β, produced in a microbiological fermentation under controlled conditions using a new strain of *Streptomyces hygroscopicus* and mutants thereof. The new antibiotics are active antimalarial and anticoccidial agents.

3,812,250
ANTIFUNGAL SUPPOSITORY AND METHOD OF TREATING FUNGUS INFESTATIONS

Emilien Aubert, 3105 Rue Fendall, Montreal, Quebec, and Jacques Des Rosiers, 6284 Rue Cairns, Ville D'Anjou, Quebec, both of Canada

Filed Mar. 4, 1971, Ser. No. 121,217
Int. Cl. A61j *3/08*; **A61k** *9/02*
U.S. Cl. 424—148 **9 Claims**

A vaginal suppository comprising gentian violet in an amount of 0.000017 to 0.001 weight percent, boric acid in an amount of 1 to 5 weight percent, gelatin in an amount of 15 to 35 weight percent, a non-ionic surfactant of the octylphenoxyethanol type, in an amount of 0.05 to 1 weight percent, and water. Also disclosed is a method of treating vaginal fungus infestations comprising administering a vaginal suppository having the above composition. It should be administered daily before bed time.

3,812,251
STABILIZED AQUEOUS COMPOSITION

Hiroyuki Mima, Nishinomiya, and Toichiro Matsuzaki, Ikeda, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 689,276, Dec. 11, 1967, abandoned. This application Apr. 12, 1971, Ser. No. 133,380
Claims priority, application Japan, Dec. 10, 1966, 41-81127
Int. Cl. A61k *15/12*
U.S. Cl. 424—148 **12 Claims**

An aqueous composition comprising an ascorbic acid phosphate is stabilized by the addition of boric acids and/or their water-soluble salts in a quantity in terms of orthoboric acid of at least about 0.6 mole per mole of the ascorbic acid phosphate and of from about 0.03 to about 3 percent based on the weight of the water in the composition.

3,812,252
METHOD OF TREATING WOUNDS WITH A MEDICINAL DRESSING

Anthony N. Silvetti, 930 N. Ashland, River Forest, Ill.

Continuation-in-part of Ser. No. 102,942, Dec. 30, 1970, abandoned, which is a continuation-in-part of Ser. No. 770,414, Oct. 25, 1968, abandoned. This application Sept. 8, 1972, Ser. No. 286,741
Int. Cl. A61k *27/00*
U.S. Cl. 424—180 **5 Claims**

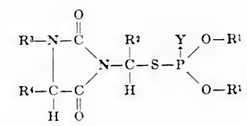
A method for use in the treatment wounds; e.g., second and third degree burns, stasis ulcers, trophic lesions such as decubitus ulcers, severe cuts and abrasions, employing a medicinal dressing containing as an essential ingredient a sterile, purified starch hydrolysate material having a Dextrose Equivalent of less than about 35, and preferably between about 5 to about 25.

3,812,253
O,O-DI(C_1 AND C_2 ALKYL) PHOSPHORODITHIOATE AND PHOSPHOROTHIOATE ESTERS AS INSECTICIDES AND ACARICIDES

Joel D. Jamison, Mountainside, N.J., assignor to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 136,251, April 21, 1971, Pat. No. 3,741,978, which is a continuation-in-part of Ser. No. 694,883, Jan. 2, 1968, abandoned. This application Oct. 27, 1972, Ser. No. 301,707
Int. Cl. A01n *9/36*
U.S. Cl. 424—200 **10 Claims**

Disclosed are compounds of the formula:



in which Y is O or S, each R^1 is selected from the group consisting of CH_3 or C_2H_5, and R^2, R^3 and R^4 are H or CH_3 with at least one of R^2 and R^3 being CH_3, and the use of these compounds as insecticides and acaricides.

3,812,254
CONTROL OF PYTHIUM SPP. AND SCLEROTIUM SPP. USING AZIDES

William C. McConnell, Griffin, Ga., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed June 25, 1971, Ser. No. 157,028
Int. Cl. A01n *9/20*
U.S. Cl. 424—226 **19 Claims**

Alkali metal azides, alkaline earth metal azides, ammonium azide, or mixtures thereof are used to control Pythium spp. and Sclerotium spp.

3,812,255
METHODS AND COMPOSITIONS FOR IMPROVING THE FEED INTAKE OF MEAT PRODUCING ANIMALS

Clifton A. Baile, Glen Mills; Carol Lynn McLaughlin, Malvern, and Robert Lee Webb, West Chester, all of Pa., assignors to Smithkline Corporation, Philadelphia, Pa.

Filed Sept. 29, 1972, Ser. No. 293,687
Int. Cl. A61k *27/00*
U.S. Cl. 424—244 **10 Claims**

New methods and compositions for inducing polyphagia in immature, meat producing animals are described utilizing certain dibenz[b,f]azepines as active ingredients. Particularly useful ingredients are 10,11-dihydro-5-H-dibenz[b,f]azepine and 5-H-dibenz[b,f]azepine.

3,812,256
NOVEL METHOD FOR LOWERING BLOOD PRESSURE IN MAMMALS

William Vincent Curran, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 151,155, June 8, 1971, abandoned. This application June 5, 1972, Ser. No. 259,704
Int. Cl. A61l *27/00*
U.S. Cl. 424—250 **4 Claims**

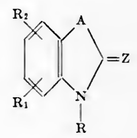
This disclosure describes a method of lowering blood pressure in mammals by the administration of compositions containing as the active component certain 6-(substituted-phenyl)-5-methyl-4,5-dihydro-3(2H)-pyridazinones.

3,812,257
URICOSURIC AGENT

Michihiro Yamamoto; Shunji Aono; Hiroshi Nakatani, all of Toyonaki; Shigeaki Morooka; Masao Koshiba; Shigeho Inaba, all of Akira Aisaka, Minoo, and Hisao Yamamoto, Nishinomiya, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

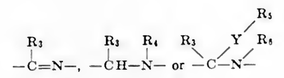
Filed Apr. 7, 1972, Ser. No. 242,215
Int. Cl. A61k *27/00*
U.S. Cl. 424—251 **20 Claims**

Excretion of uric acid from the body can be promoted by administering an effective amount of a quinazoline derivative represented by the formula

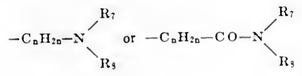


wherein R is a hydrogen atom, a lower alkyl group, a lower alkenyl group, an aralkyl group, a cycloalkyl group, a lower cycloalkylalkyl group, a lower alkoxyalkyl group, a lower alkanoyloxyalkyl group, a lower alkylthioalkyl group or a group of the formula $-C_nH_{2n}$-B (wherein *n* is zero or an integer of 1 to 3; B is a saturated or unsaturaged heterocyclic ring which may

contain one or two hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur) R_1 and R_2 are individually a hydrogen atom, a lower alkyl group, a lower alkoxy group, a trifluoromethyl group, a nitro group, a lower alkylthio group, a lower alkylsulfonyl group or a halogen atom; Z is an oxygen atom or a sulfur atom; and A is a group of the formula,



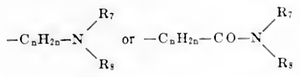
wherein R_3 is a phenyl group, a substituted phenyl group, a cycloalkyl group, a pyridyl group, a pyrrolyl group, a furyl group or a thienyl group; R_4 and R_5 are individually a hydrogen atom, a lower alkyl group, a lower alkenyl group, an aralkyl group, a cycloalkyl group, a lower cycloalkylalkyl group, a lower hydroxyalkyl group, a lower alkanoyloxyalkyl group, a lower alkoxyalkyl group, a lower alkylthioalkyl group, a phenyl group, a substituted phenyl group or a group of the formula



(wherein n is an integer of 1 to 3; R_7 and R_8 are individually the same or different lower alkyl group, provided that R_7 and R_8 may form together with the adjacent nitrogen atom a five- or six-membered heterocyclic ring, which may further contain another nitrogen or oxygen atom); Y is an oxygen atom or a group of the formula



(wherein R_9 is a hydrogen atom or a lower alkyl group); R_6 is a lower alkyl group, a lower alkenyl group, an aralkyl group, a cycloalkyl group, a lower cycloalkylalkyl group, a lower hydroxyalkyl group, a lower alkanoyloxyalkyl group, a lower alkoxyalkyl group, a lower alkylthioalkyl group, a phenyl group, a substituted phenyl group or a group of the formula



(wherein n is an integer of 1 to 3; R_7 and R_8 are individually the same or different lower alkyl group, provided that R_7 and R_8 may form together with the adjacent nitrogen atom a five- or six-membered heterocyclic ring, which may further contain another nitrogen or oxygen atom); moreover R_5 and R_6 may form a five- to eight-membered heterocyclic ring together with the adjacent Y and nitrogen atom and the carbon atom attached to both of them, and said heterocyclic ring may contain another nitrogen or oxygen atom, and further it may be optionally substituted by one or two lower alkyl groups, which may be joined to form a benzene or cyclohexane ring, or the non-toxic salts thereof.

3,812,258

PHARMACEUTICAL COMPOSITION ESSENTIALLY CONTAINING AND METHOD OF TREATMENT WITH, 3 BETA-ACETOXY 11-OXO NOROLEANENE-(12) 20 BETA-CARBOXYLIC ACID N-METHYL PIPERIDOL-(4) ESTER

Helmut Kraft, Neckarhausen; Frank Zimmermann, Mannheim, and Hans-Peter Hofmann, Ludwigshafen, all of Germany, assignors to Knoll AG, Chemische Fabriken, Ludwigshafen/Rhein, Germany

Division of Ser. No. 174,924, Aug. 25, 1971, Pat. No. 3,758,484. This application Nov. 27, 1972, Ser. No. 309,750

Claims priority, application Germany, Sept. 2, 1970, 2043479

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 **3 Claims**

3-B-Acetoxy 11-oxo noroleanene-(12) 20B-carboxylic acid N-methyl piperidol-(4) ester and physiologically tolerable acid addition salts thereof that are orally administerable and have superior inflammation inhibiting and ulcer inhibiting properties.

3,812,259

ANIMAL FEED AND PROCESS

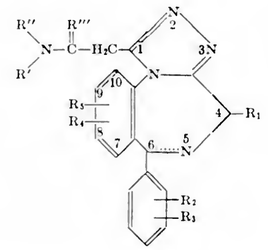
Robert J. Collins, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Aug. 9, 1971, Ser. No. 170,317

Int. Cl. A61k *27/00*

U.S. Cl. 424—269 **6 Claims**

An animal feed for increasing meat, milk, or egg production comprising a compound of the group consisting of a compound of the formula:



Formula I

wherein R′ and R″ are hydrogen, or alkyl of one to three carbon atoms, inclusive, or together



are pyrrolidino, piperidino, hexamethyleneimino, or morpholino; R‴ is



or oxygen; wherein R_1 is hydrogen or alkyl, defined as above; wherein R_2, R_3, R_4, and R_5 are selected from the group consisting of hydrogen, alkyl defined as above, halogen, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, and dialkylamino, in which the carbon chain moiety is

of one to three carbon atoms, inclusive, and in which the 5 to 6 nitrogen carbon linkage is selected from the group consisting of double bonds and single bonds, with the proviso that the linkage is always a double bond whenever R″ is oxygen; and the pharnacologically acceptable acid addition salts in combination with the nutrient feed.

3,812,260

2,4,5-HALOGENIMIDAZOLES FOR COMBATING INSECTS AND ACARINA

Henry Martin, Basel, Switzerland, and Georg Pissiotas, Loerrach, Germany, assignors to Ciba-Geigy AG, Basle, Switzerland

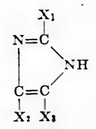
Filed Sept. 29, 1970, Ser. No. 76,635

Claims priority, application Switzerland, Oct. 8, 1969, 15136

Int. Cl. A01n *9/22*

U.S. Cl. 424—273 **4 Claims**

The use of 2,4,5-halogenimidazoles of the formula



wherein X_1, X_2 and X_3 each denote a halogen atom, with the proviso that at least one of the substituents X_1, X_2 and X_3 is fluorine, bromine or iodine, for combating harmful insects and representatives of the ordr Acarina.

3,812,261

METHOD OF PRODUCING TRANQUILIZATION WITH DIOXOLANYL ALCOHOLS AND THEIR HALOGEN DERIVATIVES

Ludgwig A. Hartmann, Wilmington, Del., assignor to ICI America Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 235,024, March 15, 1972, abandoned. This application Mar. 28, 1972, Ser. No. 238,955

Int. Cl. A61h *27/00*

U.S. Cl. 424—278 **11 Claims**

A method of producing tranquilization in animals by administering an effective amount of a dioxolanyl alcohol or a 4- or 4,5-halogen derivative thereof is disclosed. All of the subject dioxolanyl compounds are also substituted in the 2-position with two perhalogenated alkyl groups.

3,812,262

SUBSTITUTED PROPIOLOPHENONES USED AS PLANT FUNGICIDES

Madhukar S. Chodnekar, Basel; Hans Thommen, Therwil, and Ulrich Schwieter, Reinach, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

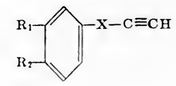
Division of Ser. No. 87,316, Nov. 5, 1970, Pat. No. 3,705,177. This application Mar. 27, 1972, Ser. No. 238,533

Claims priority, application Switzerland, Nov. 14, 1969, 16957/69

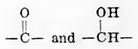
Int. Cl. A01n *9/24, 9/28*

U.S. Cl. 424—282 **6 Claims**

Compounds represented by the formula



wherein one of R_1 and R_2 represents a member selected from the group consisting of hydrogen, halogen, hydroxy, lower alkyl, lower alkoxy or propynyloxy and the other represents a member selected from the group consisting of halogen, hydroxy, lower alkyl, lower alkoxy or propynyloxy or R_1 and R_2 together represent a lower alkylenedioxy group, X is a member selected from the group consisting of



are used for combatting plant fungi, nematodes and insects.

3,812,263

SYNERGISTIC COMPOSITIONS OF PHARMACEUTICALLY ACTIVE SUBSTANCES

Gilbert Gilbertson, Cresskill, N.J., assignor to Foritzsche Dodge & Olcott Inc., New York, N.Y.

Filed Jan. 31, 1972, Ser. No. 222,283

Int. Cl. A61k *27/00*

U.S. Cl. 424—282 **3 Claims**

Mixtures of certain 2,2-disubstituted-1,3-propanediol-dicarbamates, such as meprobamate, and certain 1-substituted-2,2-dialkyl-1,3-propanediol monocarbamates produce a narcosis effect when administered to mammals. A greater narcosis would be obtained by such a mixture than that expected by the sum of the effects of each component of such mixture.

3,812,264

METHOD OF PRODUCING A CARRIER FOR A SCINTIGRAPHIC PREPARATION AND SCINTIGRAPHIC PREPARATIONS INCLUDING SAID CARRIER

Jean-Paul Nouel, Boisguillaume, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 1, 1970, Ser. No. 33,989

Claims priority, application France, May 5, 1969, 6914129

Int. Cl. A61k *27/04*

U.S. Cl. 424—1 **5 Claims**

Scintigraphic carriers are obtained by sensitizing red blood corpuscles by means of a stannous chloride solution having a physiological pH. The carriers are then labelled with radio-active pertechnetate. The labelling efficiency is appreciably higher than in the known methods.

3,812,265

FUNGICIDAL N-POLYHALOVINYLTHIO UREAS

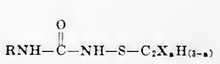
Melancthon S. Brown, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 789,596, Jan. 7, 1969, Pat. No. 3,652,630. This application June 30, 1971, Ser. No. 163,525

Int. Cl. A01n *9/12*

U.S. Cl. 424—322 **5 Claims**

Ureas of the formula

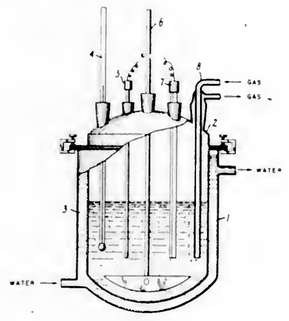


in which R is hydrogen, hydrocarbyl radicals of one to 15 carbon atoms which are free of aliphatic unsaturation and have zero to three halogen substituents, X is Cl or Br and a is 2 or 3 are biologically active against fungi and aquatic weeds.

3,812,266
GREEN TEA CONVERSION USING TANNASE AND NATURAL TEA ENZYMES

Gary Warner Sanderson, Englewood, N.J., and Philip Coggon, Orangeburg, N.Y., assignors to Thomas J. Lipton Inc., Englewood Cliffs, N.J.

Continuation-in-part of Ser. No. 222,231, Jan. 31, 1972, abondoned. This application Aug. 7, 1973, Ser. No. 386,287
Int. Cl. A23f *3/00*
U.S. Cl. 426—52 15 Claims



Green tea, and specifically fresh green tea leaf, is comminuted, placed in aqueous suspension, treated with tannase, and thereafter converted to black tea to provide black tea extracts of improved characteristics.

3,812,267
EXTRUDED PROTEINACEOUS MATERIALS

William T. Atkinson, Minneapolis, Minn., assignor to Archer Daniel Midland Company, Minneapolis, Minn.

Continuation of Ser. No. 787,244, Dec. 26, 1968, abandoned, which is a continuation-in-part of Ser. No. 587,939, Aug. 17, 1966, which is a continuation-in-part of Ser. No. 369,189, May 21, 1964, abandoned. This application Sept. 17, 1971, Ser. No. 181,602. The portion of the term of this patent subsequent to Jan. 6, 1987, has been disclaimed.
Int. Cl. A23j *3/00;* A23l *1/20, 1/325*
U.S. Cl. 426—104 3 Claims

Meat substitute food products comprising extruded protein materials containing a mixture of solvent-extracted oil seed material (e.g. soy protein) and fish protein concentrate.

3,812,268
COMPRESSED COMPOUNDED FOOD PRODUCT AND METHOD OF MAKING SAME

Harold Corey, Teaneck; Abraham Bakal, Rockaway; Kurt Konigsbacher, Short Hills, and Daniel Schoenholz, Basking Ridge, all of N.J., assignors to Foster D. Snell, Inc., Florham Park, N.J.

Continuation-in-part of Ser. No. 168,499, Aug. 2, 1971. This application June 29, 1973, Ser. No. 374,899
Int. Cl. A22c *18/00, 25/00*
U.S. Cl. 426—146 10 Claims

Compounded food products containing a relatively high (at least 18 percent by weight) vegetable protein content and at least 10 percent by weight of an edible polyhydric alcohol are prepared in the form of a doughy mass which is cooked or baked, dried to a moisture content of 4–8 percent, then compressed to 20–80 percent of the original volume and dried to a moisture content of 3 percent or less. Such food products can be stored at ordinary temperature if protected from moisture or under refrigeration for long periods of time. On admixture with aqueous liquids they recover their original volume, geometry and structure.

3,812,269
PROPIONIC ACID COATED SILICA AS A FOOD PRESERVATIVE

Hans-Karl Mueller, Bruchkobel, and Gerd Lumbeck, Wolfgang, both of Germany, assignors to Deutsche Gold-Und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

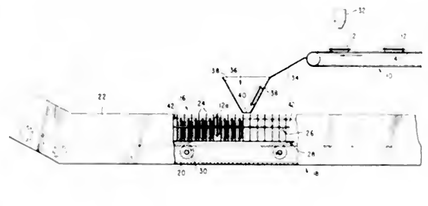
Filed Aug. 7, 1972, Ser. No. 278,648
Claims priority, application Germany, Aug. 10, 1971, 2140009
Int. Cl. A23r *3/00*
U.S. Cl. 426—227 3 Claims

A food preservative for use particularly in animal feeds and cereals consists of a pourable pulverulent mixture of two to three parts propionic acid and one part of a finely dispersed, activated synthetically formed silicic acid, silicate or mixture of both.

3,812,270
METHOD OF FEEDING FILLED CONTAINERS TO A RETORT OR THE LIKE

Gerald Hartz, Wheaton, Ill., assignor to Reynolds Metals Company, Richmond, Va.

Division of Ser. No. 24,089, March 31, 1970, Pat. No. 3,662,676. This application Jan. 14, 1972, Ser. No. 217,802
Int. Cl. A23l *3/04*
U.S. Cl. 426—231 9 Claims



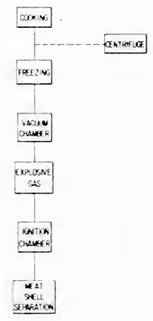
A method of feeding filled containers to a retort or the like. A pocket conveyor is immersed in a suitable liquid, such as water, and has filled containers transferred thereto from an input conveyor. The pocket conveyor is incrementally advanced in synchronism with the advance of filled containers on the input conveyor with the presence of individual containers being detected by a suitable means such as a photocell. The liquid is preferably heated so as to maintain the contents of the containers at or near the temperature at which they have been filled. The liquid is maintained at such a height so as to effect a cushioning of the filled containers as they are transferred from the input conveyor to the pocket conveyor. In addition, the liquid functions to permit a quality control inspection on the containers to be performed in that those containers having too much air therein float in the liquid.

3,812,271
METHOD FOR EXTRACTING MEATS FROM CRUSTACEANS

James M. Lapeyre, 13 Richmond Pl., New Orleans, La.

Filed May 7, 1973, Ser. No. 357,556
Int. Cl. A22c *29/00*
U.S. Cl. 426—312 7 Claims

The present disclosure is directed to a method of removing the edible meat from crustacea by cooking or not cooking the crustacea such as a crab to coagulate the protienatious mass and freezing same to prevent injury thereto during shell removal which first consists of subjecting the crab to a vacuum and breaking the vacuum to permit the sucking into the exoskeletal shell of a mixture of explosive gas and air which is then ignited causing an explosion of the exoskeletal shell away from the edible meat and the meats and shell fragments are subsequently separated.



3,812,272
PREPARATION OF AN ADDITIVE FOR ALCOHOLIC BEVERAGES

Creath Q. Linville, 3601 N. Fifth Ave., Apt. 110, Phoenix, Ariz.

Filed Sept. 1, 1972, Ser. No. 176,841
Int. Cl. C12g *3/06*
U.S. Cl. 426—380 2 Claims

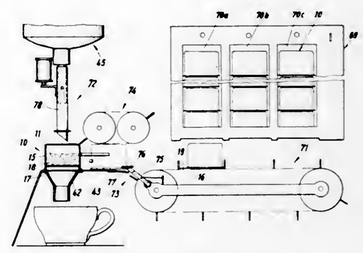
An additive for alcoholic beverages is prepared by blending at room temperature about equal volumes of honey and vinegar, and diluting the blend with water.

3,812,273
METHOD FOR THE MECHANICAL PREPARATION OF INDIVIDUAL CUPS OF FILTERED COFFEE

Ernst Georg Ferdinand Heinrich Schmidt, Buntentorsteinweg, Germany, assignor to Joh. Jacobs & Company, Breman, Germany

Filed June 9, 1972, Ser. No. 261,455
Claims priority, application Germany, June 11, 1971, 2129070
Int. Cl. A23f *1/08*
U.S. Cl. 426—433 5 Claims

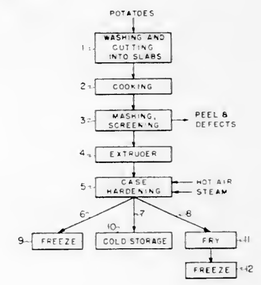
The deposit of a suitable coin in a vending machine initiates the delivery of a sealed coffee pack from a revolving magazine, via a chute, to a conveyor table. The pack is advanced by a belt and a sealing sheet removed from the bottom of the pack. The pack is then advanced to a brewing station where a plurality of pointed nozzles are lowered to pierce the pack from above and deliver hot water thereto. The freshly brewed coffee exits the pack through a bottom filter and flows through a funnel into a coffee cup beneath the funnel. The spent pack is then advanced to a disposal chute where it is compacted and dropped into a waste tray.



3,812,274
PROCESS FOR PREPARING SHAPED POTATO PRODUCTS CONTAINING SOLELY FRESHLY COOKED AND MASHED POTATO TISSUE

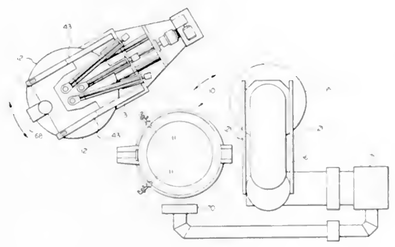
Merle L. Weaver, Martinez; Earl Hautala, Richmond, and Masahide Nonaka, Moraga, all of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Apr. 23, 1971, Ser. No. 136,926
Int. Cl. A23l *1/12*
U.S. Cl. 426—438 6 Claims



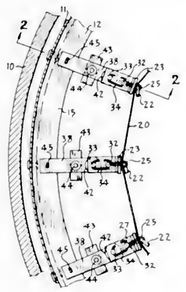
Potatoes are converted into convenience food products, using techniques which provide advantages over customary operations. Example: Potatoes are cooked and mashed. The mash is shaped into strips which are then treated with hot air at about 200° to 300°F. for about 1 to 5 minutes prior to steaming them for about one quarter to 1 minute and again applying hot air at about 200° to 300°F until the weight loss thereof is about 30 to 35 percent to case-harden their surfaces. The resulting intermediates may be fried directly and/or held in frozen or cold storage for future use. On frying, they yield products which have the taste, appearance, color, and texture of high-quality conventional French fries plus added advantages of higher solids content, lower fat content, and no tendency to get limp.

3,812,275
STEEL PRODUCTION METHOD AND APPARATUS
Eberhard G. Schempp, and Jai K. Pearce, both of Pittsburgh, Pa., assignors to Pennsylvania Engineering Corporation, Pittsburgh, Pa.
Filed Feb. 26, 1973, Ser. No. 335,468
Int. Cl. F27b *14/02, 14/06*
U.S. Cl. 13—10 13 Claims



An electric arc furnace pivotable between a first position wherein a gas delivery tuyere system is above the level of a metal charge for preheating the same and a second position wherein the tuyere system is below the level of metal charge to permit the injection of gases, fluxes, ores, alloying additions and other materials for converting a metal charge. A first furnace hood is engageable with the furnace when in its first position for positioning electrodes in the furnace and a second hood is engageable with the furnace when in its second position for withdrawing gases evolved during the gas blowing period.

3,812,276
RESISTANCE HEATING ELEMENT FOR VACUUM FURNACES
Edward N. Cyrway, Jr., Levittown, and Charles J. Schmidt, Philadelphia, both of Pa., assignors to Abar Corporation, Feasterville, Pa.
Filed July 5, 1973, Ser. No. 376,538
Int. Cl. F27d *11/02*; H05b *3/06*
U.S. Cl. 13—25 15 Claims



A resistance heating element and an improved mounting therefor for vacuum furnaces is described, the mounting element supports preferably being supported by internal metal heat shields so that the expansion and contraction of the heating element is independent of the expansion and contraction of the vessel in which it is used and of the heat shields therein. The supports are generally T-shaped with a limited internal pivot, with the heating element secured to the support for limited movement to accommodate expansion and contraction, and with internal electrical insulators.

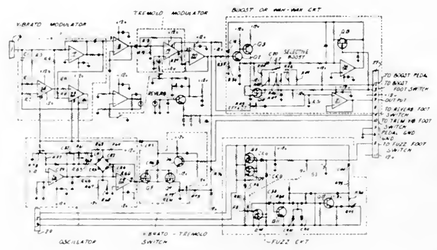
3,812,277
DEMONSTRATION TYPEWRITER KEYBOARD WALL CHART
Bernard A. Swartzman, State St., Lowville, N.Y.
Filed Jan. 30, 1973, Ser. No. 328,004
Int. Cl. G09b *13/02*
U.S. Cl. 35—6 6 Claims



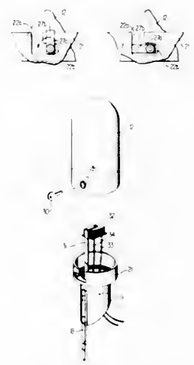
A demonstration typewriter keyboard wall chart system having a display of visible indicia representing keys of a typewriter keyboard, and lamps associated with the keys for selectively illuminating same. The lamps are actuated by switches operatively connected to the lamps. These switches are push-button switches in which the actuating stem has been provided with a hole. The shank of a tack having a substantially planar head is inserted in the stem hole to simulate a keyboard key. A plurality of circuits each including a lamp and switch are connected to the output of a step-down transformer so that low-voltage elements may be employed.

3,812,278
SPECIAL EFFECT AMPLIFIER FOR ELECTRICAL MUSICAL INSTRUMENTS
John L. Aker, Chanute, Kans., assignor to Kustom Electronics, Inc., West Chestnut Chanute, Kans.
Filed Feb. 1, 1972, Ser. No. 222,524
Int. Cl. G10h *1/04*
U.S. Cl. 84—1.25 8 Claims

A special feature or effect portion of an amplifier for musical instruments has circuitry combinations for generating vibrato, tremolo, fuzz and wah-wah or selective boost. The subject amplifier includes circuitry which permits independent selection of vibrato or tremolo and a combination of the two on an independent basis. Additional circuitry uniquely affects the oscillator therein, switching, vibrato and tremolo modulation, boost or wah-wah production and the fuzz producing means.



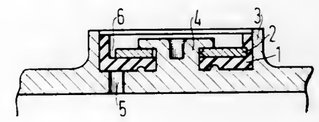
3,812,279
CABLE TELEVISION HOUSING WITH LOCKABLY JOINED COVER AND BASE
Henry Carl Voegeli, 918 Gibbs Rd., Venice, Fla.
Filed Feb. 12, 1973, Ser. No. 331,900
Int. Cl. H02g *3/14, 9/00*; B65d *55/14*
U.S. Cl. 174—38 7 Claims



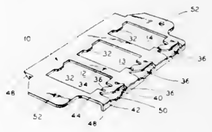
A two part housing comprised of a base adapted to be inserted into the ground and having means supported thereon adapted to be connected to conduit means positioned in the ground and a cover lockably joined to the base for encasing and protecting the connecting means against unauthorized use.

3,812,280
ELECTRICAL CAPACITORS WITH VENTED CLOSURES
Andreas Deckert, Heidenheim, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Filed Apr. 24, 1973, Ser. No. 354,006
Claims priority, application Germany, Apr. 27, 1972, 2220752
Int. Cl. H01g *9/12*
U.S. Cl. 174—52 S 9 Claims

An electrical capacitor having a sealed housing and a number of pressure relief orifices formed in the housing. A resilient annular valve disc overlies the orifices and a rigid washer like member holds the resilient disc in place against the housing. The rigid member has a number of recesses located in the vicinity of respective orifices to permit the resilient member to be lifted to vent pressure developed inside the capacitor.

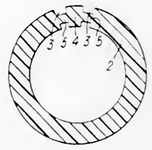


3,812,281
LOCKING ASSEMBLY
Fred S. Boyer, 5638 N. Kostner, Chicago, Ill.
Filed May 21, 1973, Ser. No. 362,197
Int. Cl. H02b *1/10*
U.S. Cl. 174—53 15 Claims



Locking assemblies for the mounting of electrical components or other members to a plate member include at least one locking member positioned adjacent the edge of an aperture in the plate member in which the component is to be mounted. The locking member is hingedly connected to the plate member for rotation and includes a tab which is rotatable into an opening in the component or other member which is to be mounted on the plate when the locking member is rotated about its hinge.

3,812,282
TEARABLE INSULATION SHEATH FOR CABLES
Johan A. E. Johansson, Grimsas, Sweden, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Jan. 11, 1973, Ser. No. 322,661
Int. Cl. H01b *7/00*; H02g *1/12*
U.S. Cl. 174—68 C 4 Claims

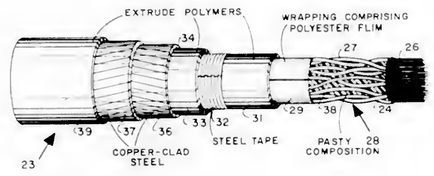


A cable sheath includes a pair of parallel longitudinal depressions and a rim therebetween to provide a simplified accessible cutting web for manually splitting open the cable. The depressions can be on the inner or outer surfaces or both and the rim may include a wire thread and a raised outer surface to facilitate the tearing.

3,812,283
PRESSURE RESISTANT CABLE

Erich W. Kothe, White Plaines; Lawrence C. Ebel, Hastings-on-Hudson, and Ralph C. D'Ascoli, Yonkers, all of N.Y., assignors to The Anaconde Company, New York, N.Y.

Division of Ser. No. 116,845, Feb. 19, 1971, abandoned. This application Apr. 2, 1973, Ser. No. 347,318
Int. Cl. H01b *11/06*
U.S. Cl. 174—105 R 2 Claims



A land lines communication cable system resistant to shock pressures comprises an integral tensile unit wherein tensile tapes covering the cable lengths are secured to splice cases, and an integral compressive unit wherein a plurality of both cable lengths and splice boxes are filled with an intercommunicating incompressible pasty composition.

3,812,284
ELECTRICAL INSULATOR HAVING ADDITIONAL PROTECTIVE INSULATING PORTION

Dieter Pohl, Nurnberg, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 24, 1972, Ser. No. 283,407
Claims priority, application Germany, Aug. 30, 1971, 2143365
Int. Cl. H01b *17/32, 17/42*
U.S. Cl. 174—188 2 Claims



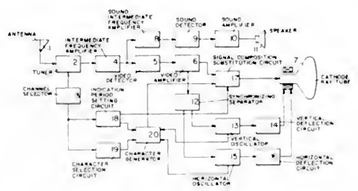
An electrical insulator having an insulating portion, to which an electrode is applied, whose resistance to leakage currents is greater than the leakage current resistance of the remaining portion of the insulator to prevent the formation of an electrical discharge between the electrode and the remaining portion of the insulator.

3,812,285
TELEVISION CHANNEL INDICATOR

Etsutaro Miyata, Yamatokoriyama; Setsufumi Kamuro, Tenri, and Kenji Sano, Osaka, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 2, 1973, Ser. No. 337,704
Claims priority, application Japan, Mar. 3, 1972, 47-22467
Int. Cl. H04n *5/60*
U.S. Cl. 178—5.8 16 Claims

In the television receiver implementations the transmitted video signals are received and then reproduced to form pictures in a cathode ray tube in accordance with the video signals. The previously produced channel character signals indicative of the selected channel numbers are used as substitutes for the video signals to enable channel indication in the same cathode ray tube. In order to accomplish the channel indication, the channel position signals are first produced in a channel selector mechanism and then the channel character

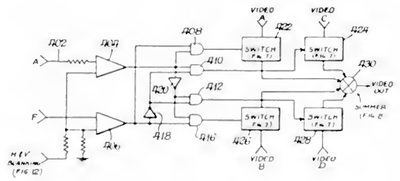


signals are produced based upon the produced channel position signals by the vertical and horizontal signals necessarily formed on the receiver circuit arrangement.

3,812,286
ROTARY SPECIAL EFFECTS GENERATOR

Nikola B. Tkacenko, Auburn, Calif., assignor to Sarkes Tarzian, Inc., Bloomington, Ind.

Filed Apr. 5, 1971, Ser. No. 131,300
Int. Cl. H04m *5/22*
U.S. Cl. 178—6.8 23 Claims



A special effects generator for use in video switching produces a wide variety of rotational wipes, fades, and special effects. The generator functions by mixing together controlled amounts of horizontal and vertical sawtooth waveforms and DC potentials. The resultant signal is then fed into a comparator, and the comparator output is used to control one or more electronic video switches. The special effects are controlled by varying the strengths of the waveforms which are summed through the use of potentiometers or variable resistors. Rotational special effects are achieved through the use of a 360 degree circular potentiometer having multiple taps. Provision is made for multiple image special effects. Also disclosed are circuits for preserving the integrity of the switch output signal during synchronizing intervals and for equalizing the DC levels of all the video signals which are mixed together.

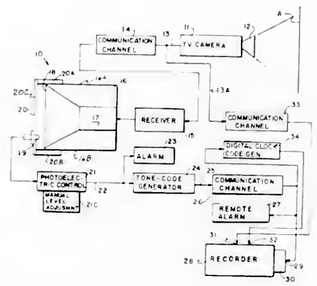
3,812,287
VIDEO DETECTION SYSTEM

Jermone H. Lemelson, 85 Rector St., Metuchen, N.J.

Continuation-in-part of Ser. No. 823,600, May 12, 1969, Pat. No. 3,705,953, which is a continuation-in-part of Ser. No. 723,075, Feb. 28, 1958, Pat. No. 3,084,213. This application Oct. 24, 1972, Ser. No. 300,249
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 3 Claims

An apparatus and method are provided for automatically detecting a change in an image field such as the appearance of an object in said field or the disappearance of said object. The apparatus which employs a television camera scanning the image field and which generates a video picture signal which is

applied to a remote cathode ray tube to provide an image of the field on the screen thereof, may be employed for security

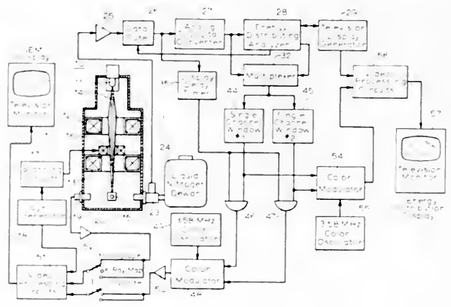


purposes to automatically detect images in the image field. An alarm is sounded when one or more particular portions of the image field vary in content.

3,812,288
TELEVISION DISPLAY SYSTEM

Charles J. Walsh, Deerfield, and Morris W. Barnhart, Buffalo Grove, both of Ill., assignors to Edax International Inc., Prairie View, Ill.

Filed Nov. 21, 1972, Ser. No. 308,522
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 11 Claims

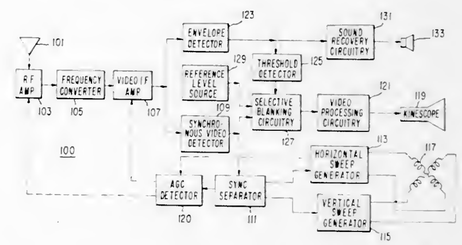


A television display system for a scanning electron microscope provides a spatially correlated area map display of X-ray events emitted from a specimen within one or more predetermined energy ranges as the specimen is scanned at standard television scanning rates by an electron beam. The X-ray area map display can be presented alone, or in combination with a conventional micrograph magnified image of the specimen. Provision is made for displaying X-ray events falling within different energy ranges in different colors on the area map television display to facilitate determining the distribution of selected elements within the specimen, and for color coding the distribution peaks on an associated X-ray energy distribution television display to facilitate correlation with the elements displayed in the area map display.

3,812,289
TELEVISION RECEIVER USING SYNCHRONOUS VIDEO DETECTION

Jack Avins, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 6, 1972, Ser. No. 303,797
Int. Cl. H04n *5/44*
U.S. Cl. 178—7.3 R 8 Claims

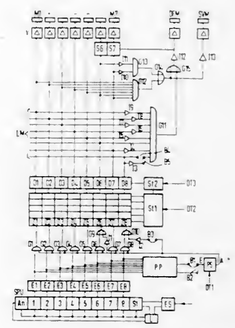


Synchronous video detection in a television receiver provides increased detection linearity and better signal-to-noise ratio for weak signals than does envelope video detection. Impulse noise, which produces generally unobtrusive black-going noise in a kinescope picture produced in accordance with a video signal recovered by envelope detection, conventionally produces obtrusive white-going noise as well in a picture produced in accordance with a video signal recovered by synchronous detection. Impulse noise detected by an auxiliary video detector responsive to the video i-f envelope provides a blanking signal to remove obtrusive white noise from the output signal of a synchronbus video detector.

3,812,290
SYSTEM FOR INDICATING PARITY-DISTURBING INTERFERENCES IN TRANSMISSIONS FOR TELEPRINTERS

Roman Lutz, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

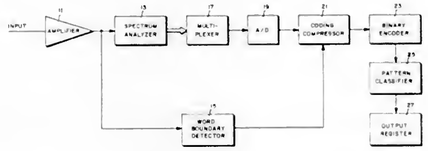
Filed Oct. 8, 1971, Ser. No. 187,607
Claims priority, application Germany, Nov. 16, 1970, 2056278
Int. Cl. H04l *1/10*
U.S. Cl. 178—23 A 2 Claims



A system for indicating parity-disturbing interferences in transmissions for teleprinters wherein the teleprinters print a special symbol to indicate such interferences including an electronic receiving circuit having electronic means for recoding received symbols which result in a non-parity condition during conversion, recoding providing a predetermined code

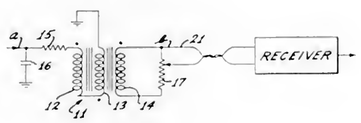
combination for conversion by a printer into a special symbol, either a smear symbol or a space.

3,812,291
SIGNAL PATTERN ENCODER AND CLASSIFIER
Donald L. Brodes, Fairfax, and Myron H. Hitchcock, Reston, both of Va., assignors to Scope Incorporated, Reston, Va.
Filed June 19, 1972, Ser. No. 263,849
Int. Cl. G10l *1/00*
U.S. Cl. 179—1 SA **13 Claims**



A device for encoding and classifying signal data obtained from a multiplicity of property filters. A fixed length binary pattern is produced for each signal input. This binary pattern provides the input to a pattern classifier which is organized for a particular classification task by an estimation process that combines a multiplicity of binary patterns into a standard reference pattern. Classification is accomplished by comparing binary encoded patterns generated by signal occurrences with previously generated reference patterns.

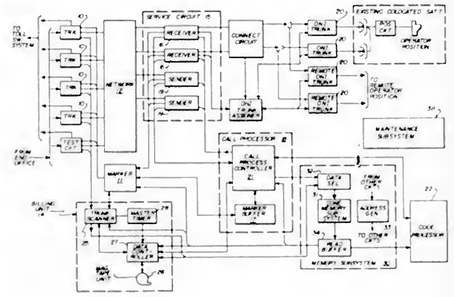
3,812,292
DIGITAL COMMUNICATION SYSTEM
Robert MacMillan Tink, San Diego, Calif., and Bob Jim Baker, Walton, W. Va., assignors to The National Cash Register Company, Dayton, Ohio
Continuation of Ser. No. 225,793, Feb. 14, 1972. This application July 16, 1973, Ser. No. 379,275
Int. Cl. H04b *3/50*
U.S. Cl. 179—2 DP **4 Claims**



A short distance binary telephone communications system employing a transformer having a square hysteresis loop core as a transmitter. The binary signal is differentiated by the transformer and applied to a short conventional telephone line. The receiver employs an impedance matching transformer to drive a flip-flop to reproduce the input binary signal.

3,812,293
ARRANGEMENT FOR PROVIDING PRIORITY OVERRIDE OF BILLING BUFFER ENTRY SELECTOR
Richard A. Padgett, Lombard, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Jan. 2, 1973, Ser. No. 320,371
Int. Cl. H04m *15/10*
U.S. Cl. 179—7 R **7 Claims**

A permanent record of billing information is produced from trunk scanner entries and initial entries from a call processor, with the trunk scanner and the call processor being alternately provided access to the billing buffer. The trunk scanner has only a single queue providing access to the billing buffer and if this queue is full when another entry is attempted, trunk scanner congestion can occur. The arrangement of the present invention, should congestion occur, provides priority override for the trunk scanner entries over the initial entries, until the queue is empty.



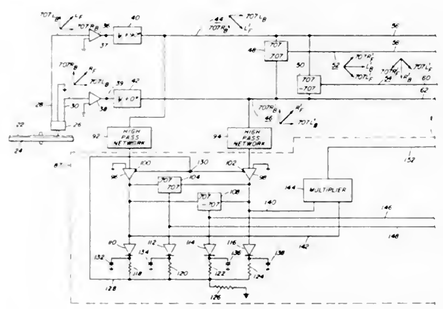
3,812,294
BILATERAL TIME DIVISION MULTIPLEX SWITCHING SYSTEM
Thomas Josef Pedersen, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 22, 1972, Ser. No. 317,657
Int. Cl. H04j *3/16*
U.S. Cl. 179—15 AQ **17 Claims**

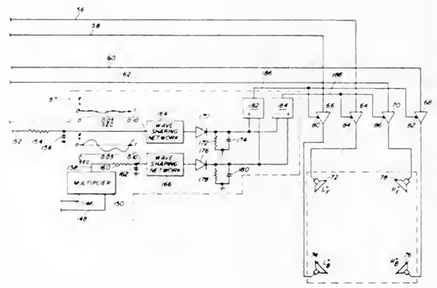


A switching network comprising arrays of bilateral crosspoint stores is combined with a plurality of bilateral time slot interchangers connected in links between switching stages to form a complete switching system. The two connections required for a two-way communication are established through bilateral crosspoint stores and a bilateral time slot interchanger which are common to both connections, thereby eliminating hardware redundancy. The system is controlled by information stored in local control memories and associated auxiliary control memories. Call setup and release is implemented by means of pulse stuffing and pulse absorbing at registers in the crosspoint stores and time slot interchangers, and

proceeds at all stages simultaneously instead of by propagating stage-by-stage through the network.

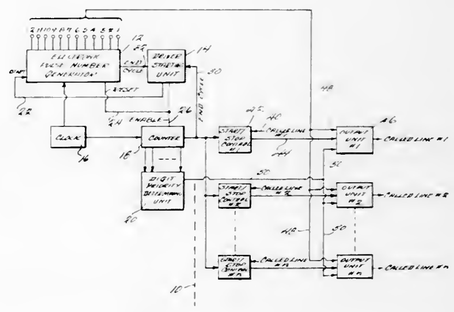
3,812,295
QUADRAPHONIC REPRODUCING SYSTEM WITH GAIN RIDING LOGIC
Benjamin B. Bauer, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.
Continuation of Ser. No. 81,858, Oct. 19, 1970, abandoned. This application May 8, 1972, Ser. No. 251,636
Int. Cl. H04r *5/00*
U.S. Cl. 179—1 GQ **14 Claims**





Apparatus for reproducing four separate channels of information on a medium having only two independent tracks and presenting it on four loudspeakers to give a listener the illusion of sound coming from a corresponding number of separate sources. The realism of the illusion is enhanced by a decoding system which accepts the two outputs from the medium, which may be a disc record, one from each track, separates them into four independent channels each carrying predominantly the information contained in the originally recorded sound channels, and, utilizing cross-correlation techniques, derives a pair of control signals for controlling the gains of amplifiers associated with the four loudspeakers. The use of cross-correlation improves the separation of the four independent channels, particularly the generally "front" from the generally "back" signals, thereby to enhance the realism of four-channel simulation.

3,812,296
APPARATUS FOR GENERATING AND TRANSMITTING DIGITAL INFORMATION
Theodore G. Paraskevakos, Athens, Greece, assignor to Paraskevakos Electronics & Communication, Inc., Wilmington, Del.
Continuation of Ser. No. 76,436, Sept. 29, 1970, abandoned. This application June 7, 1972, Ser. No. 260,511
Claims priority, application Greece, Jan. 26, 1970, 39092
Int. Cl. H04m *3/42*
U.S. Cl. 179—18 B **20 Claims**

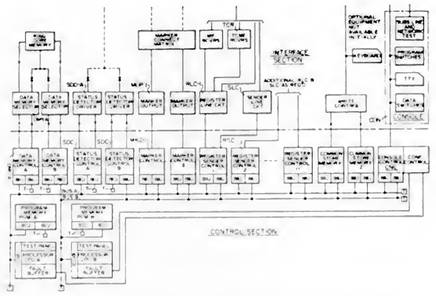


An apparatus for serially generating groups of electrical pulses, each group representing the value of a particular digit or ordinal place of a predetermined number such as the number of a calling telephone together with control digits and added information carrying digits for display or recording at a called telephone site. A number pulse generator repetitively and simultaneously produces a plurality of output pulse trains, each train representing one possible value of a digit. A priority determining unit also generates ordinal place signals sequentially representing a time for transmitting each sequential digit of the predetermined number and selected ones of the groups of electrical pulses are sequentially gated by the ordinal place signals to result in the desired serial transmission of groups of pulses respectively representing the predetermined number whenever such transmission is desired such as in response to a busy signal from the called telephone.

3,812,297
BUS CONTROL ARRANGEMENT FOR A COMMUNICATION SWITCHING SYSTEM
Robert A. Borbas, Brockville, Ontario, Canada, assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Oct. 6, 1972, Ser. No. 295,630
Int. Cl. H04q *3/54*
U.S. Cl. 179—18 ES **29 Claims**

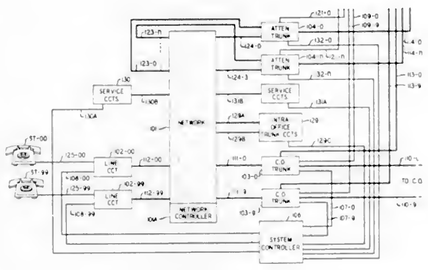
The system has duplicate central processors, each having its own bus. Subsystem modules include program memory, data base memory, status detector, register-senders, markers, etc., each having one or more memory word stores. Bus interface units of identical construction are interposed between the subsystem modules and the busses. Some modules such as program memory are duplicated and each connected to one bus, while others are connected via their interface unit to both buses. All memory addresses are accessed from a processor via its bus, each address being effective to select only one interface unit, and the complete address being then passed to the subsystem module to read or write a data word. The bus

comprises control conductors, and data conductors for both address and data in either direction. A bus control unit at the



central processor provides an address cycle followed by a data cycle indicated by signals on the control conductors.

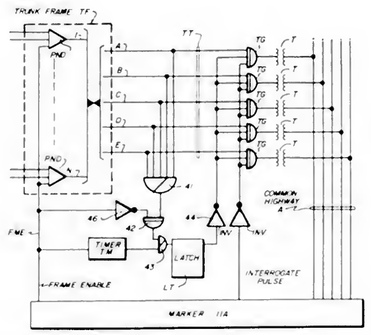
3,812,298
COMMUNICATION SYSTEM SWITCHING NETWORK
Robert George Dittrich, Boulder; Dean Brian Secord, Westminster, and Louis Emanuel Thelemaque, Boulder, all of Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 6, 1972, Ser. No. 295,671
Int. Cl. H04q *3/42*
U.S. Cl. 179—18 EA **11 Claims**



A switching system is disclosed having a network controller which, in response to the receipt of a request for a network connection, simultaneously tests for the availability of an idle circuit of the type to which a connection is requested as well as the availability of idle paths through the network to the requested circuits.

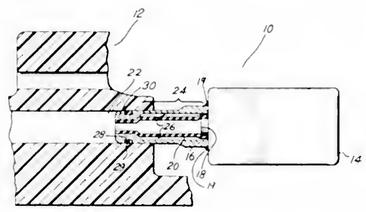
3,812,299
ARRANGEMENT FOR PROTECTING A COMMON HIGHWAY IN A COMMON CONTROL COMMUNICATION SWITCHING SYSTEM
Gerald H. Fleischfresser, Chicago, and Truman R. Mila, Lombard, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Mar. 28, 1973, Ser. No. 345,627
Int. Cl. H04m *3/08*
U.S. Cl. 179—18 AH **8 Claims**

An arrangement is provided for protecting a common highway in a common control communication switching system of the type having full redundancy of the common control equipment, but not the trunks. In the particularly disclosed system, a truck type signal generator means is associated with each trunk and gates the truck type information onto both of the common highways servicing the "on-line" and "off-line" markers so that both markers can see the information and respond alike to maintain synchronous operation.



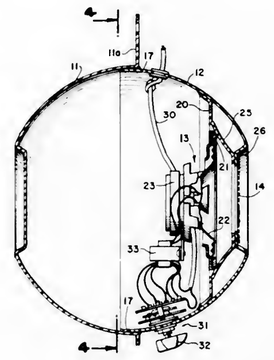
The disclosed arrangement prevents any trunk type signal generator means which have failed on or are shorted from contaminating both common highways.

3,812,300
IMPROVED RECEIVER ASSEMBLY INCORPORATING ACOUSTICAL ENCLOSURE FOR RECEIVER
Richard Brander, Chicago, and Erwin M. Weiss, Cicero, both of Ill., assignors to Beltone Electronics Corporation, Chicago, Ill.
Continuation of Ser. No. 94,321, Dec. 2, 1970, abandoned. This application Dec. 11, 1972, Ser. No. 313,976
Int. Cl. H04r *25/00*
U.S. Cl. 179—107 R **5 Claims**



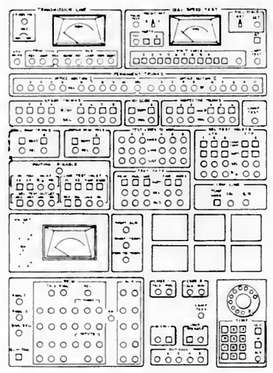
An improved receiver assembly includes a hollow metal casing for the receiver having a number of compliant members supporting the receiver from the inner surface of the casing. The compliant support members reduce the transmission of mechanical vibration and protect the receiver from external mechanical shock. The improved assembly includes a flexible tube for conducting sound from the receiver to an acoustical load and a metallic nozzle connected to the receiver casing and covering the flexible tube. An annular recess is defined on one end of the nozzle for receiving a ring seal which provides an efficient connection to the acoustical load. Flexible wires conduct an electrical signal to the receiver. The receiver casing and nozzle provide an acoustically sealed hollow enclosure around the receiver which prevents unwanted leakage of acoustic energy.

3,812,301
SPHERICAL LOUDSPEAKER
Uolevi L. Lahti, 909 Sunset Rd., Ann Arbor, Mich.
Filed Mar. 6, 1973, Ser. No. 338,530
Int. Cl. G10k *13/00*; **H04r** *1/28*
U.S. Cl. 181—31 B **2 Claims**



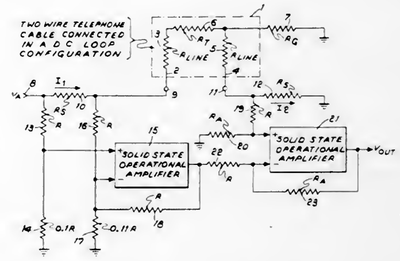
A loudspeaker including a radiating cone speaker in a spherical flexible sealed enclosure which is capable of radiating sound in response to variations of internal acoustic waves, and having an inverted impedance matching horn located between the radiating cone and the external environment and radiating via an opening in the enclosure.

3,812,302
TEST DESK INCLUDING A MANUALLY CONTROLLED CONNECT MATRIX
Kurt F. Herr, Woodridge, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Apr. 6, 1973, Ser. No. 348,561
Int. Cl. H04m *3/26*
U.S. Cl. 179—175.2 R **9 Claims**



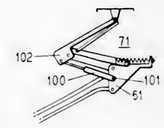
A test desk is equipped with pushbutton controls and a manually controlled connect matrix for establishing connections between any one of a number of test circuits and any one of a number of test trunks. Provisions are included for preventing double or multiple connections, as well as for tracing connections.

3,812,303
DIFFERENTIAL LOOP CURRENT DETECTOR
Edward F. Stewart, Raleigh, N.C., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Oct. 11, 1972, Ser. No. 296,727
Int. Cl. H04b *3/46*
U.S. Cl. 179—175.3 R **13 Claims**



There is disclosed a solid state differential loop current detector to detect and measure current unbalance in a two wire telephone cable connected in a direct current loop configuration wherein the current unbalance is due to paths to ground potential from the telephone cable. The detector includes a first solid state operational amplifier appropriately connected to an input terminal supplying a voltage to the adjacent end of one wire of the telephone cable and to the adjacent end of the one wire of the telephone cable and a second solid state operational amplifier appropriately connected to the output of the first amplifier and to the adjacent end of the other wire of the telephone cable. The second amplifier produces an output voltage having an amplitude proportional to the magnitude of the current unbalance.

3,812,304
HIGH SPEED CURRENT COLLECTION
Roland Leger, Paris, France, assignor to Faiveley S.A., Saint Ouen, France
Filed Mar. 22, 1972, Ser. No. 236,874
Int. Cl. B60l *5/12*
U.S. Cl. 191—66 **4 Claims**

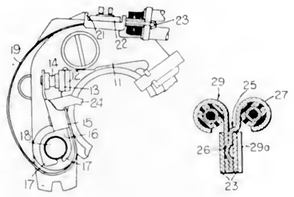


The coupling between a high speed electrically powered vehicle and an overhead catenary wire current distribution system is enhanced by providing compensation separately for low amplitude dynamic displacements of a wire contacting current collector which occur at different frequencies.

3,812,305
TERMINAL CONNECTOR ASSEMBLY FOR AUTOMOTIVE DISTRIBUTOR CONTACT BREAKER
Alfred Rees, Birmingham, England, assignor to Joseph Lucas (Electrical) Limited, Birmingham, England
Filed Jan. 15, 1973, Ser. No. 323,384
Claims priority, application Great Britain, Jan. 15, 1972, 2025/72
Int. Cl. H01h *1/58*
U.S. Cl. 200—284 **7 Claims**

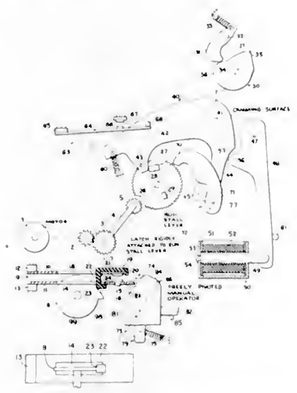
A contact breaker assembly including a fixed contact a movable contact and a conductive leaf spring electrically con-

nected to the movable contact and urging the movable contact towards the fixed contact. At its end remote from the movable contact the leaf spring is bent back on itself to define a spring clip having a pair of limbs. A terminal member is engageable



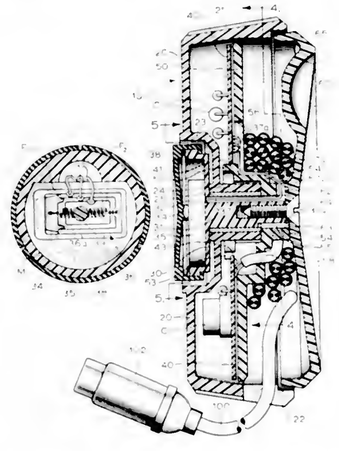
between the limbs of the spring clip so as to be electrically and physically connected to the leaf spring, and that region of the terminal which is received between the limbs of the spring clip bears a projection.

3,812,306
SWITCHING MECHANISM
John L. Harris, Clearwater, Fla., assignor to Deltrol Corp., Bellwood, Ill.
Division of Ser. No. 133,077, April 12, 1971, Pat. No. 3,716,720. This application Aug. 23, 1972, Ser. No. 283,109
Int. Cl. H01h *43/10*
U.S. Cl. 200—39 R **10 Claims**



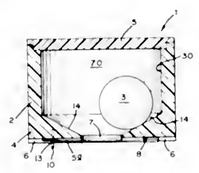
Protection against refrigeration compressor burnout by short cycling is provided by a time delay switching mechanism having a motor and a solenoid controlled by a room thermostat. The motor runs continuously and the solenoid stops and starts the timer by stalling or releasing the timer gear. The timer gear has teeth omitted at the stalling points to allow the motor to run free. A starter cam follower bearing on a starter cam serves to start the timer gear when released by the solenoid. The solenoid operates the stalling and switch control mechanism through a compound leverage and camming system compensating for the non-linear pull curve of the solenoid. The device also includes a combination cam and latch operated switch in which one switch blade carries a follower lifting another blade which is then held by the latch when the follower drops to close the switch. A manual operator is provided for closing the switch independently of the timing mechanism. This manual operator is released automatically by the solenoid dropping out when the thermostat becomes satisfied. The timer also includes an arrangement for locking the compressor switch closed for a period of time when it first closes to allow the system to settle down and thus avoid short cycling.

3,812,307
RETRACTABLE CORD ASSEMBLY WITH ELECTRIC SWITCH INTEGRALLY ASSOCIATED WITH ROTATABLE REEL HOUSING MEMBER
Everett F. Wagner, Northfield; Joseph J. Sidlo, North Barrington, and Lawrence J. Rischke, Jr., Mount Prospect, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.
Filed Jan. 24, 1973, Ser. No. 326,322
Int. Cl. H01h *35/00*; **H02g** *11/00*
U.S. Cl. 200—52 R **7 Claims**



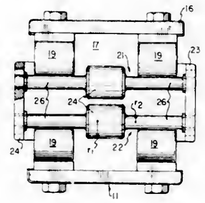
A control system for remotely controlling electrical devices from a plurality of locations. The system includes a stationary housing member, and electrical switching and circuit means joined for rotating in unison. The terminal end of a power cord is connected with said circuit means and is rotatable therewith. The simultaneous rotation of said switch and circuit means readily maintains the electrical continuity of the system.

3,812,308
BALL ACTUATED INERTIA SWITCH
Lon E. Bell, and William B. Gruber, both of Altadena, Calif., assignors to Technar, Incorporated, Pasadena, Calif.
Filed Aug. 23, 1972, Ser. No. 283,243
Int. Cl. H01h *35/14*, *1/16*
U.S. Cl. 200—61.45 R **3 Claims**



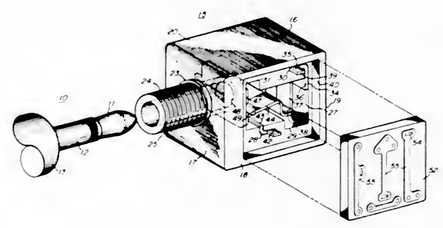
Inertia switch with mass freely movable in chamber and energizing switch means upon reception in chamber.

3,812,309
ELECTRICAL SWITCH WITH HIGH PRESSURE CONTACTS
Cary J. Ahrano, McDonough, Calif., assignor to Gulton Industries, Inc., Metuchen, N.J.
Filed Nov. 6, 1972, Ser. No. 304,340
Int. Cl. H01h *31/00*
U.S. Cl. 200—48 A **11 Claims**



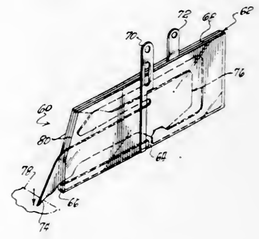
A stationary jaw contact assembly for use in high current disconnect switches including opposed fixed contact members, each fixed contact member associated with a variable diameter cylindrical contact member rotatably mounted between the fixed contacts. Each rotatable contact member has a reduced diameter portion which engages the associated fixed contact member and an enlarged diameter portion. The enlarged diameter portions on each rotatable contact define a space between themselves receivable of a movable blade contact during closing of the switch so that the blade contact simultaneously engages each enlarged diameter portion. The size of the force required to make or break electrical contact is proportional to the ratio of the radius of the small diameter portion to the radius of the enlarged diameter portion.

3,812,310
SEALED PRINTED CIRCUIT JACK PLUG CONNECTOR
Bernard Gasparaitis, Fort Lauderdale, and Dennis J. Maloney, Margate, both of Fla., assignors to Motorola, Inc., Chicago, Ill.
Filed June 11, 1973, Ser. No. 368,804
Int. Cl. H04r *13/70*
U.S. Cl. 200—51 R **11 Claims**



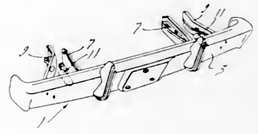
A jack plug connector having a four sided hollow non-conductive housing with plug contacts mounted therein for contacting the jack plug. The contacts have tabs thereon which fit into apertures in printed circuit boards which are secured to each side of the housing and form the top and bottom walls of the housing. Components and conductors are secured in the apertures of the printed circuit board and all the apertures are sealed as by soldering.

3,812,311
MINIATURE TYPE SWITCH PROBE FOR TESTING INTEGRATED CIRCUIT ASSEMBLIES OR THE LIKE
Joseph Kvaternik, Belmont, Calif., assignor to Electronic Memories & Magnetics, Inc., Los Angeles, Calif.
Filed Dec. 11, 1972, Ser. No. 313,646
Int. Cl. H01h *3/00*; **G01r** *31/22*
U.S. Cl. 200—61.42 **18 Claims**



Apparatus for contacting the miniature terminal pads of an integrated circuit, including a frame having a pair of thin glass sheets held a small distance apart by a thin spacer that extends along most of the periphery of the sheets, and a blade of thin conductive sheet material located between the sheets. The blade has a rear end with a recess that receives a bump formed on the spacer for pivotally mounting the blade on the spacer, and the blade also has a thin spring arm that bears against the spacer to urge the blade into firm pivotal engagement with the spacer bump and to bias the blade towards one direction of pivoting.

3,812,312
IMPACT VELOCITY SENSOR SWITCH WITH LINEARLY MOVABLE CONTROLLER
Poul H. Andersen, Royal Oak; Frank R. Povilaitus, and Robert S. Himes, both of Troy, all of Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Division of Ser. No. 198,541, Nov. 15, 1971, Pat. No. 3,753,475. This application Apr. 9, 1973, Ser. No. 349,501
Int. Cl. H01h *35/14*
U.S. Cl. 200—61.53 **6 Claims**

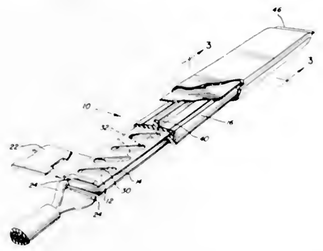


Sensing device for sensing the velocity of an automotive vehicle when the latter collides with another object, the device having a plurality of contacts adapted to be electrically interconnected at different times depending upon the velocity of the vehicle at the moment of impact.

3,812,313
TREAD TYPE SWITCH FOR USE IN PASSENGER SEATS OR THE LIKE
Walter A. Wolf; Prentice R. Corn, and Wallace A. Gebhardt, all of Logansport, Ind., assignors to Switches, Incorporated, Logansport, Ind.
Filed Feb. 20, 1973, Ser. No. 334,019
Int. Cl. H01h *3/02*
U.S. Cl. 200—86 R **18 Claims**

This invention relates to an electrical switch that includes a pair of resilient metal contact strips mounted in parallel

spaced relationship in a hollow resilient casing. One of the contact strips has a plurality of diagonally positioned slits therein that are located between opposite lateral edges while the other strip has a plurality of longitudinally spaced protrusions extending towards the adjacent strip.



The casing is mounted within an outer cover and the casing has an elongated bead or projection aligned with the protrusions while a thin sheet metal strap is positioned between the projection and the casing to concentrate the pressure applied to the adjacent surface of the casing to a localized area aligned with the protrusions.

3,812,314

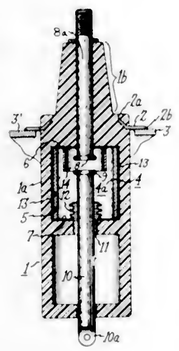
HIGH POWER ELECTRICAL BUSHING HAVING A VACUUM SWITCH ENCAPSULATED THEREIN

Gordon C. Nonken, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.

Filed Aug. 23, 1971, Ser. No. 173,871

Int. Cl. H01h *33/66*

U.S. Cl. 200—144 B **9 Claims**



A molded plastic bushing for high electrical power applications is provided with an encapsulated vacuum switch which is operable to interrupt current in the circuit through the bushing. The combination bushing and vacuum switch are characterized by having an end-to-end withstand voltage rating that is at least twice as great as the withstand voltage rating of the switch in an unencapsulated state. The bushing-switch combination is further characterized by affording an ideal handling and support mechanism for the vacuum switch container, so that large contact-closing pressures can be employed to actuate the switch, without danger of damage to the switch or its encapsulation.

3,812,315

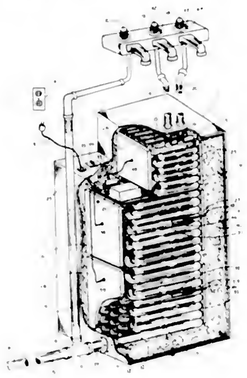
MICRO-WAVE HEATER

Norman Eugene Martin, 3529 Van Buren, ElPaso, Tex.

Filed Feb. 27, 1973, Ser. No. 336,220

Int. Cl. H05b *9/06, 9/04, 5/00*

U.S. Cl. 219—10.55 **6 Claims**



A fluid, such as water, is heated on demand and supplied either hot or boiling by the device of the present invention which comprises, generally, a coiled tubular reservoir which is heated in different areas by a plurality of sequentially arranged pairs of dielectric plates. Micro-wave energy is supplied to the respective pairs of dielectric plates selectively by means of electrical switching mechanisms and thermostatic controls so that either hot or boiling water is quickly available and a continuous flow is maintained as required.

3,812,316

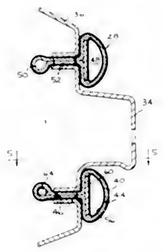
DOOR SEAL GASKET FOR COMBINED MICROWAVE AND SELF-CLEANING OVEN

Frank L. Milburn, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Mar. 28, 1973, Ser. No. 345,716

Int. Cl. H05b *9/06*

U.S. Cl. 213—10.55 **5 Claims**



An electrically conductive, heat resistant gasket is provided for sealing the door in an oven of the combination pyrolytic self-cleaning and microwave type. The gasket has a knitted stainless steel outer jacket for making electrical contact between the oven door and the oven body and further to make a seal to prevent the escape of microwave radiation from the oven cavity. A woven glass fiber sleeve comprising a pair of coextensive chambers is disposed coextensively within the outer jacket for sealing the oven against the escape of heat, smoke and gases, especially those generated in the self-cleaning process. Arranged coextensively within one chamber of the sleeve is a flat, metal insert and a resilient core, the combination serving to prevent gathering of the gasket as it is bent around the corners of the oven door and to insure a controlled width and uniform sealing around the entire periphery of the cavity opening. Gasket mounting means in the form of a glass fiber bead draw-string is arranged coextensively within a second chamber of the sleeve for aiding in sub-assembling the gasket on the door inner panel.

3,812,317

SPARK EROSION DEVICE HAVING ARC DETECTING MEANS

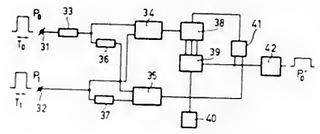
Paulus Maria De Bont, Emmasingel, Eindhoven, and Willem Van Liefland, Nijmegen, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,647

Claims priority, application Netherlands, Dec. 8, 1971, 7116823

Int. Cl. B23k *9/16*

U.S. Cl. 219—69 P **12 Claims**



Described is an apparatus for the timely detection of arcs during a spark erosion process. The breakdown delay time upon each discharge is compared to a reference time interval. In the event of a number of successive discharges with breakdown delay times shorter than this time interval, an error signal is produced.

3,812,318

APPARATUS FOR WELDING, FUSING OR HEATING WORKPIECE UTILIZING ENERGY OF A LIGHT BEAM

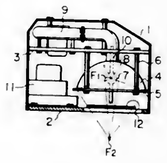
Shuzo Yoshizumi, Takarazuka, and Yoshimitsu Matsumoto, Toyonaka, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Nov. 24, 1972, Ser. No. 309,000

Claims priority, application Japan, Nov. 26, 1971, 46-95472; Dec. 9, 1971, 46-99980; Dec. 11, 1971, 46-100350; Dec. 11, 1971, 46-100351; Dec. 17, 1971, 46-103060

Int. Cl. B23k *1/04*

U.S. Cl. 219—85 **5 Claims**



An apparatus for welding, fusing or heating a workpiece utilizing the energy of a light beam comprising an eliptical mirror, a light source of high-temperature are disposed at a first focus of the elliptical mirror and means for holding the workpiece at a second focus of the elliptical mirror. In the apparatus, cooling means is disposed adjacent to the elliptical mirror for cooling the light source.

3,812,319

AUTOMATIC CONTROL OF THE DUTY CYCLE OF AN ELECTRON BEAM HEATING DEVICE

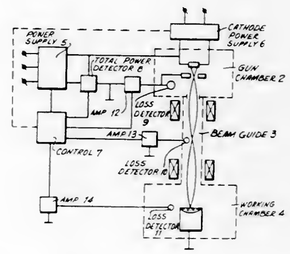
Igor Pavlovich Brukovsky, Mosfilmovsky pereulok, 5 korpus 2 "b", kv 16, Moscow, U.S.S.R.

Continuation-in-part of Ser. No. 831,903, June 10, 1969. This application May 24, 1972, Ser. No. 256,489

Claims priority, application U.S.S.R., June 10, 1968, 1247754

Int. Cl. B23k *15/00*

U.S. Cl. 219—121 EB **2 Claims**



The automatic control of the duty cycle of an electron beam heating device which controls the heating of an article includes the simultaneous measurement of the total power consumed by the electron beam heating device from its power source and the amount of energy loss in the electron gun, beam guide system and working chamber of the device. The sensed total power and energy loss are compared to determine the power consumed for the heating of an article, this power being employed as a parameter for controlling the duty cycle of the device.

3,812,320

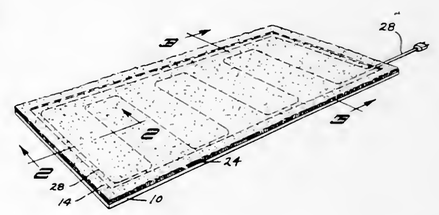
HEATED GROUND COVER FOR THE DISSIPATION OF MOISTURE

Peter M. Borgren, Duluth, Minn., assignor to Boonie Pad Co., Inc., Duluth, Minn.

Division of Ser. No. 106,198, Jan. 13, 1971, abandoned. This application June 30, 1972, Ser. No. 267,892

Int. Cl. H05b *3/16*

U.S. Cl. 219—213 **3 Claims**

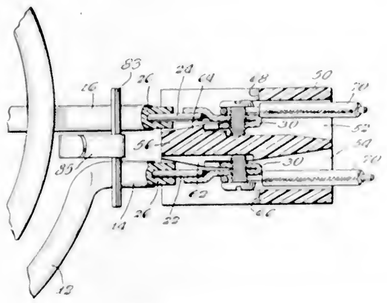


A heated ground cover including a first outer sheet member, a second outer sheet member, heating wires interposed between the outer sheet members with chambers adjacent to the heating wires together with means supporting the outer members whereby heat issuing from the heating wires is distributed throughout the cover to cause evaporation of moisture collected upon the uppermost of the outer sheet member.

3,812,321
ELECTRIC SURFACE TYPE HEATING ELEMENT AND INSULATOR COMBINATION

Charles A. Skinner, Laurel, Md., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Aug. 16, 1973, Ser. No. 389,045
Int. Cl. H05b 3/68
U.S. Cl. 219—451 5 Claims

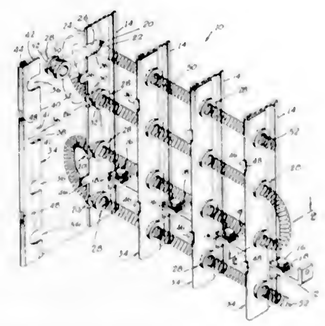


The present invention relates to a surface-type electric heating element including at least a pair of terminal pins extending from opposite ends of a convoluted sheath member, a blade carried by each terminal pin adapted for plug-in type connection, and an insulator permitting a lead-wire, screw-type connection of the surface unit to electric power. Because of the insulator both methods of connection of the surface-type electric heating element to electric power may be carried out with the terminal blades in the same disposition relative to the plane of the surface unit. The terminal blade includes a tapped thread to permit lead-wire, screw-type connection without the requirement of securing nuts.

3,812,322
HEATING ELEMENT ASSEMBLY

Charles Louis Osterkorn, North Brunswick, N.J.; Leo V. Buck, Effingham, Ill.; William W. Kloos, and Salvatore M. Marino, both of East Brunswick, N.J., assignors to Fedders Corporation, Edison, N.J.

Filed Aug. 24, 1973, Ser. No. 391,265
Int. Cl. H05b 3/06
U.S. Cl. 219—532 2 Claims

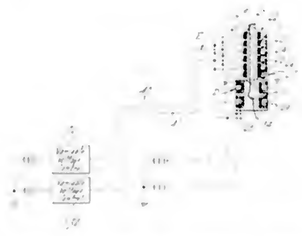


An assembly for supporting an open coil heating element is provided. The assembly includes an elongated arm to which is secured a plurality of cross-members. The cross-members each have cutouts therein which extend from an opening to an edge. A capping member is provided for each cross-member with each capping member having cutouts therein alinged with its associated cross-member cutouts. The heating coil is secured in position by a plurality of insulating bushings each of which is captured in part by the surfaces of the cross-member defining a cutout and in part by the surfaces of the capping member defining the associated cutout. The capping members are secured to the cross-members thereby rigidly securing the bushings and thus the heating coil in position.

3,812,323
ELECTRICAL HEATING BANDS FOR A FEEDING SYSTEM

Frank A. Pink, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 3, 1972, Ser. No. 303,573
Int. Cl. H05b 3/58
U.S. Cl. 219—535 9 Claims

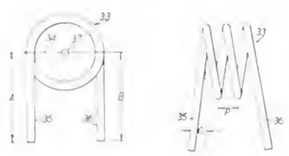


Heating bands and cartridge heaters, adapted to be mounted about cylindrical chambers, manifolds and nozzles conveying heated plastic from a feeding system to a molding assembly, are arranged so that spacing between heated elements of the bands can be increased or decreased depending upon whether one or more of the elements is energized. The bands are comprised of dual or multiple wound coils to provide fail-safe operation for the nozzles in the event one of the coils should be inoperative. A useful method to achieve the multiple winding is to first generate at least a dual threaded geometric, and then lay insulated conductors in the groovings between windings so that strands of independent coils are in parallel side-by-side relation throughout.

3,812,324
GLOW COIL IGNITOR

Joseph Gino Faffaelli, Granada Hills, and Reed Albert Palmer, Los Alamitos, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Division of Ser. No. 160,827, July 8, 1971, Pat. No. 3,774,077.
This application June 25, 1973, Ser. No. 373,090
Int. Cl. H05b 3/10; F23q 7/10
U.S. Cl. 219—553 1 Claim

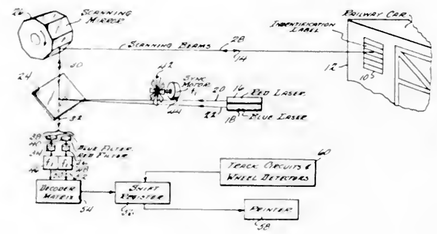


A glow coil ignitor including a coil of molybdenum disilicide wire having straight end portions of approximately equal lengths, said coil being in the shape of a helix having an approximately constant inside diameter and pitch throughout its entire length. The wire having an approximately constant diameter throughout its entire length, the helix having an odd number of halt turns and at least 1½ turns, the wire end portions being connected to and being integral with the ends of said helix, and the axes of said wire end portions being positioned substantially tangent to the axis of said wire at the connections of said wire end portions with the respective ends of said helix.

3,812,325
MEANS FOR READING AND INTERPRETING COLOR-CODED IDENTIFICATION LABELS

Joseph J. Schmidt, Baltimore, Md., assignor to The Chesapeake and Ohio Railway Company, Cleveland, Ohio

Filed Aug. 18, 1970, Ser. No. 64,764
Int. Cl. G06k 7/12
U.S. Cl. 235—61.11 E 5 Claims

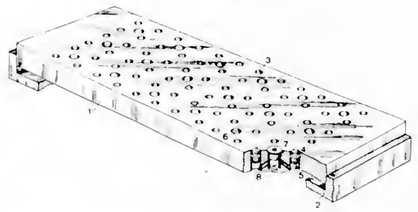


An improved system for automatically reading color-coded identification labels by scanning an incident light beam there across and sensing the color of reflected light wherein two laser sources are provided for producing light beams having approximately optimum wavelength spectra for reflection from colored reflective strips within the label and including means for effectively combining such beams into a single incident beam for use in scanning the identification label. A modification is also disclosed wherein each laser beam is individually modulated with a distinguishing code and the distinguishing codes are then detected in the reflected beam to indicate the presence of reflected wavelength spectra associated with a particular code.

3,812,326
OPTICAL MATRIX FOR READING CODED INFORMATION ON CARDS

Georges Galy, Toulouse, France, assignor to Societe D'Etudes De Poly-Techniques Sepotec, Paris, Seine, France

Filed Feb. 21, 1973, Ser. No. 334,439
Claims priority, application France, Feb. 25, 1972, 72.06496
Int. Cl. G06k 7/14; G01n 21/30; H01r 13/50
U.S. Cl. 235—61.11 E 7 Claims

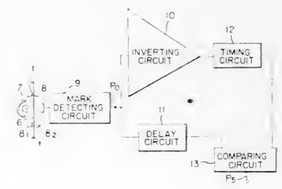


The matrix comprises a plate, against one working face of which is intended to be forced a support inscribed with coded information; the plate is provided with a plurality of internal housings arranged in such manner as to open into the working face level with printing zones of the support, by orifices having dimensions at most equal to those of conventional signs. Each housing corresponds to a printing zone and contains a light-sensitive element directed towards the working face and connected to means for treating the electrical information transmitted. The plate further comprises sources of light intended to illuminate with a predetermined intensity the printing zones of the support by channels opening into the housings of the light-sensitive elements close to the orifice of each of the housings. At each reading, the sources of light illuminate the printing zones of the coded support and the rays of light are reflected and diffused towards the corresponding light-sensitive elements with a different intensity, depending on whether the printing zone considered comprises a conventional sign or whether it does not have any.

3,812,327
MARK READER

Mutsuhiro Inoue, Sagamihara, and Kano Tanaka, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 23, 1973, Ser. No. 344,288
Claims priority, application Japan, Mar. 28, 1972, 47-30954
Int. Cl. G06k 7/10; G08c 9/06
U.S. Cl. 235—61.11 E 5 Claims

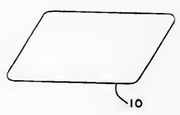


In order to eliminate error signals produced by presence of scratch, surface flaws or the like on a microfilm, a mark reader circuit is provided. The circuit comprises inverter means, timing means, delay means and comparator means so that only marks for cutting the film or other purposes are read out.

3,812,328
CREDIT CARD

Herbert Tramposch, Riverside, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Filed May 31, 1972, Ser. No. 258,437
Int. Cl. G06k 19/02; G09f 3/02
U.S. Cl. 235—61.12 N 1 Claim

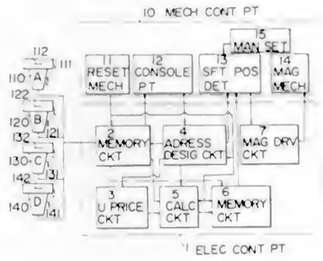


A credit card blank is provided with a machine readable optical bar code that is imprinted on a desired panel area of the card, which panel area is covered by a very thin protective layer of transparent plastic material that is bonded to the adjacent card surfaces so as both to shield the bar code indicia from normal smudging and wear conditions and to facilitate the manual and automatic handling of the card.

3,812,329
SEMI-AUTOMATIC TYPE REGISTER APPARATUS FOR USE AT A GASOLINE SERVICE STATION

Hiyoshi Tatsuno, 4-4-11, Shirogane, Minato-ku, Tokyo-to, Japan

Filed June 2, 1972, Ser. No. 259,167
Claims priority, application Japan, June 15, 1971, 46-42142; June 22, 1971, 46-44489; June 25, 1971, 46-54472; Feb. 19, 1972, 47-16912
Int. Cl. G06m *3/06*
U.S. Cl. 235—92 FL 3 Claims

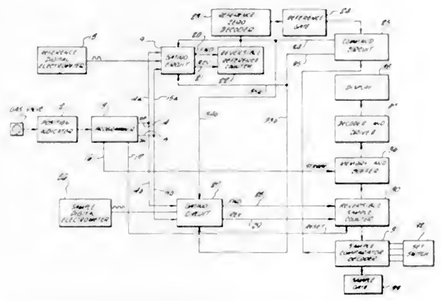


A semi-automatic type register apparatus is disclosed which is commercially usable at a gasoline service station and the like provided with a plural number of gasoline-meter devices in order to issue an oil service chit recorded therein with the requisites such as the gasoline-meter device number, price, date, customer's name and the like, and which is provided with a case in which housed is an electric control part functional to memorize, select and calculate said requisites and a mechanical control part functional to mechanically control said requisites, and a shaft position detecting device for the mechanical control part is connected via a drive mechanism to printing dials which are exposed on the top face of the case, thereby, figures on the printer dials are directly printed on the oil service chit by a manually operated roller.

3,812,330
AUTOMATIC CALIBRATION CIRCUIT FOR GAS ANALYZERS

Lloyd D. Bowman, Crescenta; Manohar G. Karhade, South Pasadena, and Daniel I. Schneiderman, Hollywood, all of Calif., assignors to Dasibi Corporation, Glendale, Calif.

Filed Aug. 18, 1972, Ser. No. 281,819
Int. Cl. G06m *3/04*
U.S. Cl. 235—92 CC 10 Claims



A circuit for automatically correcting the electronic calibration count in a system for measuring the concentration of a radiation absorbing agent in a gas mixture. The ideal calibration count is a digital number which is proportional to a detector signal determined by the Beer-Lambert Law.

3,812,331
TRANSMISSION MOUNTED SPEED SENSOR WITH ODOMETER SWITCH

Gary F. Woodward, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 5, 1972, Ser. No. 312,407
Int. Cl. G01c *22/00*
U.S. Cl. 235—95 R 6 Claims

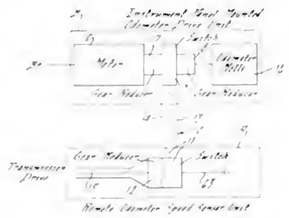


An electrically operated odometer system having a transmission-mounted sensor unit characterized by compactness and smoothness of operation. A wobble type planocentric gear reduction in combination with unique rotary switch means is employed to achieve such characteristics.

3,812,332
ELECTRIC ODOMETER DRIVE

Gary F. Woodward, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 5, 1972, Ser. No. 312,431
Int. Cl. G01c *22/00*
U.S. Cl. 235—95 R 5 Claims

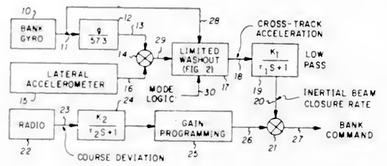


An electrically operated odometer system having a panel-mounted indicator unit and a remote transmission-mounted sensor unit, each characterized by compactness and smoothness of operation. Both units are related by an electrical circuit means employing a unique switching arrangement dependent in part upon the use of a wobble-type planocentric gear reduction to achieve space reduction and improve operation.

3,812,333
LAGGED ROLL SYNCHRONIZATION AND WASHOUT MEANS FOR AIRCRAFT LATERAL AXIS CONTROL SYSTEM

David W. Mineck, Cedar Rapids, Iowa, and Girard M. Manke, Los Angeles, Calif., assignors to Collins Radio Company, Dallas, Tex.

Filed Feb. 28, 1973, Ser. No. 336,673
Int. Cl. G06g *7/78*; B64c *13/20*
U.S. Cl. 235—150.2 7 Claims

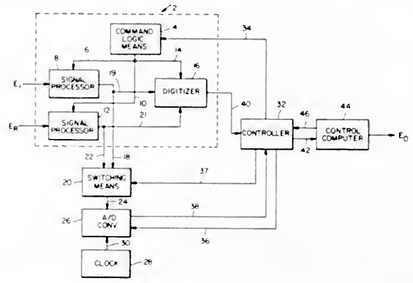


A limited washout and synchronization means for developing a beam closure rate signal from bank gyro and lateral accelerometer input sensors permits a lagged roll signal mix with radio deviation in a high gain control system and obviates problems associated with sensor mounting errors, sensor stand-offs, and gyro erection characteristics associated with aircraft maneuvers.

3,812,334
HIGH SPEED MEASUREMENT SYSTEM

Bernard P. Gollomp, Far Rockaway, N.Y., assignor to The Bendix Corporation, Teterboro, N.J.

Filed June 8, 1972, Ser. No. 260,922
Int. Cl. G06j *1/00*
U.S. Cl. 235—151 5 Claims



A digital multimeter and associated circuitry provides a high speed conversion, at precise increments, of analog input signals to a digital format while measuring and analyzing the input signals. Means are provided for correlating low speed measurements having relatively high resolution with high speed measurements having relatively low resolution.

3,812,335
APPARATUS FOR OBTAINING STATISTICAL INDICES AND ANALYZING THE SAME AND METHOD

Wallace H. Coulter, Miami Springs, and Walter R. Hogg, Miami Lakes, both of Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

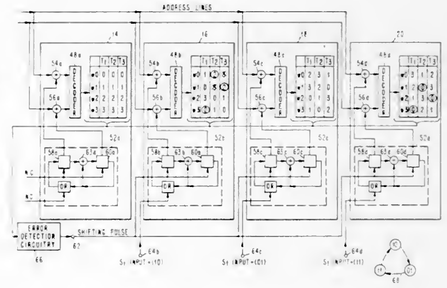
Continuation-in-part of Ser. No. 94,426, Dec. 2, 1970, Pat. No. 3,686,486. This application Aug. 23, 1971, Ser. No. 173,912The portion of the term of this patent subsequent to Aug. 22, 1989, has been disclaimed.
Int. Cl. G06g *7/12*; G01n *27/00*
U.S. Cl. 235—151.3 6 Claims

Apparatus which receives a train of electrical pulses from a particle analyzing device such as one which is operated in accordance with the Coulter principle, derives statistical indices from such train of pulses, stores the same in suitable storage means, receives a second train of pulses and derives the same indices from the second train of pulses, and compares the two indices. A readout device provides the comparison information. In this manner indices from one particulate system, such as for example a known sample, may be obtained and thereafter the same indices from an unknown sample may be obtained and compared with the indices from the known sample for study and analysis of the unknown particulate system.

3,812,336
DYNAMIC ADDRESS TRANSLATION SCHEME USING ORTHOGONAL SQUARES

Douglas C. Bossen, Wappingers Falls; Connor F. Haugh, and Mu-Yue Hsiao, both of Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 18, 1972, Ser. No. 316,163
Int. Cl. G11c *29/00*; G06f *11/12*
U.S. Cl. 235—153 AM 8 Claims



This specification describes a scheme for swapping bits between words of a memory when a multiple error condition is detected in any word of the memory by a single error correction and multiple error detection system monitoring the memory. The swapping of the bits between the words is done in terms of orthogonal Latin squares insuring that no combination of any two bits is repeated in the reconfigured words. This insures that with a single swapping of the bits the detected multiple error condition is eliminated and makes it highly unlikely that another double error condition will be produced by the swapping.

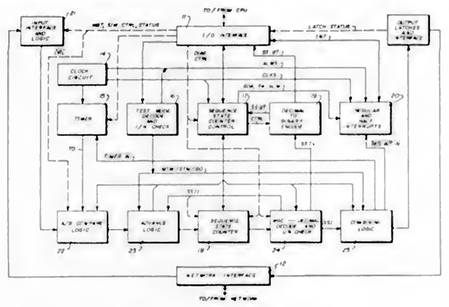
3,812,337
SEQUENTIAL CONTROL CIRCUIT HAVING IMPROVED FAULT DETECTION AND DIAGNOSTIC CAPABILITIES

Thomas Whitley Crosley, Northlake, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Apr. 6, 1973, Ser. No. 348,806
Int. Cl. H03k *21/34*; G06m *3/12*
U.S. Cl. 235—153 AC 25 Claims

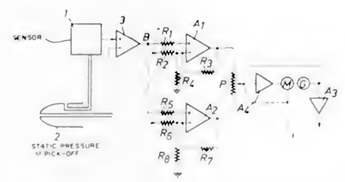
This invention relates to the architecture, fault detection and diagnostic capabilities of a sequential control circuit, or sequencer. The sequential control circuit can be instructed to test any of a number of circuits by executing one of several fixed sequences. The advance from one state to the next in the sequence is dependent on a combination of external signals

from the circuit under test, the present sequence state, and the test mode. The new sequence state, in combination with the



test mode, cause various actions to take place to further exercise the unit under test.

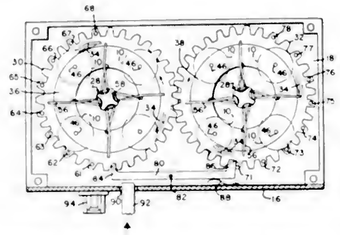
3,812,338
ANALOG FUNCTION GENERATOR
Andre Derre, Valence, and Jacques Jourdin, Granges-les-Valence, both of France, assignors to Crouzet, Paris, France
Filed July 27, 1972, Ser. No. 275,827
Claims priority, application France, July 29, 1971, 71.28179
Int. Cl. G06g *7/22*
U.S. Cl. 235—197 **8 Claims**



An analog function generator which generates a function, such as a hyperbolic function or a function in the neighbourhood of a hyperbolic function, of an input variable furnished in the form of a voltage. The generator comprises two linear amplifiers giving from a reference voltage two voltages which are linear functions of the input variable. A potentiometer is provided which receives at each end respectively the output voltages of the linear amplifiers, the displacement of the slider of the potentiometer being controlled so that the voltage available at the slider is equal to zero. Means are also provided for measuring the relative displacement of the slider with respect to the potentiometer.

3,812,339
SELECTIVE ACTUATING MECHANISM FOR PERCUSSIVE PHOTOFLASH LAMP ARRAY
David R. Broadt, Lewisburg, Pa., assignor to GTE Sylvania Incorporated, Danvers, Mass.
Int. Cl. G03b *15/02*
U.S. Cl. 240—1.3 **20 Claims**

For a photoflash assembly comprising a plurality of percussively-ignitable flashlamps arranged in an array with respectively associated reflectors and preenergized striker springs, a self-energized selective actuating mechanism for sequentially releasing the striker springs to fire respective flashlamps in response to successive indexing. In one embodiment, the self-energized actuating mechanism comprises a coplanar train of intermeshing spur gears having a number of circumferentially spaced projecting ramps. The lamps and striker springs are supported on the end surfaces of shafts upon which the gears are mounted, with the strikers radially projecting over the surrounding gear to lie in the path of travel of the ramps. The gears are spring loaded to rotate when not locked in place by a



latch engaging one of a plurality of evenly spaced pins on the gears. To flash a lamp, the latch is momentarily released to permit rotational indexing of the gears, whereupon one of the ramps releases a striker. In another embodiment, a spring loaded slidable bar with ramps is linearly indexed in a similar manner.

3,812,340
LIGHT FOR CHEMICAL SPRAYER
Michael W. Brandt, 802 Highpoint, Apt. 29, Stillwater, Okla.
Filed May 11, 1973, Ser. No. 359,350
Int. Cl. F21v *33/00*
U.S. Cl. 240—2 FD **3 Claims**

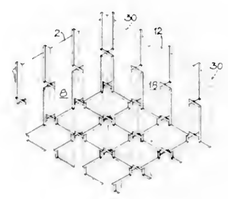


An attachment for a portable chemical spray apparatus comprising a disc having an annular lip about the periphery thereof connectable to the lower end of a pressurized container for securing batteries under the container and forming a bumper about the edge of the container. A hollow tube through which wires extend has a lower end secured to the annular lip and has a loop about the upper end thereof positionable about a hose connecting the pressurized container with a spray gun. A light is mounted on the spray gun to illuminate an area prior to spraying insecticide thereon.

3,812,341
LOUVER STRUCTURE AND LUMINOUS CEILING UTILIZING SAME
Menachem Cohen, 16 Nachum St., Tel Aviv, Israel
Filed Mar. 13, 1972, Ser. No. 234,290
Int. Cl. F21v *11/06*
U.S. Cl. 240—9 R **3 Claims**

A louver structure for a light fixture comprises a plurality of slats interlocking with each other to form a cellular egg-crate

construction, characterised in that the slats are formed with extensions projecting beyond the cells, the widths of the extensions being less than the width of the cells to provide spaces



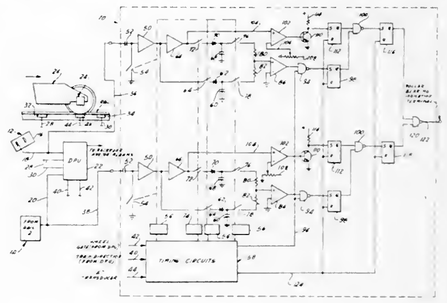
between contiguous extensions. A luminous ceiling is provided by the use of such louver structure in combination with lighting fixtures.

3,812,342
LIGHTING FIXTURE LENS
Albert C. McNamara, Jr., Houston, Tex., assignor to Esquire, Inc., New York, N.Y.
Filed Jan. 22, 1973, Ser. No. 325,566
Int. Cl. F21v *11/00*
U.S. Cl. 240—46.01 **8 Claims**

A lighting fixture combination including a housing enclosing at least one bulb and having an opening for light and a housing window across the opening comprising a thin film of fluorocarbon, preferably Teflon FEP. Also disclosed are various means for deforming the thin film to cause it to be stretched tautly across the opening and be secured securely in place.

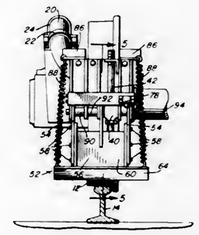
3,812,343
ROLLER BEARING DISCRIMINATOR FOR A RAILROAD HOT BOX DETECTOR SYSTEM
Cornelius A. Gallagher, Syosset, and Arthur J. Glazar, Kings Park, both of N.Y., assignors to Servo Corporation of America, Hicksville, N.Y.
Filed Aug. 27, 1973, Ser. No. 391,529
Int. Cl. B61l *1/20, 3/06, 23/02*
U.S. Cl. 246—169 A **10 Claims**

A circuit is provided for distinguishing electrical signals generated by a hot box detector scanner in response to a passing roller bearing from those generated in response to a passing friction bearing. The circuit includes first and second capacitors for storing the maximum amplitude of each output signal wave from the scanner and for storing the maximum amplitude of each wave at a predetermined point. The ratio of the charges stored on the capacitors is then obtained. It has



been found that for a roller bearing this ratio should approach unity while for a friction bearing the ratio is not close unity.

3,812,344
DERAILMENT ACTUATED AIR BRAKE CONTROL FOR TRAINS
Samuel Ranatza, 68 Hickory St., Harahan, La., and John C. Linn, Rt. 4, Box 50, Summit, Miss.
Filed Aug. 24, 1972, Ser. No. 283,285
Int. Cl. B60T *7/12*
U.S. Cl. 246—171 **6 Claims**

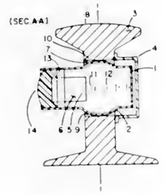


A railroad car truck is provided with an outwardly projecting support structure at one end from whose free end a depending lever arm is pivotally supported for oscillation about a horizontal transverse axis, the lever arm being swingable approximately 90° in either direction from a generally vertically disposed depending position. The lower end of the arm is provided with a crosshead for positioning a spaced distance above an associated rail when the wheels of the truck are on the rail and the crosshead is engageable with the rail when the wheels of the truck are derailed and drop downwardly alongside the rail. Contact of the crosshead with the rail causes the lever, which is maintained in a depending position by means of a shearpin, to swing rearwardly relative to the direction of travel of the truck and the lever is connected to a dump valve for the air brake system of the associated train car for opening the valve upon swinging of the lever passed a position angularly displaced 45° relative to the vertical position thereof. Spring means is connected between the support and the lever for yieldingly biasing the lever to a 90° rotated position in either direction once the lever is swung from its vertical position upon the shearing of the pin and the support includes a pair of electrical switches which are engageable by the lever upon swinging of the latter 90° in either direction from the vertical position of the lever. The switches may be connected in parallel within a signal circuit extending to the locomotive and having an electrically actuated signal device serially connected therein within the locomotive.

3,812,345
ULTRASONIC STRAIN TRANSDUCING SYSTEM

Albert E. Stone, Hopkins, Minn., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Apr. 19, 1972, Ser. No. 245,331
Int. Cl. B61l *13/04*; G01n *9/24*
U.S. Cl. 246—249 **11 Claims**



An ultrasonic strain transducing system has a hollow shell with a reference surface therein, the shell being positioned in a hole in a body in which the strain is to be measured. A crystal driven by electronic circuitry produces acoustical wave energy which is reflected back to the crystal by the reference surface. Motion of the reference surface in response to strain occurring in the body causes the crystal to change its complex electrical impedance which is sensed by the electronic circuit to provide an indication of the strain occurring.

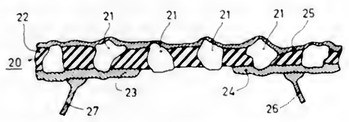
3,812,346
PHOTOSENSITIVE DEVICE WITH CONNECTION ELECTRODES ON MAJOR SURFACE AND FLOATING ELECTRODE ON OPPOSITE SURFACE

Albert Christiaan Aten; Johannes Gerrit Van Santen, and Fredericus Hendricus Ignatius Renirie, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 199,197, Nov. 16, 1971, abandoned, which is a continuation of Ser. No. 66,114, Aug. 21, 1970, abandoned, which is a continuation of Ser. No. 751,287, Aug. 8, 1968, abandoned. This application Jan. 26, 1973, Ser. No. 326,778

Claims priority, application Netherlands, Aug. 25, 1967, 6711759

Int. Cl. H01c *7/08*
U.S. Cl. 250—211 R **12 Claims**



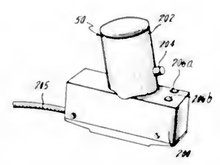
A photosensitive device is described in which both connection electrodes which convey current to and from the photosensitive layer, are provided on the same surface, and the opposite surface is provided with a single auxiliary electrode. A monograin layer construction is also described. Among the advantages are lower resistances and ease of manufacture.

3,812,347
OPTICAL READER

Russell E. Cunningham, Washington, D.C., and Gordon S. Light, Chevy Chase, Md., assignors to Sigma Systems, Inc., Arlington, Va.

Filed Oct. 3, 1972, Ser. No. 294,633
Int. Cl. G01n *21/30*; G06k *7/00*
U.S. Cl. 250—219 DC **10 Claims**

A hand held optical reader and apparatus for reading an octal digital code which contains a data digit field, an error checking count field and a parity field. The reader is designed for self-positioning over a code bearing label and the apparatus comprises simple logical circuitry to insure the correct reading of the optical code.



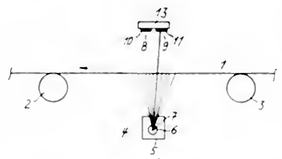
3,812,348
DEVICE FOR ELECTRO-OPTICALLY ASCERTAINING HOLES IN MOVING WEBS

Paul R. Lippke, deceased, late of Beringstr. 41, 545 Neuwied 1, Germany (by Rudolf Hiemke, executor)

Filed Nov. 20, 1972, Ser. No. 308,013

Claims priority, application Germany, Nov. 18, 1971, 2157247

Int. Cl. G01n *21/16, 21/32*
U.S. Cl. 250—561 **4 Claims**



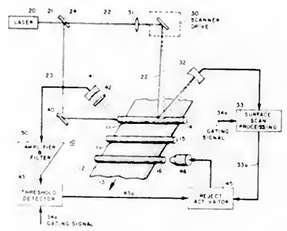
A device for electro-optically ascertaining holes in moving webs of paper and the like, in which on opposite sides of the path over which the web is moved there are respectively arranged a light source and light sensitive means the inlet signals of which are conveyed to amplifiers. The light source includes a thread-shaped filament extending transverse to the direction of movement of the web to be checked, and the light sensitive means are arranged in pairs with the elements of each pair respectively arranged in two common rows located one behind the other and substantially parallel to the longitudinal direction of the filament, the elements of the light sensitive means of each pair being electrically opposed to each other in such a way that light simultaneously hitting both elements of one and the same pair of light sensitive means will not initiate a signal.

3,812,349
APPARATUS FOR INSPECTING CIGARETTES OR THE LIKE

George Gugliotta, Ridgefield, and Anthony J. Raimo, Waterbury, both of Conn., assignors to Laser Sciences, Inc.

Filed Apr. 6, 1973, Ser. No. 348,517
Int. Cl. G01n *15/08*
U.S. Cl. 250—223 R **3 Claims**

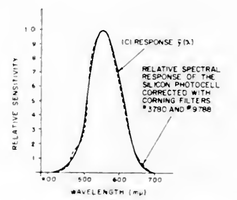
An apparatus for examining an end of a cigarette or the like to determine whether packed tobacco is present to substantially the edge of the cigarette wrapper. In accordance with the invention there are provided means for directing a narrow collimated beam of light, preferably a laser beam, along the axis of the cigarette and toward the end to be examined. A photodetector is positioned and oriented to receive light emanating from at least a portion of the wrapper surrounding said end. Further means, responsive to the output of the photodetector, are provided for generating an occurrence indication when the photodetector output exceeds a predetermined threshold level. In a preferred embodiment of the invention, means are provided for enabling the generating means only when a cigarette is present at a specified inspection position.



3,812,350
NOVEL ICI CORRECTED PHOTOTRANSDUCER FOR MEASURING LIGHT OUTPUT OF PHOTOFLASH ITEMS

Louis R. Szabo, Landing, and Martin Lazarus, Dover, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 8, 1972, Ser. No. 278,837
Int. Cl. G01j *3/34*
U.S. Cl. 250—226 **1 Claim**

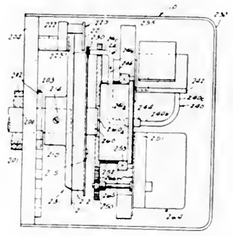


A phototransducer has a silicon photovoltaic cell corrected with two glass filters to the standard ICI spectral response equivalent to the spectral response of the human eye. Also, a method for correcting variations in the manufacture of the glass filters to adjust the filter to the thickness required for ICI correction of the silicon photocell.

3,812,351
ROTARY POSITION DETECTOR MACHINE CONTROL SYSTEM

Daniel A. Coberley, Danville, Ill., assignor to Hurletron Incorporated, Danville, Ill.

Filed May 25, 1972, Ser. No. 256,727
Int. Cl. G01d *5/34*
U.S. Cl. 250—231 SE **4 Claims**

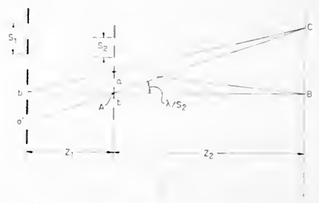


In the illustrated embodiment a rotary position detector utilizes an angularly adjustable light conduit for selecting the angle of the input shaft at which a reference signal is generated. In a web register control system where an analog error signal is to be generated according to any lack of coincidence between the reference signal and a scanner signal, such analog error signal can be utilized during set up (with the web properly registered) for automatic positioning of the light conduit at the angle required to define the register condition of the system.

3,812,352
ENCODER READOUT SYSTEM

Alan J. MacGovern, Acton, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Aug. 28, 1972, Ser. No. 284,382
Int. Cl. G01b *11/04*; H01j *5/02*
U.S. Cl. 250—237 G **16 Claims**



A system for reading out positional information from a linear or rotary encoder based on an extension of the pinhole imaging theory to include the effects of diffraction in the encoder. In a typical encoder, light from a radiation source is directed first through a code plate having thereon periodic markings of alternating transparent and opaque increments, then through a slit plate also having thereon periodic markings of alternating transparent and opaque increments, and then upon a detector. According to the teachings of this invention there are optimal positions for the encoder plate, the slit plate and the detector to obtain maximum readout signals from the encoder. These optimal positions are selected in theory according to two relationships which must be simultaneously satisfied, namely: $Z_1 = nS_1S_2/\lambda$, and $Z_1 = (S_1 - S_2)Z_2/S_2$ where n is an integer of one or greater, λ is the mean wavelength of the light source, S_1 is the length of one clear increment-opaque increment period in the code plate, S_2 is the length of one clear increment-opaque increment period in the slit plate, Z_1 is the distance between the code plate periodic markings and the slit plate periodic markings, and Z_2 is the distance between the detector and the periodic markings on the slit plate.

3,812,353
METHOD FOR DETERMINING FORMATION PARAMETERS

James L. Gilchrist, Austin, Tex., assignor to Continental Oil Company, Ponca City, Okla.

Filed Oct. 6, 1971, Ser. No. 187,121
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 **7 Claims**

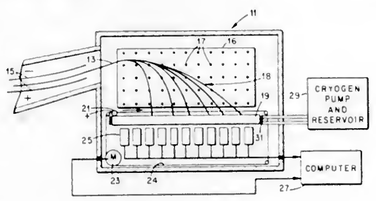
A method for determining formation parameters such as the effective porosity (ϕ_e), the formation fraction of bulk volume that is shale (ρ) and the formation matrix capture cross section (Σ_{ma}), utilizing predetermined thermal neutron capture cross sections of a first and a second injected fluid, and the thermal neutron capture cross sections of the formation flooded with the first injected fluid and subsequently flooded with the second injected fluid to determine the formation effective porosity (ϕ_e); and subsequently utilizing the determined values of the effective porosity (ϕ_e) and the formation neutron porosity (ϕ_n) and the porosity of the shale component of the formation (ϕ_{sh}) to determine the formation fraction of bulk volume that is shale (ρ); the determined values of (ϕ_e) and (ρ) being utilized to determine the formation matrix cross

section (Σ_{ma}). The method of the present invention thus provides determined data for calibrating the tool response of a gamma ray type logging tool.

3,812,354
THERMOLUMINESCENT DETECTOR FOR MASS SPECTROMETER

Edward G. Walter, Modesto, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed May 31, 1973, Ser. No. 365,658
Int. Cl. H01j *39/34*
U.S. Cl. 250—281 **10 Claims**

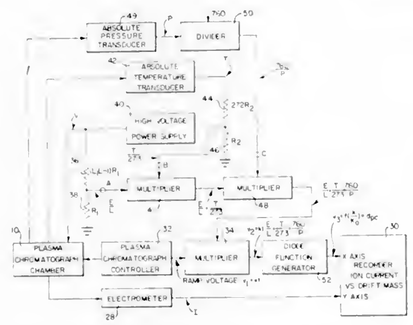


A magnetic field is used to deflect and separate the charged particles of an ion beam to impinge on successive areas of a long dielectric crystal according to the charge-mass ratio of the particles. After exposure to the deflected ions, a heated wire is moved over the crystal to produce thermoluminescence in the crystal that is detected with a bank of phototubes. The resulting signals from the phototubes are correlated with the areas of the crystal and counted to indicate the spectrum of the particles.

3,812,355
APPARATUS AND METHODS FOR MEASURING ION MASS AS A FUNCTION OF MOBILITY

Roger F. Wernlund, Lake Worth; David I. Carroll, Lantana; Wallace D. Kilpatrick, North Palm Beach, and Martin J. Cohen, West Palm Beach, all of Fla., assignors to Franklin Gno Corporation, West Palm Beach, Fla.

Filed Dec. 9, 1971, Ser. No. 206,353
Int. Cl. H01j *39/34*
U.S. Cl. 250—283 **23 Claims**

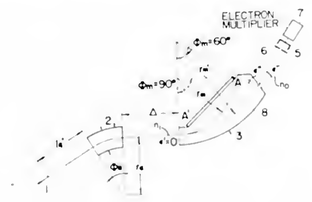


Ion mass is determined directly as a function of the drift time in a chamber containing gas at atmospheric pressure. The drift time is a function of approximately the cube root of the ion mass for ion mass greater than the mass of the drift gas and a function of approximately the square root of the ion mass for ion mass less than the mass of the drift gas. A measure of the ion mass may be obtained by recording the ion-current output of the drift tube with the time base adjusted to an exponential function of the drift time. Corrections may be made automatically for variations in temperature, pressure and drift field.

3,812,356
MASS-SPECTROMETER OF DOUBLE FOCUSSING TYPE

Eisuke Mitani, Hachioji; Hitoshi Isuyama, Kodaira; Michiyasu Itoh, Kokubunji, and Shunroku Taya, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 23, 1971, Ser. No. 174,039
Int. Cl. H01j *39/36*
U.S. Cl. 250—41.9 ME **2 Claims**



In a mass-spectrometer of the double focussing type, output ions from an electric field analyzer are applied to a magnetic field analyzer so constructed that the condition indicated by the following equation,

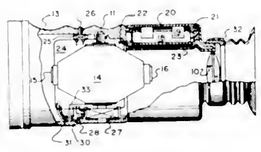
$$\cos\epsilon' \cos\epsilon'' = \sin(\phi_m' - \epsilon' - \epsilon'')$$

is satisfied therein, where ϕ_m' is the deflection angle of the magnetic field analyzer, ϵ' is the angle of incidence of the input ions with respect to the magnetic field analyzer and ϵ'' is the angle of divergence of the output ions focussed at the outside of the magnetic field analyzer.

3,812,357
MINIATURE INFRARED SHORT RANGE THERMAL IMAGER (MISTI)

William S. Flogaus; Howard T. Graves, both of Alexandria; Harold J. Orlando, Woodbridge, and Dennis P. Van Der Laske, Alexandria, all of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 21, 1972, Ser. No. 317,319
Int. Cl. G01j *5/02*
U.S. Cl. 250—332 **10 Claims**

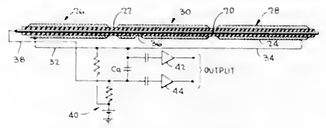


A compact lightweight infrared to visible image converter is disclosed having a single circular oscillation circuit board assembly which carries all of the electronics except the power supply. An array of light emitting diodes is coupled to an array of infrared detectors both of which are mounted on the above to scan in unison.

3,812,358
COAXIAL ANODE WIRE FOR GAS RADIATION COUNTERS

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by, and William L. Kraushaar, 1003 Oak Way, Madison, Wis.

Filed June 21, 1973, Ser. No. 372,148
Int. Cl. G01t *1/18*; H01j *39/28*
U.S. Cl. 250—385 **7 Claims**

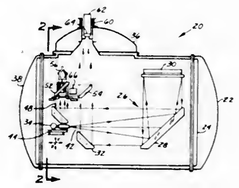


A coaxial anode construction for a gas radiation counter is disclosed by which undesirable background ionization interference may be suppressed. The anode comprises an elongated central wire covered with an electrically insulating sleeve. A plurality of longitudinally discontinuous segments of an electrically conductive coating is disposed about the insulating sleeve in coaxial relationship to and along the length of the central wire. In the preferred inventive embodiment, the plurality of conductive coating segments define a so-called veto or rejection anode at each end portion of the central wire and a main or primary charge detecting anode disposed therebetween. Coupling means are connected to each of the segments such that the primary charge detecting anode is connected to detection circuitry in anti-coincidence with the veto anodes. Background radiation detected by either of the veto anodes and the primary charge detecting anode is therefore rejected and the sensitivity of the radiation counter device is increased.

3,812,359
EXOATMOSPHERIC ENVIRONMENTAL TEST APPARATUS

Rudolf H. Meier, Santa Ana; Richard P. Day, San Juan Capistrano, and Christopher J. C. Thompson, Costa Mesa, all of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Aug. 24, 1972, Ser. No. 283,494
Int. Cl. G01t *1/16*
U.S. Cl. 250—347 **21 Claims**

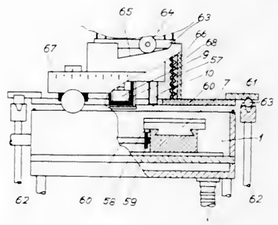


Advanced sensor evaluation and test apparatus comprises a vacuum chamber with an inner cryoshroud, housing an on-axis optical parabolic collimator, a radiant energy source assembly having an output aperture located in the focal plane of the collimator, a calibration monitor consisting of a Cassegrainian type radiometer that occupies one portion of the collimated radiant energy beam and which forms an image of the source on a bolometer, and a pair of scanning mirrors directing energy from another portion of the collimated beam into the entrance aperture of the optical sensor under test. In addition, a background radiant energy generator can direct radiant energy simulating elevated radiation background to the sensor under test which, in turn, forms an enlarged image of the background source in its own detector plane. One version of the source assembly includes at least one blackbody radiation source of variable aperture and temperature with a chopper operating to provide modulated radiation which is projected into an integrating sphere coupled with a source projector. An adjustable dual reflector with one specularly and one diffusely reflecting surface is mounted inside the integrating sphere and can be rotated to predetermined orientations to function in either a specularly reflecting mode or diffusely reflecting mode. In a third mode of operation, the mirror is rotated into an inactive orientation in which it does not intercept the beam entering the integrating sphere. This is the integrating sphere mode of operation. Another version of the source assembly includes at least one blackbody radiation source providing radiation to an integrating sphere coupled with a radiation guide (pipe). The radiation guide can be either a single or dual guide (pipe) and is cooperatively structured to operate with selected transmission patterns (transparent portions) on a movable disc sector positioned at the end of the guide.

3,812,360
METHOD AND ARRANGEMENT FOR DETERMINATION OF PLANAR DISTRIBUTION OF LOW-ENERGY BETA NUCLEIDES AND OTHER RADIONUCLEIDES FOR TRACER EXPERIMENTS IN BIOLOGICAL, BIOCHEMICAL AND CHEMICAL EXPERIMENTAL SYSTEMS

Richard Tkyva, Praha, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Praha, Czechoslovakia

Filed July 6, 1971, Ser. No. 159,974
Claims priority, application Czechoslovakia, July 8, 1970, 4804-70
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 R **12 Claims**



The planar distribution of low-energy beta nucleides and other radionucleides in different specimens is determined by placing a specimen in a camera, provided with a semiconductor detector, generating a relative scanning movement between the specimen and the detector and evaluating the thus obtained impulses while controlling the scanning as to the length of individual steps and accuracy and determining simultaneously the contours of the specimen.

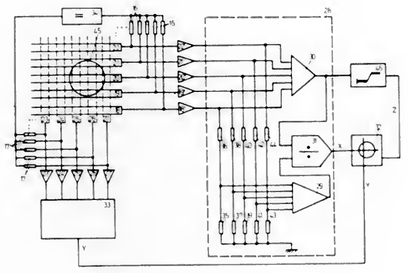
3,812,361
PROCESS AND APPARATUS FOR VISUALIZING GAMMA RAY IMAGES

Rudolf Prag, Marloffstein, and Joachim Dierker, Buckenhof, both of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Nov. 3, 1971, Ser. No. 195,345
Int. Cl. G01t *1/24*
U.S. Cl. 250—370 **5 Claims**

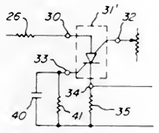
A process and a device for visualizing gamma ray images use a semi-conducting plate which is provided on both sides with electrode strips extending parallel to each other, the direction of the strips on one side extending at an angle to the direction of strips on the other side. The invention is particularly characterized in that the gamma quanta are changed into

electron bundles and are represented upon the semi-conducting plate. The electrode strips are connected with a device for



core formation which produces representable local signals localizing the electron bundle striking the semi-conducting plate.

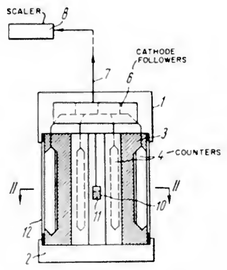
3,812,362
SMOKE DETECTOR CIRCUIT
Larry D. Larsen, Palatine, and Edward F. Kobek, Chicago, both of Ill., assignors to Honeywell Inc., Minneapolis, Minn.
Filed July 2, 1973, Ser. No. 376,011
Int. Cl. G01t *1/24*
U.S. Cl. 250—370 **9 Claims**



A combustion products detector system of the type having at least one ionization chamber, the combustion products sensing ionization chamber being open or accessible to the surrounding air. The output signal voltage from the chamber is connected through an FET to a four terminal voltage comparator switch, which four terminal switch has an easily adjustable threshold voltage.

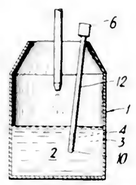
3,812,363
PROBE FOR MEASURING CHARACTERISTICS OF SUBSURFACE AND GROUND WATER FLOW
Abakar Abakarovich Abdullaev, kvartal 2, 11, kv. 31, massiv Chilanzar, Tashkent, U.S.S.R.
Filed Nov. 18, 1971, Ser. No. 199,850
Int. Cl. G21h *5/02*; **G01n** *23/12*
U.S. Cl. 250—388 **1 Claim**

A probe for determining the characteristics of subsurface and ground water flow by a single-well method with the aid of radioactive isotopes, wherein a radioisotope radiation receiver consists of at least three gas-discharge counters each of which is separately connected with a device which registers pulses carrying information about the characteristics of the subsurface or ground water flow being measured. The gas-discharge counters are fastened in longitudinal slots of a hollow protective shield of a cylindrical shape formed at equal distances on its outer surface. The shield has open lengthwise grooves between the longitudinal slots, while inside the shield there is disposed a shell with enclosed radioactive isotopes so that the radioactive isotopes carried out of the well by the subsurface



of ground water flow through the lengthwise grooves and, act upon the gas-discharge counters disposed in the longitudinal slots in the immediate vicinity of the well water outflow.

3,812,364
METHOD AND ARRANGEMENT FOR DETERMINING THE C-CONTENT IN CHEMICAL PROCESSES
Michael J. Higatsberger, Graf. Starhemberggasse 6/9, 1040 Vienna; Karl O. Rumpold, Freunbichlerweg 6, 1140 Vienna, and Franz P. Viehbock, Wiener Bruckstrasse 53, Maria, all of Austria
Filed Sept. 30, 1970, Ser. No. 76,997
Claims priority, application Austria, Oct. 2, 1969, 9314/69
Int. Cl. G21h *5/02*
U.S. Cl. 250—395 **7 Claims**

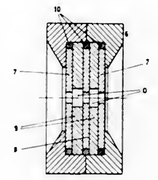


Continuous neutron activation analysis of a material undergoing chemical processing uses the intermittent bombardment of the material by a flux of neutrons of specific energy. The periods of bombardment alternate with periods of gamma ray analysis. The length of exposure time to the neutron flux and the time intervals between successive exposure periods, as well as the relation between these values and the half-life values of the nucleides are essential parameters in determining the carbon content of the material.

3,812,365
PERMANENT MAGNET LENS SYSTEM
Jan Bart LePoole, 5, Nassaulaan, Deleft, Netherlands
Filed Mar. 9, 1973, Ser. No. 339,881
Claims priority, application Netherlands, Mar. 10, 1972, 7203264
Int. Cl. H01j *37/00*
U.S. Cl. 250—396 **5 Claims**

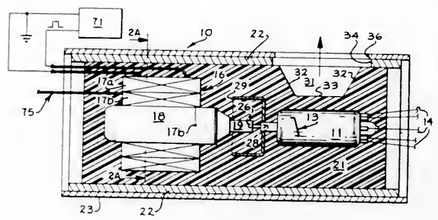
A magnetic lens system, in particular for an electron microscope, comprising two thin small disc magnets, provided

with small openings and magnetized axially in opposite directions, which are united straight into an electron-optic



achromatic as well as rotation-free and distortionfree system that forms lens fields, at a distance that is practically equal to the diameter of the small openings.

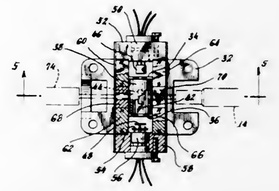
3,812,366
COMPOSITE X-RAY TUBE/TRANSFORMER ASSEMBLY
Nicholas M. Gralenski, Aptos, Calif., assignor to Watkins-Johnson Company, Palo Alto, Calif.
Filed Mar. 8, 1971, Ser. No. 122,040
Int. Cl. H05g *1/06*
U.S. Cl. 250—421 **5 Claims**



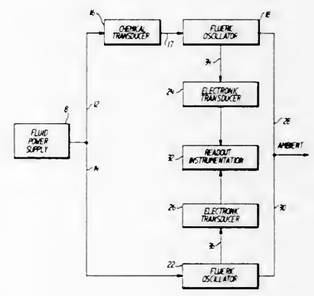
An elongated X-ray generating tube including a high voltage terminal is disposed in tandem with a high voltage transformer located proximate to the tube and axially aligned therewith. The high voltage terminal is interconnected with the transformer core located centrally of the transformer. An enclosure disposed around the transformer and tube includes a window for transmitting X-rays therethrough while the transformer and tube are embedded or potted as a unit within the enclosure.

3,812,367
ELECTRON BOMBARDMENT ION SOURCE FOR A MASS SPECTROMETER HAVING A NONSPECULAR INNER SURFACE
Edward B. Delany, 70 Powder Horn Ln., Ridgefield, Conn., and Ralph E. Mayo, 321 Crestview Cir., Media, Pa.
Continuation of Ser. No. 47,667, June 19, 1970, abandoned, which is a continuation-in-part of Ser. No. 682,467, Nov. 13, 1967, abandoned. This application Feb. 28, 1972, Ser. No. 230,106
Int. Cl. H01j *39/34*
U.S. Cl. 250—427 **4 Claims**

An ion source for a mass spectrometer includes means defining an ionization chamber having a longitudinal axis, an electron source, and an anode electrode for accelerating electrons in a beam through the chamber along the axis. The ionization chamber is arranged in a geometrical configuration adapted for enhancing collisions with sample particles introduced to the chamber. The chamber is defined by a substantially continuous, cylindrically-shaped wall and includes a sample entrance aperture having a cross section equal to or less than the cross section of the electron beam. By this arrangement, the probability of collision between sample particles and the electron beam is increased and the number of ions thereby generated is substantially increased.



3,812,368
ENERGY DEPOSITION CHEMICAL TRANSDUCER UTILIZED IN FLUERIC SENSING SYSTEM
Maurice F. Funke, Adelphi, Md., and James F. Bald, Jr., Jersey City, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed May 15, 1973, Ser. No. 360,701
Int. Cl. G01t *1/00*
U.S. Cl. 250—432 **8 Claims**



Apparatus for quantitatively determining the presence of electromagnetic radiation, thermal energy or high energy particles in a controlled environment by exposing certain chemical compounds which generate active chemical species in response to exposure to such electromagnetic radiation, thermal energy or high energy particles. The presence of the active or volatile species causes a change in frequency in the output of a flueric oscillator connected to receive a mixture of a power supply fluid and the volatile species. The system includes a second flueric oscillator that has as its single input the power supply gas. The output from the two flueric osicllators are each delivered to a pair of electrical transducers that convert the fluid signals into proportional electrical signals. The electrical signals are fed in turn to readout instrumentation which provides a quantitative comparison of the electrical signals that is directly proportional to the quantity and temperature of the active chemical species and thus, to the level and/or intensity of thermal energy, electromagnetic radiation or high energy particles that produced same.

3,812,369
SOLID-STATE SEQUENTIAL SWITCHING DEVICE

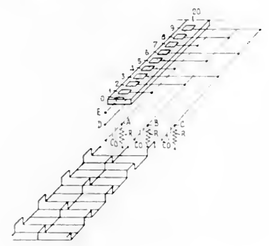
Henri Rougeot, Paris, France, assignor to Thomson-CSF, Paris, France

Continuation of Ser. No. 203,229, Nov. 30, 1971, abandoned. This application Mar. 21, 1973, Ser. No. 343,275

Claims priority, application France, Dec. 23, 1970, 70.46505

Int. Cl. G02f *1/28*

U.S. Cl. 250—217 SS **6 Claims**



A sequential switching device using solid-state components, consisting in a bar of gallium arsenide monocrystal, in which adjacent diodes are formed, the terminals of same sign of which are arranged on the two opposite faces of the bar. These diodes, which are virtually insulators below a certain threshold voltage applied to their terminals are conductive beyond it; they emit photon radiation in the conductive condition, and, conversely, change from the insulating to the conductive condition under the effect of said photon radiation. By combining these diodes in sets of three in order to form three groups to the terminals, of which there are applied voltage pulses which succeed one another without interruption or overlap, propagation of switching along the set of diode is achieved, each diode irradiating its two neighbours, when in the conductive condition.

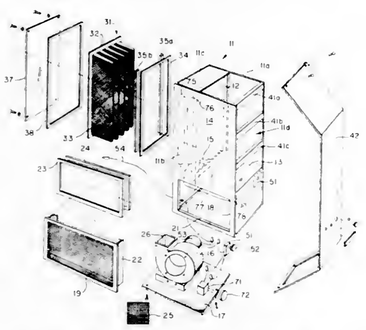
3,812,370
LOW COST PORTABLE ROOM AIR CLEANER

Fred G. LaViolette, Schenectady, N.Y., assignor to Environment/One Corporation, Schenectady, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,106

Int. Cl. B01d *31/00*

U.S. Cl. 250—527 **16 Claims**



A portable, compact, low cost, highly efficient room air filter for cleaning the room air of homes, offices and the like and which can be placed in the room in the manner of an article of furniture and plugged into a conventional household outlet of alternating electric current without requiring complex air ducting installations or other similar modifications. The room air filter includes a housing and a high volume air fan mounted within the housing. The fan has its discharge directed into a high pressure plenum formed in the housing and has its intake disposed adjacent an intake grill mounted on the exterior of the housing for supplying suction air to the high volume fan. A coarse fiber, large particle prefilter and a charcoal or other type odor filter are disposed in the suction air passageway between the intake grill and the intake of the high volume fan, and a relatively low cost fine fiber small particle filter is disposed adjacent to and defines one side of the high pressure plenum chamber into which the high volume fan discharges at relatively high pressure. The small particle filter has its discharge diffusely directed exteriorly of the housing whereby suction of the room air through the intake grill, the rough particle prefilter and the odor filter into the fan and the high velocity discharge of the fan into the high pressure plenum and through the fine fiber small particle filter results in diffuse circulation and cleaning of the room air whereby substantially 90 percent of all particles usually found in room air which are larger than 0.005 microns in size are removed along with a substantial reduction of odors.

3,812,371
SCANNING BEAM POSITION INDICATOR

Dick Yen Chin, Newton, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Sept. 22, 1972, Ser. No. 291,500

Int. Cl. G02f *1/28*

U.S. Cl. 250—217 R **10 Claims**



A line start pulse generator for a laser beam recorder. In a typical laser beam recorder, a modulated laser beam is swept in a line scan across the width of a film strip. During the line scan, the film strip is transported a small increment in a direction transverse to the line scan. A second line is then recorded closely adjacent to the first line scan, and etc. for subsequent line scans. Tolerances within a typical laser beam recorder allow the exact lateral position of each line scan to vary from scan to scan. The disclosed invention generates a line start pulse to ensure that each line of recorded information is started at the same position relative to the film strip which results in accurate line to line registration on the film strip.

The line start pulse generator is placed at the beginning of a line scan across the film strip, and includes a beam splitter consisting of a mirror having an edge positioned transverse to the line scan. As the laser beam starts a line scan, it initially impinges upon the mirror which deflects the scanning beam onto a first photodiode. The scanning beam then traverses across the mirror edge onto a second photodiode. During this traversal by the laser beam there is a transition period during which the amplitude of the signal from the first photodiode is rapidly declining and the amplitude of the signal from the second photodiode is rapidly increasing. A comparator circuit, connected across the first and second photodiodes, detects when the amplitude of the second diode is equal to or greater than the amplitude of first diode, and generates a line start pulse at that instant. The line start pulse accurately indicates the starting position for the laser beam, and commands a data buffer to begin transmitting video to be recorded during that line scan.

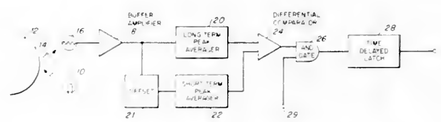
3,812,372
SYSTEM FOR DETECTING A CHANGE IN LIGHT INTENSITY

John S. Wirtz, Henrietta, and David C. Nellis, Victor, both of N.Y., assignors to Itek Corporation, Lexington, Mass.

Filed Dec. 26, 1972, Ser. No. 318,129

Int. Cl. G01n *21/32*

U.S. Cl. 250—561 **12 Claims**



Apparatus for inactivating a direct lithographic press in response to the detection of a sheet of paper being undesirably stuck to the lithographic plate in the machine. The paper detection system includes a light source for illuminating the lithographic plate and a photodetector for detecting illumination reflected from the plate. The output of the photodetector is directed to two RC integrating circuits, one circuit having a relatively long RC time constant and the second circuit having a relatively short RC time constant. The integrating circuit with the long time constant follows slow changes in reflectance in the machine, and provides a self-adjusting reflectance reference. The slight contrast caused by the presence of the sheet of paper on the lithographic plate causes the output of the short time constant RC circuit to rise with respect to the output of the long time constant RC circuit. A comparator means coupled to the outputs of both RC circuits detects this increase, and produces an output signal which is directed to an AND gate. The AND gate has a second input for indicating that sheets of paper are being fed through the machine. When the AND gate receives both input signals, it produces an output signal which is directed to a time delayed latch circuit. When the AND gate produces an output signal for a period of time longer than the time delay of the latch circuit, the latch circuit produces an output signal to disable the machine.

3,812,373
METHOD AND APPARATUS FOR IDENTIFYING THE PERIODICITY OF SURFACE DEFECTS OF STRIP MATERIALS

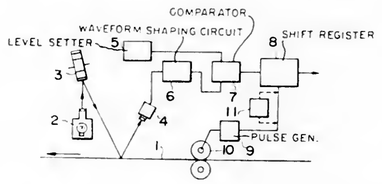
Toshiaki Hosoe; Yuji Okami; Katsumi Michishita, and Shuzo Fukuda, all of Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed June 13, 1973, Ser. No. 369,742

Claims priority, application Japan, July 31, 1972, 47-76008

Int. Cl. G01n *21/16, 21/30*; **G06f** *7/38*

U.S. Cl. 250—562 **13 Claims**



There are provided in optical defect detector to produce pulse signals representing the surface defects and a pulse generator driven by a continuously moving strip material for producing shift pulse signals synchronized with the moving speed of the strip material. The pulse signals and the shift pulse signals are applied to a shift register including a plurality of register circuits. An AND gate circuit is used to provide a logical product of the predetermined ones of the register circuits which are spaced apart a predetermined spacing and when the logical product is equal to a predetermined value, a binary "1" for example, the periodicity of the surface defects is identified.

3,812,374
SPECULAR REFLECTION SUPPRESSION APPARATUS

Richard H. Tuhro, Norwood, Mass., assignor to Computer Identics Corporation, Westwood, Mass.

Filed Feb. 5, 1973, Ser. No. 329,752

Int. Cl. G01n *21/30*; **G02f** *1/18*; **G06k** *7/00*

U.S. Cl. 250—568 **1 Claim**



In a system for reading a diffuse reflective label, apparatus for suppressing specular reflections comprising a source of polarized radiation having a first polarization; means for providing relative motion between the label and polarized radiation for scanning a diffuse reflective label with the polarized radiation of the first polarization; and means for receiving diffusely reflected radiation having random polarization and specularly reflected radiation having the first polarization including polarizing means for selectively blocking specular reflections having the first polarization and passing radiation having other polarization for increasing the signal to noise ratio of the diffusely reflected radiation to the specularly reflected radiation.

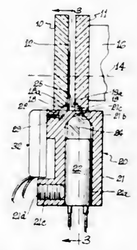
3,812,375
MEANS FOR SENSING MOVING WEB MATERIAL

Chester S. Rempala, Chicago, Ill., assignor to A. B. Dick Company, Chicago, Ill.

Filed Apr. 5, 1973, Ser. No. 348,285

Int. Cl. H01j *39/12*

U.S. Cl. 250—570 **7 Claims**



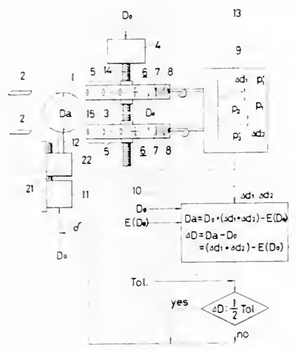
The microfilm strip has frame marks or "blips" spaced along the length of the film adjacent one margin thereof. A

pair of glass flats are mounted on each side of the path of movement of the film and define a film gate. The glass flats include respective inclined reflective surfaces arranged to cooperate with a source of light for directing a beam of the light along a path which passes through the marginal portion of the film containing the frame marks. The sensing means is responsive to interruptions in the light beam caused by passage of the frame marks on the microfilm. The arrangement of the aforesaid reflective surfaces permits the light source and the sensing means to be physically located beyond the edge of the film defining the aforesaid marginal portion such that the components of the sensing system do not interfere with projection or viewing of the image transparencies on the film.

3,812,376
DEVICE FOR CONTROLLING DIMENSIONAL ACCURACY DURING MACHINING OF A CYLINDRICAL WORKPIECE

Hidehiko Takeyama, and Koji Takada, both of Tokyo, Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Continuation-in-part of Ser. No. 227,579, Feb. 18, 1972, abandoned. This application Sept. 20, 1973, Ser. No. 399,065
Int. Cl. G01b *7/12*
U.S. Cl. 250—572 **5 Claims**



The invention disclosed provides a device having means for emitting two beams of laser light in parallel and in contact respectively with an upper edge and a lower edge of a rotating cylindrical workpiece while under machining conditions such as in a lathe. The two laser beams hit the workpiece edges and then enter respective light receivers wherein diffraction images of the upper and the lower edges of the workpiece, which are sharpened by means of an optical filter, are defined on image planes formed with optical fibers. Intensity distributions of the diffraction images are converted into electric signals and processed in order to identify the diameter at the machining point of the workpiece. In case the difference between the detected diameter and a desired diameter exceeds a specified value of allowable error, a correction signal is transmitted from a provided means which causes a tool position controlling device to adjust the position of the tool, thus ensuring accurate turning of the workpiece within a specified tolerance while rotating in the course of machining.

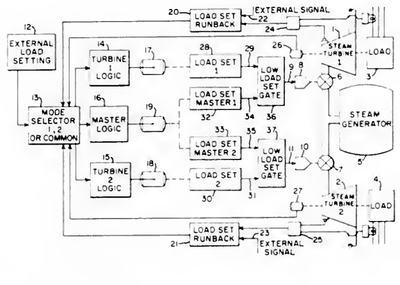
ERRATUM

For Class 250—578 see:
Patent No. 3,811,648

3,812,377
SYSTEM FOR INDEPENDENT OR COMMON CONTROL OF PRIME MOVERS

Paul E. Malone, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 4, 1972, Ser. No. 311,942
Int. Cl. F01d *15/10*
U.S. Cl. 290—4 **5 Claims**

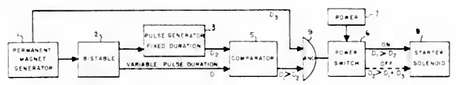


A system is provided for controlling the load settings of a group of prime movers such as steam turbines either independently or in a common mode. A master load setting for the group of prime movers is compared with an individual load setting for each of the prime movers and the lowest load setting value is selected as a load command signal. Isolation between prime mover control systems is provided by load setting motors serving as memory devices in the event that power is lost to one of the control systems. Provision is made for load removal either from individual prime movers or from the entire group.

3,812,378
AIRCRAFT STARTER CONTROL SYSTEM

William E. Coman, Newport, N.Y., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Mar. 9, 1972, Ser. No. 233,196
Int. Cl. F02n *17/00*
U.S. Cl. 290—38 **24 Claims**

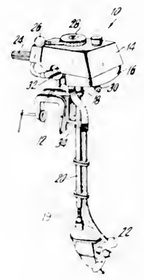


A control system for automatically closing a solenoid-operated air valve that supplies pressurized air to rotate an air turbine starter motor of an aircraft engine when the starter rotor reaches a predetermined rotational speed. The control system senses rotation of the starter rotor and produces a pulse train wherein each of the pulses generated has a duration which is a function of the rotational speed of the starter rotor and compares each pulse duration to a reference pulse which corresponds to a predetermined rotational speed of the starter rotor. When the duration of the rotor pulses decreases to a point where they are shorter in duration than a reference pulse, the supply of pressurized air is removed from the starter, thereby removing power from the starter at the predetermined speed.

3,812,379
GASOLINE ENGINE AND ELECTRIC MOTOR SYSTEM FOR BOATS OR THE LIKE

Bernard Kaufman, 2708 Healy Ave., Far Rockaway, N.Y., and William Kitovich, 233 Chicopee, Chicopee Falls, Mass.

Filed Aug. 4, 1972, Ser. No. 277,986
Int. Cl. B60l *11/12*
U.S. Cl. 290—50 **9 Claims**



A combination propulsion system for boats or the like is provided comprising a first, gasoline engine, a second, electric motor and means for coupling the motor to the engine whereby the electric motor may be reversed and used as a generator when the gasoline engine is running for recharging a battery.

3,812,380
CONTROL FOR CHRISTMAS TREE LIGHTING

George B. Davis, Jr., 7512 Marbury Rd., Bethesda, Md.

Continuation-in-part of Ser. No. 242;627, April 10, 1972, Pat. No. 3,748,488. This application Mar. 19, 1973, Ser. No. 342,433
Int. Cl. H05b *37/00*
U.S. Cl. 307—11 **13 Claims**

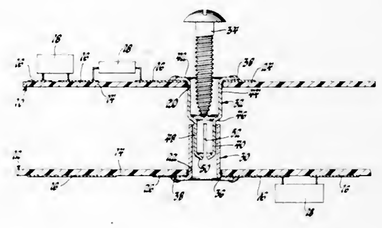


A control for Christmas tree lighting wherein a plurality of varying light intensity effects are produced and in a predetermined sequential order throughout all the lighting strings of a tree to result in a twinkling or shimmering effect heretofore unobtainable with any form or combination of flasher.

3,812,381
CIRCUIT BOARD CONNECTOR WITH SCREW FASTENER

James H. Guyton, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed June 4, 1973, Ser. No. 366,654
Int. Cl. H05k *5/00*
U.S. Cl. 317—101 D **4 Claims**

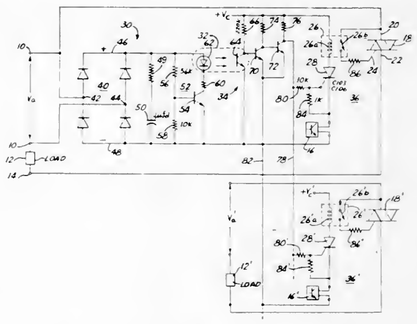


Two spaced parallel electrical circuit boards are electrically interconnected by a fastener comprising two tubular eyelets one each soldered to a conductive pad on a circuit board, one eyelet telescoping within the other and having a shoulder for establishing the circuit board spacing. The inner eyelet is slotted to allow expansion against the I.D. of the other eyelet. A selfotapping screw is threaded into the inner eyelet to force it against the wall of the other eyelet to establish a firm engagement to securely connect the circuit boards with minimal stress on the circuit boards.

3,812,382
SYNCHRONOUS SWITCHING CIRCUIT

Joseph E. Pascente, Norridge, Ill., assignor to Grigsby-Barton, Inc., Rolling Meadows, Ill.

Continuation-in-part of Ser. No. 231,752, March 3, 1972, which is a continuation-in-part of Ser. No. 76,132, Sept. 28, 1970, Pat. No. 3,668,422. This application Aug. 25, 1972, Ser. No. 283,708
Int. Cl. H01h *9/56*
U.S. Cl. 307—133 **11 Claims**

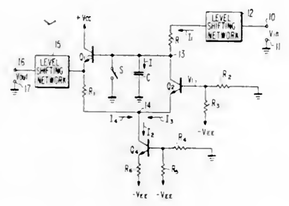


A switching circuit for controlling the application of an a.c. source to a load employs a detector for selectively triggering a control thyristor at a zero-voltage crossing of the source and means for latching the control thyristor during succeeding cycles of the a.c. source. The control thyristor is employed to latch a switching thyristor which, in turn, applies the power from the a.c. source to the load.

3,812,383
HIGH SPEED SIGNAL FOLLOWING CIRCUIT

Norman Richard Scheinberg, Westfield, N.J., assignor to RCA Corporation, New York, N.Y.

Filed July 20, 1972, Ser. No. 273,535
Int. Cl. H03k 4/50
U.S. Cl. 307—228 36 Claims

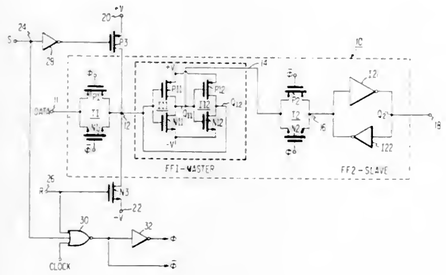


One main electrode of a first and of a second transistor have a common connection with a constant current sink. An input signal is simultaneously applied to the other main electrode of the first transistor and the control electrode of the second transistor. The output signal is taken from the one main electrode of the second transistor and represents an amplified version of the input signal. When a capacitive energy storage means is connected in circuit with the control electrode of the second transistor, the circuit provides a high speed signal integrating function.

3,812,384
SET-RESET FLIP-FLOP

Gordon Edward Skorup, Marlton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 17, 1973, Ser. No. 361,304
Int. Cl. H03k 3/286, 3/33, 17/22
U.S. Cl. 307—238 5 Claims

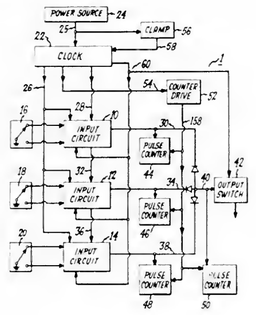


A circuit for setting and resetting a bistable circuit includes first and second transistors directly connected to the input of the bistable circuit for selectively clamping the input to a first or a second voltage level for setting the bistable circuit to one state or resetting it to the other state. In a bistable circuit comprised of a master flip-flop coupled to a slave flip-flop by a transmission fate, the set-reset circuit includes first and second transistors directly connected to the input of the master and also includes means for enabling said transmission gate concurrently with the torn on of said first or second transistors for transferring the output of the master to the slave.

3,812,385
SOLID STATE TOTALIZER

Richard G. Farnsworth, York, Maine, assignor to General Electric Company

Filed June 23, 1972, Ser. No. 265,810
Int. Cl. H03k 17/00, 17/02
U.S. Cl. 307—243 13 Claims

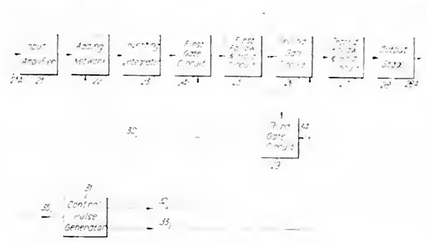


A totalizer which acts as a summation relay to connect a number of measuring devices to a single recording end device. In the totalizer, an independent timing pulse source is employed to actuate individual input circuits connected to the various measuring devices. The totalizer is designed so that the pulse rate of the timing pulse source does not have to be changed each time a change is made in the number of measuring devices connected to the totalizer. In some embodiments of the totalizer provision is made for subtracting signals from selected measuring devices and for preventing loss of count under several circumstances, such as a momentary loss of power.

3,812,386
PULSE CHARGE TO VOLTAGE CONVERTER

David Charles Porter, Dorchester, England, assignor to Integrated Photomatrix Limited

Filed Oct. 11, 1972, Ser. No. 296,587
Claims priority, application Great Britain, Oct. 29, 1971, 50396/71
Int. Cl. H03k 5/00
U.S. Cl. 307—261 4 Claims

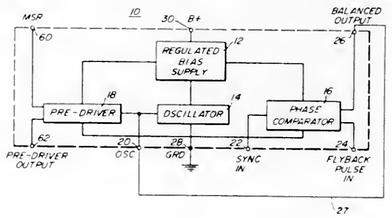


Apparatus for converting a sequence of electrical current pulses into a sequence of steady voltage levels having magnitudes significant of the charge content of the respective pulses includes an integrator for receiving the current pulses, via an input amplifier and one input of an adding network, and operative to perform integration of each pulse over its duration. A first follow and hold circuit is connected to the output of the integrator via a first gate circuit and is operative to follow the integrator output and hold the steady voltage level at the completion of the integration of a pulse. The output of the first follow and hold circuit is connected via a second gate circuit to a second follow and hold circuit for delivering the steady voltage corresponding to each current pulse until another voltage level corresponding to a succeeding current pulse is received from the first follow and hold circuit. The output of the first follow and hold circuit is also connected to a second input of the adding network via a third gate circuit to feed to the integrator simultaneously with the integration of a pulse a reset signal proportional to the steady voltage level corresponding to the integrated value of the preceding current pulse.

3,812,387
MONOLITHIC HORIZONTAL PROCESSING CIRCUIT WITH SELECTABLE DUTY CYCLE

Milton E. Wilcox, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 24, 1972, Ser. No. 256,523
Int. Cl. H03k 1/18
U.S. Cl. 307—265 9 Claims

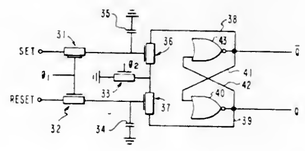


A horizontal processing circuit in monolithic integrated circuit form for a television receiver, which processing circuit includes a horizontal oscillator, phase comparator, and predriver stage. The oscillator generates a sawtooth signal at approximately the desired frequency as determined by an external RC timing network, and which is locked in phase and frequency to the received television signal by the actions of the phase comparator. The sawtooth signal is applied to the predriver stage which includes an electronic switch which produces an output pulse of essentially square wave configuration. By controlling the setting of the switching threshold of the electronic switch, the width of the output pulse may be effectively controlled within a predetermined range or ratio such that the horizontal processing circuit may be rendered fully compatible within any horizontal sweep system whatever the design factors may be.

3,812,388
SYNCHRONIZED STATIC MOSFET LATCH

Richard Alvin Southworth, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 28, 1972, Ser. No. 293,191
Int. Cl. H03k 3/286
U.S. Cl. 307—291 4 Claims

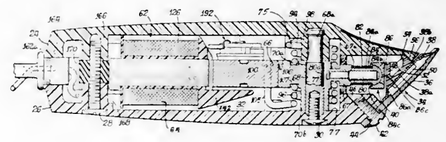


A hybrid master/slave device latch including a dynamic input stage is operable under a two-phase clock and set and reset inputs to set or reset a static output stage. If a latch is implemented in MOSFET logic to operate in the purely dynamic mode and the latch is not refreshed at, for instance, the rate of 10 kHz, a malfunction may occur due to the leakage of charges from temporary storage capacitors. With this dynamic type of latch, due to the relatively high refresh frequencies required, extreme difficulty is encountered in testing. While a static type of device can be operated at extremely low or zero frequencies and thus can be readily tested, it requires more MOSFET devices. The subject invention combines the attributes of the fewer number of components required in a dynamic latch with the memory ability of a static latch in a particular implementation such that there are fewer MOSFET devices required than would be required in either a purely static or dynamic latch.

3,812,389
HAIR CLIPPER WITH IMPROVED BLADE DRIVING MEANS

Leonard E. Bowerman, Fairfield, Conn., assignor to Oster Corporation, Milwaukee, Wis.

Filed Nov. 10, 1972, Ser. No. 305,276
Int. Cl. H02k 7/08
U.S. Cl. 310—50 21 Claims

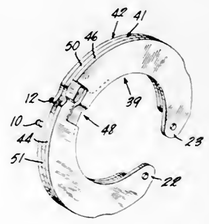


A hair clipper having a vibratory motor with an armature that is pivotally supported by an upright bearing is disclosed. A pair of torsion springs encircle the vertical axis of the bearing. One end of each spring is inserted into apertures in the armature and the other end of each spring bears against the housing of the clipper to bias the armature to a central position. The blade drive pin is integrally molded into the armature and a plastic ball and socket drive member is carried by the pin. The drive member is spring biased against a plastic drive shoe, which is removably secured to the upper cutting blade of the clipper. The drive shoe and the housing of the clipper have mating guiding surfaces.

3,812,390
ALTERNATOR RECTIFIER

John G. Richards, Millburn, N.J., assignor to Wagner Electric Corporation, Parsippany, N.J.

Filed July 13, 1973, Ser. No. 378,866
Int. Cl. H02k 11/00
U.S. Cl. 310—68 D 4 Claims

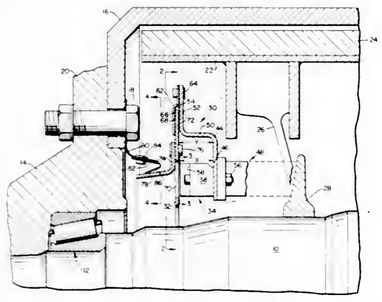


An improved rectifier for alternators, especially motor vehicle alternators, is disclosed. The rectifier is characterized by its strength, its heat sink functionability, low cost assembly and ability to replace defective diodes.

3,812,391
WHEEL SPEED SENSOR

James D. Johnson, Dearborn, and Alan T. Maytum, Sterling Heights, both of Mich., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed June 16, 1972, Ser. No. 263,688
Int. Cl. H02k *19/24*
U.S. Cl. 310—168 10 Claims

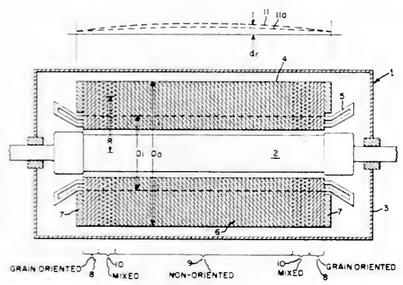


A wheel speed sensor mechanism including a magnetic sensor stationarily mounted on a vehicle axle, a rotor drive means for rotating the rotor with the wheel, and common mounting and support means carried by the vehicle axle for supporting the rotor and sensor in a predetermined relation.

3,812,392
COMPOSITE ARMATURE CORE FOR DYNAMOELECTRIC MACHINE

Sterling C. Barton, and Nickolas Schmitt, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 9, 1973, Ser. No. 339,580
Int. Cl. H02k *1/12*
U.S. Cl. 310—259 3 Claims

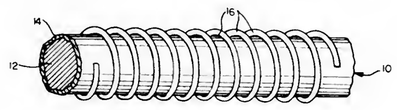


In a laminated dynamoelectric machine armature core, grain-oriented material is used in the end sections and non-oriented material with a higher effective modulus of elasticity is used in the midsection. This permits reductions in radial vibrational deflections at the core midsection or alternatively permits reductions in overall core diameter without increasing vibrational deflections at the midsection.

3,812,393
REDUCED IMPURITY FILAMENT FOR ELECTRIC LAMPS

Ronald C. Koo, Weehawken, and Joel Shurgan, Washington Township. Bergen County, both of N.J., assignors to Duro-Test Corporation, North Bergen, N.J.

Continuation-in-part of Ser. No. 66,275, Aug. 24, 1970, Pat. No. 3,662,789. This application Feb. 4, 1972, Ser. No. 223,607
Int. Cl. H01k *1/08*
U.S. Cl. 313—344 1 Claim

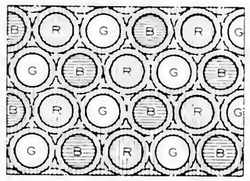


An annealed tungsten filament wire for electric lamps having substantially the same amounts of impurities therein as was present prior to annealing.

3,812,394
IMAGE SCREEN WITH SINGLE, OPTICALLY CONTINUOUS FILTER

Sam H. Kaplan, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Oct. 6, 1971, Ser. No. 186,886
Int. Cl. H01j *29/30, 29/28*
U.S. Cl. 313—92 B 8 Claims



The screen of a shadow-mask tri-color picture tube has a series of optically continuous red filters not only covering screen areas assigned to red but also extending into abutting relation with screen areas assigned to blue and green. These latter areas have deposits of the appropriate color phosphor but the blue phosphor is pigmented.

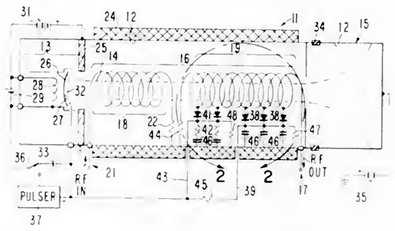
Another embodiment features a generally similar application of filter characteristics to the red and blue phosphor deposits of a black-surround tube further to improve brightness by enlarging the phosphor deposits and, at the same time, improving screen anti-reflectance.

3,812,395
DUAL MODE TWT FOR LOW POWER CW AND HIGH POWER PULSED OPERATION

Allan W. Scott, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Feb. 20, 1973, Ser. No. 333,834
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.6 16 Claims

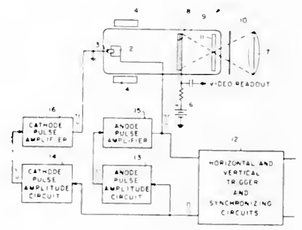
A traveling wave tube is capable of operating over relatively wide bandwidths and with relatively high efficiency at one or the other of two different power output levels which are separated by as much as 10 db. The tube is switchable from one mode of operation to the other in a relatively short period of time, as of a few nanoseconds, by means of a control grid. In switching from the low power C.W. mode to the high power pulsed mode, the beam current is increased by a value of several times, as of five; the effective length of the output section of the slow wave circuit is automatically decreased; and the phase velocity on the output section of the slow wave circuit is decreased to maintain synchronism with the slow space charge wave of the beam.



3,812,396
CIRCUIT ARRANGEMENT FOR PRODUCING PEDESTAL CURRENT IN A PYROELECTRIC THERMO IMAGING TUBE

Merton H. Crowell, Mahopac, N.Y., assignor to North American Philips Corp., New York, N.Y.

Filed Dec. 11, 1972, Ser. No. 313,832
Int. Cl. H01j *31/26*
U.S. Cl. 315—10 8 Claims



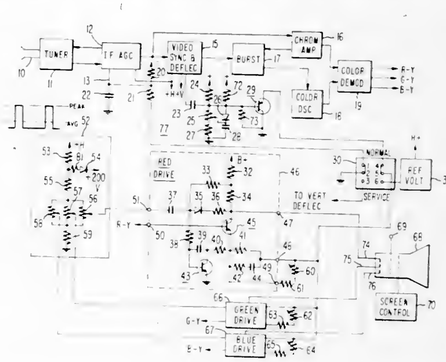
A pyroelectric thermo imaging tube employing an external circuit arrangement for the variable pulsing of the cathode during horizontal flyback periods that are not coincidental with vertical flyback periods to remove residual charges as well as opposite polarity charges and potentials generated on the non-conducting side of the pyroelectric target. Pulsing of the cathode provides secondary electron emission which produces a pedestal current that can be employed for the direct read-out from the target.

3,812,397
INDEPENDENT ELECTRON GUN BIAS CONTROL

James Courtland Marsh, Jr., Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 15, 1973, Ser. No. 332,685
Int. Cl. H01j *29/70*
U.S. Cl. 315—31 TV 4 Claims

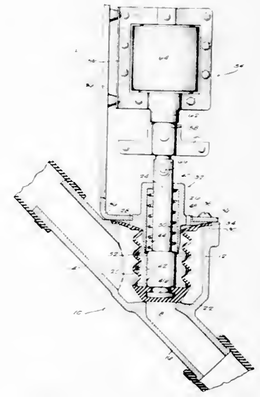
Apparatus for independently controlling the cutoff of electron beam current in each of a plurality of electron guns in a color kinescope. The bias voltage that is applied to the cathode of each gun is dependent upon the peak-to-average value of separate controllable pulses supplied to each of the drive circuits of the respective cathodes. The pulse control circuits are operable to provide independent control of the kinescope bias voltage without otherwise affecting operation of the cathode drive circuits. The above apparatus is adjusted during the initial set up of the cut-off biasing potential of the cathodes of the kinescope to insure correct color balance of the guns; that is, to insure that current from each of the cathodes is cutoff at the same time during black or blanking signals and that simultaneous cut-off of all cathodes is relatively independent of fluctuations in line voltage.



3,812,398
DRAIN VALVE

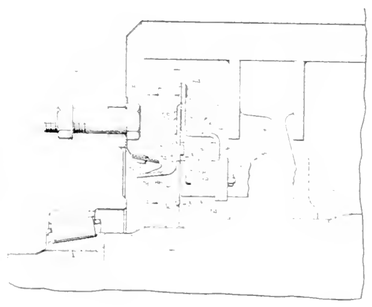
James A. Kozel, Elmhurst, and Edwin A. Ostrowski, Mount Prospect, both of Ill., assignors to Controls Company of America, Schiller Park, Ill.

Filed Nov. 10, 1972, Ser. No. 305,365
Int. Cl. F16k *31/08*
U.S. Cl. 251—331 1 Claim



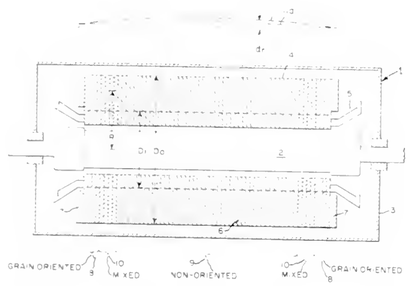
The dishwasher drain valve provides straight through flow with the valve seat at about 45° to the flow to provide increased velocity tending to straighten the flow of elongated objects (toothpicks, etc.) and decrease chances of such debris becoming lodged in the valve housing. A bellows seals the stem and solenoid from contact with liquids and entrained contaminants. The end of the bellows functions as the valve. Collapse of the bellows onto the stem is prevented by stiffening rings. The stem is guided for linear movement and tolerates some degree of misalignment with the solenoid.

3,812,391
WHEEL SPEED SENSOR
James D. Johnson, Dearborn, and Alan T. Maytum, Sterling Heights, both of Mich., assignors to Rockwell International Corporation, Pittsburgh, Pa.
Filed June 16, 1972, Ser. No. 263,688
Int. Cl. H02k *19/24*
U.S. Cl. 310—168 10 Claims



A wheel speed sensor mechanism including a magnetic sensor stationarily mounted on a vehicle axle, a rotor drive means for rotating the rotor with the wheel, and common mounting and support means carried by the vehicle axle for supporting the rotor and sensor in a predetermined relation.

3,812,392
COMPOSITE ARMATURE CORE FOR DYNAMOELECTRIC MACHINE
Sterling C. Barton, and Nickolas Schmitt, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Mar. 9, 1973, Ser. No. 339,580
Int. Cl. H02k *1/12*
U.S. Cl. 310—259 3 Claims



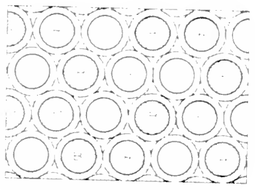
In a laminated dynamoelectric machine armature core, grain-oriented material is used in the end sections and non-oriented material with a higher effective modulus of elasticity is used in the midsection. This permits reductions in radial vibrational deflections at the core midsection or alternatively permits reductions in overall core diameter without increasing vibrational deflections at the midsection.

3,812,393
REDUCED IMPURITY FILAMENT FOR ELECTRIC LAMPS
Ronald C. Koo, Weehawken, and Joel Shurgan, Washington Township, Bergen County, both of N.J., assignors to Duro-Test Corporation, North Bergen, N.J.
Continuation-in-part of Ser. No. 66,275, Aug. 24, 1970, Pat. No. 3,662,789. This application Feb. 4, 1972, Ser. No. 223,607
Int. Cl. H01k *1/08*
U.S. Cl. 313—344 1 Claim



An annealed tungsten filament wire for electric lamps having substantially the same amounts of impurities therein as was present prior to annealing.

3,812,394
IMAGE SCREEN WITH SINGLE, OPTICALLY CONTINUOUS FILTER
Sam H. Kaplan, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Oct. 6, 1971, Ser. No. 186,886
Int. Cl. H01j *29/30, 29/28*
U.S. Cl. 313—92 B 8 Claims

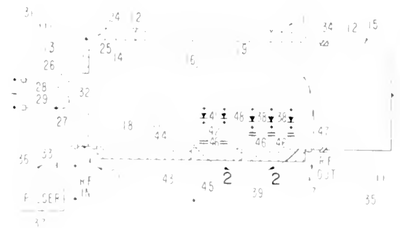


The screen of a shadow-mask tri-color picture tube has a series of optically continuous red filters not only covering screen areas assigned to red but also extending into abutting relation with screen areas assigned to blue and green. These latter areas have deposits of the appropriate color phosphor but the blue phosphor is pigmented.

Another embodiment features a generally similar application of filter characteristics to the red and blue phosphor deposits of a black-surround tube further to improve brightness by enlarging the phosphor deposits and, at the same time, improving screen anti-reflectance.

3,812,395
DUAL MODE TWT FOR LOW POWER CW AND HIGH POWER PULSED OPERATION
Allan W. Scott, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Feb. 20, 1973, Ser. No. 333,834
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.6 16 Claims

A traveling wave tube is capable of operating over relatively wide bandwidths and with relatively high efficiency at one or the other of two different power output levels which are separated by as much as 10 db. The tube is switchable from one mode of operation to the other in a relatively short period of time, as of a few nanoseconds, by means of a control grid. In switching from the low power C.W. mode to the high power pulsed mode, the beam current is increased by a value of several times, as of five; the effective length of the output section of the slow wave circuit is automatically decreased, and the phase velocity on the output section of the slow wave circuit is decreased to maintain synchronism with the slow space charge wave of the beam



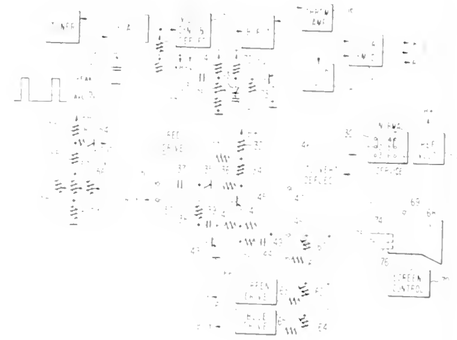
3,812,396
CIRCUIT ARRANGEMENT FOR PRODUCING PEDESTAL CURRENT IN A PYROELECTRIC THERMO IMAGING TUBE
Merton H. Crowell, Mahopac, N.Y., assignor to North American Philips Corp., New York, N.Y.
Filed Dec. 11, 1972, Ser. No. 313,832
Int. Cl. H01j *31/26*
U.S. Cl. 315—10 8 Claims



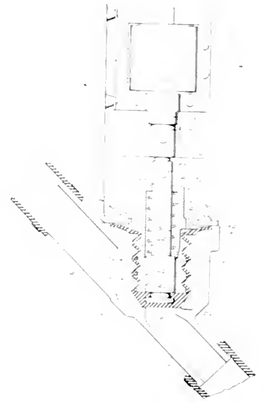
A pyroelectric thermo imaging tube employing an external circuit arrangement for the variable pulsing of the cathode during horizontal flyback periods that are not coincidental with vertical flyback periods to remove residual charges as well as opposite polarity charges and potentials generated on the non-conducting side of the pyroelectric target. Pulsing of the cathode provides secondary electron emission which produces a pedestal current that can be employed for the direct read-out from the target.

3,812,397
INDEPENDENT ELECTRON GUN BIAS CONTROL
James Courtland Marsh, Jr., Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Filed Feb. 15, 1973, Ser. No. 332,685
Int. Cl. H01j *29/70*
U.S. Cl. 315—31 TV 4 Claims

Apparatus for independently controlling the cutoff of electron beam current in each of a plurality of electron guns in a color kinescope. The bias voltage that is applied to the cathode of each gun is dependent upon the peak-to-average value of separate controllable pulses supplied to each of the drive circuits of the respective cathodes. The pulse control circuits are operable to provide independent control of the kinescope bias voltage without otherwise affecting operation of the cathode drive circuits. The above apparatus is adjusted during the initial set up of the cut-off biasing potential of the cathodes of the kinescope to insure correct color balance of the guns, that is, to insure that current from each of the cathodes is cutoff at the same time during black or blanking signals and that simultaneous cut-off of all cathodes is relatively independent of fluctuations in line voltage.



3,812,398
DRAIN VALVE
James A. Kozel, Elmhurst, and Edwin A. Ostrowski, Mount Prospect, both of Ill., assignors to Controls Company of America, Schiller Park, Ill.
Filed Nov. 10, 1972, Ser. No. 305,365
Int. Cl. F16k *31/08*
U.S. Cl. 251—331 1 Claim



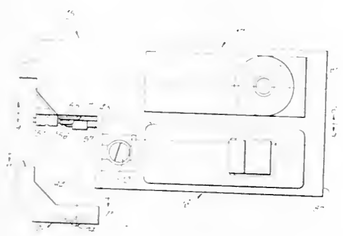
The dishwasher drain valve provides straight through flow with the valve seat at about 45° to the flow to provide increased velocity tending to straighten the flow of elongated objects (toothpicks, etc.) and decrease chances of such debris becoming lodged in the valve housing. A bellows seals the stem and solenoid from contact with liquids and entrained contaminants. The end of the bellows functions as the valve. Collapse of the bellows onto the stem is prevented by stiffening rings. The stem is guided for linear movement and tolerates some degree of misalignment with the solenoid.

3,812,399
ELECTROSTATIC FOR DEIONIZING AIR AND OTHER GASES
Chester D. Slocum, Jr., 9860 S.W. 40th St., Miami, Fla.
Filed Dec. 19, 1972, Ser. No. 316,575
Int. Cl. H05f 3/04
U.S. Cl. 317—2 F
4 Claims



An electrostatic electrode adapted to be energized by high voltage consisting of a pair of quasi conductive plastic laminates in superposed relation and having relatively poor electric conductivity and insulation. A right angled sheet metal member positioned through a central linear slot of predetermined length with one side thereof sandwiched between said laminates. The upturned portion of the metal member is covered on all sides by insulation. A pair of spaced suspension hangers are secured to the plastic insulation and an insulated conductor is connected to one end of said metal member for conducting high voltage thereto.

3,812,400
MODULAR GROUND FAULT INTERRUPTER
Carl E. Gryctko, Haddon Heights, N.J.; Paul Muchnick, Norwald, and Frank C. Jaconette, Trumbell, both of Conn., assignors to I-T-E Imperial Corporation, Spring House, Pa. and Harvey Hubbell Incorporated, Bridgeport, Conn., part interest to each
Filed Mar. 5, 1973, Ser. No. 338,405
Int. Cl. H02h 1/02
U.S. Cl. 317—18 D
10 Claims



A circuit breaker module and a sensor module are secured together side by side to form a ground fault interrupter, with all moving parts of the interrupter being contained within the housing of the circuit breaker module. The modules are electrically connected at an interface region disposed outside of the module housings. This interface region is enclosed by a cover that cooperates with portions of the sensor module housing to form a plurality of compartments each of which contains a different electrical splicing element.

3,812,401
OVERTEMPERATURE PROTECTION SYSTEM FOR EXHAUST GAS CONVERSION DEVICE
Bernard G. Radin, Oak Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Apr. 4, 1973, Ser. No. 347,961
Int. Cl. G05d 23/22
U.S. Cl. 317—40 R
8 Claims



An overtemperature protection system for an exhaust gas conversion device, such as a thermal reactor or catalytic converter. Preferably, the system includes a thermocouple temperature sensor located on the exhaust gas conversion device, an electrically-actuated control device for diminishing the operation of the exhaust gas conversion device, and a warning device. Electrical circuitry is provided for actuating the control device in response to the attainment of a first predetermined temperature sensed by the temperature sensor. A warning device may also be actuated at this first predetermined temperature. Additional electrical circuitry provides retained actuation of the control means and warning devices upon the occurrence of a second predetermined temperature sensed by the temperature sensor, the second predetermined temperature being higher than the first predetermined temperature. The thermocouple reference junction is compensated for ambient temperature and electrical circuitry is provided for actuating the control and warning devices upon the occurrence of an open circuit at the temperature-sensing junction of the thermocouple.

3,812,402
HIGH DENSITY DIGITAL SYSTEMS AND THEIR METHOD OF FABRICATION WITH LIQUID COOLING FOR SEMI-CONDUCTOR CIRCUIT CHIPS
Emory C. Garth, Austin, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 18, 1972, Ser. No. 316,203
Int. Cl. H05k 7/20
U.S. Cl. 317—100
25 Claims

High density interconnection and packaging is provided for complex digital systems such as computer systems in which unpackaged integrated logic and arithmetic elements are mounted in high density directly on logic cards. The logic cards are stacked in high density on multi-layer interconnection boards providing interconnection between the logic cards and providing the necessary operating power. One or more of the multi-layer interconnection boards having the logic cards mounted thereon are then packaged in a liquid cooling system



ERRATUM

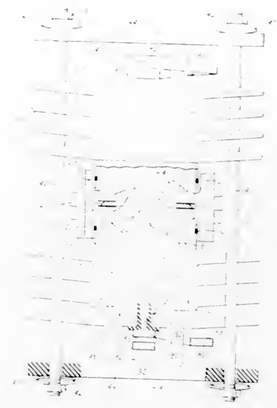
For Class 317—101 see:
Patent No. 3,812,381

3,812,403
ELECTRONIC COMBINATION LOCK INCLUDING SEQUENTIAL SIGNAL GENERATOR AND SIGNAL DISPLAY
Klaus W. Gartner, 5711 Ravenspur Dr., Palos Verdes Peninsula, Calif.
Filed June 29, 1972, Ser. No. 267,640
Int. Cl. E05b 49/00
U.S. Cl. 317—134
22 Claims



A manually-actuated electronic combination lock is provided in which the combination code consists of certain preselected digital signals out of a field of many such signals. Circuit means provide for generating a sequence of digital signals constituting the field in response to sustained manual engagement with a push-button switch and a solid state alphanumeric indicator is connected to display by symbolic representation each of the signals as generated. Selection of the proper combination of signals is provided by manually releasing the switch as each of the proper signals is displayed, whereupon each such selected signal is fed to a decoding circuit. The signals selected in this manner are collected in the decoding circuit, which upon completion of the proper code operates an electromagnetic lock or the like. In one embodiment of the invention, the solid state indicator is mounted together with the push-button switch on a portable key member adapted for a detachable connection at a security station, such as a door equipped with an electrically-operated lock. Other disclosed embodiments include, mounting of the solid state indicator and manual push-button within a door handle disposed adjacent to and for operation of an electromechanical door lock; and an arrangement of the solid state indicator and push-button in the driver's compartment of a vehicle, preferably and as disclosed with the indicator disposed in a window panel overlying the steering column, for controlled operation of the vehicle ignition and hood locks.

3,812,404
INCREASING THE INITIAL FLOW RATE IN A RECTIFIER ASSEMBLY EMPLOYING ELECTROMAGNETICALLY-PUMPED LIQUID METAL FOR COOLING
Philip Barkan; Fred W. Kelley, Jr., and Theodore A. Shook, all of Media, Pa., assignors to General Electric Company, Philadelphia, Pa.
Filed May 29, 1973, Ser. No. 364,811
Int. Cl. H01l 3/00, 5/00
U.S. Cl. 317—234 R
18 Claims

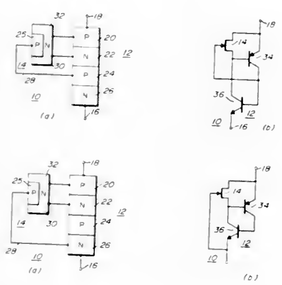


In each phase conductor of a polyphase rectifier system, there is a periodically-conducting rectifier assembly of the type comprising a semiconductor body and a cooling system for the body. The cooling system comprises a fluid circuit containing liquid metal and electromagnetic pumping means for forcing liquid metal through the fluid circuit. The electromagnetic pumping means comprises coil means, at least a portion of which is electrically connected in series with said semiconductor body. Means is provided for electrically connecting the coil means of the rectifier assemblies in circuit in such a way that when the rectifier assembly in any one phase conductor is blocking current therethrough, at least a portion of the coil means of said blocking rectifier assembly is energized by current passing through another of said phase conductors.

3,812,405
STABLE THYRISTOR DEVICE

Lowell Eugene Clark, Scottsdale, Ariz., assignor to Motorola, Inc., Phoenix, Ariz.

Filed Jan. 29, 1973, Ser. No. 327,366
Int. Cl. H01l *11/10*
U.S. Cl. 317—235 AB
7 Claims

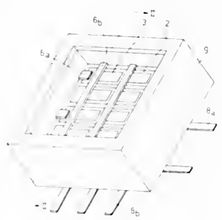


A two-terminal thyristor device including a thyristor combined with a field effect transistor having a firing voltage that is dependent upon the pinch-off voltage of the field effect transistor. The field effect transistor is connected to reverse bias the PNP emitter-base junction until the applied voltage increases to the value at which the field effect transistor becomes pinched off. At this point the product of the PNP gain and NPN gain is greater than unity, and the device switches to a conducting mode. The field effect transistor establishes the holding current in the conduction mode for the switching device.

3,812,406
LIGHT EMITTING DIODE DEVICE FOR DISPLAYING CHARACTERS

Dominique Henri, Epron, France, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 170,144, Aug. 9, 1971, abandoned.
This application June 20, 1973, Ser. No. 371,718
Int. Cl. H01l *15/00*
U.S. Cl. 317—235 N
5 Claims



A light emitting diode display apparatus where a light emitting diode junction is formed on the surface of a semiconductor crystal. Metallized contact faces are formed on the surface of the crystal in direct contact with metal connection surfaces on a transparent insulating support layer to which the crystal is secured.

3,812,407
CAPACITOR

Kiyoo Nose, Kusatsu; Yoshiji Kokura, Akasaki; Nobuo Hizaki, Kusatsu; Shigeyoshi Nishikawa, Minakuchi, and Yoshihiki Shinbo, Kusatsu, all of Japan, assignors to Nichicon Capacitor, Limited, Kyoto, Japan

Filed Jan. 29, 1973, Ser. No. 327,723
Claims priority, application Japan, Jan. 31, 1972, 47-11108
Int. Cl. H01g *3/195*
U.S. Cl. 317—258
2 Claims



A capacitor having a laminated dielectric formed of layers of paper and a synthetic resin and then impregnated with an aromatic hydrocarbon oil.

3,812,408
TRASH MASHER MOTOR CONTROL

Paul E. Penn, and John Waymire, both of Indianapolis, Ind., assignors to Dart Control, Inc., Indianapolis, Ind.

Filed May 14, 1973, Ser. No. 359,656
Int. Cl. H02p *7/28*
U.S. Cl. 318—282
8 Claims

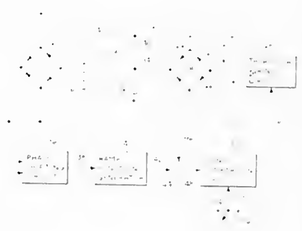


A system for controlling a direct current reversible motor comprising a Triac for controlling the flow of current through the motor, a gating circuit for providing a forward gating current to the gate of the Triac, a flip-flop for drawing the forward gating current away from the gate when the flip-flop is conductive, a control for rendering the flip-flop conductive, and a slaving circuit for drawing current out of the Triac gate when current flow in the forward direction through the Triac is clocked. The slaving circuit includes a resistor-capacitor network connected between the anode of the Triac and its gate such that a charge is built up on the capacitor by a positive current cycle on the anode when the Triac is non-conductive in the forward direction to be discharged by current flow away from the gate when the subsequent negative cycle appears on the anode. The slaving circuit also includes diodes for directing current flow from the gate during discharge of the capacitor. The control for rendering the flip-flop conductive includes a network for sensing the level of current flowing through the motor and providing a control voltage proportional to the current, the flip-flop being rendered conductive when the control voltage reaches a predetermined level.

3,812,409
CURRENT LIMIT CIRCUIT FOR A DC MOTOR

Edward H. Dinger, Waynesboro, Va., assignor to General Electric Company, Salem, Va.

Filed Mar. 6, 1973, Ser. No. 338,616
Int. Cl. H02p *5/16*
U.S. Cl. 318—310
19 Claims



A direct current motor control circuit of the type employing "phase controlled" semiconductors of the controlled rectifier type is provided with a current limiting function which serves to predict and limit the amount of current which will be applied to the motor. A full wave controlled rectifier bridge supplies power to the motor armature winding from an alternating current source and suitable control circuitry is provided which limits the percentage of time (i.e., phase control) during which the controlled rectifiers of the bridge are conductive to hence limit the armature current in a predictive manner to prevent excessive current within the motor armature circuit.

3,812,410
CIRCUIT FOR REGULATING THE SPEED OF A DIRECT CURRENT MOTOR

Gerhard Schaub, and Karl Schramm, both of Nurnberg, Germany, assignors to Gebr. Buhler Nachfolger GmbH, Nurnberg, Germany

Filed Dec. 28, 1970, Ser. No. 102,010
Claims priority, application Germany, Jan. 7, 1970, 2000497
Int. Cl. H02p *5/00*
U.S. Cl. 318—328
8 Claims

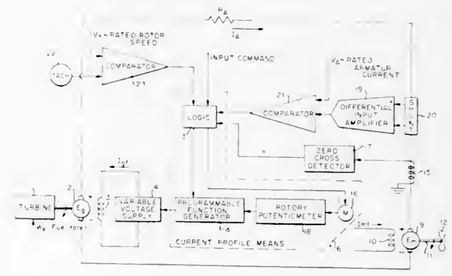


The ratio between the two states of an astable multivibrator is varied in dependence on the difference between a reference voltage and the output of an alternating current generator driven by the motor, a speed of which is to be regulated. One output of the multivibrator is connected to control the conductivity of a power transistor that controls the flow of current to the motor.

3,812,411
DYNAMIC BRAKING OF A GAS TURBINE POWERED SHIP PROPULSION SYSTEM UTILIZING A D. C. ELECTRIC DRIVE

Roy D. Johnson, Annapolis, and Casimer Joseph Rubis, Davidsonville, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 20, 1973, Ser. No. 333,929
Int. Cl. H02p *3/14*
U.S. Cl. 318—376
11 Claims

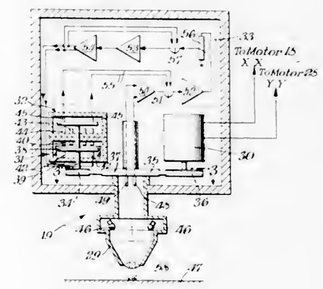


Dynamic braking of a ship's propeller powered by a turboelectric drive system is achieved by dissipating the rotational energy of the propeller through the windage loss of the gas turbine rotor. Braking torque on the propeller is maximized by controlling the generator field current according to a predetermined profile so as to maximize armature braking current without exceeding rated armature current or rated rotor speed.

3,812,412
PHOTOELECTRIC SCANNING DEVICE FOR FLAME CUTTING MACHINES

Gunter Hahn, Hausen, and Gunther Hannappel, Frankfurt, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt/Main, Germany

Continuation-in-part of Ser. No. 801,506, Feb. 24, 1969, abandoned. This application Nov. 9, 1971, Ser. No. 196,907
Int. Cl. G05b *19/36*
U.S. Cl. 318—577
3 Claims



A photoelectric scanning device for flame cutting machines includes a disc rotor motor as the driving motor for the scanning shaft and a disc rotor motor as the generator for producing the damping voltage.

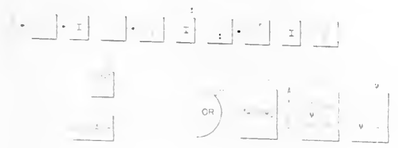
3,812,413
DRIVE CIRCUIT FOR INDUCTIVE LOAD
Steven Dennis Keidl, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,095
Int. Cl. G05b 19/40
U.S. Cl. 318—696 4 Claims



A drive circuit for an inductive load is described which has particular use for stepping motors. A high voltage power supply is connected through a very low impedance directly to the inductive load to provide a fast rise time for the load current. When the current exceeds a predetermined value, the load is disconnected from the power supply. The current induced in the load due to flux decay is permitted to circulate through the load and a current sampling circuit. When the induced current drops below a minimum value, the load is again connected to the power supply for a period sufficiently long to allow restoration of the load current to the desired value.

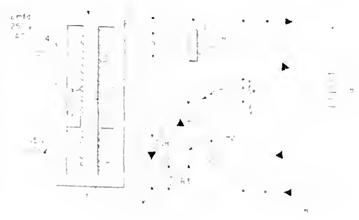
The circuit utilizes two switches to control the flow of induced current and connection of the load to the power supply. Both switches respond to a logic signal indicating that the load is to be energized. One switch is used to control the induced current and the other is used to make the connection to the power supply.

3,812,414
STEPPER MOTOR CONTROL SYSTEM USING PULSE INJECTION FOR VELOCITY OVERSHOOT CONTROL
Dennis G. Abraham, Vestal, and Ray A. McSparran, Endicott, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 24, 1972, Ser. No. 309,297
Int. Cl. H02k 37/00
U.S. Cl. 318—696 5 Claims



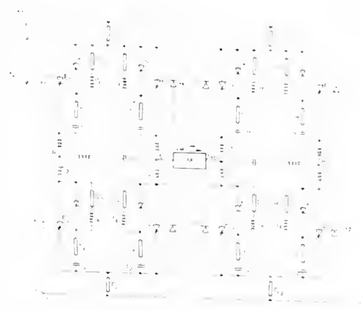
Starting control of a stepper motor having an open-loop oscillator control is obtained by utilizing a pulse injection arrangement whereby a plurality of pulses are supplied in rapid succession at the proper time to the drive circuits for the stepper motor giving a negative torque to the motor which prevents an overshoot in velocity.

3,812,415
FERRORESONANT BATTERY CHARGER CIRCUIT
Burrows Corson Van Gilder, North Wales, and Elmo Emerson Moyer, Pennsburg, both of Pa., assignors to ELTRA Corporation, Toledo, Ohio
Filed Sept. 27, 1972, Ser. No. 292,644
Int. Cl. H02j 7/04
U.S. Cl. 320—31 12 Claims



A circuit for charging a storage battery is disclosed which uses a ferroresonant transformer in combination with a full-wave rectifier to supply direct current to charge the battery. The charging current is controlled by a single silicon controlled rectifier connected to substantially short circuit either all or a portion of one secondary winding of the transformer during increasing portions of half cycles of one polarity as the battery becomes charged. A voltage divider applies a preselected portion of the alternating current transformer output voltage, which is essentially the battery voltage, to gate the controlled rectifier. This preselected voltage is modified by the resistance varying characteristics of a thermistor which is responsive to heat produced by current through the controlled rectifier when it is conducting to reduce the current supplied to the battery. A lamp may be provided to visually indicate when the battery is charged.

3,812,416
FORCED COMMUTATION INVERTORS
Michel Lalande, Le Vesinet, France, assignor to La Telemecanique Electrique, Nanterre, France
Filed July 27, 1972, Ser. No. 275,497
Claims priority, application France, July 28, 1971, 71.27745
Int. Cl. H02m 7/52
U.S. Cl. 321—45 R 4 Claims



The invention relates to a D.C. to A.C. convertor, i.e., an invertor, including at least two pairs of main thyristors, at least two pairs of cut-off thyristors, means to effect triggering of the thyristors in accordance with a predetermined cycle, an oscillatory reversal circuit comprising an inductor and a capacitor connected in series between the common point of the main thyristors and the common point of the cut-off thyristors,

booster diodes associated with the main thyristors, auxiliary inductors to protect the thyristors against rapid current and voltage variations, and supplementary circuits for protection against transitory states of current and voltage, connected in parallel with the thyristors, the auxiliary protective inductors, connected in series with the thyristors, forming part, not of the sections of the circuit in parallel with the booster diodes, but of the oscillatory reversal circuit.

3,812,417
VOLTAGE REGULATING SYSTEM
Laurence Keltz, R.D. No. 1 Box 466, Malvern, Pa.
Filed Nov. 16, 1972, Ser. No. 307,073
Int. Cl. H02p 9/02
U.S. Cl. 322—55 5 Claims

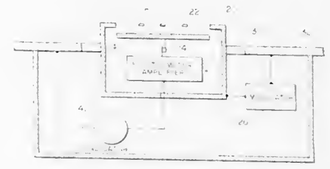


A voltage regulating system for producing a resultant voltage vector of predetermined magnitude and phase relation with respect to an incoming source signal. The regulating system includes a motor mechanism which is driven from an AC source signal having a reference phase angle. The motor is mechanically connected to a generator which comprises both a stator and a rotor which is rotatably secured to the motor mechanism to produce a generator output signal. There is included a mechanism for mechanically rotating the stator with respect to the rotor to produce the generator output signal which has a predetermined phase angle value with respect to the source signal reference phase angle value. The generator mechanism may be electrically connected to an inverter circuit to produce an inverter signal which when combined with a source output signal across a load results in a resultant voltage signal dependent upon the predetermined rotation of the stator with respect to the rotor of the generator mechanism.

3,812,418
DEVICE FOR THE EXCITATION OF SPIN RESONANCES BY MEANS OF AN RF SIGNAL HAVING A PRESCRIBED AMPLITUDE FUNCTION
Werner Heinz Tschopp, Fallanden, Switzerland, assignor to Spectrospin AG, Zurich, Switzerland
Filed July 13, 1971, Ser. No. 162,141
Claims priority, application Germany, Nov. 27, 1970, 2058447
Int. Cl. G01n 27/78
U.S. Cl. 324—0.5 R 4 Claims

In the excitation of spin resonances by means of an RF-pulse in a sample arranged in a homogeneous magnetic field for purposes of spin resonance spectrometry, a limitation of the energy of excitation to the frequency range of interest and an essentially constant amplitude of the energy of excitation in that range of frequency is achieved by application of an RF-pulse with an amplitude variable in time which, at least approximately, corresponds to a sine x/x function. Such amplitude function can be generated by a modulation unit which is controlled either by a digital computer with a stored amplitude function or by the output signal of an analog computer solving a suitable differential equation.

3,812,419
ELECTRONIC FIELD MILL
Helmuth M. Kaunzinger, Neptune, and Rudolf G. Buser, Wall, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Mar. 5, 1973, Ser. No. 337,794
Int. Cl. G01r 5/28
U.S. Cl. 324—32 5 Claims



This invention relates to electrostatic fields and particularly to instruments for measuring the strength of electrostatic fields. More particularly this disclosure describes a device using electronic means for modulating the strength of an electrostatic field in front of a sensing electrode to simulate the field-mill effect and produce alternating voltage components resulting in an average voltage shift proportional to the field strength at that point. This average voltage shift is amplified and applied to a suitable means to indicate the relative field strength.

3,812,420
BRIDGE CIRCUIT CHANGING FAULT LOCATION METHOD AND DEVICE
Donald E. Gunter, Watson, La., assignor to General Industries, Inc., Denham Springs, La.
Filed Dec. 21, 1972, Ser. No. 317,213
Int. Cl. G01r 31/08
U.S. Cl. 324—52 16 Claims

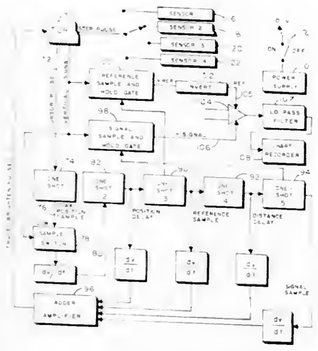


A device and method for locating faults in electrical conductors, said device comprising a bridge circuit adapted to be connected to operative and faulted conductors with a jumper connecting their remote ends, and switch means associated with the bridge circuit selectively movable to a first mode setting to provide a first balance condition reading corresponding to the length of the conductors and a second mode setting to provide a second balance condition reading representing a percentage of the first reading at which the fault is located from the device. A modified form of the device includes switch means with three mode settings to provide a single reading corresponding to the distance to the fault without computations. The device provides a convenient method for locating faults without necessarily knowing the size or resistivity of the operative conductor.

3,812,421
LIQUID COATING MEASURING APPARATUS

Gerard A. La Rocca, 901 Via Mirado, Palos Verdes Estates, Calif.

Filed Aug. 24, 1972, Ser. No. 283,577
Int. Cl. G01r 27/04
U.S. Cl. 324—58.5 B
17 Claims



Apparatus for measuring a liquid coating passing through a pair of hollow bars, tubes, or rods. The hollow tubes are electronically driven by a time domain reflectometer having appropriate apparatus therewith for sampling a coating having a dielectric constant which is measured to provide a general measurement of the coating. The measurement of the dielectric constant is then taken with respect to a reference such as the tubes or a temperature controlled cable.

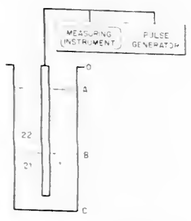
Specifically, the apparatus can be used for measuring the latex content of a carpet wherein the latex has been applied as a water and latex mixture and then passed between the respective sensor tubes providing a readout of the dielectric constant of the latex by means of a recorder as well as a cathode ray tube (CRT) display.

The apparatus employs a power supply, a plurality of one-shots to provide positioning delays, and reference sample locations. The entire device can be utilized with a plurality of stations so that the character of the material having a dielectric constant can be measured at various places.

3,812,422
APPARATUS FOR MEASURING THE LEVELS OF FLUIDS AND THE DIELECTRIC CONSTANTS OF THE SAME

Massimiliano De Carolis, Rome, Italy, assignor to Comitato Nazionale per l'Energia Nucleare, Rome, Italy

Filed Aug. 28, 1972, Ser. No. 283,980
Claims priority, application Italy, Sept. 4, 1971, 52680/71
Int. Cl. G01r 27/04
U.S. Cl. 324—58.5 B
4 Claims

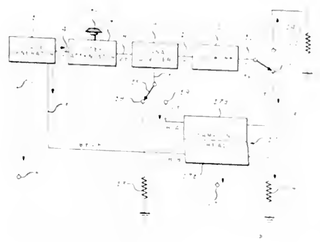


A device is herein disclosed for measuring the changes of impedance along the path of an electric signal. More specifically, according to this invention the changes of impedance along a coaxial cable connected to a pulse generator are measured and through such measures the distances are measured between a reference point along the cable and the points where the the changes of impedance occur. Particularly this invention relates to a device for accurately determining the interfaces level between liquid masses and the dielectric constants of said liquids.

3,812,423
NETWORK TIME DOMAIN MEASUREMENT SYSTEM

Harry M. Cronson, Lexington, and Peter G. Mitchell, Concord, both of Mass., assignors to Sperry Rand Corporation, Great Neck, N.Y.

Filed July 16, 1973, Ser. No. 379,283
Int. Cl. G01r 27/04
U.S. Cl. 324—58.5 A
9 Claims

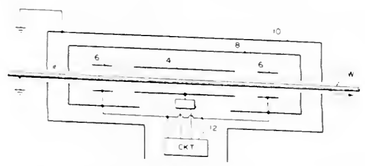


The forward and backward scattered energy of a high frequency network exposed to an incident base band impulse of electromagnetic energy in a transmission line is sampled by a compensation sampling system and the incident wave and reflected and transmitted response waves are employed in performing discrete Fourier transformations in a computation process yielding the complex characteristics of the network.

3,812,424
CAPACITIVE WIRE GAUGE

Robert C. Abbe, Newton, Mass., assignor to ADE Corporation, Watertown, Mass.

Continuation-in-part of Ser. No. 292,700, Sept. 27, 1972, Division of Ser. No. 64,240, Aug. 17, 1970, Pat. No. 3,706,919.
This application Mar. 15, 1973, Ser. No. 341,543
Int. Cl. G01r 27/26
U.S. Cl. 324—61 R
24 Claims

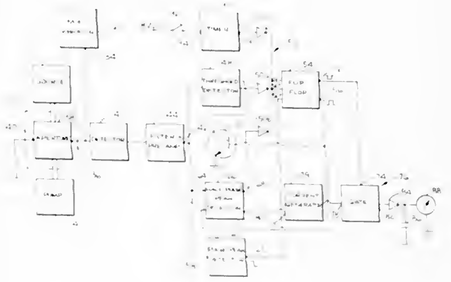


An apparatus and method for gauging the cross sectional configuration of a conductive wire at a ground potential where the wire is placed within or passed through a tubular insulator having a tubular sensing electrode thereon and a pair of end electrodes located adjacent opposite ends of the sensing electrode. The sensing and end electrodes are surrounded by a conductive guard and all the electrodes and the guard are energized by alternating electric current. Measuring the capacitance between the sensing electrode and the wire provides an indication of the wire's cross sectional configuration. The energized guard and a shield maintained at ground potential and surrounding the guard eliminate the effects of stray environmental capacitance. The pair of end electrodes eliminate the fringe effects of the capacitive field at the ends of the sensing electrode.

3,812,425
METHOD AND APPARATUS FOR DETERMINATION OF HEMATOCRIT

Jack Miller, Parsippany, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.

Filed Nov. 21, 1972, Ser. No. 308,529
Int. Cl. G01n 27/00
U.S. Cl. 324—71 CP
15 Claims



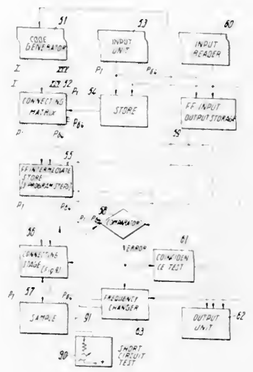
A diluted blood sample is passed through a blood cell sensor of the type that provides an electric pulse having a peak amplitude corresponding to the volume of each sensed blood cell and a pulse width corresponding to the instantaneous flow rate of the blood sample through the sensor. The pulse amplitude is monitored and when the pulse peak is sensed, a signal corresponding to the pulse peak amplitude is stored and provided to a gate. A predetermined portion of the pulse width is detected and a signal having a width corresponding to the predetermined portion of the pulse width is provided to control the gate so that the gate passes the signal corresponding to the pulse peak amplitude only during the predetermined portion of the pulse width. The signal passed by the gate is integrated during a specified count period to develop an analog signal corresponding to hematocrit.

3,812,426
METHOD AND APPARATUS TO TEST ELECTRONIC CIRCUIT ASSEMBLY SAMPLES

Ludwig Wilhelm Illian, Goethestrasse 2, Dortelweil, Germany

Filed Apr. 27, 1972, Ser. No. 247,969
Claims priority, application Germany, Apr. 30, 1971, 2121330
Int. Cl. G01r 15/12
U.S. Cl. 324—73 R
23 Claims

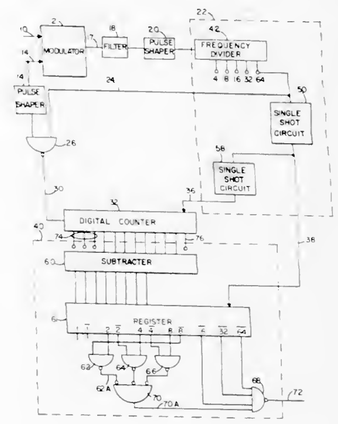
Electronic circuit assemblies having numbered terminals, some of which are input terminals and some are output terminals, are introduced into a test apparatus; a code combination of a predetermined program is applied to selected ones of the input terminals over an intermediate storage device and a connecting matrix. The outputs from at least some of the output terminals of the test sample are compared with outputs from a standard test sequence, or a sample of known quality, and an indication is obtained, upon non-coincidence, of the particular program step stored in the intermediate storage means which caused erroneous read-out. The input terminals are preferably grouped in groups of *n* terminals each, the connecting matrix permitting use of a code generator of a lesser number of outputs than the terminals of the sample. If the sample contains devices which may be in random states (such as flip-flops, counters or the like) circuits may be provided to re-set the devices to a predetermined state to effect comparison.



3,812,427
METHOD AND APPARATUS FOR MONITORING FREQUENCY

J. Roland Coulter, Harrison, N.Y., assignor to Tull Aviation Corporation, Armonk, N.Y.

Filed Aug. 17, 1972, Ser. No. 281,466
Int. Cl. G01r 23/14
U.S. Cl. 324—79 D
19 Claims

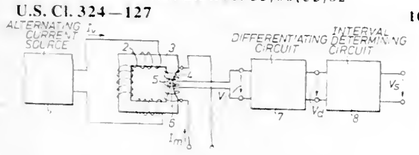


The frequency to be measured and a standard frequency are mixed to obtain a difference frequency and the cycle period of the difference frequency is used as a source of gating signals to gate a plurality of cycles of a standard frequency, the number of gated cycles being counted so that the count provides a measure of the reciprocal of the difference frequency which may be checked within desired limits as an indication of the accuracy of the input frequency.

3,812,428
METHOD OF AND APPARATUS FOR THE MEASURING OF DIRECT CURRENT

Gerhard Trenkler, Braunschweig, Germany, assignor to Licentia Patent-Verualtungs-GmbH, Frankfurt, Germany

Filed Mar. 14, 1972, Ser. No. 234,586
Claims priority, application Germany, Mar. 15, 1971, 2112315
Int. Cl. G01r 33/00, 33/02
U.S. Cl. 324—127 10 Claims

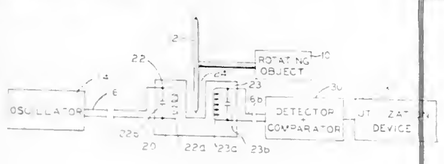


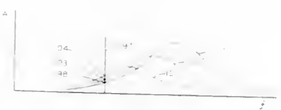
An apparatus for the potential free measuring of direct current with direct time coding includes a magnetizable core. A premagnetization winding, a measuring winding and an induction winding are wound about the core. The direct current to be measured is fed to the measuring winding. The core can be placed in its saturated state at least partially by the periodically varying current flow in the premagnetization winding. An output voltage is developed by the induction winding as a result of the changing flux density in the core. A differentiating circuit is coupled to the induction winding for differentiating the output voltage thereof to produce a differentiated voltage. An interval determining circuit, operatively arranged to receive the differentiated voltage, determines the time intervals between the zero passages of the differentiated voltage as a measure of the magnitude and direction of the direct current. A method of measuring direct current is also described.

3,812,429
METHOD OF COMPENSATING FOR UNKNOWN LENGTH OF TRANSMISSION LINE IN ELECTROMAGNETIC TACHOMETER

Ronald J. Lasky, Wheat Ridge, Colo., assignor to Stock Equipment Company, Cleveland, Ohio

Division of Ser. No. 220,091, Jan. 24, 1972. This application Sept. 4, 1973, Ser. No. 394,154
Int. Cl. G01p 3/54; H03h 7/00
U.S. Cl. 324—166 3 Claims





A tachometer system in which a carrier signal is transmitted to a speed sensing and transmission-line-length compensating device. Bursts of the carrier signal are relayed by the device to a detector and comparator circuit where a signal is recovered indicating the rate at which objects pass the speed sensing device. A method of compensating for differences in transmission line length in different systems by tuning the speed sensing device to a resonant frequency greater than the frequency of the carrier signal. Increased transmission line length causes the resonant frequency of the line including the device to approach the frequency of the carrier signal and improve the gain of the transmission line.

3,812,430
TDMA SATELLITE COMMUNICATIONS SYSTEM WITH IMPROVED ACQUISITION

William G. Schmidt, Rockville; Ova G. Gabbard, Germantown, both of Md.; John M. Husted, Vienna, Va.; Wilfrid G. Maillet, Oxon Hill, and Heinz H. Haeberle, Bethesda, both of Md., assignors to Communications Satellite Corporation, Washington, D.C.

Filed Aug. 11, 1971, Ser. No. 170,929
Int. Cl. H04b 7/20
U.S. Cl. 325—4 4 Claims



In a satellite transponder communications system operating in a time division multiple access mode, each earth station transmits data in a burst format. All bursts within a single transponder frame are synchronized to a special reference burst which contains no data communications. A single earth station sends out the reference burst as well as its normal burst, and in the case of multi transponders and multi transponder frames, the single reference station sends out all of the reference bursts for the various transponder frames. Data to be transmitted may be received in many different forms and included within the same burst because of the modular arrangement of the earth stations. Individual terrestrial interface modules receive data in various forms, convert the data into bit form which is compatible with the TDMA system, store the converted bit stream and hold the block of data until a multiplexer requests the block of data for inclusion into the earth station's transmitted burst. The arrangement of blocks of data within a burst and the timing and duration of a burst is controlled by digital words stored in a memory. Complete reordering of burst times and the arrangement of blocks of data within a burst is accomplished by changing the words stored in the memory. A comparable system on the receive side of the earth station extracts blocks of data in selected bursts for conveyance to selected terrestrial interface modules.

Acquisition of the correct burst position is accomplished by sending out a low power signal and, adjusting its phase until it coincides with the proper received burst position. The low power signal is simply a square wave signal which is in phase with the start signal from the burst synchronizer.

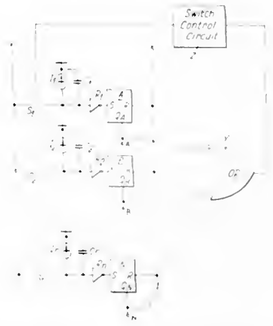
3,812,431
DEVICE FOR COMPARING THE MAGNITUDES OF ELECTRICAL QUANTITIES

Peter William Fry, Dorchester, England, assignor to Integrated Photomatrix Limited, Dorchester, England

Filed July 25, 1972, Ser. No. 274,899
Claims priority, application Great Britain, July 26, 1971, 34983/71
Int. Cl. H04q 3/00
U.S. Cl. 328—137 5 Claims

A device for comparing the magnitudes of a plurality of small currents such as photocurrents through photodiodes comprises capacitors which are arranged to be pre-charged from a voltage supply and then simultaneously discharged by

respective ones of the currents to be compared, whereby the voltage of each capacitor during discharge varies at a rate which is significant of the magnitude of the respective current. The voltage of each capacitor is detected by a bistable circuit

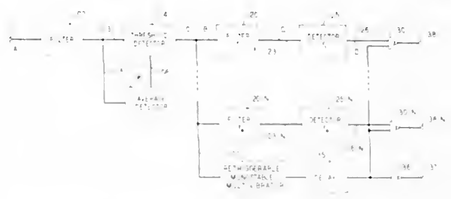


or trigger circuit which produces an output signal when such voltage drops to a predetermined value. On production of an output signal by one of the detection circuits, a control circuit operates to recharge all the capacitors to prevent a subsequent output signal from another detection circuit.

3,812,432
TONE DETECTOR

Robert Louis Hanson, Howell Township, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hills, N.J.

Filed Jan. 5, 1973, Ser. No. 321,211
Int. Cl. H03k 9/06
U.S. Cl. 328—138 11 Claims



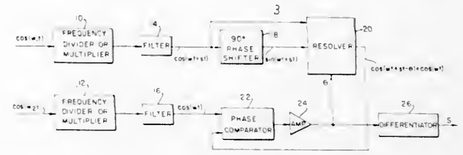
Individual call progress and test tone signals are accurately detected by employing a threshold detector in conjunction with a frequency component detector. The threshold detector generates a substantially constant amplitude pulsating signal representative of intervals between prescribed levels of the instantaneous amplitude of an applied tone signal. Peak amplitudes of individual frequency components of the pulsating signal are detected and, then, compared with a predetermined reference. The frequency component having a peak amplitude greater than the reference corresponds to the fundamental frequency of the applied tone signal being detected.

3,812,433
FREQUENCY DIFFERENCE MEASURING AND COMPENSATING CIRCUIT

Frank R. Bradley, 9 Dash Pl., Bronx, N.Y.

Filed May 9, 1973, Ser. No. 358,663
Int. Cl. H03b 3/04
U.S. Cl. 328—155 3 Claims

There is disclosed a circuit for measuring the frequency difference of two signals of the forms $\cos(wt+st)$ and $\cos(wt)$. A feedback signal θ is derived, and this feedback signal is operated upon together with the first input signal to derive a signal of the form $\cos(wt+st-\theta)$. This derived signal is compared to the second input signal in a phase comparator whose output is connected to the input of a high-gain amplifier. The amplifier output is the θ signal used in the first instance. Because of the employment of a high-gain amplifier in the loop, the output of the phase comparator is nulled. This, in

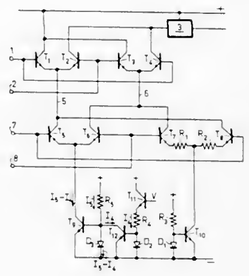


turn, forces the two signals operated upon by the phase comparator to be equal so that $\theta=st$. By differentiating the θ signal, the frequency difference s can be derived. The same "phase-chasing" technique can be employed not only to measure the frequency shift introduced by a transmission channel to a complex signal but also to compensate for that frequency shift and for phase intercept distortion as well.

3,812,434
INTEGRATED DIFFERENTIAL AMPLIFIER

Anthonius Johannes Josephus Cornelis Lommers, and Adrianus Joannes Maria Van Alphen, both of Emmasingel, Eindhoven, Netherlands

Filed Oct. 4, 1972, Ser. No. 294,913
Claims priority, application Netherlands, Oct. 9, 1971, 7113892
Int. Cl. H03f 3/42; H03g 3/30
U.S. Cl. 330—19 11 Claims



An integrated difference amplifier comprising a gain controlled first differential amplifier arrangement which is suitable for amplifying signals of low value and a satisfactory signal-to-noise ratio. In case of an increasing signal intensity the first differential amplifier arrangement is cut off and the signal amplification is taken over by a second differential amplifier arrangement which is suitable for processing large signal amplitudes.

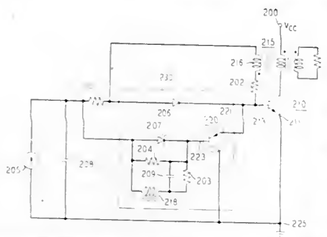
3,812,435
PULSE WIDTH STABILIZED BLOCKING OSCILLATOR

Roman Ostapiak, Pine Brook, N.J., and Rudolph Scuderi, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

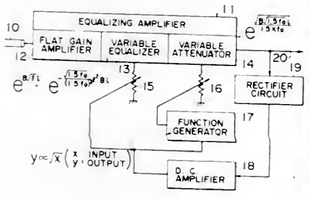
Filed Dec. 26, 1972, Ser. No. 318,089
Int. Cl. H03k 3/30
U.S. Cl. 331—112 5 Claims

A blocking oscillator includes a pulse width control circuit which diverts base current from the base drive of the blocking

oscillator transistor. This permits the blocking oscillator transistor to turn off and establish a predetermined pulse width independently of its β characteristic and the supply voltage energizing the blocking oscillator.

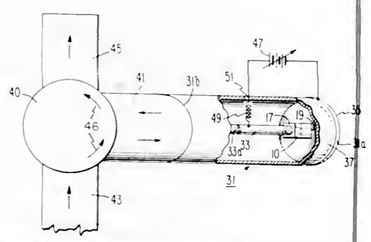


3,812,436
WAVEFORM EQUALIZER SYSTEM
Isao Fudemoto, Tokyo; Shiegeki Kubota, Yokohama, and Tatsuki Hayashi, Kawasaki, all of Japan, assignors to Fijitsu Limited, Kawasaki, Japan
Filed Dec. 29, 1972, Ser. No. 319,942
Claims priority, application Japan, Dec. 31, 1971, 46-1844
Int. Cl. H04b *3/04*
U.S. Cl. 333—18 **7 Claims**



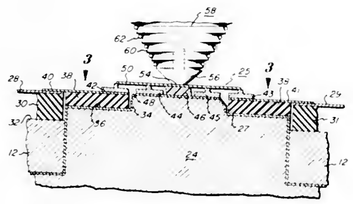
A waveform equalizer system for pulse repeating transmission, including a transmission line and a repeater inserted therein. The repeater has such a gain characteristic that, with respect to a change in the transmission line length, a peak amplitude of a received signal is held constant and its waveform is changed within an allowable value restricted by intersymbol interference, thereby to provide an effective equalized waveform irrespective of the change in the transmission line length.

3,812,437
IMPEDANCE CONTROL USING TRANFERRED ELECTRON DEVICES
Richard Everet Marx, Jamesburg, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Oct. 24, 1972, Ser. No. 299,769
Int. Cl. H01p *1/22*
U.S. Cl. 333—81 A **3 Claims**



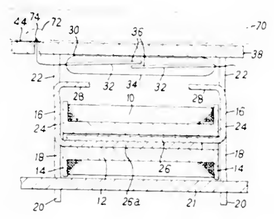
A controllable impedance element is provided using a transferred electron device that is subcritically doped. The impedance can be used as a tunable attenuator or matching device by varying a suitable bias at the device terminals.

3,812,438
CONICAL SPIRAL CONDUCTOR FOR APPLYING LOW FREQUENCY SIGNALS TO A MICROWAVE STRUCTURE
Samuel Hopfer, Brooklyn, N.Y., assignor to General Microwave Corporation, Farmingdale, N.Y.
Division of Ser. No. 78,891, Oct. 7, 1970, Pat. No. 3,713,031, which is a continuation-in-part of Ser. No. 788,254, Dec. 31, 1968, abandoned. This application Aug. 18, 1972, Ser. No. 281,994
Int. Cl. H01p *1/00*
U.S. Cl. 333—97 R **27 Claims**



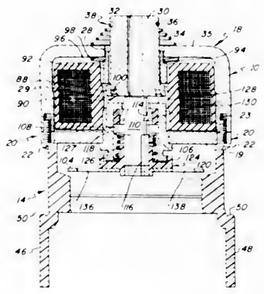
A microwave transmission system is formed by conically spiral resistive conductors that form broadband, reflectionless, non-absorbing connections. The conical spiral conductor serves as a single-wire transmission line having a high impedance to high-frequency signals over a broad band carried by an r-f transmission line and serves as an effective coupling to such an r-f line.

3,812,439
SCANNER WITH REED RELAYS
George Shearer Parmenter, Hartley Wintney, England, assignor to The Solartron Electronic Group Limited, Farnborough, Hampshire, England
Filed June 19, 1972, Ser. No. 264,038
Claims priority, application Great Britain, June 19, 1971, 28891/71; Dec. 28, 1971, 60262/71
Int. Cl. H01h *1/66, 51/00*
U.S. Cl. 335—151 **7 Claims**



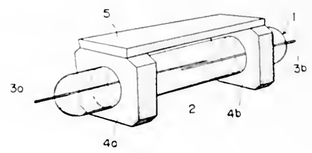
Electrical switching apparatus such as a scanner comprises a plurality of reed relays, each of which has an operating coil, and at least one reed contact unit which is mounted outside the coil, to reduce thermal E.M.F. generation. The reed contact units are mounted on a first printed circuit board, and control respective analogue signals passing through the printed circuit tracks of this first board, while the coils are mounted on, and respectively energised via the printed circuit tracks of, a second printed circuit board parallel to the first board. In this way, interference between the scanned analogue signals and the relay energising signals is reduced.

3,812,440
MECHANICALLY HELD LATCH ATTACHMENT FOR AN ELECTROMAGNETIC RELAY
David Langman Cook, Swindon, England, assignor to Square D Company, Park Ridge, Ill.
Filed Nov. 17, 1972, Ser. No. 307,746
Claims priority, application Great Britain, Nov. 19, 1971, 53731/71
Int. Cl. H01h *9/22*
U.S. Cl. 335—167 **8 Claims**



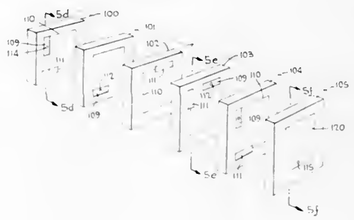
A latching attachment is provided for an electromagnetic relay. An insert for the relay movable contact carrier is employed in association with the latching attachment and the insert has at least one projection extending therefrom. The latching attachment includes a rotatable plate, mounted adjacent the insert projection and having an aperture therethrough and the plate is biased into a position in which the aperture is less than fully aligned with the projection on the insert, thereby preventing return of the contact carrier from its energized position to its de-energized position after the relay has been energized and subsequently de-energized. Manual and electromagnetic operators are provided for rotating the plate aperture into full alignment with the insert projection for releasing the relay contact carrier.

3,812,441
REED SWITCH MECHANISM MAKING USE OF HEAT-SENSITIVE FERRITE
Michio Sakamoto, and Masao Tanaka, both of Tokyo, Japan, assignors to Nippon Automation Co., Ltd., Tokyo, Japan
Filed Nov. 27, 1972, Ser. No. 309,747
Claims priority, application Japan, Dec. 3, 1971, 46-114418; Japan, May 6, 1972, 47-53383; Japan, Nov. 4, 1972, 47-127311
Int. Cl. H01h *37/68*
U.S. Cl. 335—208 **8 Claims**



A temperature responsive switching device having at least one heat sensitive ferrite to determine the magnetic flux through a reed switch's contilevered contacts and to produce switching when the temperature passes through said ferrite's curie point.

3,812,442
CERAMIC INDUCTOR
William L. Muckelroy, P.O. Box 9685, Washington, D.C.
Filed Feb. 29, 1972, Ser. No. 230,247
Int. Cl. H01f *17/06*
U.S. Cl. 336—83 **3 Claims**



A nonolithic microminiature inductor comprising a helical conductive path of deposited metal film immersed in a rectangular block of magnetic refractory material. The inductor has metal caps at each end of the block as terminations. These terminations may be soldered to metallized pads located on a substrate. A method for making this inductor wherein loops of conductive metal are deposited onto a thin unsintered magnetically permeable ceramic sheet with holes for interconnection therein and wherein said holes are alligned and said sheets are laminated such that upon sintering said metal forms a helical contiguous conductive path immersed a contiguous block of ceramic.

3,812,443
STAPLED COIL CONSTRUCTION
Charles E. Schroeder, Cary, Ill., assignor to Coilcraft, Inc., Cary, Ill.
Filed May 24, 1973, Ser. No. 363,548
Int. Cl. H01f *15/10*
U.S. Cl. 336—192 **5 Claims**

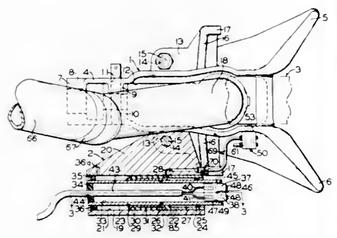


A coil assembly comprising a tubular coil form with a self-lead winding thereon, the leads of said winding extending axially beyond the end of the form, a sleeve telescopically inserted over the form and inside the leads at the end of lead extension, and staples securing the leads through the sleeve to the overlapped portion of the form, characterized by low cost and high versatility as to the pin circle described and the angular relation of the pins on the pin circle.

3,812,444
HOSE CONNECTOR HAVING MEANS FOR OPERATING ELECTRICAL CONTACTS

William H. Reno, Monroeville, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Apr. 17, 1972, Ser. No. 244,392
Int. Cl. H01r 3/04
U.S. Cl. 339—15 11 Claims

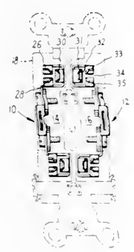


This invention relates to an automatic-type air hose connector for use on tandem-coupled vehicles. This hose connector has a mating head which is provided with a removable hose nipple, that has a hose coupling formed on one end, and a removable fluid-pressure-operated spring-released mechanism for effecting movement of a plurality of electrical contact elements into and out of circuit-closing relationship with corresponding contact elements carried by another automatic type air hose connector coupled thereto in response to the passage of fluid under pressure therethrough subsequent to the coupling of two alike automatic-type air hose connectors and thereafter the release of fluid under pressure therefrom upon the uncoupling of these air hose connectors.

3,812,445
BE-CU CONTACT FOR NEMA OUTLET

Joseph P. Stefani, Warwick, R.I., assignor to General Electric Company, Providence, R.I.

Continuation-in-part of Ser. No. 546,273, April 29, 1966, abandoned. This application Sept. 16, 1968, Ser. No. 871,415
Int. Cl. H01r 29/00
U.S. Cl. 339—32 R 1 Claim

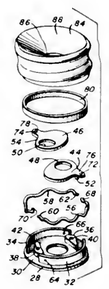


A fingered electrical contact for a wiring device is provided to exert a high yieldable gripping force on an inserted power prong. The contact metal is a copper-beryllium alloy hardened to give the properties of spring steel.

3,812,446
ELECTRIC LAMP OR FUSE SOCKET

Richard A. Sinclair, Columbus, Ohio, assignor to James F. Cox, Xenia, Ohio, a part interst

Filed July 10, 1972, Ser. No. 270,068
Int. Cl. H01r 13/44, 33/08, 33/54
U.S. Cl. 339—41 9 Claims

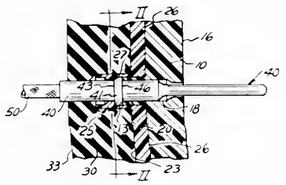


An electrical socket member is provided and includes an inner end center contact and contact shielding structure is mounted within the socket and shiftable laterally thereof between a first position overlying and thus shielding the contact and a second position disposed to one side of and thus exposing the contact. The contact shielding structure is spring-biased to the contact shielding position thereof and a centrally apertured abutment is mounted in the socket for inward and outward shifting therein and is operatively connected to the contact shielding structure for swinging the latter toward its contact exposing position in response to inward shifting of the abutment in the socket, the abutment being engageable by the base of a bulb being threaded into the socket for inward displacement of the abutment and thus shifting of the shielding structure to the contact-exposing position thereof as the bulb base approaches a fully seated position in the socket.

3,812,447
REAR RELEASE CONTACT RETENTION ASSEMBLY

Raymond J. Eifler, Farmington, Mich., and Walter F. Hennessey, Sidney, N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Dec. 26, 1972, Ser. No. 318,341
Int. Cl. H01r 9/08
U.S. Cl. 339—59 R 5 Claims



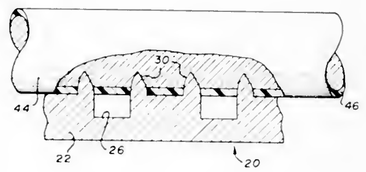
An electrical connector assembly that includes means for demountably retaining electrical contacts within the connector. The contact retention assembly includes a rearwardly extending tubular contact retention tower that is resiliently and releasably retained within the passage that extends through the contact retention tower. The rearwardly extending contact retention tower is cylindrically shaped with an axial passage therethrough containing a forwardly facing shoulder to provide a rearward stop when an electrical contact is mounted

therein. Another insert, having a hole therein, may be mounted around the tubular contact retention tower to prevent radial expansion thereof while the insert is in place.

3,812,448
ELECTRICAL CONNECTOR

Louis F. Haitmanek, Florham Park, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Nov. 24, 1972, Ser. No. 309,514
Int. Cl. H01r 11/20, 11/08
U.S. Cl. 339—97 C 12 Claims

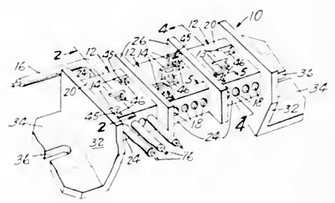


An electrical connector having an internal tooth structure and a selectively grooved conductor engaging inner surface therebetween providing reduced thickness web portions responsive to the expansion and contraction of an enclosed conductor to prevent relative movement at the interface between the conductor and the connector thereby maintaining secure mechanical and electrical contact therebetween under even extreme conditions of temperature cycling.

3,812,449
TERMINAL STRIP

Robert A. Elm, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 30, 1973, Ser. No. 355,455
Int. Cl. H01r 9/08
U.S. Cl. 339—98 6 Claims

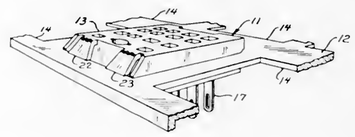


A terminal strip including an elongate block of electrically insulating material divided lengthwise into a plurality of terminal strip sections. Each terminal strip section has a plurality of wire receiving bores and a plurality of contact elements [illegible] that section. The sections may be supported in an elevated position to afford use of a tool, such as a pliers, to seat a contact element, and the contact element and the block include means which afford disengaging a contact element with a pointed tool such as a screwdriver.

3,812,450
RELAY SOCKET

Stephen S. Simovits, Jr., Woodridge, and Christ J. Dumas, Forest View, both of Ill., assignors to American Plasticraft, Chicago, Ill.

Filed Apr. 3, 1972, Ser. No. 240,666
Int. Cl. H02b 1/02
U.S. Cl. 339—128 4 Claims

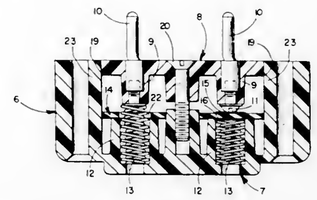


A socket for a plug-in type of relay, which socket is formed of an insulative material and may be mounted from the front or from the rear side of a relay mounting panel.

3,812,451
SANDWICH CONNECTOR PLUG

Neal J. Buglewicz, 12 Empty Saddle Rd., Rolling Hills Estates, Calif.

Filed Oct. 30, 1972, Ser. No. 302,068
Int. Cl. H01r 13/50
U.S. Cl. 339—155 R 3 Claims

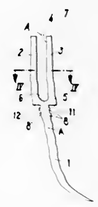


A sandwich plug for use in a telephone installation for connecting an automatic dialing mechanism in series with the telephone line.

3,812,452
CONTACT SPRING FOR PLUG CONNECTORS

Hermann Sturm, Flein, Germany, assignor to Bach & Co., Heilbronn, Germany

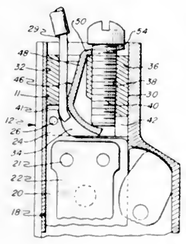
Filed Aug. 11, 1972, Ser. No. 279,995
Int. Cl. H01r 11/22
U.S. Cl. 339—258 R 10 Claims



A contact spring for plug connectors stamped out of non-corroding sheet metal and comprising an approximately rectangular shank with a U-shaped head piece connected thereto, which head piece has two arms which face one

another and which are spaced equidistant from a plane of symmetry running between them and in the longitudinal direction of the shaft. That width of the arms which is parallel to the plane of symmetry is broadened to a multiple of the thickness of the sheet metal by applying pressure to the arms in a direction transverse to the plane of symmetry.

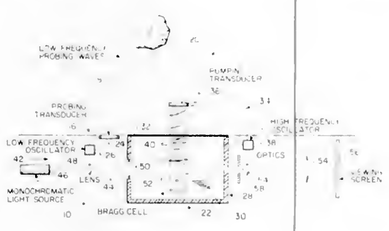
3,812,453
ELECTRIC TERMINAL CONNECTOR
Rudolf H. Kiessling, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill.
Filed Apr. 17, 1972, Ser. No. 244,639
Int. Cl. H01r 9/10
U.S. Cl. 339—266 R **4 Claims**



The connector includes a connector body having a wire-receiving aperture therein and also having a threaded opening therein extending generally parallel to the wire-receiving aperture, a screw mounted in the threaded opening, and a generally C-shaped clamping member having an actuating portion loosely mounted on the screw and a clamping portion disposed in the wire-receiving aperture, the clamping member being fulcrumed on an edge of the wire-receiving aperture

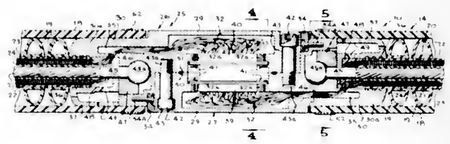
---

3,812,454
LOW FREQUENCY PARAMETRIC ACOUSTO-OPTICAL IMAGING METHOD AND APPARATUS
Pravin G. Bhuta, Torrance; Robert L. Johnson; Robert Aprahamian, both of Marina Del Rey, and Jerold L. Jacoby, Lakewood, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Jan. 2, 1973, Ser. No. 319,987
Int. Cl. G01s 9/66
U.S. Cl. 340—3 R **10 Claims**



An object situated in an acoustic medium, such as water or soil, characterized by relatively high acoustic absorption is optically imaged by a novel acousto-optical imaging technique Relatively low frequency acoustic waves which are subject to relatively low attenuation by the ambient medium are transmitted through the medium to the object and emanate from the object as distorted acoustic waves containing information defining an image of the object. These distorted acoustic waves are received by an acousto-optical coupling medium which is excited by relatively high frequency and large amplitude acoustic waves. The distorted low frequency acoustic waves and high frequency waves undergo non-linear interaction to produce in the coupling medium resultant acoustic wave sets having frequencies equal to the sum and difference, respectively, of the low and high frequencies and each containing essentially the same image information as the distorted waves. A monochromatic light beam is projected through the coupling medium to impinge the wave fronts of one resultant wave set, preferably the sim wave set, at an oblique angle which causes Bragg diffraction of the light waves by the acoustic waves, such that the light waves emerging from the coupling medium form an optical image of the object.

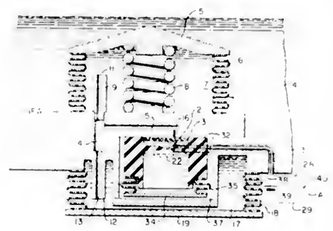
3,812,455
MARINE SEISMIC STREAMER CONNECTOR STRUCTURE
Raymond H. Pearson, Richardson, Tex., assignor to Whitehall Electronics Corporation, Richardson, Tex.
Filed Jan. 16, 1973, Ser. No. 324,122
Int. Cl. G01v 1/00; H04b 13/00
U.S. Cl. 340—7 R **14 Claims**



A multi-section marine seismic streamer construction wherein each streamer section has identical couplers at opposite ends. The couplers have a partly separable cylindrical end portion interfitted in the streamer outer jacket and clamped about a strain cable anchor head and an end portion of a trunk cable running through the section. The couplers also have semi-cylindrical portions to mate with like portions of campanion couplers along a diametric plane of the streamer, with male and female electrical plugs in plug cavities in the mating portions coupled together, and mounting bolts perpendicular to the diametric plane securing the mating portions together

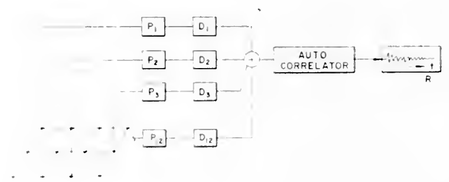
---

3,812,456
A HYDRO-ACOUSTIC FILTER
Richard N. Lane, and Claude W. Horton, both of Austin, Tex., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Apr. 20, 1956, Ser. No. 579,700
Int. Cl. H04r 23/00
U.S. Cl. 343—8 R **5 Claims**



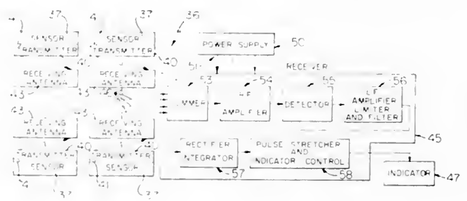
This invention relates to a hydroacoustic filter of a character adapted to be used as a passive frequency selective network for feeding an acoustic pressure sensitive detector or the like. The filter along with the accompanying detector are each well adapted for use in combination, as a part of an acoustic wave detecting mechanism for naval mines.

3,812,457
SEISMIC EXPLORATION METHOD
Charles E. Weller, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Nov. 17, 1969, Ser. No. 877,350
Int. Cl. G01v 1/36
U.S. Cl. 340—15.5 TD **6 Claims**



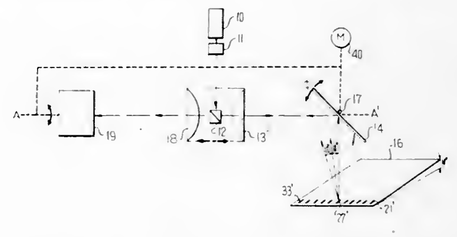
Seismic exploration is conducted without using a seismic sound source by recording a plurality of relatively long stretches of ambient earth noise data at each of an array of seismic receiving stations, preprocessing the data from each station and producing correlation functions in which the data from each station is presented as a seismic data trace analogous to a conventional seismogram.

3,812,458
POWER SUPPLY WITH UNIDIRECTIONAL CURRENT FLOW FOR A PNEUMATIC TIRE LOW PRESSURE MONITORING AND WARNING SYSTEM
Charles E. Hill, Lynn, and William R. Brobeck, Richmond, both of Ind., assignors to Avco Corporation, Richmond, Ind.
Filed Sept. 15, 1972, Ser. No. 289,697
Int. Cl. B60c 23/04
U.S. Cl. 340—58 **8 Claims**



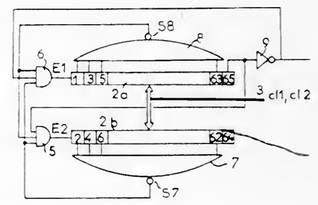
An electrical circuit for eliminating severe voltage fluctuations in a battery power supply and providing a substantially constant voltage to an associated output connection and a pneumatic tire low pressure monitoring and warning system using such circuit is provided. The circuit comprises a diode connected to the power supply with the output connection being connected to a voltage regulator which is in turn connected to receiving means of the system. A storage capacitor is provided and has one end connected between the output connection and ground so that in the event of a sudden voltage drop in power supply the voltage across the diode will be reversed to thereby cease current flow therethrough and allow the storage capacitor to supply the output connection. Current limiting means may be connected between the diode and the output connection.

3,812,459
OPTICSCAN ARRANGEMENT FOR OPTICAL CHARACTER RECOGNITION SYSTEMS
John H. MacNeill, and Ronald R. Willey, both of Indialantic, Fla., assignors to Optical Business Machines, Inc., Melbourne, Fla.
Filed Mar. 8, 1972, Ser. No. 232,893
Int. Cl. G06k 9/10
U.S. Cl. 340—146.3 F **16 Claims**



An optical arrangement for character recognition systems utilizes the same optical path for both illuminating the text and projecting the text onto an array of photosensitive elements. A low power laser beam of cross-section slightly larger than a unit vertical slice of a text character is projected by a prism through a lens arrangement to a scanning mirror which reflects the beam to sequentially illuminate individual text character slices. Each illuminated slice is reflected by the mirror through the lens arrangement onto a linear array of photosensitive elements. The focus of the lens arrangement is varied in synchronization with the mirror scan to correct for changes in the distance between the mirror and text characters at different scan angles. The page is oriented at a slight angle relative to the scan axis of the mirror to eliminate specular reflection. The resultant skew created in the reflected characters as a function of scan angle is compensated for by rotating the photosensitive array about the optical path axis as a function of mirror scan angle.

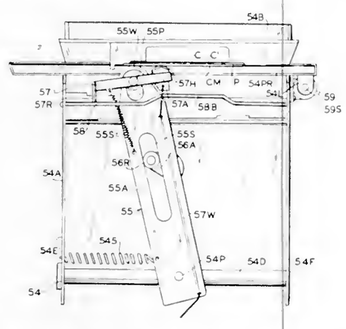
3,812,460
READ-HEAD FOR AN OPTICAL CHARACTER-RECOGNITION SYSTEM
Georges Solimans, and Leon Felix Personnaz, both of Paris, France, assignors to Societe Industrielle Honeywell Bull (Societe anonyme), Paris, France
Filed Sept. 15, 1972, Ser. No. 289,392
Claims priority, application France, Sept. 17, 1971, 71.33569
Int. Cl. G06k 9/12
U.S. Cl. 340—146.3 MA **17 Claims**



A read head for an optical character-recognition system including a plurality of photodetectors coupled to at least two shift registers, clock signals for activating the shift registers, and a logic circuit for interconnecting the shift registers. By varying the arrangement of the logic circuit elements, the read head can be adapted for a plurality of scanning modes used in

conjunction with optical character-recognition systems. The logic circuit suppresses false data groups introduced by spurious photodetector signals.

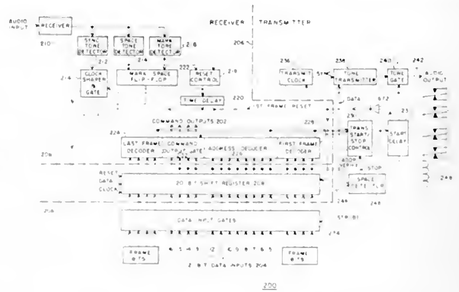
3,812,461
CREDIT VERIFICATION APPARATUS
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.
Continuation-in-part of Ser. No. 30,450, April 21, 1970, Pat. No. 3,696,335. This application Oct. 13, 1972, Ser. No. 294,662
Int. Cl. G06k *3/00*
U.S. Cl. 340—149 A **13 Claims**



An apparatus and method for verifying the status of accounts such as credit card accounts prior to extending credit. Codes representing bad accounts such as overdrawn or lost card accounts are recorded in a memory and are automatically compared with codes of accounts presented to the system. In one form, the account to be verified is defined by a code generated when a code recorded on a magnetic recording strip of a card is automatically read resulting in the generation of electrical code signals which are compared in a comparator with those reproduced from the memory. The apparatus includes a special card printer and reader, means for preventing the completion of a transaction or the removal of a card from the reader if the account is indicated as a bad account, and means for photographing the person presenting the card if the account is not verified. Special means are also provided to verify the card holder as the card owner.

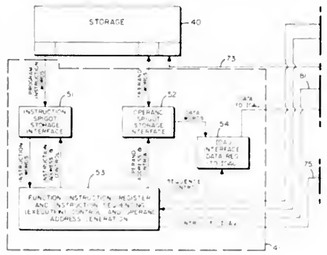
3,812,462
REMOTE MONITORING AND REMOTE CONTROL SYSTEMS
Edward J. Crossland; James H. Blossom, and Lester Q. Krasin, all of Tulsa, Okla., assignors to Seismograph Service Corporation, Tulsa, Okla.
Filed Nov. 17, 1972, Ser. No. 307,494
Int. Cl. H04q *9/00*
U.S. Cl. 340—163 **7 Claims**

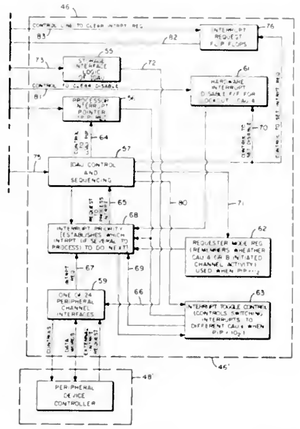
Four basic modules serve as flexible building blocks for the construction of remote monitoring and remote control systems of any desired degree of simplicity or complexity. Remotely located addressable transceiver modules may each initiate up to four control actions and may monitor up to 12 Boolean variables or their equivalent. A multiplexer module enables a single transceiver module to initiate up to 16 control actions and to monitor up to 48 Boolean variables or their equivalent. An accumulator module enables a transceiver module to count the occurrences of up to 12 different events. An analog-to-digital converter module enables a transceiver module to monitor up to 10 analog signals. Remotely located module arrays are assembled and are connected to a centrally located transceiver by any suitable two-way, voice-grade communications system. The monitoring and control system is then operated by having the centrally located transceiver address commands to and receive data back from individual remotely located module arrays. A system may include anywhere from one to over 4,000 remotely located arrays of one to four modules each. The remotely located arrays draw



very little current and may typically be powered by conventional batteries for more than a year without maintenance.

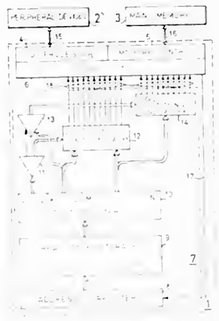
3,812,463
PROCESSOR INTERRUPT POINTER
Archie E. Lahti, Minneapolis, Minn., and Donald G. McBeath, Furlong, Pa., assignors to Sperry Rand Corporation, New York, N.Y.
Filed July 17, 1972, Ser. No. 272,608
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **2 Claims**





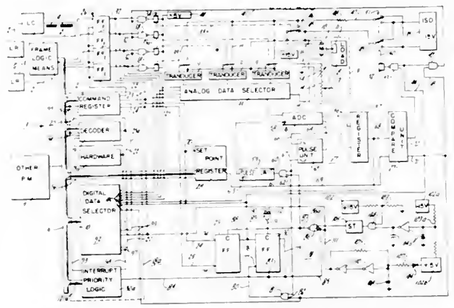
In a multiprocessor system employing at least one Input/Output Access Unit (IOAU) and two Command/Arithmetic Units (CAU), a system for selectively routing exernal interrupt request signals through said IOAU to either of said two CAU's directly to said two CAU's alternately, or to the CAU which originated the activity resulting in the generation of the interrupt request signal.

3,812,464
MULTIPLE ADAPTIVE DECODING SYSTEM FOR BINARY MICROINSTRUCTIONS
Giancarlo L. Collina, Cermenate, and Giancarlo Tessera, Milano, both of Italy, assignors to Honeywell Information Systems Italia, Milan, Italy
Filed Dec. 26, 1972, Ser. No. 317,894
Claims priority, application Italy, Dec. 29, 1971, 33063/71
Int. Cl. G05b *15/00*; **G06f** *15/20*
U.S. Cl. 340—172.5 **2 Claims**



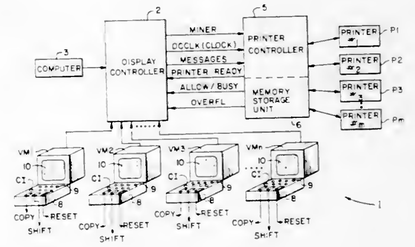
A binary data handling system is provided wherein logical and arithmetical operations are controlled by microinstructions stored in a read only memory. To minimize the maximum word length required for the read only storage in the system, a function code of variable length is used which has a fixed length equal to the minimum length required for all function codes and a function code complement of variable length.

3,812,465
REMOTE SET POINT CONTROL
Ronald P. Mann, Shorewood, Wis., assignor to Johnson Service Company, Milwaukee, Wis.
Filed Dec. 15, 1972, Ser. No. 315,465
Int. Cl. H03b *3/04*
U.S. Cl. 340—172.5 **37 Claims**



A loop communication system includes a loop controller generating multiple bit message frames for selectively controlling a plurality of remotely located transducers connected to the loop by a point module set point adjustment unit having an address decoder and a command register. Each unit controls a transducer such as a D.C. motor with a feedback potentiometer and selectively connects the potentiometer to an analog-to-digital converter to convert the analog feedback signal to a digital signal such as a two digit binary-coded-decimal number to read the set point in terms of the span percentage. Each remote set point adjustment unit includes a motor selection and feedback connecting circuit coupled to the command register and responsive to a message frame to selectively latch a motor to an isolated supply and the corresponding potentiometer to the converter. A set point register is also coupled to the command register and responsive to store a desired set point. The register and converter are connected to a comparator which is operable to terminate the resetting motor. A command and interrupt section is connected to the command register and includes a latch means to establish and hold the motor and related adjustment circuitry active to complete a readjustment and further to detect the completion thereof to terminate the readjustment and initiate final communication with the communication system to clear the point module.

3,812,466
NEW LINE PROCESSING APPARATUS FOR A DATA PROCESSING PRINTOUT SYSTEM
Barry S. Rich, Cherry Hill, N.J., assignor to Ultronic Systems Corp., Moorestown, N.J.
Filed July 21, 1972, Ser. No. 273,998
Int. Cl. G06f *3/12, 7/02*
U.S. Cl. 340—172.5 **8 Claims**

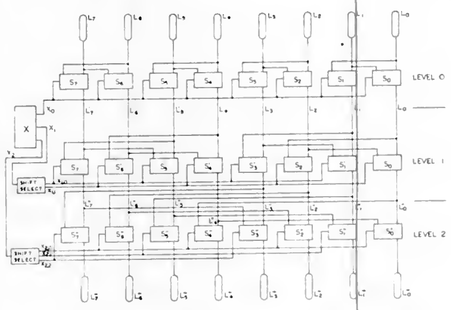


Data processing printout system including a processing arrangement for processing new-line and other characters in messages originating from a computer or from video display terminals. The processing arrangement includes an input register for receiving in succession the characters of each message. For each new-line character received by the input register, a new line control bit is added to the next character which is not a new-line character, and the character with the new line control bit is transferred to a buffer and, thereafter, to a memory storage unit to which a number of printers are coupled. The new-line character itself is prevented from being transferred to the buffer or to the memory storage unit. In the case of successive new-line characters received by the input register, each of the new-line characters following the first new-line character, with the exception of the last new-line character, is replaced by a space character and a new line control bit is added thereto, and a new line control bit is added to the character following the last new-line character which is not a new-line character. The characters with the new line control bits added thereto are transferred to the buffer and, thereafter, to the memory storage unit. Again, the new-line characters are prevented from being transferred to the buffer or to the memory storage unit. The absence of new-line characters in the memory storage unit leads to a conservation of storage space therein and simplifies new-line decoding needs of the system.

3,812,467
PERMUTATION NETWORK

Kenneth E. Batcher, Stow, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Sept. 25, 1972, Ser. No. 291,850
Int. Cl. G06f *7/00*; **H03k** *19/00*
U.S. Cl. 340—172.5 **5 Claims**

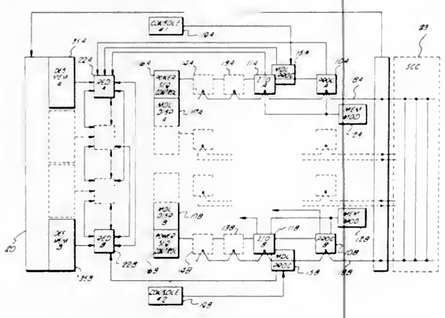


The instant invention relates to a unique logic network whereby data into and out of the memory array of a specialized digital computer will be permuted such that the data will maintain a convenient and consistent order on a data interface. The network may be constructed using commonly-available *n*-channel data selectors. Fundamentally, the invention functions in conjunction with a digital computer memory array whose data storage pattern is such that accesses to the stored data may be made in word-oriented mode, bit-oriented mode, or mixed-oriented mode, the latter comprising characteristics of the two aforementioned modes. The invention requires a minimum amount of extra-network control circuitry, and comprises a plurality of uniquely identical smaller networks of such size that they may be readily packaged on individual printed circuit boards such that a minimum of interboard wire connections are necessary. Further, the similarity of smaller networks facilitates maintainability of the entire network.

3,812,468
MULTIPROCESSING SYSTEM HAVING MEANS FOR DYNAMIC REDESIGNATION OF UNIT FUNCTIONS

James E. Wollum, Glendora; Hans P. Birchmeier, Diamond Bar, and Richard S. Sharp, Sierra Madre, all of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 12, 1972, Ser. No. 252,874
Int. Cl. G06f *11/06, 15/00*
U.S. Cl. 340—172.5 **8 Claims**

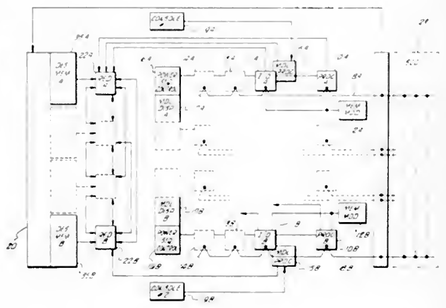


This disclosure relates to a multiprocessing system having a plurality of different units such as processor, I/O units and so forth that can be arranged into individual processing groups, the functions of which units can be redesignated in order to maintain continuous operation of the system should a malfunction occur in any one or more of such units. Each processing group is provided with a redesignator unit to represent that group, which redesignator unit senses malfunctions in any of the units in the corresponding group or in other groups and controls the reconfiguration or redesignation cycle. The system further includes a reconfiguration control unit that includes a designation memory in which are stored different designation parameters for the functional designation of the different like units in the system. These various sets of redesignation or reconfiguration control signals are selected from the designation memory in response to condition sensed in the system by the various redesignator units.

3,812,469
MULTIPROCESSING SYSTEM HAVING MEANS FOR PARTITIONING INTO INDEPENDENT PROCESSING SUBSYSTEMS

Erwin A. Hauck, Arcadia; Hans P. Birchmeier, Diamond Bar, and Dongsung R. Kim, El Monte, all of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 12, 1972, Ser. No. 252,903
Int. Cl. G06f *11/06, 15/00*
U.S. Cl. 340—172.5 **12 Claims**



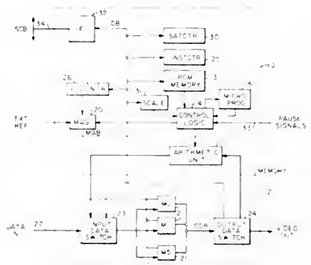
This disclosure relates to a multiprocessing system having a plurality of different units including processors, I/O controllers and the like which can be arranged into individual processing groups. A plurality of control buses are provided one for each group, each control bus being coupled to each unit of that group. A control bus configuration unit is provided to receive each of the individual control buses such that any one control bus can be connected to any of the other control buses. In this manner, the multiprocessing system can be partitioned into separate subsystems each of which includes one or more of such processing group.

3,812,470
PROGRAMMABLE DIGITAL SIGNAL PROCESSOR

John C. Murtha, Baltimore, and James A. Ross, Jr., Aberdeen, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 31, 1972, Ser. No. 276,639
Int. Cl. G06f *9/00, 11/00*
U.S. Cl. 340—172.5 **11 Claims**

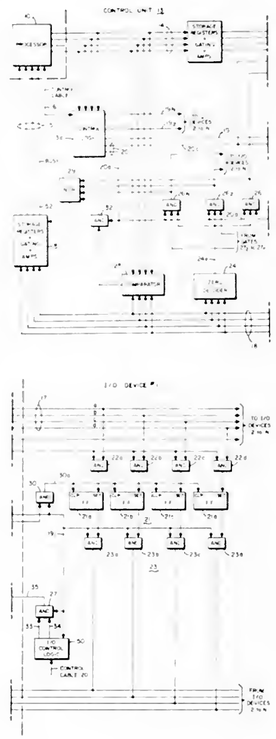
A programmable digital signal processor using microprogrammed macro instructions to perform complex arithmetic instructions and other complex data processing instructions is disclosed. A plurality of address counters and memory modules are included to permit the generation of address sequences which simplify the implementation of complex macro instructions. A number representation scheme is used which simplifies the handling of overflows which occur during certain types of statistical problems. A typical example of a macro instruction utilizing these features is a Fast Fourier Transform.



3,812,471
I/O DEVICE RESERVE SYSTEM FOR A DATA PROCESSOR

George R. Finnin, Collegeville, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Aug. 30, 1972, Ser. No. 284,991
Int. Cl. G06f *3/04, 13/06*
U.S. Cl. 340—172.5 **4 Claims**

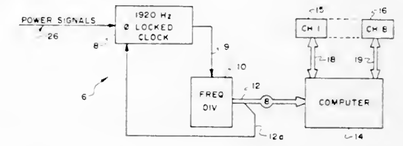


An I/O device reserve function is provided for a data processing system in which any of a plurality of input-output (I/O) devices can be selectively reserved to any of a plurality of programs being executed by the system. A reserve register is located in each of the I/O devices to be reserved. On command from a program the reserve register of a selected device is loaded with a bit pattern which identifies the reserving program. The bit pattern stored in the reserve register of the device is compared with the bit pattern of any subsequent program attempting to reserve the same device. If the bit patterns are not identical the subsequent program receives a device "-busy" signal indicating that the called device is reserved. A release circuit is provided for releasing the reserved device upon issuance of a release command thereto.

3,812,472
NOISE REJECTING, DEMAND VARIABLE REAL TIME CLOCK

James A. Mahood, Salt Lake City, Utah, assignor to Bio-Logics Systems, Inc., Salt Lake City, Utah

Filed Oct. 24, 1972, Ser. No. 300,065
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **11 Claims**



Data acquisition units used with a computer, such as medical parameter input terminals, are sampled at 60 Hz as well as multiples and submultiples thereof, thereby to mitigate noise coupled to the input transmission lines from 60 Hz power lines and from fluorescent lighting. A 1920 Hz phase locked clock drives a frequency divider to provide signals at submultiples thereof (including 60 Hz as well as multiples and submultiples thereof), thereby providing a multi-frequency real time clock source for sampling data channels. However, instead of causing a computer interrupt for the highest sampling rate of the real time clock and determining whether or not any interrupt is to take place at that frequency, interrupts are caused only at the highest currently-demanded sampling rate a hardware embodiment includes programmable multiplexers to select the clock frequency related to the desired sampling rate for each channel, programmable countdown for the number of samplings required at each channel, and priority means to sample the channels one at a time in an orderly sequence, regardless of frequency or time of starting of the sampling, the ignoring those channels for which sampling is not required. This aspect of the invention may be implemented in software utilizing a general purpose computer or a multipurpose minicomputer.

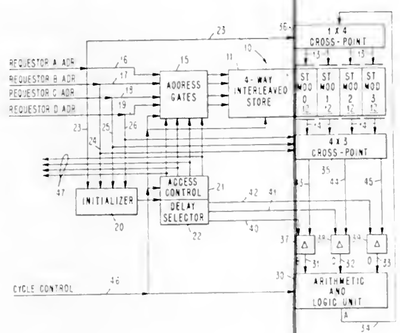
3,812,473
STORAGE SYSTEM WITH CONFLICT-FREE MULTIPLE SIMULTANEOUS ACCESS

Stuart G. Tucker, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 24, 1972, Ser. No. 309,320
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **8 Claims**

The storage system is comprised of a plurality of random access storage modules, each module having a plurality of addressable storage locations. Interleaved addressing is provided such that consecutively numbered systems addresses are contained in consecutively numbered storage modules. A plurality of requestors desiring access to a plurality of addressable locations in the storage system are provided simultaneous access to the storage system. Prior to initiating access by all the requestors, that portion of each requestors' address which is

utilized to access a particular storage module, is compared with all other requestors. Logic is provided to detect when two or more requestors desire an initial access to the same storage module. On a priority basis, controls are provided to permit a sequence of individual accesses to the conflicting requestors for a number of start-up cycles until the addresses of the requestors have been incremented to a value where each will



be requiring access to a different one of the storage modules. At this point, all requestors can then proceed, simultaneously, to access the sequence of storage locations desired.

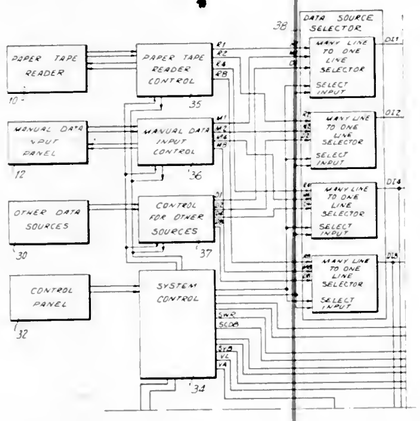
Logic is also provided to respond to the initial conflict detection to provide variable amounts of delay to the accessed operands by the various requestors to present the first and all subsequent operands accessed by each requestor, simultaneously, to a utilization device.

3,812,474

NUMERICAL CONTROL SYSTEM AND METHOD FOR VARIABLE SHAPE PROGRAMMING AND CONTROL OF MACHINE MOTION

Thomas Daniel Linn; John George Klauser, both of Holliston, Mass.; Alexander Jordan, Cranford, and George Haig Tikijian, Maplewood, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,853
Int. Cl. G06f *15/46*
U.S. Cl. 340—172.5 **12 Claims**



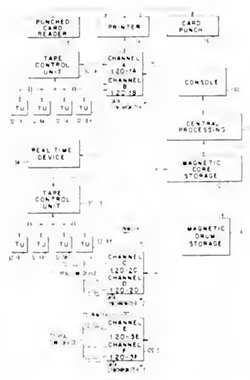
Numerical control system and method for automatically directing the movement of a machine along any prescribed path from a prepared input program containing a series of command instructions with each command represented by an array of characters defining a predetermined segment of the path expressed in terms of mathematical algorithms; the system including character recognition means, a memory section in which numerical data is stored, a data processing section, an output command data storage section and a path controller wherein the memory section is supplied with such numerical data independent of said command instructions and wherein the system operates upon such numerical data in accordance with the algorithms of the command instructions to define the coordinate dimensions for the prescribed path and in response thereto the path controller executes the commands.

3,812,475

DATA SYNCHRONIZER

Carl L. Christiansen; Lawrence E. Kanter, both of Poughkeepsie, and George R. Monroe, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, New York, N.Y.

Filed Dec. 26, 1957, Ser. No. 705,447
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **91 Claims**



A data processing system in which a plurality of data channels control the simultaneous exchange of data between many input/output devices, and a common shared storage. The channels automatically extract control instructions from storage and interpret them to independently carry out data transfers.

Each data channel is initialized by the central processing unit (CPU) which causes a control word to be transferred from storage to the data channel where it is stored. The data channel utilizes the control word to start an input/output operation. The input/output operation is continued automatically by the channel which has means for retrieving subsequent control words from storage independent of the CPU. Data transfers between a data channel and the storage over a common storage bus are performed by a "cycle stealing" capability wherein execution of the CPU program may be delayed for one storage cycle, which cycle is utilized by the channel to store a word of data in the storage. Competing requests among data channels and the CPU are resolved by a priority circuit which grants storage access to the highest priority channel demanding access. The CPU is given the lowest priority.

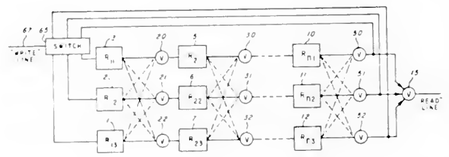
Since the channels direct the flow of information between I/O devices and main storage, they relieve the CPU of the task of communicating directly with the devices and permit data processing to proceed concurrently with I/O operations.

3,812,476

MEMORY DEVICE

Harvey G. Cragon, Austin, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 199,179, Nov. 16, 1971. This application Sept. 13, 1973, Ser. No. 397,055
Int. Cl. G11c *11/40, 21/00*
U.S. Cl. 340—173 RC **2 Claims**



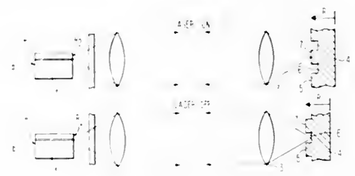
A memory device is disclosed. The memory device is comprised of a plurality of shift registers and a plurality of majority voters. The outputs of each of said shift registers are connected to the inputs of each of said majority voters.

3,812,477

METHOD FOR SUPERRESOLUTION IN AN OPTICAL MEMORY

Harold Wieder, Saratoga, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 9, 1973, Ser. No. 349,170
Int. Cl. G11c *13/04*
U.S. Cl. 340—173 LM **12 Claims**



A light beam method for optically resolving information stored in a data storage medium as areas of differing reflectivity by directing light from a laser operating below threshold onto the storage surface for reflection back into the laser cavity, with reflected light from the higher reflectivity area only enabling the laser cavity to exceed threshold and cause lasing of the laser. Such lasing is indicative of the presence of the high reflectivity area. Alternative embodiments utilizing lasers capable of lasing at two frequencies which share a common energy level are shown.

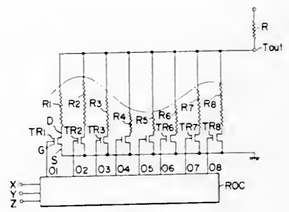
3,812,478

SEMICONDUCTOR STORAGE DEVICE

Norio Tomisawa; Takehisa Amano; Yasuji Uchiyama, and Takatoshi Okumura, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed July 27, 1972, Ser. No. 275,899
Claims priority, application Japan, July 31, 1971, 46-57838; July 31, 1971, 46-57829; Sept. 1, 1971, 46-67293; Nov. 22, 1971, 46-93974; Nov. 22, 1971, 46-93975; Nov. 22, 1971, 46-93976
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 R **5 Claims**

Sampled analog values of a wave or a function are stored in a semiconductor storage device constituted in the form of an integrated circuit. The device comprises a plurality of storage regions each having a dimension determining an impedance value corresponding to each of the sampled values, a plurality of transistor regions connected to the respective storage regions, read-out terminals connected to the transistor regions, and an output terminal connected to the storage regions. When pulses are applied to the read-out terminals one by one



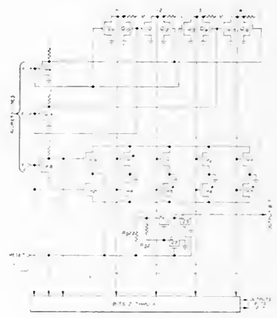
successively, a wave or a function of the stored shape is produced from the output terminal. Any shape of the signal can be easily obtained. The device is very suitable for accurate mass-production.

3,812,479

READ-ONLY-MEMORY WITH RADIATION SET THRESHOLD VOLTAGE

Abraham A. Witteles, Forest Hills, N.Y., and Harry Putterman, Elizabeth, N.J., assignors to The Singer Company, New York, N.Y.

Filed Dec. 31, 1968, Ser. No. 789,054
Int. Cl. G11c *11/40, 11/42*
U.S. Cl. 340—173 LS **2 Claims**



An arbitrary pattern of "ones" and "zeros" is "set" or stored into a standard MOSFET wafer containing many individual transistors, by utilizing the radiation susceptibility of such devices. That is, by selectively irradiating individual MOS transistors to a sufficient level, their corresponding turn-on or threshold voltages may be caused to shift by a predetermined amount. Hence, when a voltage pulse is applied to the gates of the irradiated transistors they will not "switch on." In this manner, all irradiated transistors will store "zeros." Conversely, since the threshold voltages corresponding to all non-irradiated transistors remain uneffected they are turned on when gated in the usual manner, and are therefore adapted to store "ones." In order to erase the original stored program, the irradiated wafer is placed in an oven-heated environment which completely anneals all radiation effects thereby restoring the threshold voltages to their original value. The same wafer may then be re-irradiated to store a new and different pattern of "ones" and "zeros."

3,812,480
CODE TRANSLATOR EMPLOYING SEQUENTIAL MEMORIES

Donald Eugene Kish, North Plainfield, and James Lanson Smith, Bedminster, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 15, 1972, Ser. No. 306,732
Int. Cl. G11c *11/14, 19/00*
U.S. Cl. 340—174 TF **10 Claims**

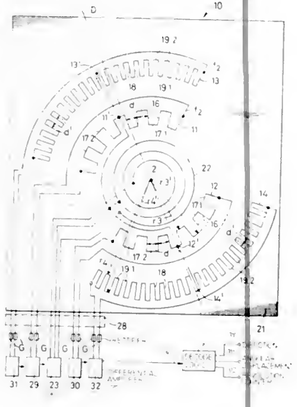


The introduction of single wall domains (magnetic bubbles) into coded positions of a pair of domain recirculating loops enables the provision of control signals at anyone of a number of possible time slots with relatively few external wiring connections. The transfer of a domain from each loop of the pair to a control loop responsive to the presence of a domain in a reference stage in each loop permits the formation of a two-bubble code in the control loop for determining the timing of the signals. The three loops define a practical translator which can be integrated into a single domain chip.

3,812,481
NON-CONTACTING ELECTRICAL ROTARY POSITION AND ROTATION TRANSDUCER

Wolfgang Stedtnitz, Neukrug, Germany, assignor to Robert Bosch GmbH, Gerlingen-Schillerhohe, Germany

Filed Nov. 27, 1972, Ser. No. 310,221
Claims priority, application Germany, Nov. 26, 1971, 2158713
Int. Cl. G08c *19/06*
U.S. Cl. 340—196 **19 Claims**

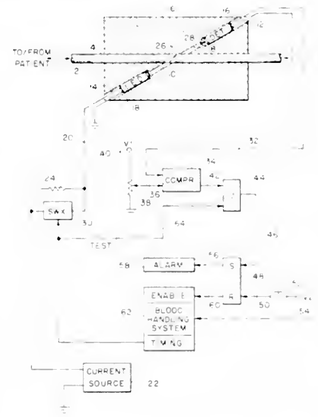


A rotor, in form of a disk, has a stator opposed thereto, similar to a pancake-type dynamo electric machine; the stator has applied thereto an energizing winding, in form of a spiral surrounding the imaginary rotor axis; the rotor has undulating conductor strips, for example printed circuit strips in form of a winding applied to the end face, inductively coupled to the energizing winding. The rotor winding is short-circuited. Opposite the rotor winding, and of similar shape and outline of the undulating winding is an output winding on the stator, the stator output winding being connected over rectifiers and differential amplifiers to a logic network. Upon position coincidence of the short-circuited winding (energized by a-c from the energizing winding) with the output winding, output voltages will appear at the winding representative of relative position between the short-circuited winding and the output winding, and hence between the rotor and stator disks.

3,812,482
AIR EMBOLI DETECTOR

Justin S. Clark, Salt Lake City, Utah, assignor to Primary Childrens Hospital, Salt Lake City, Utah

Filed Feb. 26, 1973, Ser. No. 336,112
Int. Cl. G08b *21/00*
U.S. Cl. 340—237 R **7 Claims**



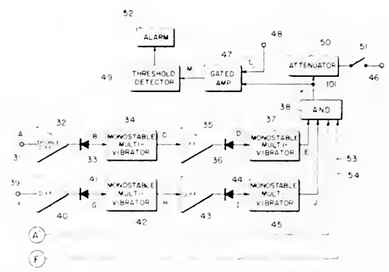
A light emitting diode and a photodetector are disposed on opposite ends of an optical path oriented at an angle with respect to a substantially transparent blood conduit, such as clear plastic tubing. Liquid, such as blood or saline, whether opaque or clear, flowing in the tubing defracts the light emitted by the diode out of the straight optical path so that only an insignificant portion thereof reaches the detector, but gas, such as air emboli, due to lower indexes of refraction than liquids, hardly defracts the light, so that a significant portion reaches the optical detector. An output of the optical detector in excess of a setable threshhold causes an alarm and a disablement of the blood handling system. The optical system is tested with liquid in the tubing by over-driving the light emitting diode so that, despite defraction, sufficient light should reach the detector to cause it to provide an output equivalent to the output it would normally have when detecting gas in the tubing with the light emitting diode driven in a normal manner.

3,812,483
POINT SOURCE DISCRIMINATOR THERMAL ALARM

Howard T. Graves, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 26, 1972, Ser. No. 257,222
Int. Cl. G08b *13/18*
U.S. Cl. 340—258 R **10 Claims**

An alarm system is provided for a scanning type far infrared system. The video signal is processed by a gated pulse blanking system which permits automatic surveillance of one or more windows within the scene displayed. Any significant

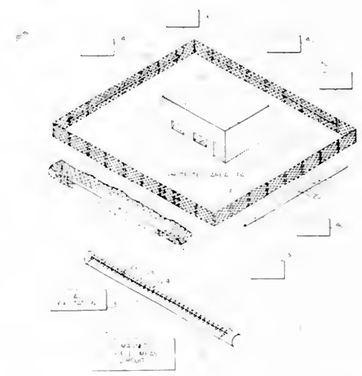


change within the selected window triggers an audible or visible alarm.

3,812,484
PERIMETER INTRUSION DETECTION SYSTEM

Robert C. Miller, and Walter J. Carr, Jr., both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 10, 1972, Ser. No. 296,376
Int. Cl. G08b *13/22*
U.S. Cl. 340—258 C **5 Claims**

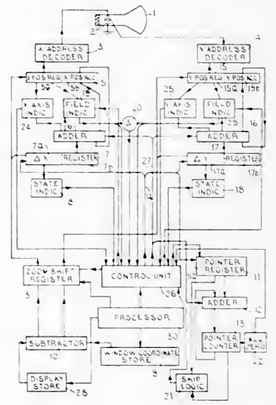


A perimeter intrusion detection system includes an elongated magnetic core member with a helical winding positioned about the magnetic core and a source of AC current applied to the helical winding. The combination of the magnetic core and helical winding is positioned adjacent to or below the surface of the earth about the perimeter of an object to be protected i.e., a building, an airplane, a military encampment, etc. Monitoring circuitry is attached to the helical winding and responds to a change in the earth's magnetic field produced by the presence of a magnetically permeable object by generating an intrusion alarm signal. The sensitivity of the monitoring circuitry can be adjusted so as to produce an alarm signal in response to the presence of magnetically permeable material carried on the person of an intruder or magnetically permeable material associated with a vehicle approaching the protected object. The invention makes use of the theory of operation of a flux gate magnetometer to provide a continuous perimeter intrusion detection device capable of monitoring several hundred feet of perimeter and providing indication of the presence of a magnetically permeable object at a specific interval of the permimeter intrusion detection system.

3,812,485
VISUAL DISPLAY DEVICE

Derek Vidion Moreton, Congleton, England, assignor to International Computers Limited, London, England

Filed May 8, 1972, Ser. No. 251,066
Claims priority, application Great Britain, May 15, 1971, 15152/71
Int. Cl. G06f *3/14*
U.S. Cl. 340—324 A **5 Claims**

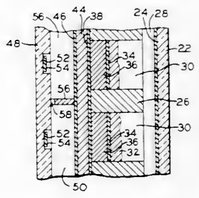


A visual display device is described for drawing lines on the face of a cathode ray tube. Information describing the lines to be drawn is held in a store and is presented in the form of positional information describing one end (the initial end) of a line together with values representing the displacement from the initial end of the terminal end of the line. By relative shifting operations on this information a standardised line drawing speed is achieved by the repeated cyclic addition of the shifted displacement values into a register holding the positional and displacement information. Other relative shifting of positional and displacement information permits effective speeding up of "drawing" any part of a line that disappears off the field of view of the cathode ray tube and the shifting of both position and displacement values enables the scale of the drawn display to be altered.

3,812,486
DISPLAY HAVING A PHOTOCONDUCTOR GAS DISCHARGE CONTROL

F. Jack Purchase, Kitchener, Ontario, Canada, assignor to Antolelic Industries, Ltd., Fort Erie, Ontario, Canada

Filed Apr. 18, 1972, Ser. No. 245,099
Int. Cl. G09f *13/26*
U.S. Cl. 340—324 M **35 Claims**



A display device of the plasma discharge type is provided with photoconductive control elements which are selectively illuminated by light bars extending angularly to electrodes which are connected to the photoconductive elements. Time

related signals are employed for sequentially establishing the light bars and for supplying signals to the electrodes. Each photoconductive element is connected in controlling relation to a respective metallic member forming one signal emitting region of a basic display area which might comprise, for example, five adjacent columns of signal emitting regions with seven of the regions in each column and arranged in aligned rows.

3,812,487
MONITORING AND DISPLAY APPARATUS

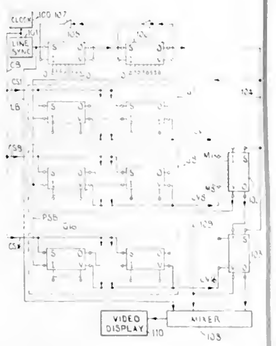
Christopher Philip Burton, Alderley Edge, England, assignor to International Computers Limited, London, England

Filed Feb. 17, 1972, Ser. No. 227,209

Claims priority, application Great Britain, Feb. 17, 1971, 4802/71

Int. Cl. G08b *5/36*

U.S. Cl. 340—324 AD **4 Claims**



Apparatus is described for displaying, on a display device having a number of spatially separated indicating positions such as a television monitor screen or a matrix of display lamps, the states of a number of elements, each elemental state being primarily indicated by signals applied over one of a number of indicating lines.

The lines are connected to display converter modules which are arranged to scan the lines in sequence to produce a composite output signal which is applied to the display device. Where the number of lines is large, the serialisation of the line states may be done in stages, the first stage being the derivation of a separate composite signal from each of a number of groups of lines. The second stage then consists of deriving a final output signal by scanning the first-stage composite signals in turn.

The disclosure also deals with the use of similar converter modules for performing both the first stage and the second stage scans. It is also shown that the timing and synchronising signals needed to control the scanning and the distribution of the output signals to the display device may also be provided by similar converter modules.

3,812,488
TELEVISION RECEIVER FOR DISPLAYING A COMPUTING PROCESS

Hirokazu Yoshino, Katano; Tetsuo Yamaguchi, Hirakata, and Eiichi Tsuboka, Nara, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma-shi, Osaka, Japan

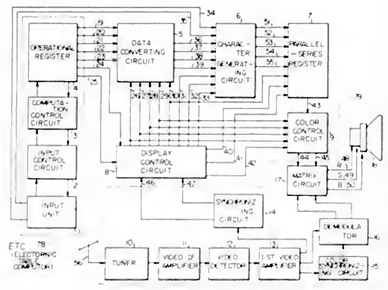
Filed July 28, 1972, Ser. No. 275,895

Claims priority, application Japan, July 31, 9171, 46-57713; July 31, 1971, 46-57714; Nov. 9, 1971, 46-89570; Nov. 10, 1971, 46-89571

Int. Cl. G06f *3/14*

U.S. Cl. 340—324 AD **7 Claims**

A television receiver comprising a computing means for processing input data, a converting means in which the computing process and the computed result are written and from which the written content is read out in timing with the display



system, i.e. television system, and a display means for displaying the read information on the picture tube of the television receiver.

3,812,489
DISPLAY DEVICE FOR USE IN A DESK TOP CALCULATOR

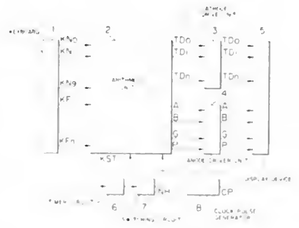
Reiji Hirano, Yokohama; Matsutoshi Ito, Narashino, and Junichi Ishiwata, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 11, 1972, Ser. No. 287,846

Claims priority, application Japan, Sept. 17, 1971, 46-84508

Int. Cl. G08b *5/36*

U.S. Cl. 340—324 R **15 Claims**



A desk top calculator includes a display device which displays the numerical information. This display device consumes considerable power. In order to minimize the power consumption by the display device, display of the numerical information is ceased with the lapse of a predetermined period after once the numerical information is displayed. Instead, a pattern or patterns other than the numerical information is displayed on the display device to indicate that the numerical information is held in the register without displaying.

3,812,490
FLEXIBLE MEMBRANE DISPLAY PANEL FOR GENERATING CHARACTERS VISIBLE IN AMBIENT LIGHT

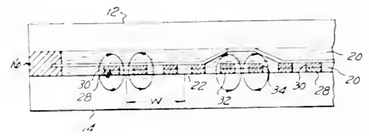
George W. Goodrich, Bloomfield Hills, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Sept. 18, 1972, Ser. No. 290,187

Int. Cl. G02f *1/34*

U.S. Cl. 340—324 R **17 Claims**

A digitally addressed magnetically actuated ambient light display panel is disclosed which incorporates a thin flexible magnetic membrane suspended between a ferromagnetic member and a transparent window in a fluid of a contrasting color. A plurality of small electromagnetic elements are disposed along the face of the ferromagnetic member adjacent to the magnetic membrane, which are capable of selectively magnetizing the ferromagnetic member at discrete locations. The magnetized ferromagnetic member attracts or repels the magnetic membrane in accordance with the magnetic polarity



induced in the ferromagnetic member by the electromagnetic elements. Repelling the membrane against the face of the window at predetermined locations displaces the fluid between the membrane and the window and permits the contrasting color of the flexible membrane to become visible. A selectively repelled membrane generates characters or patterns visible under ambient light conditions.

3,812,491
RASTER-SCANNED DISPLAY DEVICES

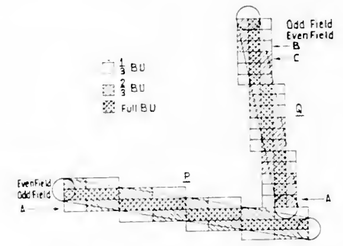
Christopher George Barraclough, Hockliffe near Leighton Buzzard, and James Roger Brown, Swavesey, both of England, assignors to GEC-Elliott Automation Limited, Cambridgeshire, England

Filed Oct. 25, 1972, Ser. No. 301,090

Claims priority, application Great Britain, Oct. 27, 1971, 50024/71

Int. Cl. G06f *3/14*

U.S. Cl. 340—324 AD **9 Claims**



A synthetic graphics generating system, using a C.R.T. scanned in a T.V. type raster. The video signal for each linescan is calculated digitally in real time, either during the linescan flyback periods, or during execution of the preceding linescan. The described system is used to generate a number of vectors, the calculations for which are performed on a time-shared basis by common circuitry. To prevent a stepped appearance, progressive increase and decrease in brightness is used, preferably using three discrete brightness levels.

3,812,492
METHOD OF AND APPARATUS FOR CONCENTRIC SUPERVISION AND CONTROL OF ROOMS OR PARTS OF A HOUSE OR A BUILDING

Motohiro Gotanda, No. 3-6-29, Inakashiru, Mitakei City, Japan

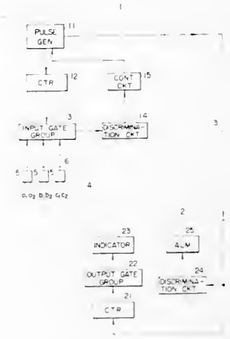
Filed Nov. 21, 1972, Ser. No. 308,308

Claims priority, application Japan, Dec. 6, 1971, 46-97782

Int. Cl. G08b *19/00*

U.S. Cl. 340—409 **7 Claims**

A system for the supervision of normal or abnormal condition of rooms or parts of a house or a building, elevators, water supply and drainage equipments and motors, or the presence or absence of persons in the rooms. Information derived from each room or compartment is applied to each gate of an input gate group provided in a signal transmission device. The output signal of each gate is generated by scanning said input gate group and is detected in a discriminator circuit to determine whether it is normal or not. A normal signal is forwarded to a signal receiving device without modifying the pulse duration of a pulse generated from a pulse generator in the signal transmission device. For an abnormal signal, the duration of a pulse generated by the pulse generator is increased. The signal delivered to the signal receiving device from the signal transmission device is again discriminated in a discriminator circuit to determine whether it is normal or not. The output obtained is indicated on an indicator provided to respond to an information receiving means in the signal transmission device indicating whether the signal either normal or not according to the order of scanning by the signal transmission device.



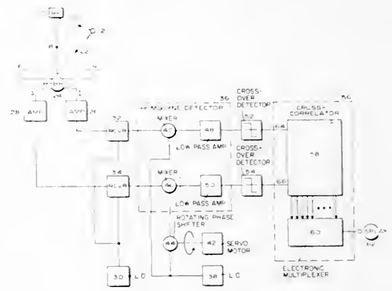
3,812,493
BISTATIC PASSIVE RADAR

Marko Afendykiw, Ann Arbor, Mich.; John M. Boyle, China Lake, and Charles E. Hendrix, Pacific Palisades, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 23, 1970, Ser. No. 92,186

Int. Cl. G01s *5/04, 9/04, 9/22*

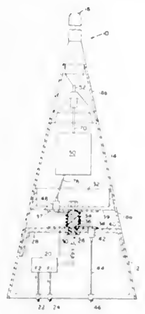
U.S. Cl. 343—12 R **5 Claims**



A radar system for determining the position of a target using a radio frequency source of opportunity. The system uses an interferometer antenna and cross-correlation techniques to measure the time delay in receiving a reflected signal from the target as compared to receiving a direct signal from the signal source. Thereby, the distance from the RF source via the target to the antenna is determined. Additionally, the system uses

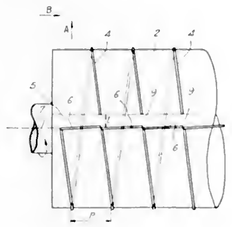
a plurality of interferometer antennas and cross-correlation techniques to measure the relative phase difference between the signals received by the antennas. Thereby, the angle of arrival of the reflected signals from the target is determined. Combining the range and angular information locates the target.

3,812,494
TRI-FREQUENCY INSTRUMENTATION ANTENNA
James Howell; Wayne T. Hudson, and Henry A. Krzyzewski, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Feb. 28, 1973, Ser. No. 336,662
Int. Cl. H01q *1/50*
U.S. Cl. 343—852 **5 Claims**



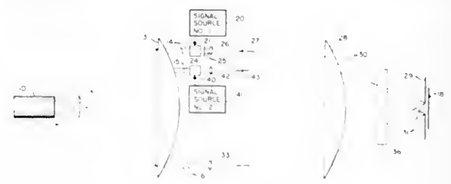
The tri-frequency antenna is a multi-frequency antenna providing isolation between different frequency bands and an impedance match for all frequencies involved. It is ideally suited for use on spinning missiles because of its roll-symmetrical antenna pattern. It may be used as a combination transmitting and receiving antenna without danger of ionization at high altitudes with reasonable radiation power levels. In missiles, the missile outer surface serves as the antenna radiating elements. Associated matching networks and a common coupler allows both isolation and matching.

3,812,495
MOSAIC PRINTER
Hilrich Jan Matthijs Venker, Heemstede, Netherlands, assignor to Societe Industrielle Honeywell Bull (Societe Anonyme), Paris, France
Filed Oct. 4, 1972, Ser. No. 295,051
Claims priority, application France, Oct. 13, 1971, 71.36715
Int. Cl. G02b *5/12*
U.S. Cl. 346—101 **8 Claims**



A mosaic printer is provided with a cylindrical rotating drum on the outer surface of which is a raised spiral threading, and a plurality of print hammers in the form of elongated plates is located along the lengthwise edge of said drum, the print medium moved between the drum and the hammers at a fixed speed during printing. Each of the elongated plates is sloped in relation to the axis of the drum, the lower end of the plates, in relation to the movement of the print medium, being directed towards the upstream side of the corresponding movement of the spiral threading, as compared with these plates.

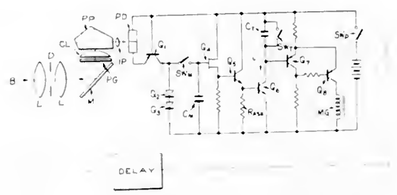
3,812,496
OPTICAL SIGNAL RECORDING SYSTEM
Robert E. Brooks, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Aug. 22, 1972, Ser. No. 282,670
Int. Cl. G01d *9/28*
U.S. Cl. 346—108 **4 Claims**



An optical system for recording time-varying signals which may have a wide range of amplitudes. The signal is recorded on a light sensitive material by means of an unmodulated and a modulated coherent light beam. The two light beams generate a diffraction grating on the recording material. Since one of the beams is modulated the grating is modulated. The recording is preferably effected through a slit having a narrow dimension in the direction of motion of the film and a relatively long direction normal thereto. The modulation may be effected, for example, by modulating the intensity of one of the beams, the phase of the recording beams or the angle between the two beams. The instantaneous signal value is represented by the contrast, spatial frequency or the phase of the grating pattern. The signal may be reproduced by a reproducing beam. The light beam is diffracted in accordance with the grating constant of the diffraction grating and may be picked up by a photosensitive detector. It is also feasible to read out simultaneously a large portion of the recorded track to obtain the Fourier transform of the signal or its power spectrum.

3,812,497
CAMERA WITH AUTOMATIC EXPOSURE CONTROLS
Tohru Nakajima, and Masatoshi Marui, both of Tokyo, Japan, assignors to Asaki Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Apr. 21, 1971, Ser. No. 136,105
Claims priority, application Japan, May 23, 1970, 45-50755
Int. Cl. G03b *7/08, 9/07, 9/62*
U.S. Cl. 354—28 **5 Claims**

A single lens reflex camera in which exposure time is automatically determined. The camera has an objective to which a diaphragm is connected to be stopped down for determining the exposure aperture when an exposure is to be made. A reflector has a rest position extending across the optical axis and is moved to an exposure position away from the optical axis when an exposure is to be made. A photosensitive element such as a photocell receives light from the reflector while the latter is in its rest position. An electrical circuit to which the photosensitive element is connected is operatively connected with a shutter of the camera to determine the exposure time. In response to operation of the camera shutter, the electrical circuit is rendered operative and the diaphragm is stopped down to a preselected value so that light will be reflected by the reflector to the photosensitive element for introducing into the circuit the factors of the brightness at the



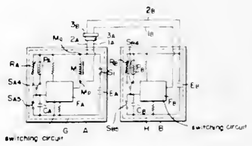
object which is to be photographed and the setting of the diaphragm. With these factors thus introduced into the circuit the reflector is displaced to its exposure position so that the film is exposed and at the same time the electrical circuit determines the exposure time.

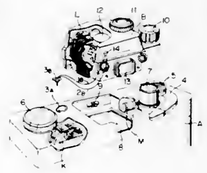
3,812,498
SHUTTER DIAPHRAGM APPARATUS FOR CAMERA EXPOSURE CONTROL
Paul Justin Ernisse, and Fredric Alton Mindler, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation of Ser. No. 178,130, Sept. 7, 1971, abandoned. This application Mar. 26, 1973, Ser. No. 345,056
Int. Cl. G03b *7/14*
U.S. Cl. 354—29 **4 Claims**



Shutter-diaphragm apparatus having an exposure aperture of preselected size and an apertured member biased for movement relative to the exposure aperture as the apparatus is actuated for adjusting the size of the exposure aperture during selected scene light intensity conditions. A second member, also biased for movement as the apparatus is actuated, retains a shutter blade in a closed condition. The second member actuates a light responsive electronic circuit which controls the movement of the apertured member and controls the movement of the shutter blade in timed relation to actuation of the circuit for providing an exposure related to scene light intensity which has been adjusted for delays in operation of the apparatus.

3,812,499
ELECTRICAL EXPOSURE TIME CONTROL DEVICE FOR USE IN A PHOTOGRAPHIC CAMERA
Toshio Hayashi; Akira Yoshizaki, and Kayoshi Tsujimoto, all of Osaka-fu, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-fu, Japan
Filed Aug. 2, 1973, Ser. No. 385,004
Claims priority, application Japan, Aug. 7, 1972, 47-78311
Int. Cl. G03b *7/08, 9/58, 17/14*
U.S. Cl. 95—10 CT **12 Claims**



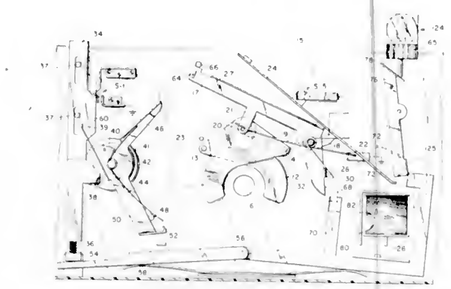


A camera includes a shutter whose closing is actuated by an electromagnet controlled by an electrical timing circuit which is provided with a photosensitive element and a circuit disabling switch. A pair of accessible coupling terminals are connected to the opposite ends of the electromagnet. An accessory is separably mounted on the camera and includes a photosensitive element controlled timing network having an output provided with a pair of coupling terminals which separably engage the electromagnet terminals and the disabling switch may be manually opened or is opened automatically with the coupling of the terminals. More than one shutter control accessory may be provided and the timing circuits may be of different types, with different fields of light responsiveness and with manually selectively adjustable timing intervals.

3,812,500
AUTOMATIC SHUTTER CONTROL FOR PHOTOGRAPHIC CAMERAS
Paul J. Ernisse, and Arnold J. Ettinger, both of Rochester, N.Y., assignors to Eastman Kodak Co., Rochester, N.Y.
Continuation of Ser. No. 127,476, March 24, 1971. This application July 6, 1972, Ser. No. 269,371
Int. Cl. G03b *7/08*
U.S. Cl. 354—32 **2 Claims**

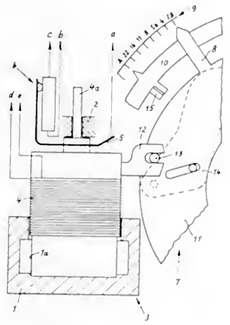
In a camera having a photoelectric timing circuit for determining shutter speed in accordance with the intensity of scene illumination, a mechanical speed control is provided for controlling movement of an inertia member to establish at least one predetermined shutter speed. A control member is actuatable in response to insertion of a flash lamp unit into the camera to disable a shutter control transducer in the timing circuit and to actuate the mechanical speed control to permit the inertia member to move a first preselected distance before

returning to close the shutter. The control is adapted, when the transducer is disabled, and no flash lamp unit is inserted in



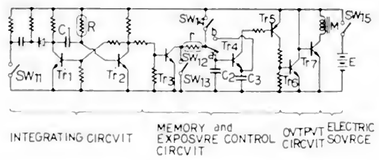
the camera, to control the length of travel of the inertia member for providing a shutter speed corresponding to the camera's fastest shutter speed.

3,812,501
ELECTROMAGNETIC DRIVE FOR PHOTOGRAPHIC SHUTTER DIAPHRAGMS
Bodo Mielke, Wolfenbuttel, Germany, assignor to Rollei-Werke Franke & Heidecke, Braunschweig, Germany
Continuation-in-part of Ser. No. 155,415,, June 22, 1971, Pat. No. 3,724,350. This application Feb. 26, 1973, Ser. No. 335,914
Claims priority, application Germany, June 26, 1970, 2031565
Int. Cl. G03b *7/08, 9/02*
U.S. Cl. 95—64 D **11 Claims**



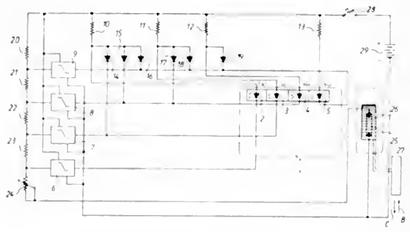
An electromagnetic drive is provided for moving the blades or leaves of a photographic diaphragm, to adjust it to the desired aperture. The drive comprises a pot shaped magnet having an annular gap through which a cylindrical coil moves. The movement of the coil is mechanically connected to the diaphragm leaves or blades to set them to the desired position. The current flowing through the coil is controlled by an electrical bridge which, when balanced, stops the flow of current, the bridge circuit being influenced by either a position-sensitive resistor having a slider movable to various positions by the movement of the coil, or by a photo-sensitive resistor (photoelectric converter) placed behind the diaphragm so as to be responsive to variations in light resulting from changes in aperture produced by movement of the coil. Such a converter placed behind the diaphragm may also be regarded as a "position-sensitive resistor" since it is sensitive to the aperture position of the diaphragm. A latch is provided for latching the moving parts in position when the bridge circuit is balanced, to prevent or reduce overswing of the parts due to inertia. The invention is intended for still cameras, rather than motion picture cameras.

3,812,502
EXPOSURE CONTROL CIRCUIT FOR TTL CAMERA
Takayoshi Sato, Tokyo, Japan, assignor to Kabushiki-Kaisha Copal, Tokyo, Japan
Continuation-in-part of Ser. No. 63,214, Aug. 12, 1970, abandoned. This application Jan. 29, 1973, Ser. No. 327,798
Claims priority, application Japan, Aug. 18, 1969, 44-65423; Oct. 2, 1969, 44-78775; Oct. 27, 1969, 44-85228
Int. Cl. G03b *7/08*
U.S. Cl. 354—51 **7 Claims**



An automatic exposure circuit for a TTL camera, The circuit includes an integrating circuit having a capacitor and a light-sensitive resistor connected in series to a source of potential. The time taken to charge the capacitor, a function of scene illumination, in turn determines the magnitude of the charge stored, or "memorized," in a second capacitor in a memory circuit. Actuation of the shutter release starts the charging of a third capacitor in an exposure control circuit and when the voltage across the third capacitor equals the potential "memorized" in the second capacitor, the shutter blades are permitted to close. In other embodiments of the invention, light-sensitive resistors are included in the charging circuits of the second and third capacitors to compensate for any change in scene illumination which might occur after the shutter release mechanism is depressed.

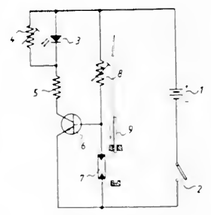
3,812,503
EXPOSURE INDICATOR FOR A PHOTOGRAPHIC CAMERA
Dieter Engelsmann, Unterhaching; Eduard Wagensonner, Aschheim; Alois Rieder, and Bernhard Von Fischern, both of Munich, all of, Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 28, 1972, Ser. No. 310,085
Claims priority, application Germany, Nov. 29, 1971, 2159160; Nov. 29, 1971, 2159162
Int. Cl. G03b *7/00*
U.S. Cl. 354—60 **19 Claims**



A photosensitive element is mounted to receive the light available for exposure and constitutes part of a voltage divider which has a number of taps. Each of the taps is connected to the input of a bistable stage. As the threshold of each bistable stage is passed, it serves to connect a corresponding one of a plurality of indicators to a battery, thereby energizing it.

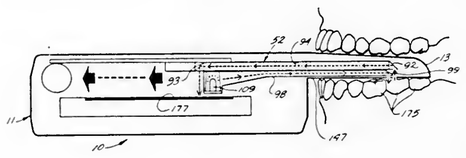
Passing of the threshold of the next-following indicator then causes a diode to short circuit the first indicator and the energization of the second indicator. Each bistable stage thus in turn energizes its indicator and short circuits the previous indicator. Thus only that indicator remains energized for which the voltage at its corresponding voltage divider tap is most closely equal to the threshold voltage of the corresponding bistable stage.

3,812,504
INDICATOR ARRANGEMENT FOR A PHOTOGRAPHIC CAMERA
Eduard Wagensonner, Aschheim; Kurt Borowski, and Friedrich Stumpf, both of Munich, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Apr. 12, 1973, Ser. No. 350,467
Claims priority, application Germany, Apr. 18, 1972, 2218704
Int. Cl. G01j *1/44*
U.S. Cl. 95—10 CE **5 Claims**



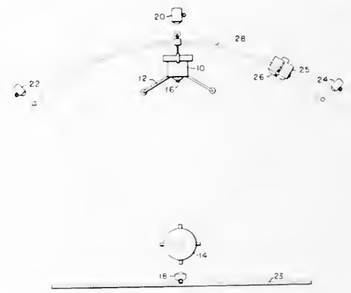
The battery of the camera has a voltage divider including a photoelectric transducer connected in parallel with it. The voltage divider tap is connected to the base of a transistor whose collector-emitter circuit is connected to a luminescent diode through a series resistor. The transistor is highly conductive when insufficient light for an exposure falls on the photoelectric transducer. Further, a variable resistor in parallel with the luminescent diode is adjusted so that the voltage drop across the luminescent diode is less than its threshold voltage for a battery voltage less than a predetermined minimum battery voltage when light is blocked from the photoelectric transducer.

3,812,505
SCANNING CAMERA
James B. Elliott, Hacienda Heights, Calif., assignor to Unitek Corporation, Monrovia, Calif.
Filed Nov. 6, 1972, Ser. No. 303,994
Int. Cl. G03b *37/02*
U.S. Cl. 95—11 EM **18 Claims**



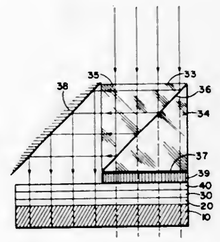
An improved scanning camera for periscopically photographing partially inaccessible objects. A slender viewing extension of the camera body is placed over the object, and a moving optical system in the body extension illuminates the object and transmits a line-scanned image of the object to a sheet of film. The camera is particularly useful for obtaining plan-view pictures of teeth in the upper and lower arches of a dental patient. The improvements described relate to an illumination and optical system, a scanning mechanism, and circuitry for controlling camera operation.

3,812,506
SYSTEM FOR CHILD PHOTOGRAPHY
Ivan J. Klebanow, 330 Hill Top Ln., Cincinnati, Ohio
Filed Mar. 16, 1973, Ser. No. 342,070
Int. Cl. G03b *15/06*
U.S. Cl. 354—80 **8 Claims**



A system for photographing children utilizes a rear screen projector for attracting the attention of the child and evoking various facial expressions. The locations of the camera, the child and the lights are each at a fixed station so that the system may effectively be used by semi-skilled operators.

3,812,507
COLOR PHOTOGRAPHY
Charles W. Wyckoff, Needham, Mass., assignor to Applied Photo Sciences, Inc., Newbury, Mass.
Division of Ser. No. 876,626, Nov. 14, 1969, Pat. No. 3,663,228, which is a continuation-in-part of Ser. No. 445,496, April 9, 1965, abandoned, which is a continuation-in-part of Ser. No. 98,176, March 24, 1961, Pat. No. 3,450,536. This application Jan. 6, 1972, Ser. No. 215,877
Int. Cl. G03b *33/12*
U.S. Cl. 354—104 **4 Claims**



A color photographic film with extended exposure response characteristics having a plurality of emulsion layers divided into sets, each set having a different photographic speed. The emulsion layers within a set have the same photographic speed but each layer is responsive to a different region of the spectrum. The emulsion layers are arranged either one above the other or side-by-side in a geometric pattern and all have D-log E characteristic curves which have substantially equal slopes. The effective speed of one set is adjusted such that it commences responding to impinging light as another set approaches saturation. This is accomplished either by selection of the basic sensitivities of the various emulsions or by the use of auxiliary means such as attenuating filters. Dye-forming

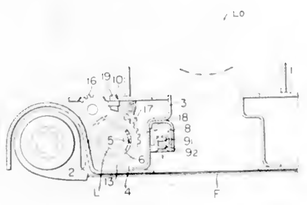
couplers may be incorporated during manufacture in all emulsion layers or may be introduced during processing. The invention may also be incorporated into a number of embodiments employing either the diazo or diffusion transfer processes. In addition apparatus employing the principles of the invention is described.

3,812,508

CAMERA PROVIDED WITH A DEVICE FOR AUTOMATICALLY PHOTOGRAPHING DATES OF PHOTOGRAPHING

Mutsuhide Matsuda, Tokyo; Mitsutoshi Ogiso, Kawasaki, and Mutsunobu Yazaki, Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 110,814, Jan. 29, 1971, abandoned. This application Jan. 26, 1973, Ser. No. 327,164
Claims priority, application Japan, Jan. 29, 1970, 45-9496
Int. Cl. G03b *17/24*
U.S. Cl. 354—106 **10 Claims**



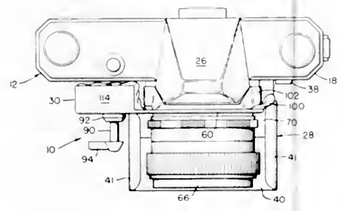
An adjustable device for photographing data, numbers or characters indicating the date of photo-taking is provided in a camera. An illumination lamp illuminates the selected numbers or characters in association with the releasing of the shutter and the illuminated numbers or characters are photographed on the film. The duration of illumination of the lamp is controlled by a time control device actuated in association with the releasing of the shutter.

3,812,509

MULTIFOCAL ADAPTER FOR CAMERAS

Leonard F. Westphalen, 2021 Market St., San Diego, Calif.

Filed Apr. 14, 1972, Ser. No. 244,207
Int. Cl. G02b *15/10*
U.S. Cl. 354—195 **17 Claims**



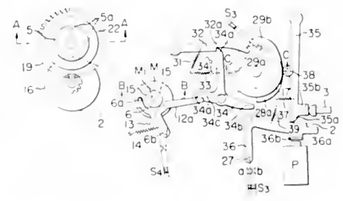
A camera is modified by relocating its objective on a lens standard which slides on a guide fastened to the underside of the camera. The lens standard also supports a negative lens or lenses on its rear side for positioning into and out of axial alignment between the lens openings of the standard and the camera; and a tube of flexible opaque material is fastened to the lens standard and camera about the lens openings thereof so that the negative lens or lenses also are inside the tube. The lens standard is thereby movable on the guide between a position where it locates the objective at the camera's lens opening for a normal focusing range and a position remote therefrom where the negative lenses may be positioned behind the objective for telephoto effect.

3,812,510

ELECTRIC CONTROL DEVICE FOR A CAMERA

Hiroshi Aizawa, Tokyo, and Mitsutoshi Ogiso, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1972, Ser. No. 319,743
Claims priority, application Japan, Dec. 30, 1971, 47-1089
Int. Cl. G03b *7/00, 9/28*
U.S. Cl. 354—235 **9 Claims**



An automatic shutter control system for a camera includes a continuous rotatable motor coupled to a pair of separately engageable electromagnetic clutches. The clutches are respectively operable, when engaged, for releasing the shutter to commence exposure and for winding up the shutter after exposure has terminated. When camera operation is initiated, the first clutch is engaged to release the shutter and to trigger the start of a manually selectable exposure duration. At the conclusion of the selected duration, the first clutch is disengaged and the second clutch is engaged to begin the wind-up of the shutter. An inertial sensor on the motor terminates the wind-up operation and disengages the second clutch when the increased torque on the motor from wind-up reaches a predetermined value. Where continuous operation of the camera is desired, the completion of wind-up triggers an interval control circuit which effects the re-engagement of the first clutch after a prescribed time delay to initiate another cycle of operation. Facilities are provided for overriding the manually set exposure duration whenever the required film exposure time exceeds such set duration to automatically delay the completion of the shutter release operation until the completion of the exposure.

3,812,511

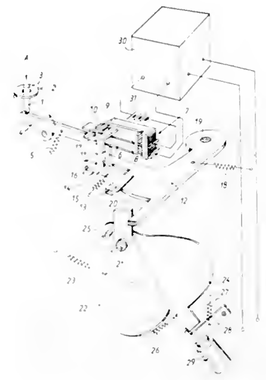
PHOTOGRAPHIC APPARATUS

Hubert Hackenberg, and Siegfried Zobel, both of Munich, Germany, assignors to Afga-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 23, 1972, Ser. No. 283,234
Claims priority, application Germany, Aug. 24, 1971, 2142327
Int. Cl. G03b *9/08*
U.S. Cl. 354—258 **16 Claims**

A photographic apparatus wherein the depression of a release button results in closing of a switch which connects an electrical exposure control with a source of electrical energy. The switch remains closed subsequent to termination of pressure against the release button because the contacts of the

switch are urged against each other by a spring-biased blocking pawl as soon as the latter is disengaged from a cocked shutter-actuating lever in response to depression of the release button.

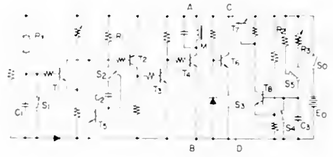


3,812,512

ELECTRONIC SHUTTER FOR PHOTOGRAPHIC CAMERAS

Munetaka Shimizu, Kawagoe, and Masao Takayama, Tokyo, both of Japan, assignors to Kabushiki Kaisha Koparu, Tokyo-to, Japan

Filed June 27, 1973, Ser. No. 374,068
Claims priority, application Japan, June 30, 1972, 47-65722
Int. Cl. G03b *9/64*
U.S. Cl. 354—258 **6 Claims**



An electronic shutter for photographic cameras comprising a C-R delay circuit inserted into between an exposure time control circuit and a power source for making time lag between the operation of shutter button and the start of operation of said exposure time control circuit by said delay circuit, thus the whole composition of a shutter means is simplified by utilizing said time lag as working time of self-timers or as time necessary to leap up a mirror of reflex cameras. Said exposure time control circuit contains another delay circuit necessary for full synchronization of a flash device.

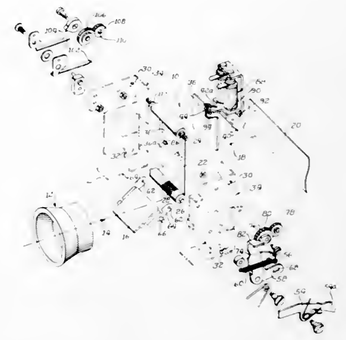
3,812,513

PHOTOGRAPHIC SHUTTER

Walter E. Berk, Roselle, and Gregory H. Kulykivsky, Park Ridge, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Nov. 15, 1972, Ser. No. 306,642
Int. Cl. G03b *9/16, 9/36*
U.S. Cl. 95—53 R **12 Claims**

A shutter apparatus and method of operating the same in a camera having an objective lens through which light rays may enter the camera. The shutter apparatus includes the combination of reciprocable shutter curtain having an exposure aperture movable to a film exposure position, and a shutter blade in juxtaposition to the shutter curtain and movable in timed relationship after the curtain is moved to cut-off exposure through the curtain's exposure aperture. In a mirror reflex camera, the mirror is moved out of the path of the light rays prior to moving the shutter curtain. The shutter curtain and shutter blade have engaging surfaces whereby they may be simultaneously returned to their cocked positions after an exposure.

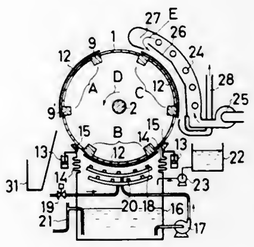


3,812,514

APPARATUS FOR FINISHING PHOTO-SENSITIVE RESIN BOARDS INTO RELIEF PRINTING PLATES

Kaname Watabe, No. 11-15 Yanakawa-cho 1-chome, Osaka, Japan

Filed Mar. 2, 1973, Ser. No. 337,477
Claims priority, application Japan, Mar. 7, 1972, 47-23434
Int. Cl. G03d *5/04*
U.S. Cl. 354—317 **3 Claims**

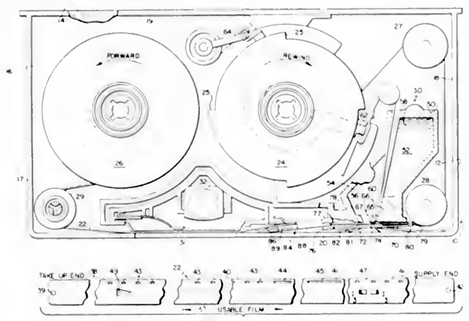


An apparatus is provided for finishing photo-sensitive resin boards exposed to ultraviolet rays through negative into relief printing plates. The apparatus comprises a tank for wash-out solution, a rotary cylindrical body above the tank, wash-out nozzle for dissolving and removing non-exposed portions of the photo-sensitive resin board attached on the peripheral surface of the rotary body, mercury arc lamps for drying and post-exposure treatments provided adjacent to the peripheral surface of the rotary body, and a driving device for controlling rotations of the cylindrical body to intermittently position the resin board opposite to the wash-out nozzles and mercury arc lamps.

3,812,515
PHOTOGRAPHIC CASSETTE HAVING AN IMPROVED FILM OPERATED PROCESSSING SYSTEM

Gerald H. Cook, Lynnfield, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed June 12, 1972, Ser. No. 262,044
Int. Cl. G03d *5/00*
U.S. Cl. 95—89 R **22 Claims**

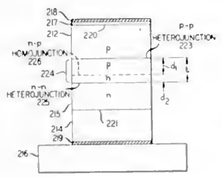


A photographic film cassette having a normally inoperative applicator system configured for depositing a developing fluid on the exposed film emulsion responsive to transport of the film in a predetermined arrangement includes a rigid actuating member carried on the film and configured for displacing a supporting pad into an operative position in supporting engagement with the film during application of the processing fluid. Preferably, the actuating member is a staple-like element affixed in clamping engagement to the film and having a portion extending obliquely therefrom so as to form an inclined arm configured to engage the pad member during appropriate advance of the film. In an alternate embodiment a rigid, conically shaped protuberance is formed in the film.

3,812,516
SPONTANEOUSLY EMITTING HETERO-STRUCTURE JUNCTION DIODES

Izuo Hayashi, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Division of Ser. No. 33,705, May 1, 1970, which is a continuation-in-part of Ser. No. 787,459, Dec. 27, 1968, abandoned, which is a continuation-in-part of Ser. No. 766,902, Oct. 11, 1968, abandoned. This application Nov. 17, 1972, Ser. No. 307,377
Int. Cl. H01l *15/02*
U.S. Cl. 317—235 R **13 Claims**



A light emitting heterostructure diode includes a multilayered structure having a common conductivity type heterojunction and a p-n junction separated therefrom by a distance less than the diffusion length of minority carriers, thereby defining an intermediate region bounded by said junctions.

In a single heterostructure (SH) diode there is one such heterojunction separating narrow and wide band gap regions of the same conductivity type and the *p–n* junction is a *p–n* homojunction formed in one instance by the diffusion of impurities into the narrow band gap region. When provided with an appropriate resonator, a confinement effect produced by an energy step (at the heterojunction) in the conduction band permits the SH diode to lase at higher temperatures and lower thresholds than heretofore possible, radiative electron-hole recombination occurring between the conduction and valence bands.

In a double heterostructure (DH) the diode is provided with a second heterojunction positioned on the side of the *p–n* junction remote from the other heterojunction, or positioned coincident with the *p–n* junction, thereby defining an intermediate region between the pair of heterojunctions. When provided with an appropriate resonator the DH diode exhibits lower thresholds at higher temperatures than even the aforementioned SH diode.

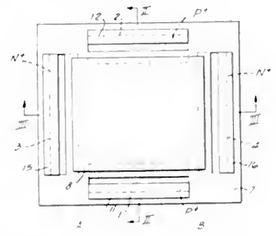
In both diodes additional improvment in the threshold occurs if the diode is provided with deep impurity levels or deep band tails.

Without a resonator, both the SH and DH diodes function as electroluminescent diodes with radiation being emitted from the intermediate region through the wide band gap region, thereby advantageously resulting in lower absorption losses and higher efficiency. Dome-like configurations of the wide band gap region of this diode are also disclosed.

3,812,517
CONTINUOUSLY VARIABLE THRESHOLD TRANSISTOR

Shuichi Sato, Tokyo, and Tadanori Yamaguchi, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sept. 6, 1972, Ser. No. 286,839
Claims priority, application Japan, Sept. 8, 1971, 46-69546
Int. Cl. H01l *11/14*
U.S. Cl. 357—23 **7 Claims**

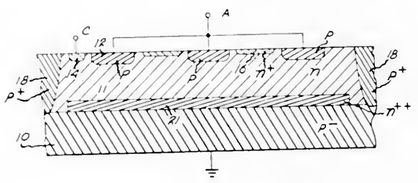


A MAOS or a MNOS having stored charge carriers at the interface of the two insulating layers whose density varies progressively in a direction laterally across the gate region thereof; that is, in a direction at right angles to the drain-source axis. The charge injection in a MAOS or MNOS system is modified so that the density of the injected charges varies across the device in a continuously decreasing manner in a direction at right angles to a line between the drain and source. Either a contactless variable capacitor or a contactless variable resistor is provided. Furthermore, a particularly effective memory device is provided by the structure. Broadly, the invention comprises a silicon substrate, a MIS gate construction in which a carrier is stored, the density of the stored carriers being varied continuously across the substrate side of the insulator from one side to the other.

3,812,518
PHOTODIODE WITH PATTERNED STRUCTURE

Bruno F. Kurz, and Armand P. Ferro, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,583
Int. Cl. H01l *15/00*
U.S. Cl. 357—30 **14 Claims**

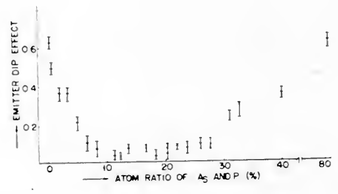


A monolithic or discrete photodiode has a patterned region, preferably in the form of elongated strips or fingers, with a spacing less than the diffusion length to obtain low capacitance without loss of photo response. Enhanced efficiency is achieved by the use of surface skin regions and/or a buried layer to confine generated carriers, and by a structure that effects combination of the epitaxial layer-substrate photodiode with the finger photodiode. The low capacitance photodiode is sensitive to visible and infrared light and is useful in high speed circuit applications.

3,812,519
SILICON DOUBLE DOPED WITH P AND AS OR B AND AS

Masakatsu Nakamura; Toshio Yonezawa; Taketoshi Kato, all of Yokohama; Masaharu Watanabe, Kawasaki, and Minoru Akatsuka, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Division of Ser. No. 78,819, Oct. 7, 1970. This application June 19, 1972, Ser. No. 263,994
Claims priority, application Japan, Feb. 7, 1970, 45-10376; Mar. 2, 1970, 45-17103; Mar. 13, 1970, 45-20826; Mar. 28, 1970, 45-25627
Int. Cl. H01l *3/14*
U.S. Cl. 317—234 R **10 Claims**



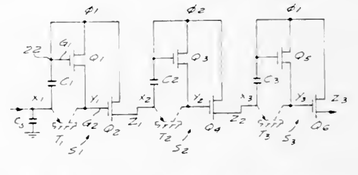
A silicon semiconductor device double doped with phosphorus and arsenic or boron and arsenic, the arsenic being present in an amount 3 to 40 percent of the other dopant and preventing lattice collapse with heavy doping concentrations.

3,812,520
PARASITIC TRANSISTOR SHIFT REGISTER

Lamar T. Baker, West Islip, Long Island, N.Y., assignor to General Instrument Corporation, Newark, N.J.

Filed Aug. 24, 1972, Ser. No. 283,536
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 R **14 Claims**

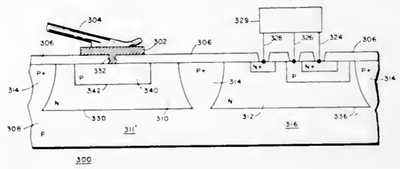
An improved high speed dynamic MOS shift register is designed to operate under the control of a two-phase clock cycle and utilizes only four MOS devices per bit of the register. This is accomplished by using the normally undesirable parasitic transistor inherently formed laterally between the adjacent P regions of two active MOS devices. The thus formed effective transistor is utilized to provide an operative conditional discharge path through the grounded substrate thereby to eliminate the need for additional isolation devices and load resistor ratio circuits. Accordingly, all MOS devices may be formed of a uniform minimum size effective to provide high speed low power switching. Moreover, since parasitic transistor action is actively utilized in the operation of the circuit, the active MOS devices may be formed with their P regions in closely adjacent relationship thereby to increase the density of the circuit on the semi conductor chip.



3,812,521
BONDING PAD SUBSTRUCTURE FOR INTEGRATED CIRCUITS

William Folsom Davis, and Wilson David Pace, both of Tempe, Ariz., assignors to Motorola Inc., Franklin Park, Ill.

Filed Feb. 16, 1973, Ser. No. 333,239
Int. Cl. H01l *5/02*
U.S. Cl. 397—48 **10 Claims**



A bonding pad substructure in a semiconductor device prevents injection of minority carriers into the substrate during negative overvoltages applied to the bonding pad. An N-type isolated region is provided in a P-type substrate. A P-type region is provided within the N-type region, subtending the metal bonding pad which is on an oxide layer on the substrate. Shorts between the bonding pad and the semiconductor which may occur at defects in the oxide layer are thus limited to the P-type region, and negative overvoltages on the bonding pad reverse bias the PN junction so that deleterious injection of electrons from the N-type region into the substrate cannot occur.

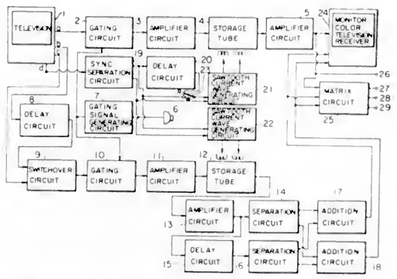
3,812,522
COLOR STILL PICTURE PROJECTING APPARATUS

Yoshiteru Izura, Toyonaka, and Keisuke Okano, Katano, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 26, 1973, Ser. No. 344,922
Claims priority, application Japan, Mar. 29, 1972, 47-31867
Int. Cl. H04n *9/16, 5/80*
U.S. Cl. 358—1 **8 Claims**

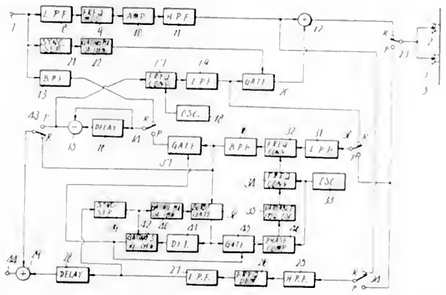
A color still picture projecting apparatus is provided in which color picture signals each consisting of a luminance signal and two kinds of color signals different from each other are received, whereby the luminance signals are recorded on a first storage tube and the two different color signals are extracted at every horizontal scanning period to produce a time

series signal train which signals are then separately recorded on a target of a second storage tube by at every respective



color signals, thereafter the outputs of the first and second storage tubes are read out to reproduce a color still picture. In this way, reproduced pictures of good quality can be obtained.

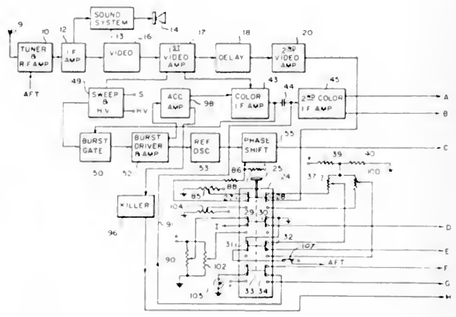
3,812,523
SYSTEM FOR MAGNETICALLY RECORDING AND REPRODUCING TELEVISION SIGNALS
Hisaaki Narahara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Nov. 22, 1972, Ser. No. 308,664
Claims priority, application Japan, Nov. 26, 1971, 46-95501
Int. Cl. H04n *9/02*
U.S. Cl. 358—4 **3 Claims**



A television signal-handling system incorporating a one-line interval delay line and subtracter circuit connected to both the input and output of the delay line to form a comb filter for transmitting intergral harmonics of line-frequency signals to eliminate interleaved luminance signals in the chrominance band in video tape recorder apparatus. Switches reconnect the combfitter, when the apparatus is used to play back video signals with intermittently recorded chrominance components, to recreate a continuous chrominance signal by adding the intermittent chrominance components and replicas thereof delayed one line interval.

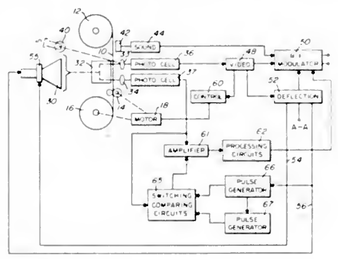
3,812,524
PRESET CONTROL SYSTEM FOR A COLOR TELEVISION RECEIVER
Thomas W. Ivas, Evergreen Park, and William H. Slavik, Palos Hills, both of Ill., assignors to Motorola Inc., Franklin Park, Ill.
Division of Ser. No. 140,489, May 5, 1971, abandoned. This application Oct. 19, 1972, Ser. No. 299,063
Int. Cl. H04n *9/12*
U.S. Cl. 358—28 **5 Claims**

A color television receiver is provided with the customary manual controls for permitting a viewer to adjust brightness, contrast, saturation and hue of the image reproduced by the receiver. In addition, preset controls for brightness, contrast, hue and saturation are provided, and a push-button switch is used to select either the manual or preset controls to establish the characteristics of the reproduced image. With the push-



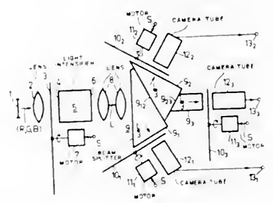
button switch set to select the automatic or preset controls, an AND gate is enabled to cause a shift in the color demodulator angles and further to cause the relative gains of the final output amplifiers to be changed to anhance colors in the range of skin tones reproduced by the receiver.

3,812,525
DYNAMIC PEAKING SYSTEM
Francis H. Hilbert, Addison, Ill., assignor to Motorola Inc., Franklin Park, Ill.
Filed June 22, 1972, Ser. No. 265,377
Int. Cl. H04n *9/00*; **H03g** *1/00*
U.S. Cl. 358—38 **5 Claims**



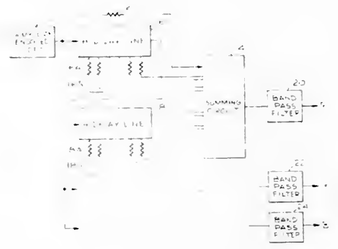
A color television recording system is shown wherein trains of pulses are produced by a CRT sweeping recorded color information on a film. Each train of pulses is preceded by several pulses representative of a low frequency of the system and several pulses representative of a high frequency of the system. The two groups of pulses are separated and detected to provide DC signals which are compared to produce a difference signal. The difference signal is utilized to peak an amplifier in the recording system so that the frequency response of the system is at a predetermined ratio for the high and low frequencies.

3,812,526
LOW LIGHT LEVEL TELEVISION CAMERA
Sing Liong Tan, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 4, 1972, Ser. No. 294,910
Claims priority, application Netherlands, Oct. 9, 1971, 7113890
Int. Cl. H04n *9/08*
U.S. Cl. 358—42 **9 Claims**



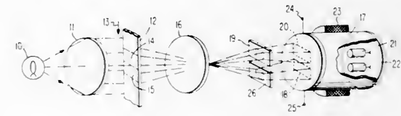
A color television camera arrangement for low light levels comprising a monochrome light intensifier. A rotatable color filter having circular segments of different light transmission characteristics is provided before the light intensifier. Rotatable apertured discs which intermittently and alternately pass the light to camera tubes follow the light intensifier. Protruding parts or apertures of a disc correspond to determined segments of the color filter. Instead of the apertured discs liquid crystals which pass or do not pass light can be used.

3,812,527
TWO-DIMENSIONAL FILTERING FOR ENCODED TELEVISION CAMERA
Albert Macovski, and Louis F. Schaefer, both of Palo Alto, Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Sept. 15, 1972, Ser. No. 289,653
Int. Cl. H04n *9/06*
U.S. Cl. 358—47 **3 Claims**



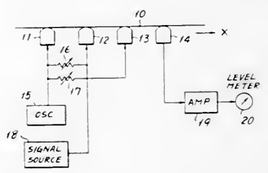
There has been developed a single camera system capable of providing color television signals. The television camera which is employed utilizes encoding filters consisting of three superimposed line grids, each grid being of a different color and making a different angle with the vertical axis. This invention provides a filtering system whereby encoded carriers, created by two of the line grids which make the same angle but are of opposite sign with the vertical axis, may be reliably separated.

3,812,528
TWO COLOR MEDIUM FOR FULL COLOR TV FILM SYSTEM
Robert Earl Flory, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Oct. 2, 1972, Ser. No. 293,800
Int. Cl. H04n *9/06*
U.S. Cl. 358—49 **6 Claims**



A layered information record contains superimposed frames of information wherein a first frame contains luminance information of a scene as density variations of a cyan dye. A second frame superimposed on the first frame contains color encoded chrominance information as density variations of a yellow dye. In a system for playing back the layered information record, white light is projected through the superimposed first and second frames of information and viewed through a red filter for extracting the monochromatic luminance information and a blue filter for extracting the monochromatic color encoded chrominance information.

3,812,529
SYSTEM FOR DISCRIMINATING CLASSIFICATION OF A MAGNETIC RECORDING MEDIUM
Tsuchiya Yoichi, Tokyo, Japan, assignor to Teac Corporation, Tokyo, Japan
Filed Aug. 31, 1972, Ser. No. 285,356
Claims priority, application Japan, Aug. 31, 1971, 46-66765; Aug. 31, 1971, 46-66769
Int. Cl. G11b *27/22*, *27/34*, *5/02*
U.S. Cl. 360—25 **10 Claims**

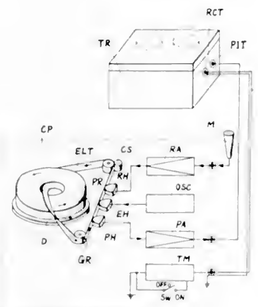


A system for discriminating the classifications of magnetic recording mediums comprises means for recording on a magnetic recording medium a discrimination signal of a constant frequency with a bias of a predetermined quantity, means for erasing partially the discrimination signal thus recorded with a specific degree of erasing in a manner to make possible reproduction, and means for reproducing the discrimination signal thus incompletely erased thereby to obtain a discrimination output. The level of the discrimination signal thus reproduced differs in value depending on the classification of the magnetic material of the magnetic recording medium.

3,812,530
MAGNETIC RECORDING APPLIANCE WITH CONTROL FOR TRANSFERRING DESIRED INFORMATION FROM AN ENDLESS TAPE

Yoshizo Ikegami, Amagasaki, Japan, assignor to Konan Camera Research Institute, Kobe, Japan

Filed Dec. 18, 1972, Ser. No. 315,831
Int. Cl. G11b *15/02, 15/18, 27/08*
U.S. Cl. 360—5 **2 Claims**



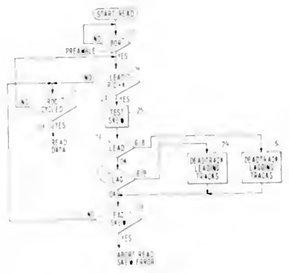
A magnetic recording appliance for use in combination with a tape recorder which is provided with a remote-control terminal for receiving remote-control signals for starting and stopping the recording operation and with a signal-input terminal for receiving signals to be recorded is disclosed. The recording appliance includes an endless magnetic recording tape which has a specified length and a drive system for driving the speed upon which said tape is operatively mounted. A magnetic recording head for magnetically recording a signal onto said endless magnetic recording tape and positioned to contact said tape, a magnetic erasing head positioned to contact said tape for erasing the recorded signal from said magnetic recording tape and a magnetic reproducing head which is arranged to reproduce the signal recorded on said magnetic recording tape are also provided. The reproducing head contacts the tape at a position ahead of the recording head in a recording track of the tape in order to reproduce the signal recorded on the tape a specified time period after the signal has been recorded. An output terminal is coupled to the magnetic reproducing head whereby the signal reproduced by the magnetic reproducing head may be applied to the signal-input terminal of the tape recorder. The reproducing head, erasing head and said recording head are arranged along the running path of the endless tape in such order that the endless tape passes first on the reproducing head, second on the erasing head and finally on the recording head. A delayed-reset timer is operatively connected to the tape recorder remote-control terminal for controlling the starting and stopping of a recording operation in the tape recorder which timer produces the remote-control signal upon activation whereby the tape recorder commences recording and ceases generating the remote-control signal after a preset delay time from a resetting of the switching, thus stopping the tape recorder.

3,812,531
VERIFYING STATUS WHILE INITIALIZING READBACK CHANNELS IN A MULTICHANNEL MAGNETIC RECORD READBACK SYSTEM

Phil H. Hall, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1972, Ser. No. 317,987
Int. Cl. G11b *5/02*
U.S. Cl. 360—26 **8 Claims**

In starting to read a digital magnetic record of the multichannel self-clocking type, comparison circuits monitor deskewing apparatus for determining whether or not any of the channels have had an early start or no start of operation. After any channel has processed a predetermined number of bits within a data field and no deskewed data has been transferred, a test skew operation determines whether one or a small number of channels is in a marginal or almost-excessive

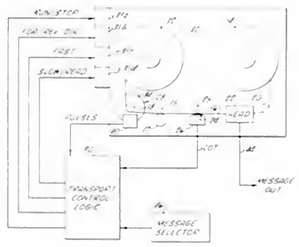


skew condition with respect to all of the other channels. If such is the case, that small number of channels is deadtracked for enabling the readback system to read the record and transfer signals while deadtracking such few channels. The system is preferably employed with so-called "on-the-fly" error corrections.

3,812,532
RANDOM ACCESS MEMORY WITH TAPE RETURN TO A MIDTAPE REFERENCE POSITION AFTER READING

David Keith Crosser, Placentia; Leonard E. Mell, Orange, and John F. Reuvers, Santa Ana, all of Calif., assignors to Carter Industries, Inc., Santa Ana, Calif.

Filed Sept. 25, 1972, Ser. No. 292,106
Int. Cl. G11b *15/52, 15/22, 15/06*
U.S. Cl. 360—72 **11 Claims**

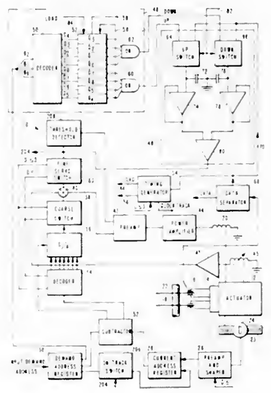


A selected one of a number of messages prerecorded on a tape is rapidly identified and read by a transporter control arrangement in which the tape read heads are positioned near the tape midpoint in a reference position and selection of a number identifying a unique one of the recorded messages causes the transporter to move the tape in an appropriate direction. Tape motion is at high speed until a point close to, but in advance of the selected message is reached. Then tape motion is at an intermediate slower speed until the beginning of the selected message is attained, at which time, a still slower read speed is employed. At the end of the reading of the selected message, the tape is rapidly returned to its reference position in a manner analagous to the tape travel to the selected message.

3,812,533
INFORMATION STORAGE UNIT TRANSDUCER POSITIONING SYSTEM

Noboru Kimura, Gardena, and Kenneth G. Junkert, Manhatten Beach, both of Calif., assignors to Vermont Research Corporation, North Springfield, Vt.

Filed Dec. 22, 1972, Ser. No. 317,678
Int. Cl. G11b *17/00;* **G06f** *13/06*
U.S. Cl. 340—174.1 **22 Claims**



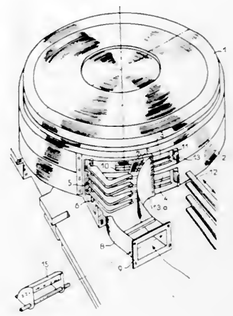
An information storage system is disclosed in which a reticle and associated photocell are used to effect coarse positioning of a transducer relative to a desired informational track, following which a fine system is used for track accessing and following. The transducer senses both information and servo data which are serially disposed on a storage medium such as a magnetic disc, the servo data comprising groups of magnetized pattern areas corresponding to groups of concentric tracks. The pattern areas have staggered flux reversals providing relative track indentification for each group of tracks. A digital address defining the location of a desired track within a group of tracks is decoded so as to generate a window signal determining the polarity of errors in the position of the transducer. The polarities of the sensed flux reversals are coded in time under the control of the window signal so as to provide an error signal which communicates with an actuator to move the transducer toward the desired track and into precision alignment therewith.

3,812,534
VENTILATION DEVICE FOR A MAGNET DISK UNIT

Hubert Cecyl Albert Rousseau, Meudon, and Yves-Jean Francois Brette, Sevres, both of France, assignors to Societe Industrielle Honeywell Bull (Societe Anonyme), Paris, France

Filed Sept. 19, 1972, Ser. No. 290,307
Claims priority, application France, Sept. 30, 1971, 71.35163
Int. Cl. G11b *5/60*
U.S. Cl. 360—98 **7 Claims**

A ventilation device is provided for magnetic disk units housed in a cartridge having openings at its sides to accommodate read and write heads, and brushes. A filtered air duct leads to the interior of the cartridge with the brushes being located in the duct. A portion of the air entering the duct is directed to the opening accommodating the heads to form a

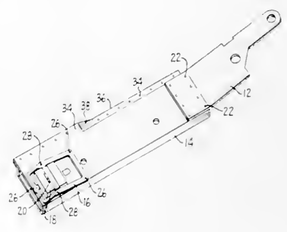


dynamic air curtain which prevents the entry of polluted air inside the cartridge.

3,812,535
DISK RECORDER ARM ASSEMBLY

Ronald W. Higgins, San Jose, and Donald J. Massaro, Sunnyvale, both of Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Oct. 24, 1972, Ser. No. 300,274
Int. Cl. G11b *5/60*
U.S. Cl. 360—103 **6 Claims**



For use in disk recording device requiring retractably support arms for carrying recording transducers over the surface of a rotating magnetic recording disk, a support arm is formed of a thin sheet of stainless steel bent and wrapped into a box configuration for strength and torsional stiffness.

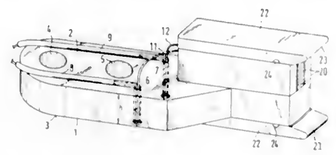
3,812,536
MAGNETIC HEAD HAVING GUIDE SURFACES FOR THE MAGNETIC RECORDING MEDIUM MADE OF CERAMIC MATERIAL

Siegfried Linke, Wilhdm-Magr.-Strasse 1c, Munich, Germany

Filed Sept. 8, 1971, Ser. No. 178,708
Claims priority, application Germany, Sept. 11, 1970, 2045073
Int. Cl. G11b *5/26, 5/58*
U.S. Cl. 360—122 **5 Claims**

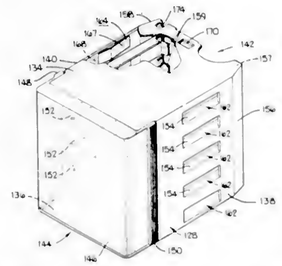
A magnetic head for cassette tape recorders or for other recording devices, wherein those parts which form a bearing

surface for the tape and which hold the magnet system at the gap consist of a ceramic material formed so as to guide both



edges of the tape correctly across the transducing zone. The bearing surface comprises a ceramic base plate and ceramic guide plates.

3,812,537
TAPE CARTRIDGE PLAYER CARTRIDGE MAGAZINE
Bernard Aron Grae, Indianapolis, and Dallas Roy Andrews, Kirklin, both of Ind., assignors to RCA Corporation, New York, N.Y.
Filed Nov. 14, 1972, Ser. No. 306,412
Int. Cl. G11b *23/02*
U.S. Cl. 360—132 **13 Claims**



A tape cartridge magazine includes a top surface and a bottom surface maintained in spaced relationship by a first and second side member to form an enclosure having a front and rear opening. Support rails within the enclosure support a plurality of tape cartridges in a stacked array. Access slots in the first side member provide access into the interior portion of the enclosure to allow manipulation of each of the plurality of tape cartridges by its detent notch between a first and a second position. Each of the plurality of tape cartridges, when in the first position, has its pressure roller farther from the enclosure rear opening than when in the second position.

3,812,538
TRANSVERSELY BANDED FILM FOR MAKING EDGE MARKED MAGNETIC TAPE
Wayne B. Stone, Jr., Bethesda, Md., and Alan Beaumont, Stamford, Conn., assignors to Indexette Tapes, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 199,475, Nov. 17, 1971. This application Dec. 8, 1971, Ser. No. 206,055
Int. Cl. G11b *5/70, 23/28*
U.S. Cl. 360—134 **9 Claims**

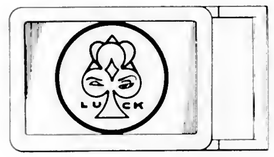


The indefinite length base film destined for use as the substrate to which will subsequently be applied a magnetic coating to produce magnetic tape is initially formed with distinctively colored bands extending transversely of the film throughout the thickness thereof and spaced along the length of the film. Following a conventional magnetic coating step, the film is conventionally cut along multiple parallel lines, longitudinally of the film, to form a plurality of magnetic recording tapes. The colored bands are thus exposed along each of the cut side edges of each tape at spaced intervals along the length thereof. When the tape is wound on a reel, the distinctively colored side edge portions appear as concentric bands upon viewing either side edge of the wound tape.

DESIGNS

MAY 21, 1974

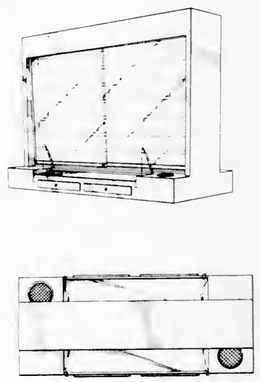
231,666
BELT BUCKLE
Thomas G. Pacitti, 220 Mountain St., Philadelphia, Pa. 19148
Filed Dec. 6, 1971, Ser. No. 205,470
Term of patent 14 years
Int. Cl. D2— *07*
U.S. Cl. D2—431



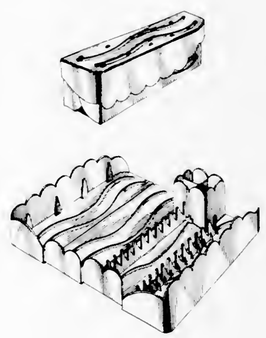
231,667
CHAIR
Paul Tuttle, Santa Barbara, Calif., assignor to Intercollection Development S.A., Kirchberg, Switzerland
Filed Oct. 10, 1972, Ser. No. 296,196
Term of patent 14 years
Int. Cl. D6— *01*
U.S. Cl. D6—31



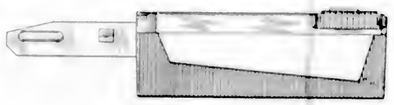
231,668
DISPLAY CABINET
Joe W. Brooks, 1909 Country Club Drive, and Delma C. Waters, E. Highway 44 Drive, A.W., both of Eustis, Fla. 32326; and Paul J. Ciener, 1560 S. Clayton St., Mount Dora, Fla. 32737
Filed June 14, 1972, Ser. No. 262,772
Term of patent 14 years
Int. Cl. D20— *02*
U.S. Cl. D6—167



231,669
DISH RACK
Arthur A. Krause, Hollywood, Calif., assignor to K-Tel International, Inc., Minneapolis, Minn.
Filed Aug. 17, 1972, Ser. No. 281,415
Term of patent 14 years
Int. Cl. D7— *05*
U.S. Cl. D7—188



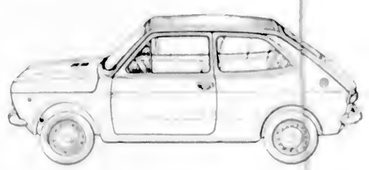
231,670
RAZOR BLADE DISPENSER
Donald M. Genaro, Haworth, N.J., and Clemens A. Iten, Staunton, Va., assignors to Philip Morris Incorporated, New York, N.Y.
Filed Aug. 31, 1972, Ser. No. 285,221
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—224



231,671
FOLDING MOTORIZED VEHICLE
S. Albert Young, Birmingham, Mich., assignor to Harold J. Rineman, Southfield, and Richard Lynn Rineman, Brighton, Mich., fractional part interest to each
Filed Nov. 10, 1972, Ser. No. 305,498
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—1

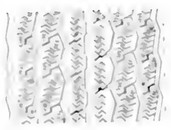


231,672
AUTOMOBILE
Gianpaolo Boano, Turin, Italy, assignor to Fiat Societa per Azioni, Turin, Italy
Filed Aug. 9, 1971, Ser. No. 170,420
Claims priority, application Italy Feb. 19, 1971
Term of patent 7 years
Int. Cl. D12—*08*
U.S. Cl. D12—91



231,673
TIRE
Masahiro Nanpei, Takarazuka, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan
Filed July 27, 1972, Ser. No. 275,670
Claims priority, application Japan Feb. 3, 1972
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—141

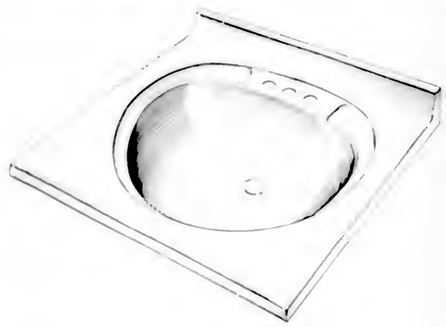




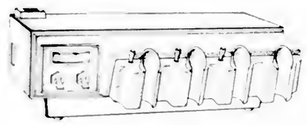
231,674
MOUNTING FOR A RIFLE TELESCOPIC SIGHT
Ivan Jimenez, Ypsilanti, and Irving Rubin, Oak Park, Mich. (both of 27367 Michigan Ave., Inkster, Mich. 48141)
Filed Jan. 29, 1973, Ser. No. 327,578
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—7



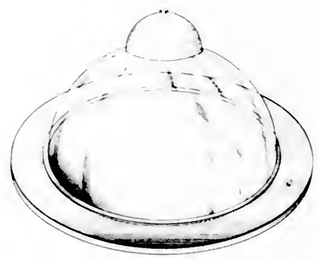
231,675
LAVATORY
Robert W. Fee, Evanston, Ill., assignor to Lawndale Industries, Inc.
Filed Jan. 12, 1973, Ser. No. 323,277
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—58



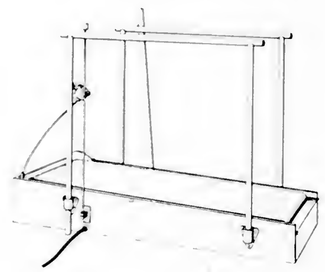
231,676
DENTAL CONTROL UNIT
Lawrence Emerson House II, Baltimore, Md., assignor to Litton Medical Products, Inc., Elk Grove Village, Ill.
Filed Mar. 8, 1973, Ser. No. 339,209
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—1 B



231,677
COMBINED TABLETOP, AQUARIUM AND COVER THEREFOR OR SIMILAR ARTICLE
Robert Erik Miller, 11 Hidden Valley Road, Monrovia, Calif. 91016
Filed Jan. 17, 1972, Ser. No. 218,655
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—8



231,678
TREADMILL
Edward E. Trotter, 95 Marked Tree Road, Holliston, Mass. 01746
Filed Aug. 9, 1973, Ser. No. 386,954
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5 K



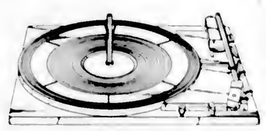
231,679
LIGHTING FIXTURE
John Ansley Keller, Creamery, Pa., assignor to Heavy Light Mfg. Corp., Fairview Village, Pa.
Filed Mar. 7, 1973, Ser. No. 338,790
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D48—4 B



231,680
OUTDOOR LIGHTING FIXTURE
John Ansley Keller, Creamery, Pa., assignor to Heavy Light Mfg. Corp., Fairview Village, Pa.
Filed Mar. 7, 1973, Ser. No. 338,789
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31



231,681
RECORD PLAYER
Hanji Takahashi, Suita, and Ryoichi Takeoka, Tokyo, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed July 31, 1972, Ser. No. 276,608
Claims priority, application Japan Jan. 31, 1972
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4 R



231,682
SPORT BALL BAG
Emmy Lou Sacks, 166 Hillcrest Ave., Summit, N.J. 07901
Filed Aug. 24, 1971, Ser. No. 174,578
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1 R



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB St. Powercell, mesne: *See—*
Siwersson, Olle Lennart; and Tell, Karl Gunnar, 3,811,952.
Abar Corporation: *See—*
Cyrway, Edward N., Jr.; and Schmidt, Charles J., 3,812,276.
Abbe, Robert C., to Ade Corporation. Capacitive wire gauge. 3,812,424, Cl. 324-61.00r.
Abbey, Harold George. Electric-fluidic direct proportion converter. 3,811,465, Cl. 137-487.500.
Abbott Laboratories: *See—*
Liston, Max D., 3,811,780.
Abdullaev, Abakar Abakarovich. Probe for measuring characteristics of subsurface and ground water flow. 3,812,363, Cl. 250-388.000.
Abel, Irving R., to Honeywell, Inc. Wide field reflective optical apparatus. 3,811,749, Cl. 350-55.000.
Abildgaard, William H.; Groswith, Charles T. III; Deman, Heiko T.; and Buan, Danilo P., to Velo-Bind, Inc. Machine for binding books. 3,811,146, Cl. 11-1.00r.
Abler, Norman C., to Faustel, Inc. Pneumatic tension control system. 3,811,637, Cl. 242-75.430.
Abraham, Dennis G.; and McSparran, Ray A., to International Business Machines Corporation. Stepper motor control system using pulse injection for velocity overshoot control. 3,812,414, Cl. 318-696.000.
Abu-Saud, Munther, to ASG Industries Inc. Polariscope for determining stress in a transparent material. 3,811,775, Cl. 356-35.000.
Ackley, Donald M.: *See—*
Rosales, Joseph G., 3,811,742.
AcRite Industries, Inc.: *See—*
Thun, Leonard; and Grebow, Leon David, 3,811,489.
Adachi Plywood Co., Ltd.: *See—*
Handa, Takashi; and Saito, Minoru, 3,811,992.
Adahan, Carmeli. Rate of change of velocity control system. 3,811,526, Cl. 180-82.00r.
Adams, Harry A.; Kunchal, Kumar; and Callahan, James L., to Standard Oil Company, The. Removal of ammonia and organic impurities from an ammonia plant effluent. 3,812,236, Cl. 423-237.000.
Adams, Herbert J. F.; Kronberg, George H.; and Takman, Bertil H., to Astra Pharmaceutical Products, Inc. Acylxylidide local anaesthetics. 3,812,147, Cl. 260-326.300.
Adams, Samuel C.: *See—*
Keenan, Daniel J.; and Welzein, Norman F. (said Welzein assor. to), 3,811,417.
Addressograph-Multigraph Corporation: *See—*
Browning, Luther C., 3,811,880.
Ade Corporation: *See—*
Abbe, Robert C., 3,812,424.
Afendykiw, Marko; Boyle, John M.; and Hendrix, Charles E., to United States of America, Navy. Bistatic passive radar. 3,812,493, Cl. 343-12.00r.
Afga-Gevaert Aktiengesellschaft: *See—*
Hackenbert, Hubert; and Zobel, Siegfried, 3,812,511.
Ageev, Leonid Matveevich: *See—*
Vydrin, Vladimir Nikolaevich; Ageev, Leonid Matveevich; and Sosjurko, Vladimir Georgievich, 3,811,307.
AGFA-Gevaert Aktiengesellschaft: *See—*
Wagensonner, Edward; Borowski, Jurt; and Stumpf, Frederick, 3,812,504.
Zahn, Wolfgang; and Huber, Hans-Peter, 3,811,768.
Agfa-Gevaert N.V.: *See—*
Vrancken, Marcel Nicolas, 3,811,773.
Agfe-Gevaert Aktiengesellschaft: *See—*
Engelsmann, Dieter; Wagensonner, Eduard; Rieder, Alois; and Von Fischern, Bernhard, 3,812,503.
Aghnides, Elie P. Spray producing device. 3,811,619, Cl. 239-428.500.
Agrophysic, Inc.: *See—*
Dickinson, Ben Wade Oakes, III; and Dickinson, Robert Wayne, 3,811,443.
Agrophysics, Inc.: *See—*
Dickinson, Ben W. O., III; Dickinson, Robert W.; and Miller, Cecil R. (said Dickinson, Ben W. O., III, and Dickinson, Robert W., assors. to), 3,811,424.
Dickinson, Ben Wade Oakes, III; and Dickinson, Robert Wayne, 3,811,423.
Ahlqvist, Stein Alexander Marcel. Tube wall. 3,811,478, Cl. 138-154.000.
Ahrano, Cary J., to Gulton Industries, Inc. Electrical switch with high pressure contacts. 3,812,309, Cl. 200-48.00a.
Ahrens, James M.: *See—*
Leonard, Ronald J.; and Ahrens, James M., 3,811,317.
Air Products and Chemicals, Inc.: *See—*
Moyer, Ronald C., 3,812,217.
Uffner, Melville W.; and Holland, Dewey G., 3,811,933.
Aisaka, Akira: *See—*
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi; and Yamamoto, Hisao, 3,812,257.
Aisin Seiki Kabushiki Kaisha: *See—*
Sakakibara, Naoji, 3,811,418.
Aizawa, Hiroshi; and Ogiso, Matsutoshi, to Canon Kabushiki Kaisha. Electric control device for a camera. 3,812,510, Cl. 354-235.000.
Ajero, Fortunato S., to Hughes Co., Inc. Apparatus for orienting tapered articles. 3,811,550, Cl. 198-33.0aa.
Akase, Takeshi: *See—*
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,135.
Akatsu, Mitsuhiro: *See—*
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Akatsuka, Minoru: *See—*
Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, 3,812,519.
Aker, John L., to Kustom Electronics, Inc. Special effect amplifier for electrical musical instruments. 3,812,278, Cl. 84-1.250.
Alar Engineering Corporation: *See—*
Doncer, Alex J.; and White, Harold R., 3,811,324.
Albright, Jay Donald; and Shepherd, Robert Gordon, to American Cyanamid Company. Methods of preparing 2-cyano-1-substituted-5-nitroimidazoles. 3,812,141, Cl. 260-309.000.
Aldred, Edward John, to Ransomes Sims & Jefferies Limited. Grass cutting or the like machines. 3,811,524, Cl. 180-6.200.
Allied Chemical Corporation: *See—*
Bostian, Logan C., 3,812,120.
Stone, Herman; Robertson, Arthur B.; and Tetenbaum, Marvin T., 3,812,066.
Vander Mey, John E., 3,812,020.
Weedon, Gene Clyde, 3,812,178.
Allis-Chalmers Corporation: *See—*
Hartwig, Walter J., 3,811,557.
Kemnitz, Robert H., 3,811,626.
Allison, James E.; and Boecker, Bob F., to General Electric Company. Treating agent dispenser for automatic washing machine. 3,811,600, Cl. 222-70.000.
Allison, William D., to Ford Motor Company. Energy absorbing steering column for motor vehicles. 3,811,337, Cl. 74-492.000.
Alsbury, Allan, to Lever Brothers Company. Toilet bars. 3,812,060, Cl. 252-555.000.
Alston, Robert B.: *See—*
Burnett, David B.; Alston, Robert B.; and Lim, Frank H., 3,811,501.
Aluminum Company of America: *See—*
Russell, Allen S.; Jarrett, Noel; Bruno, Marshall J.; and Remper, John A., 3,811,916.
Wilson, Richard C., 3,811,596.
Alza Corporation: *See—*
Heller, Jorge; and Baker, Richard W., 3,811,444.
Amano, Takehisa: *See—*
Tomisawa, Norio; Amano, Takehisa; Uchiyama, Yasuji; and Okumura, Takatoshi, 3,812,478.
Amelio, Armand F., to United Aircraft Corporation. Engine air particle separator with fluid scavenge pump. 3,811,254, Cl. 55-306.000.
Amendolia, Pasquale J., to Motor Devices Corporation. Testing device for shock absorbers and the like. 3,811,316, Cl. 73-11.000.
American Cyanamid Company: *See—*
Albright, Jay Donald; and Shepherd, Robert Gordon, 3,812,141.
Chinai, Suresh Natvarlal; and Brigmainis, Edmund, 3,812,004.
Curran, William Vincent, 3,812,256.
English, Jackson Pollard; and Berkelhammer, Gerald, 3,812,189.
Feldman, Allan Murray, 3,812,080.
Martin, John Henry Edward James; and Kantor, Sidney, 3,812,249.
Nozik, Arthur Jack, 3,811,953.
Rauch, Francis Clyde; and Arzoumanidis, Gregory Gerasimos, 3,812,137.
Starer, Ira; Montgomery, Carroll Sherman; and O'Bara, Edward John, 3,812,194.
Weston, Norma Ann, 3,812,052.
Williams, Laurence Lyman; and Coscia, Anthony Thomas, 3,812,084.
Ziegler, William M., 3,812,188.
American Esna Corporation: *See—*
Morgan, Donald F., 3,811,211.
American Filtrona Corporation: *See—*

Berger, Richard M., 3,811,451.
American Plasticraft Company: *See*—
Simovits, Stephen S., Jr.; and Dumas, Christ J., 3,812,450.
American Standard Corporation: *See*—
Montgomery, Earl D., 3,811,229.
American Standard Inc.: *See*—
Anderson, Warren Gregory, 3,812,229.
Brinker, John H., 3,811,238.
Ametek, Inc.: *See*—
Valle, Howard C., 3,811,786.
Anaconda Company, The: *See*—
Barone, Angelo P.; D'Ascoli, Ralph G.; and Bechle, Charles W., 3,811,311.
Anaconda Company, The, mesne: *See*—
Burr, Harvey, 3,811,257.
Kothe, Erich W.; Ebel, Lawrence C.; and E'Ascoli, Ralph C., 3,812,283.
Andersen, Hans Christian: *See*—
Hahne, Eckhardt, 3,811,390.
Andersen, Poul H.; Povlaitus, Frank R.; and Himes, Robert S., to Chrysler Corporation. Impact velocity sensor switch with linearly movable controller. 3,812,312, Cl. 200-61.530.
Anderson, Daniel J., to Mallory, P. R., & Co. Electrolytes 3,812,038, Cl. 252-62.200.
Anderson, James D.; and Cheh, Ernest L., to Burndy Corporation. Positive locking contact insertion and testing tool. 3,811,168, Cl. 29-203.00h.
Anderson, Warren Gregory, to American Standard Inc. Process for forming ceramic sanitary ware having a stone-like appearance. 3,812,229, Cl. 264-60.000.
Anderson, Wendell W.: *See*—
Apple, Willis, J.; and Anderson, Wendell W., 3,811,756.
Anderson, William H. Camping trailer. 3,811,723, Cl. 296-26.000
Anderson, William T., to Do All Company. Tool changer. 3,811,179, Cl. 29-568.000.
Andress, Harry J., Jr.; and Ashjian, Henry, to Mobil Oil Corporation. Liquid hydrocarbon fuels. 3,811,847, Cl. 44-63.000.
Andrew, Dallas Roy: *See*—
Grae, Bernard Aron; and Andrew, Dallas Roy, 3,812,537.
Angelis, William J.; Berger, Robert E., and Conkey, Robert E., to Goodyear Tire & Rubber Company, The. Combined piston-return mechanism. 3,811,366, Cl. 92-130.000.
Anouchi, Abraham Y. Time-interval rate meter for time measuring devices and method for checking time pieces. 3,811,314, Cl. 73-6.000.
Antolelic Industries, Ltd.: *See*—
Purchase, F. Jack, 3,812,486.
Aono, Shunji: *See*—
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi; and Yamamoto, Hisao, 3,812,257.
Apple, Willis, J.; and Anderson, Wendell W. Dual image refraction testing device. 3,811,756, Cl. 351-17.000.
Applied Photo Sciences, Inc., mesne: *See*—
Wyckoff, Charles W., 3,812,507.
Aprahamian, Robert: *See*—
Bhuta, Pravin G.; Johnson, Robert L.; Aprahamian, Robert; and Jacoby, Jerold L., 3,812,454.
Apstein, Maurice. Programmed venous assist pump. 3,811,431, Cl. 128-64.000.
Arai, Hiroshi: *See*—
Nakamura, Akira; Arai, Hiroshi; and Ohta, Jun, 3,811,739.
Arai, Tomiji: *See*—
Muraishi, Masakazu; Hamada, Noriaki; Shinkawa, Toshiyuki; and Arai, Tomiji, 3,811,726.
Archer Daniels Midland Company: *See*—
Atkinson, William T., 3,812,267.
Archer, David H.; Brecher, Lee E.; Morris, Joe P.; Talko, Francis; and Taylor, Herbert L., to Westinghouse Electric Corporation. Method for producing refractory metal members by vapor deposition, and resulting product. 3,811,936, Cl. 117-217.000.
Argoudelis, Alexander D.; and Coats, John H., to Upjohn Company, The. Process for preparing lincomycin. 3,812,014, Cl. 195-80.00r.
Argoudelis, Alexander D.; Coats, John H.; and Sebek, Oldrich K., to Upjohn Company, The. N-demethyleelesticetin derivatives. 3,812,096, Cl. 260-210.00r.
Ariyama, Kenzo; Muramatsu, Shigeru; and Namiki, Ryoichi, to Ricoh Co., Ltd. Powder image fixing device for xerographic copying apparatus and method. 3,811,821, Cl. 432-8.000.
Arkansas Rock and Gravel Co.: *See*—
Holland, John H., 3,811,602.
Armstrong, Alvin P., to Kolob Holding Limited. Vertical lift trailer. 3,811,697, Cl. 280-43.180.
Armstrong, W. G., Sir, Whitworth & Company (Engineers) Limited: *See*—
Tryhorn, Donald Wilfred, 3,811,807.
Arnault, Warren J. Pipe hanger. 3,811,644, Cl. 248-56.000.
Arnold, James T., to Varian Associates. Membrane, gas separator with means for removing water vapor. 3,811,319, Cl. 73-23.000.
Arnold, Orlan M.; and Vancini, Carlo A., to Peabody Engineering Corporation. Gas washing device with reversing spray paths. 3,811,249, Cl. 55-84.000.
Arova Schaffhausen AG: *See*—
Villiger, Felix; and Gerber, Albert, 3,811,480.
Arthur, Allen, Co., Inc.: *See*—
Bretton, Cal, 3,811,453.
Artisan Industries, Inc.: *See*—
Cherenson, Edward L., 3,811,822.
Artwick, Kert Edward, and O'Neil, Robert Anthony, to Hanson Scale Company. Bathroom scale. 3,811,523, Cl. 177-180.000.
Arzoumanidis, Gregory Gerasimos: *See*—
Rauch, Francis Clyde; and Arzoumanidis, Gregory Gerasimos, 3,812,137.
Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Nakajima, Tohru; and Marui, Masatoshi, 3,812,497.
Asahina, Michio: *See*—
Harigaya, Hiroshi, Kasai, Kazutomo, and Asahina, Michio, 3,811,876.
ASG Industries Inc.: *See*—
Abu-Saud, Munther, 3,811,775.
Ashjian, Henry: *See*—
Andress, Harry J., Jr., and Ashjian, Henry, 3,811,847.
Ashland Oil, Inc.: *See*—
Robin, Michael, and Schulte, Sheldon R., 3,812,220.
Asselman, George Albert Apolonia; and Dirne, Adrianus Petrus, to U.S. Philips Corporation. Heat transfer device. 3,811,496, Cl. 165-105.000
Astra Pharmaceutical Products, Inc.: *See*—
Adams, Herbert J. F.; Kronberg, George H., and Takman, Bertil H., 3,812,147.
Aten, Albert Christiaan, Van Santen, Gerrit, and Renirie, Fredericus Hendricus Ignatius, to U.S. Philips Corporation, mesne. Photosensitive device with connection electrodes on major surface and floating electrode on opposite surface. 3,812,346, Cl. 250-211.00r.
Atkinson, William T., to Archer Daniels Midland Company. Extruded proteinaceous materials. 3,812,267, Cl. 426-104.000
Atlantic Research Corporation. *See*—
Henderson, Charles B., 3,811,970.
Atlantic Richfield Company: *See*—
Curtin, Daniel J., 3,811,614
Atlas Copco Aktiebolag: *See*—
Blomberg, Jarl Joel; Elmessaar, Heino, and Karden, Karl Gosta, 3,811,514
Aubert, Emilien; and Des Rosiers, Jacques. Antifungal suppository and method of treating fungus infestations. 3,812,250, Cl. 424-148.000
Augustine, Frank B. Cone spray nozzle and method for making the same. 3,811,621, Cl. 239-520.000.
Aulenbach, Grant M.: *See*—
Goda, Kermit J., Jr., and Aulenbach, Grant M., 3,811,875.
Aumuller, Walter. *See*—
Weber, Helmut; Aumuller, Walter; Muth, Karl, and Weyer, Rudi, 3,812,185.
Austin, Robert R., and Creighton, David M., to International Telephone and Telegraph Corporation. Apparatus for the concentration reduction of a gas stream. 3,811,253, Cl. 55-270.000.
Automated Building Components, Inc.: *See*—
Jureit, John Calvin, and Castillo, Adolfo, 3,811,578.
Automation Equipment, Inc.: *See*—
Swoager, Jon R., 3,811,290.
Automobiles Peugeot. *See*—
Castarede, Armand, 3,811,333.
Avampato, Dominic C.; Dibella, Robert N., and Vasas, Roger E. Biochemical fuel cell and method of operating same. 3,811,950, Cl 136-86.00e.
Avco Corporation. *See*—
Hill, Charles E., and Brobeck, William R., 3,812,458.
Avins, Jack, to RCA Corporation. Television receiver using synchronous video detection. 3,812,289, Cl. 178-7.30r
Avramidis, Stellios A.: *See*—
Brown, Martin S.; and Avramidis, Stellios A., 3,811,332.
Baaso, George L., to United States of America, Army, The. Trailer hitch. 3,811,708, Cl. 280-433.000.
Babbitt, John M.; Spayd, Richard W.; and Irani, Nayyir F., to Eastman Kodak Company. Method for increasing the viscosity of dilute photographic emulsions and elements prepared thereby. 3,811,897, Cl. 96-114.000.
Babcock & Wilcox Company, The: *See*—
Ferraro, John J.; and McDonald, Bertrand Norval, 3,811,498.
Bach & Co.: *See*—
Sturm, Hermann, 3,812,452.
Back, Karl Johan, to Oy Cyklop AB. Sealing tongs. 3,811,481, Cl. 140-93.200.
Back, Karl Johan; and Walhelm, Ragnar Ilmari Olof, to Oy Cyklop AB. Stealing tongs. 3,811,482, Cl. 140-93.400.
Bacon, James F., to United Aircraft Corporation. Non-toxic invert analog glass compositions of high modulus. 3,811,901, Cl. 106-50.000.
Bader, Henry; and Chiang, Yunn H., to Polaroid Corporation. Process for the preparation of 1,8-naphthaldehydic acid. 3,812,115, Cl. 260-343.20r.
Bader, Henry; Feingold, Michael; and Jahngen, Edwin G., Jr., to Polaroid Corporation. Process for producing developers for silver halide image patterns. 3,812,191, Cl. 260-590.000.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See*—
Glaser, Rudolf; Schmidtchen, Juergen; and Bauer, Peter, 3,812,207.
Tatzel, Hermann; and Beck, Gilbert, 3,812,062.
Baer, Robert B.: *See*—
Weinstein, Martin; Speirs, Kenneth K.; and Baer, Robert B., 3,811,959.

Bafford, Richard Anthony: *See*—
Sheppard, Chester Stephen; MacLeay, Ronald Edward; and Bafford, Richard Anthony, 3,812,095.
Bagby, John P.: *See*—
Hapke, Kenyon A.; and Bagby, John P., 3,811,612.
Baile, Clifton A.; McLaughlin, Carol Lynn; and Webb, Robert Lee, to Smithkline Corporation. Methods and compositions for improving the feed intake of meat producing animals. 3,812,255, Cl. 424-244.000.
Bakal, Abraham: *See*—
Corey, Harold; Bakal, Abraham; Konigsbacher, Kurt; and Schoenholz, Daniel, 3,812,268.
Baker, Bob Jim: *See*—
Tink, Robert MacMillan, and Baker, Bob Jim, 3,812,292.
Baker, Eugene E.: *See*—
Morrisett, O. L.; and Baker, Eugene E., 3,811,500.
Baker, Lamar T., to General Instrument Corporation. Parasitic transistor shift register. 3,812,520, Cl. 357-41.000.
Baker, Raymond J. Replaceable game table rail. 3,811,673, Cl. 273-9.000.
Baker, Richard W.: *See*—
Heller, Jorge; and Baker, Richard W., 3,811,444.
Baker, Robert G.; and Reighard, Alan B., to Nordson Corporation. Thermoplastic dispenser system. 3,811,405, Cl. 118-2.000.
Bald, James F., Jr.: *See*—
Funke, Maurice F.; and Bald, James F., Jr., 3,812,368.
Bald, James F., Jr., to United States of America, Army. Inorganic thermal reaction battery. 3,811,948, Cl. 136-83.00t.
Baldwin, John J.; and Novello, Frederick C., to Merck & Co., Inc. Trisubstituted imidazoles. 3,812,136, Cl. 260-294.900.
Ballin, Gene. Separable interlocking fasteners and method of making them. 3,811,156, Cl. 24-201.00c.
Ballu, Louis, to Pneumatiques Caoutchouc Manufacture et Plastiques Kleber-Colombes. Floating anti-pollution barrier device. 3,811,285, Cl. 61-1.00f.
Baltes, Hans. Method and drying closet for drying laundry and the like. 3,811,198, Cl. 34-24.000.
Baltimore and Ohio Railroad Company, The: *See*—
Schmidt, Joseph J., 3,812,325.
Balzer & Droll KG: *See*—
Muskulus, Willi; and Kramer, Willi, 3,811,630.
Banks, Ronald Eric; and Haszeldine, Robert Neville, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defence in Her Britannic Majesty's Government of the. Polyfluoropolymers. 3,812,206, Cl. 260-890.000.
Bantam Steam Company, Inc.: *See*—
Minton, Richard L., 3,811,414.
Baran, John S.; and Pitzele, Barnett S., to Searle, G. D., & Co. Ammonium salts of 3β-(2-O-β-D-glucopyranuronosyl-α-D-glucopyranuronosyl)oxy) olen-12-en-30-oic acid. 3,812,097, Cl. 260-210.00r.
Barber-Greene Company: *See*—
Beaty, Ronald W., and Martenson, Earl D., 3,811,787.
Bareggi, Vittorio: *See*—
Barilli, Filippo, Cozza, Giorgio; and Bareggi, Vittorio, 3,812,242.
Barilli, Filippo, Cozza, Giorgio; and Bareggi, Vittorio, to Societa Italiana Resine S.p.A. Process for the simultaneous production of sulphur dioxide and concentrated aqueous sulphuric acid. 3,812,242, Cl. 423-530.000
Barkan, Philip, Kelley, Fred W., Jr., and Shook, Theodore A., to General Electric Company. Increasing the initial flow rate in a rectifier assembly employing electromagnetically-pumped liquid metal for cooling. 3,812,404, Cl. 317-234.00r.
Barmag Barmer Maschinenfabrik Aktiengesellschaft: *See*—
Mayer, Manfred, and Maydowski, Reinhard, 3,811,631.
Barnhart, Morris W.: *See*—
Walsh, Charles J.; and Barnhart, Morris W., 3,812,288.
Barone, Angelo P.; D'Ascoli, Ralph G., and Bechle, Charles W., to Anaconda Company, The. Making flat copper-clad steel wire. 3,811,311, Cl. 72-278.000.
Barraclough, Christopher George; and Brown, James Roger, to GEC-Elliott Automation Limited. Raster-scanned display devices. 3,812,491, Cl. 340-324.0ad.
Barrera, Salvatore E., to Wilkes Pool Corporation. Adapter. 3,811,712, Cl. 285-132.000.
Barrett, Hillard E.; Clark, Donald B.; and Seid, Bernard, to United States of America, Army, mesne. Fluid-tight high temperature flexible joint. 3,811,713, Cl. 285-226.000.
Barrett, James H., to Rohm & Haas Company. Method of preparing anion exchange resins with sulfuryl chloride. 3,812,061, Cl. 260-2.10e.
Barringer, Hulbert V.: *See*—
Gravlee, Leland C.; and Barringer, Hulbert V., 3,811,449.
Barthel, Ray L. Mini-bike two-speed planetary transmission with stationery ring, carrier output and novel clutching means. 3,811,342, Cl. 74-750.00r.
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., to Corning Glass Works. Degradable glass suitable for containers. 3,811,853, Cl. 65-23.00.
Barton, Henry W.; and Cloud, Robert, to Unimac Company, Inc. Spray rinse device for washer-extractor. 3,811,300, Cl. 68-12.00r.
Barton, Sterling C.; and Schmitt, Nickolas, to General Electric Company. Composite armature core for dynamoelectric machine. 3,812,392, Cl. 310-259.000.
Basch, Harold I.: *See*—
Lee, Bong Kuk; Ryu, Dewey D. Y.; Miraglia, Gennaro John; Basch, Harold I.; and Mukherjee, Barid B., 3,812,110.
BASF Wyandotte Corporation: *See*—
Lengsfeld, Wolfgang, 3,812,122.
Bassett, Kirk W. Core chucks. 3,811,632, Cl. 242-46.400.
Bassett, Max, to Shields, C. Nelson, Jr., trustee. Methods of grouting offshore structures. 3,811,289, Cl. 61-46.000.
Batcher, Kenneth E., to Goodyear Aerospace Corporation. Permutation network. 3,812,467, Cl. 340-172.500.
Bateman, Robert F.: *See*—
Eckdahl, Thomas H.; and Bateman, Robert F., 3,811,595.
Bateman, Robert F., to Plastics, Inc. Tray. 3,811,566, Cl. 206-509.000.
Bates, Wayne C., to Truth Incorporated. Sash lock. 3,811,718, Cl. 292-241.000.
Batsch, Guy, to Societe Civile Textile dite: Socitex. Twisting device for filaments, especially for textile filaments. 3,811,258, Cl. 57-34.0hs.
Batson, William A.: *See*—
Seely, Robert W.; and Batson, William A., 3,811,361.
Battelle-Institut e.V.: *See*—
Hartmann, Rudolf; and Zimmermann, Horst, 3,811,283.
Bauer, Benjamin B., to Columbia Broadcasting Systems, Inc. Quadraphonic reproducing system with gain riding logic. 3,812,295, Cl. 179-1.0gq.
Bauer, David J., to Ford Motor Company. Latch and anti-rattle clip. 3,811,725, Cl. 296-66.000.
Bauer, Donald J.; Lindstrom, Roald W.; and Schultze, Lawrence E., to United States of America, Interior. Solvent extraction procedure for separating samarium from neodymium. 3,812,232, Cl. 423-21.000.
Bauer, Peter: *See*—
Glaser, Rudolf; Schmidtchen, Juergen; and Bauer, Peter, 3,812,207.
Bauer, Peter; and Bowles, Romald E., to Bowles Fluidics Corporation. Miniaturized fluidic element and circuit construction. 3,811,474, Cl. 137-833.000.
Bauer, Robert; Rosenfield, Richard Gordon; and Rupe, Chauncey Orvis, to Miles Laboratories, Inc. Test device for detecting low concentrations of substances in fluids. 3,811,840, Cl. 23-253.0tp.
Baumann, Bernard. Method of manufacturing tanks for liquids. 3,811,173, Cl. 29-460.000.
Baumann, Rudolf: *See*—
Lesk, Adolf; Baumann, Rudolf; and Link, Otmar, 3,811,248.
Baus, Rene, Jr.; and Epstein, Lewis. Camera. 3,811,770, Cl. 355-67.000.
Baxter Laboratories, Inc.: *See*—
Leonard, Ronald J.; and Ahrens, James M., 3,811,317.
Lowy, George W., 3,811,781.
Skinner, Charles A., 3,812,321.
Bay, Otto. Clamping holder for a cutting tool. 3,811,162, Cl. 29-96.000.
Bayer Aktiengesellschaft: *See*—
Boehmke, Gunther; and Schmitt, Ernst, 3,812,107.
Brack, Alfred; and Gomm, Walter, 3,812,108.
Braden, Rudolf; Hendricks, Udo; Oertel, Gunter; and Schliebs, Reinhard, 3,812,221.
Meiser, Werner; Buchel, Karl Heinz; and Plempel, Manfred, 3,812,142.
Schafer, Heinrich; and Nieder-Vahrenholz, Hans Georg, 3,812,234.
Wolf, Gerhard Dieter; Blankenstein, Gunter; and Nischk, Gunther, 3,812,085.
Bazhal, Anatoly Ignatievich; Mishkin, Alexandr Ilich; and Bessarab, Anatoly Antonovich. Percussive drilling machine. 3,811,515, Cl. 173-93.000.
Beasley, Robert W., to Nelson, Ted, Company. Form for portable concrete building module. 3,811,646, Cl. 249-144.000.
Beason, Lew R.: *See*—
Hill, William E.; and Beason, Lew R., 3,811,966.
Beati, Enrico: *See*—
Natta, Giulio; Beati, Enrico; Severini, Febo; and Toffano, Silvio, 3,812,204.
Beaty, Ronald W.; and Martenson, Earl D., to Barber-Greene Company. Screed attached grade reference mechanism. 3,811,787, Cl. 404-84.000.
Beaumont, Alan: *See*—
Stone, Wayne B., Jr.; and Beaumont, Alan, 3,812,538.
Bechle, Charles W.: *See*—
Barone, Angelo P.; D'Ascoli, Ralph G.; and Bechle, Charles W., 3,811,311.
Beck, Alexander. Facet grinding apparatus. 3,811,230, Cl. 51-127.000.
Beck, Gilbert: *See*—
Tatzel, Hermann; and Beck, Gilbert, 3,812,062.
Becker, Otto Alfred. Insulating flexible composite element. 3,811,239, Cl. 52-406.000.
Becton, Dickinson and Company: *See*—
Fowler, James McFarland, Jr., 3,811,250.
Gravlee, Leland C.; and Barringer, Hulbert V., 3,811,449.
Miller, Jack, 3,812,425.
Bednar, Ladislav: *See*—
Stefek, Oldrich; Triska, Vojtech; and Bednar, Ladislav, 3,811,310.
Behrendt, Lothar: *See*—
Schorr, Manfred; Durchkeimer, Walter; Behrendt, Lothar; and Duwel, Dieter, 3,812,131.
Bell & Howell Company: *See*—
Berk, Walter E.; and Kulykivsky, Gregory H., 3,812,513.

Haake, Robert, 3,811,685.
Hapke, Kenyon A.; and Baghy, John P., 3,811,612.
Wagner, Everett F.; Sidlo, Joseph J.; and Ruschke, Lawrence J., Jr., 3,812,307.

Bell Company, Inc., The: *See—*
Mansnerus, John A.; and Dombrowski, Ted A., 3,811,817.

Bell, Gunter: *See—*
Wehner, Karl-Heinz; Bell, Gunter; and Watermann, Willy, 3,811,288.

Bell, Lon E.; and Gruber, William B., to Technar, Incorporated. Ball actuated inertia switch. 3,812,308, Cl. 200-61.45r.

Bell Telephone Laboratories, Incorporated: *See—*
Dittrich, Robert George; Secord, Dean Brian; and Thelemaque, Louis Emanuel, 3,812,298.
Dunkleberger, La Rue Norman; and Shen, Lawrence Yun Lung, 3,811,794.
Hanson, Robert Louis, 3,812,432.
Hayashi, Izuo, 3,812,516.
Kish, Donald Eugene; and Smith, James Lanson, 3,812,480.
Lesh, Nathan George; O'Day, Peter Joseph; and Unger, Burton Abram, 3,811,973.
Ostapiak, Roman; and Scuderi, Rudolph, 3,812,435.
Pedersen, Thomas Josef, 3,812,294.
Ramaswamy, Vellayan, 3,811,912.

Bellamy, Winthrop D.; and Chakrabarty, Anada M., to General Electric Company. Soluble cellulase enzyme production. 3,812,013, Cl. 195-66.00r.

Bellmer, Friedrich O., to Fedders Corporation. Compressor valve assembly. 3,811,468, Cl. 137-512.150.

Beltone Electronics Corporation: *See—*
Brander, Richard; and Weiss, Erwin M., 3,812,300.

Bender, Newell R.: *See—*
Larson, William M.; and Bender, Newell R., 3,812,003.

Bendix Corporation, The: *See—*
Coman, William E., 3,812,378.
Eifler, Raymond J.; and Hennessey, Walter F., 3,812,447.
Gollomp, Bernard P., 3,812,334.
Goodrich, George W., 3,812,490.
Seelig, Frederick A., 3,811,665.

Benesch, Frederick E. Bingo card holder. 3,811,680, Cl. 273-136.00g.

Benge, Donald. Warfare game. 3,811,679, Cl. 273-131.0bb.

Bennett, Charles L.: *See—*
Frederick, Norman L.; and Bennett, Charles L., 3,811,163.

Bennett, Donald Alfred, to International Synthetic Rubber Company Limited, The. Polymerisation of vinyl aromatic compounds. 3,812,088, Cl. 260-93.50r.

Benson, Jack O.: *See—*
Tucker, Raymond Z.; and Benson, Jack O., 3,811,706.

Benson, Robert W.; Chapman, James Ronald; Reed, Robert G.; and Smith, Hoyt L., to Cutters Machine Company, Inc. Electrically controlled cloth spreading machine. 3,811,669, Cl. 270-31.000.

Benz, Mark G., to General Electric Company. Large grain cobalt-samarium intermetallic permanent magnet material stabilized with zinc and process. 3,811,962, Cl. 148-103.000.

Berger, Richard M., to American Filtrona Corporation. Tobacco smoke filter. 3,811,451, Cl. 131-10.00r.

Berger, Robert E.: *See—*
Angelis, William J.; Berger, Robert E.; and Conkey, Robert E., 3,811,366.

Berk, Walter E.; and Kulykivsky, Gregory H., to Bell & Howell Company. Photographic shutter. 3,812,513, Cl. 354-263.000.

Berkeley Applied Research Corporation: *See—*
Neale, Robert E.; Wilhelmsen, Paul C.; and Winterhalter, David R., 3,811,682.

Berkelhammer, Gerald: *See—*
English, Jackson Pollard; and Berkelhammer, Gerald, 3,812,189.

Berndt, Hans-Detlef; Steinbeck, Hermann; and Wiechert, Rudolf, to Schering Aktiengesellschaft. 18-Methyl-5α-H-androstane derivatives and process of making the same. 3,812,165, Cl. 260-397.400.

Bertin, Daniel; Perronnet, Jacques; and Teche, Andre, to Roussel-UCLAF. Novel tetrahydropyrimidines. 3,811,863, Cl. 71-92.000.

Bertrand, Gerard; Perroud, Paul; and Sylvestre-Baron, Martial, to Commissariat a l'Energie Atomique. Pressurized electrolyzer including gas product-electrolyte separating means. 3,812,026, Cl. 204-270.000.

Bertrand, Yves; and Grebert, Robert, to Eta Francais represente par le Ministre d'Etat Charge de la Defense Nationale, Delegation Ministerielle pour l'Armement Quai Henri. Fuse powder composition. 3,811,969, Cl. 149-20.000.

Bertsch, Hermann. Method of making stone reliefs. 3,811,909, Cl. 117-8.500.

Besozzi, Alfio J.; Cooley, Stone D.; and Potts, Fred E., III, to Petro-Tex Chemical Corporation. Preparation of dihydrofuran from 3,4-epoxy-1-butene, 3,4-dihydroxy-1-butene, or 1,3-dihydroxy-2-butene. 3,812,158, Cl. 260-346.10r.

Bessarab, Anatoly Antonovich: *See—*
Bazhal, Anatoly Ignatievich; Mishkin, Alexandr Ilich; and Bessarab, Anatoly Antonovich, 3,811,515.

Bethlehem Steel Corporation: *See—*
Saylor, William H., Jr., 3,811,305.

Bettinger, James H., to United Fabricating Company, Inc., mesne. Raised floor panel and assembly. 3,811,237, Cl. 52-126.000.

Bey, Alvin E., to Dow Corning Corporation. Textile finishing composition and process. 3,812,201, Cl. 260-824.00r.

Beyer, Harry A.: *See—*
Gangelhoff, Fred R., and Beyer, Harry A., 3,811,226.

Bhuta, Pravin G.; Johnson, Robert L.; Aprahamian, Robert; and Jacoby, Jerold L., to TRW Inc. Low frequency parametric acousto-optical emaging method and apparatus. 3,812,454, Cl. 340-3.00r.

Bianchi, Massimo; and Conti, Gianni, to Billi, G., & C. S.p.A. Circular knitting machine with jack removal slots. 3,811,296, Cl. 66-8.000.

Bickford, John C., to Hydraulic Systems, Inc. Piston pump with self-lubrication pistons. 3,811,798, Cl. 417-269.000.

Bieler, Barrie H.; Morgan, David C.; and Guebert, Kenneth W., to Dow Chemical Company, The. Basic oxygen process using a sodium hydroxide reaction product flux. 3,811,870, Cl. 75-52.000.

Bilinski, Donald J.; and Weisbord, Leon, to Singer Company, The, mesne. Method of manufacturing flexure hinge assembly. 3,811,172, Cl. 29-445.000.

Bilinski, Donald J.; Galowin, Lawrence S.; and Napolitano, Michael, to Singer Comapny, The. Thermal shield. 3,811,493, Cl. 165-32.000.

Billi, G., & C. S.p.A.: *See—*
Bianchi, Massimo; and Conti, Gianni, 3,811,296.

Bimba, Charles W. Fluid power cylinder construction. 3,811,367, Cl. 92-165.000.

Bio-Logics Systems, Inc.: *See—*
Mahood, James A., 3,812,472.

Birchmeier, Hans P.: *See—*
Hauck, Erwin A.; Birchmeier, Hans P.; and Kim, Dongsung R., 3,812,469.
Wollum, James E.; Birchmeier, Hans P.; and Sharp, Richard S., 3,812,468.

Birger, Abram Isaakovich; Fiskin, Alexandr Mikhailovich; Samsonov, Ivan Sergeevich; Savushkin, Anatoly Alexandrovich; Zemtsov, Nikolai Nikolaevich; and Borisevich, Vitaly Arkadievich. Mill for manufacture of plaster concrete articles. 3,811,812, Cl. 425-21.000.

Bissing, Donald E.: *See—*
Gash, Virgil W.; and Bissing, Donald E., 3,812,183.

Black, David F. Mechanized van loading and unloading apparatus and system. 3,811,579, Cl. 214-38.00d.

Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis. Method of producing a flat top slab of foamed polyurethane. 3,812,227, Cl. 264-54.000.

Blais, Leo: *See—*
Wilkinson, Michael C.; Blais, Leo; Martin, Wilhelm N.; and Tesainer, Silvano, 3,811,987.

Blake, David E., to Electroprint, Inc. Contact-transfer electrostatic printing system. 3,811,765, Cl. 355-3.00r.

Blankenstein, Gunter: *See—*
Wolf, Gerhard Dieter; Blankenstein, Gunter; and Nischk, Gunther, 3,812,085.

Blatt, Leland F. Air blow gun for chip and debris cleaning. 3,811,622, Cl. 239-526.000.

Blau, Henry H., Jr., to Environmental Research & Technology, Inc. Gas analyzer. 3,811,776, Cl. 356-51.000.

Bleha, William P., Jr.: *See—*
Braunstein, Morris; and Bleha, William P., Jr., 3,811,180.

Blomberg, Jarl Joel; Elmessaar, Heino; and Karden, Karl Gosta, to Atlas Copco Aktiebolag. Pressure fluid operated tool 3,811,514, Cl. 173-65.000.

Blossom, James H.: *See—*
Crossland, Edward J.; Blossom, James H.; and Krasin, Lester O., 3,812,462.

Blumcraft of Pittsburgh: *See—*
Horgan, William J., Jr., 3,811,176.

Bobst, J., & Fils, S.A.: *See—*
Preisig, Roland, 3,811,549.

Bodanszky, Miklos; Ondetti, Miguel A.; Von Saltza, Malcolm H.; Narayanan, Venkatachlal L.; and Levine, Seymour D., to Squibb, E. R., & Sons, Inc. Intermediates in the preparation of secretin. 3,812,092, Cl. 260-112.500.

Boecker, Bob F.: *See—*
Allison, James E.; and Boecker, Bob F., 3,811,600.

Boegehold, Richard A. System of constructing display racking and shelving. 3,811,575, Cl. 211-148.000.

Boehmke, Gunther; and Schmitt, Ernst, to Bayer Aktiengesellschaft. β-Hydroxyalkylated hydrazone dyestuffs. 3,812,107, Cl. 260-240.00g.

Boeing Company, The: *See—*
Schut, Hendrik P., 3,811,313.

Boelens, Harmannus: *See—*
De Rijke, David; and Boelens, Harmannus, 3,812,059.

Bohm, Walter, to Zimmer, Peter. Rotary screen printing with internally driven roller squeegee. 3,811,378, Cl. 101-120.000.

Boldebuck, Edith M., to General Electric Company. Making aqueous solvent mixtures of alkali metal salt of polyamide acid. 3,812,069, Cl. 260-29.20m.

Boldyrev, Mikhail Vsevolodovich: *See—*
Zabolotsky, Grigory Mikhailovich; Rakovsky, Vladimir Mikhailovich; Shuster, Sergei Alexandrovich; and Boldyrev, Mikhail Vsevolodovich, 3,811,166.

Bolesky, Richard C., to Uniroyal, Inc. Mobile body and method of making same. 3,811,721, Cl. 296-28.00r.

Bolger, Joseph. Impact turning tool. 3,811,517, Cl. 173-93.700.

Bollman, Robert L.: *See—*
Wagers, William D., Jr.; Vandenberg, Willard J.; Bollman, Robert L.; Ramsey, Robert E.; Swisher, Daniel G.; and Taylor, John E., Jr., 3,811,552.

Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich; Kozlovsky, Viktor Stepanovich; Ohlasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich; and Rud, Svetlana Ivanovna. Method of producing rolled porous glss-ccramic material. 3,811,852, Cl. 65-22.000.

Bonola, Giuseppe; and Sianesi, Enrico, to Recordati SA Chemical and Pharceutical Company. Process for preparing lower alkyl flavone-7-oxyacetates. 3,812,156, Cl. 260-345.200.

Bonuchi, James A.: *See—*
Scheier, Donald J.; and Bonuchi, James A., 3,811,555.

Boonie Pad Co., Inc.: *See—*
Borgren, Peter M., 3,812,320.

Borbas, Robert A., to GTE Automatic Electric Laboratories, Incorporated. Bus control arrangement for a communication switching system. 3,812,297, Cl. 179-18.0cs.

Borchardt, Hans J., to Du Pont de Nemours, E. I., and Company. Heat transfer fluids. 3,812,040, Cl. 252-68.000.

Borgren, Peter M., to Boonie Pad Co., Inc. Heated ground cover for the dissipation of moisture. 3,812,320, Cl. 219-213.000.

Borisevich, Vitaly Arkadievich: *See—*
Birger, Abram Isaakovich; Fiskin, Alexandr Mikhailovich; Samsonov, Ivan Sergeevich; Savushkin, Anatoly Alexandrovich; Zemtsov, Nikolai Nikolaevich; and Borisevich, Vitaly Arkadievich, 3,811,812.

Borowski, Jurt: *See—*
Wagensonner, Edward; Borowski, Jurt; and Stumpf, Frederick, 3,812,504.

Bors, Hans: *See—*
Schwemmer, Martin; Bors, Hans; and Goetz, Albert, 3,811,834.

Bosch, Robert, G.m.b.H.: *See—*
Eckert, Konrad; and Knapp, Heinrich, 3,811,419.
Stedtnitz, Wolfgang, 3,812,481.
Vogel, Wilhelm, 3,811,420.

Bosch, Robert, Photokino GmbH: *See—*
Krumbein, Fritz, 3,811,761.
Riedel, Wolfgang, 3,811,758.
Rube, Helmut; and Krumbein, Fritz, 3,811,760.

Bossen, Douglas C.; Haugh, Connor F.; and Hsiao, Mu-yue, to International Business Machines Corporation. Dynamic address translation scheme using orthogonal squares. 3,812,336, Cl. 235-153.0am.

Bostian, Logan C., to Allied Chemical Corporation. Trisubstituted-s-triazines. 3,812,120, Cl. 260-249.800.

Boston, Ray W., Jr.; and Potts, Larry D., to General Electric Company. Room air conditioner mounting arrangement. 3,811,370, Cl. 98-94.000.

Bouldoires, Jean-Pierre, to Societe d'Assistance Technique pour Produits Nestle S.A. Freeze-drying apparatus. 3,811,199, Cl. 34-92.000.

Bouniot, Albert, to Melle-Bezons. Process for preparing primary furfuryl amines. 3,812,161, Cl. 260-347.700.

Boustany, Kamel; and D'Amico, John J., to Monsanto Company. N,N-di(2-Benzothiazolyl)sulfenamides useful as vulcanization activators. 3,812,139, Cl. 260-305.000.

Bowen, Brian Francis: *See—*
Needham, Victor; and Bowen, Brian Francis, 3,812,019.

Bowerman, Leonard E., to Oster Corporation. Hair clipper with improved blade driving means. 3,812,389, Cl. 310-50.000.

Bowles Fluidics Corporation: *See—*
Bauer, Peter; and Bowles, Romald E., 3,811,474.

Bowles, Romald E.: *See—*
Bauer, Peter; and Bowles, Romald E., 3,811,474.

Bowman, Lloyd D.; Karhade, Manohar G.; and Schneiderman, Daniel I., to Dasibi Corporation. Automatic calibration circuit for gas analyzers. 3,812,330, Cl. 235-92.0cc.

Boyer, Fred S. Locking assembly. 3,812,281, Cl. 174-53.000.

Boylan, John R.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,811,651.

Boyle, John M.: *See—*
Afendykiw, Marko; Boyle, John M.; and Hendrix, Charles E., 3,812,493.

Braber, Robert J., to Lehigh Press, Inc., The. Container construction. 3,811,564, Cl. 206-469.000.

Brachet, Jacques. Traction apparatus for a stretcher. 3,811,433, Cl. 128-84.00c.

Brack, Alfred; and Gomm, Walter, to Bayer Aktiengesellschaft. Cationic dyestuffs, their manufacture and use. 3,812,108, Cl. 260-240.900.

Bradbury, William B.; and Rothschmitt, Anton J., to Plastic Molders Supply Co., Inc. Apparatus for introducing controlled amounts of pigment into thermomechanically formed plastic. 3,811,627, Cl. 241-281.000.

Braden, Rudolf; Hendricks, Udo; Oertel, Gunter; and Schliebs, Reinhard, to Bayer Aktiengesellschaft. Preparation of ω-amino-alkane phosphonic and phosphinic acid derivatives. 3,812,221, Cl. 260-968.000.

Bradley, Frank R. Frequency difference measuring and compensating circuit. 3,812,433, Cl. 328-155.000.

Bragaglia, Giorgio; and Grossi, Francesco. Machine for forming containers, trays and the like out of corrugated cardboard or similar. 3,811,368, Cl. 93-55.000.

Brander, Richard; and Weiss, Erwin M., to Beltone Electronics Corporation. Receiver assembly incorporating acoustical enclosure for receiver. 3,812,300, Cl. 179-107.00r.

Brandom, Boyce: *See—*
Killen, Richard J.; Brandom, Boyce; and Howard, Lyman S., 3,811,244.

Brandt, Michael W. Light for chemical sprayer. 3,812,340, Cl. 240-2.0fd.

Branick Manufacturing Company: *See—*
Castoe, John H., 3,811,654.

Brattle Instrument Corporation: *See—*
Van Horn, Joseph M.; Epstein, Paul; and Phillipps, Patrick G., 3,811,428.

Braukmann, Heinrich. Indicator device for rotary elements. 3,811,403, Cl. 116-125.000.

Braunstein, Morris; and Bleha, William P., Jr., to Hughes Aircraft Company. Method of manufacture of liquid crystal device. 3,811,180, Cl. 29-572.000.

Brearley, Donald William, to International Business Machines Corporation. Cyclically rotatable eccentric pivot for ribbon reverse lever. 3,811,547, Cl. 197-165.000.

Brecher, Lee E.: *See—*
Archer, David H.; Brecher, Lee E.; Morris, Joe P.; Talko, Francis; and Taylor, Herbert L., 3,811,936.

Brendel, Gottfried J.: *See—*
Niebylski, Leonard M.; and Brendel, Gottfried J., 3,811,972.

Brenneke, Arthur M., to TRW Inc. Plastics filled piston ring. 3,811,692, Cl. 277-231.000.

Brenneman, J. Edward; and Waters, Robert S., to Schick Incorporated. Shaver with removable head. 3,811,188, Cl. 30-34.00r.

Bretschneider, Hermann; Klotzer, Wilhelm; and Franzmair,, to Hoffmann-La Roche Inc. N-(3,3-diphenyl-3-cyanopropyl)-ureas. 3,812,170, Cl. 260-465.00d.

Brette, Yves-Jean Francois: *See—*
Rousseau, Hubert Cecyl Albert; and Brette, Yves-Jean Francois, 3,812,534.

Bretton, Cal, to Arthur, Allen, Co., Inc. Method and means for attaching a hair supplement. 3,811,453, Cl. 132-53.000.

Breuer, Hermann, to Squibb, E. R., & Sons, Inc. 6-[(3,5,7-Triaza-l-azonia-l-adamantyl)-acetamido]-penicillanic acid halides and sulfonates. 3,812,100, Cl. 260-239.100.

Brewster, Robert W.: *See—*
Warren, Lyle D.; and Brewster, Robert W., 3,811,487.

Brezosky, Bernard J.: *See—*
Butsch, Richard L.; and Brezosky, Bernard J., 3,811,746.

Bridges, Thomas F.; Lalangas, Petros; and Sjostrom, Carl H., to McMullen, John J., Associates, Inc. Double well cargo tank having insulating secondary barrier. 3,811,593, Cl. 220-9.0lg.

Briggs, Philip Stanley, to National Research Development Corporation. Tanning improvements. 3,811,832, Cl. 8-94.260.

Brigmainis, Edmund: *See—*
Chinai, Suresh Natvarlal; and Brigmainis, Edmund, 3,812,004.

Brinker, John H., to American Standard Inc. Steel sidelight frame. 3,811,238, Cl. 52-204.000.

Britax (London) Limited: *See—*
Grime, Geoffrey, 3,811,701.

British Hovercraft Corporation, Limited: *See—*
Weeks, Albert Arthur, 3,811,583.

British Steel Corporation: *See—*
Middleton, Malcolm Cecil; and Lloyd, Henry Bassell, 3,811,490.

Broadt, David R., to GTE Sylvania Incorporated. Selective actuating mechanism for percussive photoflash lamp array. 3,812,339, Cl. 240-1.300.

Brobeck, William R.: *See—*
Hill, Charles E.; and Brobeck, William R., 3,812,458.

Brockman, George T.: *See—*
Mikulina, Thomas W.; Lievens, Ronald J.; and Brockman, George T., 3,811,790.

Brodes, Donald L.; and Hitchcock, Myron H., to Scope Incorporated. Signal pattern encoder and classifier. 3,812,291, Cl. 179-1.0sa.

Brook, Robert E., to TRW Inc. Optical signal recording system. 3,812,496, Cl. 346-108.000.

Brooks & Perkins, Incorporated: *See—*
Mollon, Leslie, 3,811,788.

Brookside Corporation: *See—*
Wooden, John A., 3,811,978.

Brotzmann, Karl: *See—*
Knuppel, Helmut; Brotzmann, Karl; and Fassbinder, Hans George, 3,811,386.

Brown, Gregory A.: *See—*
Ream, Donald E., Jr.; and Brown, Gregory A., 3,811,648.

Brown, Henry E., to Wilkinson Sword Limited. Apparatus for clinical measurement of blood pressure in a cardio-vascular system. 3,811,439, Cl. 128-205.00m.

Brown, James Roger: *See—*
Barraclough, Christopher George; and Brown, James Roger, 3,812,491.

Brown, Martin S.; and Avramidis, Stellios A., to FMC Corporation. Automatic tensioning device. 3,811,332, Cl. 74-242.11s.

Brown, Melancthon S.; and Kohn, Gustave K., to Chevron Research Company. Substituted aryl carbamates. 3,812,174, Cl. 260-479.00c.

Brown, Melancthon S., to Chevron Research Company. Fungicidal N-polyhalovinylthio ureas. 3,812,265, Cl. 424-322.000.

Brown, Melancthon Starr; deceased, to Chevron Research Company. 1-Hydrocarbyldithio-3-aryl ureas. 3,812,209, Cl. 260-453.00r.

Brown, Newton D., to Goodyear Tire & Rubber Company, The. Vehicle drive. 3,811,384, Cl. 104-147.000.

Brown, Robert L. Surveying apparatus with cutter. 3,811,348, Cl. 83-13.000.

Browning, Luther C., to Addressograph-Multigraph Corporation. Method and materials for control of contact electrostatic development. 3,811,880, Cl. 96-1.400.

Brudy, Peter F., to Dominion Auto Accessories Limited. Retractor assembly. 3,811,715, Cl. 287-14.000.

Brukovsky, Igor Pavlovich. Automatic control of the duty cycle of an electron beam heating device. 3,812,319, Cl. 219-121.0eb.

Bruno, Marshall J.: *See—*
Russell, Allen S.; Jarrett, Noel; Bruno, Marshall J.; and Remper, John A., 3,811,916.

Bruns, Eilert F., to U.S. Industries, Inc. Automatic centering reel for coil stock. 3,811,638, Cl. 242-78.600.

Buan, Danilo P.: *See—*
Abildgaard, William H.; Groswith, Charles T. III; Deman, Heiko T.; and Buan, Danilo P., 3,811,146.

Buchel, Karl Heinz: *See—*
Meiser, Werner; Buchel, Karl Heinz; and Plempel, Manfred, 3,812,142.

Buchter, Jean-Edouard; and Jaeggi, Hans-Peter, to Matisa Materiel Industriel S.A. Process for packing and leveling railway tracks and device for performing the same. 3,811,382, Cl. 104-7.00r.

Buck, Leo V.: *See—*
Osterkorn, Charles Louis; Buck, Leo V.; Kloos, William W.; and Marino, Salvatore M., 3,812,322.

Buckeye Forge Division-Gulf & Western Industrial Products Company: *See—*
Eichinger, John W., 3,811,174.

Buddy L Corporation: *See—*
Salmon, Robert W.; and Herstein, Barry S., 3,811,218.

Bugaut, Andree; and Estradier, Francoise. Dyeing hair with diamine and aminophenol oxidation dyes and diamine or aminophenol couplers. 3,811,831, Cl. 8-11.000.

Buglewicz, Neal J. Sandwich connector plug. 3,812,451, Cl. 339-155.00r.

Bundy, Gordon L., to Upjohn Company, The. 15-Methyl and 15-ethyl dihydro-PGE$_1$. 3,812,172, Cl. 260-468.00d.

Bundy, Gordon L., to Upjohn Company, The. 15-Methyl and ethyl PGE$_2$. 3,812,179, Cl. 260-514.00d.

Buntin, Robert R., to Esso Research and Engineering Company. Battery separators made from polymeric fibers. 3,811,957, Cl. 136-146.000.

Burdett, Marion; and Walbridge, Derek John, to Imperial Chemical Industries, Limited. Process for the production of a disperison of a polymer in an organic liquid. 3,812,075, Cl. 260-33.6ua.

Burgin, Kermit H. Twin keel jet boat. 3,811,398, Cl. 115-16.000.

Burk, Robert L. Conditioned food transport container. 3,811,558, Cl. 206-4.000.

Burndy Corporation: *See—*
Anderson, James D.; and Cheh, Ernest L., 3,811,168.

Burnett, David B.; Alston, Robert B.; and Lim, Frank H., to Texaco Inc. Secondary recovery using carbon dioxide and an inert gas. 3,811,501, Cl. 166-252.000.

Burnett, David B., to Texaco Inc. Secondary recovery using carbon dioxide. 3,811,502, Cl. 166-252.000.

Burnett, David B.; and Lim, Frank H., to Texaco Inc. Secondary recovery using mixtures of carbon dioxide and light hydrocarbons. 3,811,503, Cl. 166-252.000.

Burns, Eugene A.: *See—*
Jones, Robert J.; and Burns, Eugene A., 3,812,083.

Burpo, Delbert L. Body support device. 3,811,140, Cl. 5-327.00r.

Burr, Harvey, to Anaconda Company, The, mesne. Method and apparatus for applying armor tape. 3,811,257, Cl. 57-9.000.

Burrell, Harry; and Miller, Robert C., Jr., to Inmot Corporation. Printing method for forming three dimensional simulated wood grain and product formed thereby. 3,811,915, Cl. 117-45.000.

Burroughs Corporation: *See—*
Hauck, Erwin A.; Birchmeier, Hans P.; and Kim, Dongsung R., 3,812,469.
Wollum, James E.; Birchmeier, Hans P.; and Sharp, Richard S., 3,812,468.

Burton, Christopher Philip, to International Computers Limited. Monitoring and display apparatus. 3,812,487, Cl. 340-324,0ad.

Bus-Rx, Inc.: *See—*
Kalaf, Abe M.; and Chiaro, Dominic A., 3,811,518.

Buschmann, Lothar; Prave, Paul; and Sukatsch, Dieter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Method of degrading natural plant material with an enzyme preparation. 3,812,012, Cl. 195-33.000.

Buse, Frederick W.; and Sensinger, Warner E., Jr., to Ingersoll-Rand Company. Multi-plunger reciprocating pump. 3,811,801, Cl. 417-454.000.

Buser, Rudolf G.: *See—*
Kaunzinger, Helmuth M.; and Buser, Rudolf G., 3,812,419.

Butcher, William J.: *See—*
Carstens, Ronald A.; and Butcher, William J., 3,812,055.

Butler, Lee D.: *See—*
Grey, Donald M.; Butler, Lee D.; Welker, Jerry W.; and Crane, Jack W., 3,811,584.

Butsch, Richard L.; and Brezosky, Bernard J., to General Electric Company. Torsionally reinforced, skeletal support frame for plastic tubs. 3,811,746, Cl. 312-228.000.

Butte, Walter A., Jr.: *See—*
Hollstein, Elmer J.; and Butte, Walter A., Jr., 3,812,148.

Butzow, Neil William, to Rexnord Inc. Car switching system. 3,811,383, Cl. 104-130.000.

Bystron, Bruno; Grimm, Eberhard; and Oexler, Rudolf. Spinning machine. 3,811,256, Cl. 57-1.00r.

Cabot Corporation, mesne: *See—*
Gardner, Ross, Jr., 3,811,437.

Calcagno, Benedetto: *See—*
Piccolo, Luigi; Calcagno, Benedetto; and Ghirga, Marcello, 3,811,908.
Piccolo, Luigi; Ghirga, Marcello; and Calcagno, Benedetto, 3,812,241.

Calderon, Henry A., to United Aircraft Corporation. Crossover tube construction. 3,811,274, Cl. 60-39.320.

Callahan, James L.: *See—*
Adams, Harry A.; Kunchal, Kumar; and Callahan, James L., 3,812,236.

Campbell, Donald E.: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.

Campbell, William L. Sub soil irrigator and tree lift. 3,811,388, Cl. 111-7.100.

Canon Kabushiki Kaisha: *See—*
Aizawa, Hiroshi; and Ogiso, Matsutoshi, 3,812,510.
Hirano, Reiji; Ito, Matsutoshi; and Ishiwta, Juichi, 3,812,489.
Inoue, Mutsuhiro; and Tanaka, Kano, 3,812,327.
Kanayama, Mitsutoshi; and Konishi, Motofumi, 3,811,772.
Matsubs, Mutsuhide; Ogiso, Mitsutoshi, and Yazaki, Mutsunobu, 3,812,508.
Saito, Takashi; and Kubo, Shuniti, 3,811,914.

Capdevielle, Pierre; and Kermarrec, Francois, to Institut Francais du Petrole des Carburants et Lubrifiants and Societe Anonyme pour tour Appareillages Mecaniques. Tank structure for the storage and distribution of several fluids, particularly hydrocarbons 3,811,460, Cl. 137-255.000.

Cardenas, Ricardo L.: *See—*
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,504.
Flournoy, Kenoth H.; Cardenas, Ricardo L., Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,505.

Carella, Richard F. Archery bowsight. 3,811,195, Cl. 33-265.000.

Carlin, Joseph T., to Texaco Inc. Tar sand recovery method. 3,811,506, Cl. 166-274.000.

Carlson, David Emil; Hang, Warren Kenneth; and Stockdale, George Fairbank, to RCA Corporation. Method of treating a glass body to provide an ion-depleted region therein 3,811,855, Cl. 65-30.000

Caropreso, Frank Edward: *See—*
Shirley, Joseph Floyd; Caropreso, Frank Edward; and Fraser, George Lamar, 3,811,569.

Carpenter Technology Corporation: *See—*
Goda, Kermit J., Jr.; and Aulenbach, Grant M., 3,811,875.

Carr, Walter J., Jr.: *See—*
Miller, Robert C.; and Carr, Walter J., Jr., 3,812,484.

Carre, Jean-Jacques, to Societe Anonyme D.B.A. Braking pressure regulating device for a vehicle. 3,811,738, Cl. 303-22.00r.

Carroll, David I.: *See—*
Wernlund, Roger F.; Carroll, David I.; Kilpatrick, Wallace D.; and Cohen, Martin J., 3,812,355.

Carron Hydraulics Limited: *See—*
Stuart, Douglas, 3,811,525.

Carson, James W. Remotely controlled day-night outside truck mirror. 3,811,755, Cl. 350-289.000.

Carstens, Ronald A.; and Butcher, William J., to Key Chemicals, Inc. Mixed alumina dispersions. 3,812,055, Cl. 252-313.000.

Carter Industries, Inc.: *See—*
Crosser, David Keith; Mell, Leonard E.; and Reuvers, John F., 3,812,532.

Carter, John A. Picnic accessories. 3,811,559, Cl. 206-4.000.

Carter, Lyle. Apparatus for collecting surface particles on body of water. 3,811,325, Cl. 73-425.40r.

Cartwright, John Edward: *See—*
Rumbold, Bernhard Carl; and Cartwright, John Edward, 3,811,898.

Caruel, Jacques Emile Jules; Quillevere, Herve Alain; Castellant, Jean-Pierre Jules Emile; and Lacroix, Armand Jean-Baptiste, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Cooling of combustion chamber walls. 3,811,276, Cl. 60-39.60.

Case, J. I., Company: *See—*
Seaberg, David H., 3,811,587.
Shumaker, John F.; and Morehouse, James O., 3,811,582.

Casey, Robert, to Caterpiller Tractor Company. Axle trunnion support arrangement. 3,811,699, Cl. 280-111.000.

Cashen, Norton A.; Kullman, Russell M. H.; and Reinhardt, Robert M., to United States of America, Agriculture. Mild cure finishing process incorporating improved catalyst systems to produce wrinkle resistant, durable pressed and creased cellulosic textile roducts. 3,811,210, Cl. 38-144.000.

Cason, Charles M., III: *See—*
Honeycutt, Thomas E.; Otto, William F.; and Cason, Charles M., III, 3,811,774.

Castarede, Armand, to Regie Nationale des Usines Renault and Automobiles Peugeot. Drive belt tensioning device. 3,811,333, Cl. 74-242.15r.

Castellant, Jean-Pierre Jules Emile: *See—*
Caruel, Jacques Emile Jules; Quillevere, Herve Alain; Castellant, Jean-Pierre Jules Emile; and Lacroix, Armand Jean-Baptiste, 3,811,276.

Castillo, Adolfo: *See—*
Jureit, John Calvin; and Castillo, Adolfo, 3,811,578.

Castoe, John H., to Branick Manufacturing Company. Camber and caster adjustment tool. 3,811,654, Cl. 254-131.000.

Cater, John P. Coded time indicating transmission system. 3,811,265, Cl. 58-24.00r.

Caterpillar Tractor Co.: *See—*
Hamrick, Oscar; and Kessinger, Orville E., Jr., 3,811,542.
Schexnayder, Lawrence F., 3,811,282.

Caterpillar Tractor Company: *See—*
Cryder, John R., 3,811,363.

Caterpiller Tractor Company: *See—*
Casey, Robert, 3,811,699.
Yancey, John W., 3,811,577.

Catitti, Aldo: *See—*
Sacerdoti, Giancarlo; Catitti, Aldo; and Di Marino, Ciampino, 3,811,740.

Caudill, Fred R.: *See—*
De Regenaucourt, Robert A.; and Caudill, Fred R., 3,811,734.
De Regnaucourt, Robert A.; and Caudill, Fred R., 3,811,733.

Caule, Elmer J.; Sperry, Philip R.; Pryor, Michael J.; and Ford, James A., to Olin Corporation. Oxidation resistant iron base alloy. 3,811,874, Cl. 75-124 000.

Cauvin, Sidney L., Jr.: *See—*
Goodnow, Warren H.; Cauvin, Sidney L., Jr.; and Simard, Joseph G. C., 3,812,024.

C.A.V. Limited: *See—*
Jackson, Gordon Frederick William, 3,811,799.

Cecere, Andrew P., to Samcoe Holding Corporation. Method and apparatus for spreading tubular knitted fabric. 3,811,159, Cl. 26-55.00r.

Celanese Corporation: *See—*
Higdon, Buster W.; Hobbs, Charles C.; and Onore, Michael J., 3,812,210.

Celling, Wolter Geppienus, to U.S. Philips Corporation. Method of manufacturing a semiconductor device and semiconductor device manufactured by the method. 3,811,183, Cl. 29-588.000.

Centre National de Recherches Metallurgiques: *See—*
Ponghis, Nicholas Gerassimo; and Poos, Arthur Gerard, 3,811,869.

Ceskoslovenska akademic ved: *See—*
Stoy, Artur, 3,812,071.

Ceskoslovenska akademie ved. *See—*
Tykva, Richard, 3,812,360.

Chakraharty, Anada M.: *See—*
Bellamy, Winthrop D.; and Chakrabarty, Anada M., 3,812,013.

Chalmers, R. Robert. Hinge lock. 3,811,150, Cl. 16-137.000.

Chance, Britton. Time-sharing fluorometer and reflectometer. 3,811,777, Cl. 356-73.000.

Chang, Yun Feng: *See—*
Lahana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, 3,811,910.

Chao, Hung-Chi; Judd, Robert R.; Rueckl, Roger L.; and Russell, Charles K., to United States Steel Corporation. Production of powder metallurgical parts hy preform and forge process utilizing sucrose as a binder. 3,811,878, Cl. 75-211.000.

Chapman, James Ronald: *See—*
Benson, Robert W.; Chapman, James Ronald; Reed, Robert G.; and Smith, Hoyt L., 3,811,669.

Chappell, George M. Process for treating domestic and industrial liquid wastes. 3,812,032, Cl. 210-52.000.

Charlson, Paul Marlin, Den Tex, Karel; and Fingerson, Conrad Ferdinand, to International Business Machines Corporation. Impact printer. 3,811,377, Cl. 101-93.00c.

Cheh, Ernest L.: *See—*
Anderson, James D.; and Cheh, Ernest L., 3,811,168.

Chen, Nai Yuen; and Lucki, Stanley J., to Mobil Oil Corporation. Disproportionation of paraffin hydrocarbons. 3,812,199, Cl. 260-676.00r.

Chen, Wayne: *See—*
United States of America, National Aeronautics and Space administration, 3,811,429.

Cherenson, Edward L., to Artisan Industries, Inc. Process for the expansion of expandable resin beads. 3,811,822, Cl. 432-13.000.

Chesapeake and Ohio Railway Company, The: *See—*
Schmidt, Joseph J., 3,812,325.

Chesbrough-Pond's Inc.: *See—*
Turnbull, Charles H., 3,811,671.

Chevron Research Company: *See—*
Brown, Melancthon S.; and Kohn, Gustave K., 3,812,174.
Brown, Melancthon S., 3,812,265.
Brown, Melancthon Starr, 3,812,209.
Hutchison, Stanley O., 3,811,499.
Lapporte, Seymour J.; and Toland, William G., 3,812,176.

Chia, Enrique C.: *See—*
Schoerner, Roger J.; and Chia, Enrique C., 3,811,846.

Chiang, Yunn H.: *See—*
Bader, Henry; and Chiang, Yunn H., 3,812,115.

Chiaro, Dominic A.: *See—*
Kalaf, Abe M.; and Chiaro, Dominic A., 3,811,518.

Chicago Magnet Wire Corp.: *See—*
Jordan, Anthony, 3,811,639.

Chin, David: *See—*
Previte, Robert W.; and Chin, David, 3,812,076.

Chin, Dick Yen, to Itek Corporation. Scanning beam position indicator. 3,812,371, Cl. 250-217.00r.

Chinai, Suresh Natvarlal; and Brigmainis, Edmund, to American Cyanamid Company. Naturally crimped textile fibers. 3,812,004, Cl. 161-173.000.

Chodnekar, Madhukar S.; Thommen, Hans; and Schwieter, Ulrich, to Hoffmann-La Roche Inc. Substituted propiolophenones used as plant fungicides. 3,812,262, Cl. 424-282.000.

Chore-Time Equipment, Inc.: *See—*
Murto, Robert A.; and Hostetler, Eldon, 3,811,412.

Christensen, Wynn L., to Readx Inc. Height gauge. 3,811,192, Cl. 33-170.000.

Christiani and Nielsen Limited: *See—*
Persicke, Gunter, 3,811,653.

Christiansen, Carl L.; Kanter, Lawrence E.; and Monroe, George R., to International Business Machines Corporation. Data synchronizer. 3,812,475, Cl. 340-172.500.

Christy, Marcia E.: *See—*
Engelhardt, Edward L.; and Christy, Marcia E., 3,812,177.

Chromalloy American Corporation: *See—*
Weinstein, Martin; Speirs, Kenneth K.; and Baer, Robert B., 3,811,959.
Weinstein, Martin; Singhal, Subhash C.; and Ellis, John L., 3,811,961.

Chrysler Corporation: *See—*
Andersen, Poul H.; Povilaitus, Frank R.; and Himes, Robert S., 3,812,312.
Turkovich, Frank D., 3,811,703.

Chupp, John Paul, to Monsanto Company. Tetrahydrothioquinazolinones. 3,812,121, Cl. 260-251.00a.

Ciba-Geigy AG: *See—*
Hubele, Adolf, 3,811,932.
Martin, Henry; and Pissiotas, Georg, 3,812,260.
Randell, Donald Richard; Miles, Peter; and Virgin, Allan Geoffrey, 3,812,193.
Zographos, Georg; and Frey, Christoph, 3,811,883.

Ciba-Geigy Corporation: *See—*
Dietrich, Henri; and Lehmann, Claude, 3,812,144.
Hoegerle, Karl; Muller, Jean-Claude; Vogel, Christian; and Rumpf, Jurg, 3,812,168.
Walker, Gordon Northrop, 3,812,119.
Werner, Lincoln Harvey, 3,812,104.
Zust, Armin; and Schindler, Walter, 3,812,126.

Cincinnati Milacron Inc.: *See—*
Eby, Clyde Richard, 3,811,233.

Cities Service Oil Company: *See—*
Priebe, Frank D., 3,811,509.

Citizen Watch Co., Ltd.: *See—*
Kunitomi, Yoshio, 3,811,315.

Citizen Watch Company Limited: *See—*
Samura, Hiroyoshi, 3,811,266.

Clairol Incorporated: *See—*
De Marco, Richard, 3,811,830.

Clambake International, Incorporated: *See—*
Mann, Douglas G., 3,811,374.

Clark & Vicario Corporation: *See—*
Kaiser, Robert G., 3,812,007.

Clark, Donald B.: *See—*
Barrett, Hillard E.; Clark, Donald B.; and Seid, Bernard, 3,811,713.

Clark, Gary T.: *See—*
Fisher, John G.; and Clark, Gary T., 3,812,093.

Clark, Justin S., to Primary Childrens Hospital. Air emboli detector. 3,812,482, Cl. 340-237.00r.

Clark, Lowell Eugene, to Motorola, Inc. Stable thyristor device. 3,812,405, Cl. 317-235.0ab.

Clark, Roy; and Westfield, Donald, to Polymer Corporation Limited. Process for producing foam rubber-backed textiles. 3,811,922, Cl. 117-76.00t.

Clarkson, Robert J., to Uniroyal, Inc. Production of asbestos yarns. 3,811,262, Cl. 57-140.0by.

Clay, Harris A., to Phillips Petroleum Company. Process for the transportation of acid gases in natural gas liquids streams. 3,812,030, Cl. 208-340.000.

Clecak, Nicholas J.; Cox, Robert J.; and Mareau, Wayne M., to International Business Machines Corporation. Azides. 3,812,162, Cl. 260-349.000.

Close, Frederick J., to Stolle Corporation, The. Manufacture of cans and the like. 3,811,393, Cl. 113-120.00r.

Cloud, Robert: *See—*
Barton, Henry W.; and Cloud, Robert, 3,811,300.

Clovis, James S.; and Sullivan, Francis R., to Rohm & Haas Company. Ring Phosphonates. 3,812,219, Cl. 260-936.000.

Coates, Harold J.: *See—*
Craig, H. Lee, Jr.; and Coates, Harold J., 3,812,021.

Coats, John H.: *See—*
Argoudelis, Alexander D.; and Coats, John H., 3,812,014.
Argoudelis, Alexander D.; Coats, John H.; and Sebek, Oldrich K., 3,812,096.

Coberley, Daniel A., to Hurletron Incorporated. Rotary position detector machine control system. 3,812,351, Cl. 250-231.0se.

Cocker, Bernice, 20% interest to Lee, Raymond, Organization, Inc., The. Combination end table, magazine rack and step ladder. 3,811,533, Cl. 182-28.000.

Coen Company: *See—*
Vosper, Ralph Richard, 3,811,827.
Coggon, Philip: *See—*
Sanderson, Gary Warner; and Coggon, Philip, 3,812,266.
Cohen, Martin J.: *See—*
Wernlund, Roger F.; Carroll, David I.; Kilpatrick, Wallace D.; and Cohen, Martin J., 3,812,355.
Cohen, Menachem. Louver structure and luminous ceiling utilizing same. 3,812,341, Cl. 240-9.00r.
Coilcraft, Inc.: *See—*
Schroeder, Charles E., 3,812,443.
Cole, Ernest A., Jr.: *See—*
Jarvis, Howell R.; and Cole, Ernest A., Jr., 3,812,027.
Cole, Howard W., Jr. Equipment for making foam for dust suppression and other purposes. 3,811,660, Cl. 261-18.00b.
Cole, Richard D. Paper cutter guard. 3,811,355, Cl. 83-520.000.
Coleman, Richard R., Jr.; and Weber, Helmut E., to General Power Corporation. Integral turbo-compressor wave engine. 3,811,796, Cl. 417-64.000.
Colgate-Palmolive Company: *See—*
Gray, Frederick William, 3,812,045.
Inamorato, Jack Thomas, 3,812,041.
Lancz, Albert Jay, 3,812,046.
Verdier, Denise, 3,812,042.
Collina, Giancarlo L.; and Tessera, Giancarlo, to Honeywell Information Systems Italia. Multiple adaptive decoding system for binary microinstructions. 3,812,464, Cl. 340-172.500.
Collins Radio Company: *See—*
Mineck, David W.; and Manke, Girard M., 3,812,333.
Collins, Robert J., to Upjohn Company, The. Animal feed and process. 3,812,259, Cl. 424-269.000.
Collins, Thomas Robert Stephen: *See—*
Garner, Paul Johnson; and Collins, Thomas Robert Stephen, 3,811,175.
Columbia Broadcasting Systems, Inc.: *See—*
Bauer, Benjamin B., 3,812,295.
Coman, William E., to Bendix Corporation, The. Aircraft starter control system. 3,812,378, Cl. 290-38.000.
Combustion Engineering, Inc.: *See—*
Taccone, Russell William, 3,811,813.
Comitati Nazionale Per l'Energia Nucleare (CNEN): *See—*
Sacerdoti, Giancarlo; Catitti, Aldo; and Di Marino, Ciampino, 3,811,740.
Comitato Nazionale per l'Energia Nucleare: *See—*
De Carolis, Massimiliano, 3,812,422.
Commercial Solvents Corporation: *See—*
Wehrmeister, Herbert L., 3,812,111.
Wehrmeister, Herbert L.; and Robertson, Donald E., 3,812,155.
Commissariat a l'Energie Atomique: *See—*
Bertrand, Gerard; Perroud, Paul; and Sylvestre-Baron, Martial, 3,812,026.
Communications Satellite Corporation: *See—*
Lindmayer, Joseph, 3,811,954.
Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Haeberle, Heinz H., 3,812,430.
Compagnie General des Etablissements Michelin raison Sociale Michelin & Cie: *See—*
Lejeune, Daniel, 3,811,737.
Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie: *See—*
Dillenschneider, Jean-Paul, 3,812,087.
Computer Identics Corporation: *See—*
Tuhro, Richard H., 3,812,374.
Conforti, Arthur R., to Melco Industries Inc. Sewing guide apparatus. 3,811,391, Cl. 112-147.000.
Conkey, Robert E.: *See—*
Angelis, William J.; Berger, Robert E.; and Conkey, Robert E., 3,811,366.
Connac, Gabriel Henri. Method and apparatus for cutting saw-teeth from the webs of structural shapes. 3,811,351, Cl. 83-49.000.
Connaughton, Joseph W.: *See—*
Wharton, Walter W.; and Connaughton, Joseph W., 3,811,280.
Connollys (Blackley) Ltd.: *See—*
Tomlinson, Roy, 3,811,406.
Connor, Daniel S.; and Krummel, Harry Karl, to Procter & Gamble Company, The. Detergent composition containing a polyfunction ally-substituted aromatic acid sequestering agent. 3,812,044, Cl. 252-89.000.
Consiglio Nazionale Delle Ricerche: *See—*
De Rossi, Mario, 3,811,945.
Consolidated Natural Gas Service Co., Inc.: *See—*
Massey, Lester G.; Tarman, Paul B.; and Huebler, Jack, 3,812,048.
Consolidated Paper (Bahamas) Limited: *See—*
Wilkinson, Michael C.; Blais, Leo; Martin, Wilhelm N.; and Tesainer, Silvano, 3,811,987.
Conti, Gianni: *See—*
Bianchi, Massimo; and Conti, Gianni, 3,811,296.
Continental Can Company: *See—*
Frankenberg, Henry E.; and Peyser, Harry A., 3,811,597.
Continental Can Company, Inc.: *See—*
Lurie, Randolph D., 3,812,002.
Continental Homes, Incorporated: *See—*
Powell, John Dillard, 3,811,235.
Continental Oil Company: *See—*
Gilchrist, James L., 3,812,353.
Gordon, Ronnie D., 3,812,212.
Johnson, Morris A.; and Yang, Kang, 3,812,211.
Krenowicz, Robert A.; and Scott, William P., 3,812,035.
Romine, Hugh E., 3,812,036.
Controls Company of America: *See—*
Kozel, James A.; and Ostrowski, Edwin A., 3,812,398.
Cook, David Langman, to Square D Company. Mechanically held latch attachment for an electromagnetic relay. 3,812,440, Cl. 335-167.000.
Cook, Gerald H., to Polaroid Corporation. Photographic cassette having an improved film operated processing system. 3,812,515, Cl. 354-319.000.
Cook, Melvin Alonzo; Funk, Albert G.; and Hansen, Gary L., to Ireco Chemicals. Method of blasting under high pressure conditions at elevated and normal temperatures. 3,811,971, Cl. 149-92.000.
Cook Paint and Varnish Company: *See—*
Wright, Howard J., 3,812,202.
Cook, William A.: *See—*
Lerwick, Everett R.; and Cook, William A., 3,811,446.
Cooley, Stone D.: *See—*
Besozzi, Alfio J.; Cooley, Stone D.; and Potts, Fred E., III, 3,812,158.
Copeland Refrigeration Corporation: *See—*
King, Robert W., 3,811,806.
Cordonnier, Gerard Anatole, to Le Materiel Compact. Apparatus for reading microdocuments. 3,811,763, Cl. 353-77.000.
Corey, Harold; Bakal, Abraham; Konigsbacher, Kurt; and Schoenholz, Daniel, to Snell, Foster D., Inc. Compressed compounded food product and method of making same. 3,812,268, Cl. 426-146.000.
Corken Pump Company: *See—*
Kennedy, William A., Jr., 3,811,792.
Corn, Prentice R.: *See—*
Wolf, Walter A.; Corn, Prentice R.; and Gebhardt, Wallace A., 3,812,313.
Cornelius, Gail L., to Wade, R. M., & Co. 90° Safety shutoff system for self-propelled sprinkling apparatus. 3,811,617, Cl. 239-189.000.
Corning Glass Works: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
Coscia, Anthony Thomas: *See—*
Williams, Laurence Lyman; and Coscia, Anthony Thomas, 3,812,084.
Cotton Incorporated: *See—*
Gamarra, Jose P.; Swidler, Ronald; and Wilson, Katherine W., 3,811,131.
Cotton, Robert B. Thrust augmenting device for jet aircraft. 3,811,791, Cl. 416-129.000.
Coulter Electronics, Inc.: *See—*
Coulter, Wallace H.; and Hogg, Walter R., 3,812,335.
Coulter, J. Roland, to Tull Aviation Corporation. Method and apparatus for monitoring frequency. 3,812,427, Cl. 324-79.00d.
Coulter, Wallace H.; and Hogg, Walter R., to Coulter Electronics, Inc. Apparatus for obtaining statistical indices and analyzing the same and method. 3,812,335, Cl. 235-151.300.
Coulthard, James Albert, to Marie Luise Batzner Coulthard and David Malcolm Pearson. Projection screens. 3,811,750, Cl. 350-117.000.
Cowell, Thomas E., to Rockwell International Corporation. Surface scaler apparatus. 3,811,320, Cl. 73-71.50u.
Cox, James F.: *See—*
Sinclair, Richard A., 3,812,446.
Cox, Robert J.: *See—*
Clecak, Nicholas J.; Cox, Robert J.; and Marceau, Wayne M., 3,812,162.
Cozza, Giorgio: *See—*
Barilli, Filippo; Cozza, Giorgio; and Bareggi, Vittorio, 3,812,242.
Cragon, Harvey G., to Texas Instruments Incorporated. Memory device. 3,812,476, Cl. 340-173.0rc.
Craig, H. Lee, Jr.: *See—*
Schardein, Daniel J., Jr.; Rogers, Charles M.; and Craig, H. Lee, Jr., 3,812,023.
Craig, H. Lee, Jr.; and Coates, Harold J., to Reynolds Metals Company. Inorganic coatings for aluminous metals. 3,812,021, Cl. 204-58.000.
Crainich, Victor A., Jr.: *See—*
de la Torriente, Leandro J.; and Crainich, Victor A., Jr., 3,812,056.
Crane, Jack W.: *See—*
Grey, Donald M.; Butler, Lee D.; Welker, Jerry W.; and Crane, Jack W., 3,811,584.
Crawford, Charles M., III: *See—*
Throckmorton, Thomas Marvin; and Crawford, Charles M., III, 3,811,134.
Crawford, Gerald J. B., to Schlumberger Technology Corporation. Acoustic logging apparatus for travel time and cement bond logging. 3,811,529, Cl. 181-.5ed.
Crawford, James E.; and Russell, Richard H., to Owens-Illinois, Inc. Method of coating glass surface and products produced thereby. 3,811,921, Cl. 117-72.000.
Creators Limited: *See—*
Hearn, Robert Renner, 3,811,989.
Creighton, David M.: *See—*
Austin, Robert R.; and Creighton, David M., 3,811,253.

Creutz, Hans-Gerhard; Romanowski, Edward A.; and Symons, Philip C., to Occidental Energy Development Company. Battery electrolyte composition containing the reaction product of an amine and an aldehyde. 3,811,946, Cl. 136-30.000.
Crone, John M., Jr.: *See—*
Suggitt, Robert M.; and Crone, John M., Jr., 3,812,197.
Cronin, Timothy H.; and Hess, Hans-Jurgen E., to Pfizer Inc. 4-(Quinolin-4-yl)piperazine-1-carboxylic acid esters. 3,812,127, Cl. 260-268.0bq.
Cronson, Harry M.; and Mitchell, Peter G., to Sperry Rand Corporation. Network time domain measurement system. 3,812,423, Cl. 324-58.50a.
Crosley, Thomas Whitley, to GTE Automatic Electric Laboratories, Incorporated. Sequential control circuit having improved fault detection and diagnostic capabilities. 3,812,337, Cl. 235-153.0ac.
Crosser, David Keith; Mell, Leonard E.; and Reuvers, John F., to Carter Industries, Inc. Random access memory with tape return to a midtape reference position after reading. 3,812,532, Cl. 360-72.000.
Crossland, Edward J.; Blossom, James H.; and Krasin, Lester Q., to Seismograph Service Corporation. Remote monitoring and remote control systems. 3,812,462, Cl. 340-163.000.
Crossman, Richard L., to Goodyear Tire & Rubber Company, The. Over pressurization release device and valve. 3,811,457, Cl. 137-73.000.
Crouzet: *See—*
Derre, Andre; and Jourdin, Jacques, 3,812,338.
Crowell, Merton H., to North American Philips Corporation. Circuit arrangement for producing pedestal current in a pyroelectric thermo imaging tube. 3,812,396, Cl. 315-10.000.
Crown Controls Corporation: *See—*
Pulskamp, Gerald Steven, 3,811,336.
Cryder, John R., to Caterpillar Tractor Company. Priority system for series-type hydraulic circuits. 3,811,363, Cl. 91-412.000.
Culver, Gordon G.; and Riemath, William F., to United States of America, Atomic Energy Commission. Method and apparatus for the in-vessel radiation treatment of blood. 3,811,426, Cl. 128-1.200.
Cummings, Alan F.; and Freeman, Gene G., to Rockwell International Corporation, mesne. Tubular extendable structure. 3,811,633, Cl. 242-54.00a.
Cunningham, Ernest R., to Grip-Pack Inc., mesne. Method of assembling multi-packaging devices to articles. 3,811,243, Cl. 53-30.000.
Cunningham, Russell E.; and Light, Gordon S., to Sigma Systems, Inc. Optical reader. 3,812,347, Cl. 250-568.000.
Curran, William Vincent, to American Cyanamid Company. Novel method for lowering blood pressure in mammals. 3,812,256, Cl. 424-250.000.
Curtin, Daniel J., to Atlantic Richfield Company. Method for centrifuging of tar sands froth. 3,811,614, Cl. 233-18.000.
Curtis, Russell B. Tricycle horse. 3,811,695, Cl. 280-1.192.
Cutters Machine Company, Inc.: *See—*
Benson, Robert W.; Chapman, James Ronald; Reed, Robert G.; and Smith, Hoyt L., 3,811,669.
Cybrix Corporation: *See—*
Harford, James W.; and Jeffries, Stuart W., 3,811,625.
Cylke, Edward J. Cassette carrier. 3,811,745, Cl. 312-13.000.
Cyrway, Edward N., Jr.; and Schmidt, Charles J., to Abar Corporation. Resistance heating element for vacuum furnaces. 3,812,276, Cl. 13-25.000.
Dahlman, George L.; and Kern, Leon O., to Houdaille Industries, Inc. Collet chuck. 3,811,694, Cl. 279-83.000.
Dai Nippon Printing Co., Ltd.: *See—*
Inoue, Eiichi; Nakayama, Takao; Oka, Yutaka; and Nakai, Yasuo (said Nakayama, Takao, Oka, Yutaka and Nakai, Yasuo assors. to), 3,811,884.
d'Albignac, Jean Marie Louis Jules; and Gamaury, Jean-Francois, to Societe Civile Soltex. Continuous dyeing of synthetic textile fibres with a basic character. 3,811,836, Cl. 8-173.000.
D'Alelio, Gaetano F.; and Kuehn, Erich, to ICI America Inc. Dihalobutene diol containing compositions. 3,812,047, Cl. 252-182.000.
Dalibor, Horst: *See—*
Katsimbas, Themistoklis; Dalibor, Horst; and Quednau, Peter, 3,812,067.
Dambite, Guna Robertowna: *See—*
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.
D'Ambra, Michael. Extended front end for a bike. 3,811,705, Cl. 280-279.000.
D'Amico, John J.: *See—*
Boustany, Kamel; and D'Amico, John J., 3,812,139.
Dane, Ernest Blaney, Jr. Deep sea mining system. 3,811,730, Cl. 299-8.000.
Daniels, Arthur L.: *See—*
Schmidt, Donald L.; Daniels, Arthur L.; and Petrella, Ronald V., 3,812,244.
Danko, Oliver L.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,811,651.
Danks, Ronald D.: *See—*
Fichter, Arthur A., Jr.; Danks, Ronald D.; Larsen, Farrell G.; and Throner, Guy C., Jr., 3,811,381.
Darlak, Robert S.; and Wright, Charles J., to Eastman Kodak Company. Silver halide photographic element containing a vinylsulfonyl compound hardener and an acrylic urea as formaldehyde scavenger. 3,811,891, Cl. 96-74.000.
Dart Controls, Inc.: *See—*
Penn, Paul E.; and Waymire, John, 3,812,408.
Dart Industries, Inc.: *See—*
Killen, Richard J.; Brandom, Boyce; and Howard, Lyman S., 3,811,244.
D'Ascoli, Ralph G.: *See—*
Barone, Angelo P.; D'Ascoli, Ralph G.; and Beehle, Charles W., 3,811,311.
Dasibi Corporation: *See—*
Bowman, Lloyd D.; Karhade, Manohar G.; and Schneiderman, Daniel I., 3,812,330.
Daskivich, Michael, to Precision Metalsmiths, Inc. Silicone coated injection moldable, thermoplastic material. 3,811,903, Cl. 106-187.000.
Dates, Harold F.: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
David Malcolm Pearson: *See—*
Coulthard, James Albert, 3,811,750.
Davis, George B., Jr. Control for christmas tree lighting. 3,812,380, Cl. 307-11.000.
Davis, William Fosom; and Pace, Wilson David, to Motorola, Inc. Bonding pad substructure for integrated circuits. 3,812,521, Cl. 357-48.000.
Day, Richard P.: *See—*
Meier, Rudolf H.; Day, Richard P.; and Thompson, Christopher J. C., 3,812,359.
Dayton Steel Foundry Company, The: *See—*
De Regenaucourt, Robert A.; and Caudill, Fred R., 3,811,734.
De Regnaucourt, Robert A.; and Caudill, Fred R., 3,811,733.
De Regnaucourt, Robert A., 3,811,735.
De Regnaucourt, Robert A., 3,811,736.
Walther, William D.; and De Regnaucourt, Robert A., 3,811,732.
De Barbadillo, John Joseph, II, to International Nickel Company, The. High strength low cost steel for use at cryogenic temperatures. 3,811,873, Cl. 75-123.00k.
De Bont, Paulus Maria; and Van Liefland, Willem, to U.S. Philips Corporation. Spark erosion device having arc detecting means. 3,812,317, Cl. 219-69.00p.
De Bussy, Jacques Marie Yves Le Clerc. Method for producing objects from a molten ceramic product. 3,812,226, Cl. 264-6.000.
De Carolis, Massimiliano, to Comitato Nazionale per l'Energia Nucleare. Apparatus for measuring the levels of fluids and the dielectric constants of the same. 3,812,422, Cl. 324-58.50b.
de la Torriente, Leandro J.; and Crainich, Victor A., Jr., to National Cash Register Company, The. Continuous encapsulation. 3,812,056, Cl. 252-316.000.
De Marco, Richard, to Clairol Incorporated. Stable oil-in-water emulsion hair dye composition. 3,811,830, Cl. 8-10.100.
De Regenaucourt, Robert A.; and Caudill, Fred R., to Dayton Steel Foundry Company, The. Spacer for a dual rim and spoked wheel assembly. 3,811,734, Cl. 301-13.0sm.
De Regnaucourt, Robert A.: *See—*
Walther, William D.; and De Regnaucourt, Robert A., 3,811,732.
De Regnaucourt, Robert A.; and Caudill, Fred R., to Dayton Steel Foundry Company, The. Retained fastening elements for a rim and wheel assembly. 3,811,733, Cl. 301-12.00r.
De Regnaucourt, Robert A., to Dayton Steel Foundry Company, The. Positioned clamp lugs for a dual rim and wheel assembly. 3,811,735, Cl. 301-13.00r.
De Regnaucourt, Robert A., to Dayton Steel Foundry Company, The. Torque transmitting means for a dual rim, spacer and wheel assembly. 3,811,736, Cl. 301-13.00r.
De Rijke, David; and Boelens, Harmannus, to Naarden International N.V. Perfume compositions containing 6-propyl-3-cyclohexene carbaldehydes. 3,812,059, Cl. 252-522.000.
De Rossi, Mario, to Consiglio Nazionale Delle Ricerche. Electric battery. 3,811,945, Cl. 136-10.000.
De Valenzuela, Ricardo Barredo. Systems of anchorage to the traction jack of reinforcements to be post-tensioned. 3,811,652, Cl. 254-29.00a.
De Winter, Jan Gerrit. Bottom and bank facing. 3,811,287, Cl. 61-38.000.
Decis, Mario. Automatic pilot device. 3,811,395, Cl. 114-144.00r.
Deckert, Andreas, to Siemens Aktiengesellschaft. Electrical capacitors with vented closures. 3,812,280, Cl. 174-52.00s.
Defg, Emil W.; Silverberg, Carl G.; and Martel, Leslie B. Method for tire polishing optical glass lenses with plasma flames. 3,811,857, Cl. 65-65.00r.
Dehar, David C., to Ford Motor Company. Valve assembly. 3,811,650, Cl. 251-144.000.
Del Missier, Richard J., to Tri-Way Industries, Inc. Convertible berth. 3,811,138, Cl. 5-9.000.
Delany, Edward B.; and Mayo, Ralph E. Electron bombardment ion source for a mass spectrometer having a nonspecular inner surface. 3,812,367, Cl. 250-427.000.
Delorme, Raymond Louis: *See—*

Siegel, Pierre Louis; and Delorme, Raymond Louis, 3,811,609.
Deltrol Corporation: *See—*
Harris, John L., 3,812,306.
Deman, Heiko T.: *See—*
Ahildgaard, William H.; Groswith, Charles T. III; Deman, Heiko T.; and Buan, Danilo P., 3,811,146.
Dempsey, James Joseph; and Smith, Drexel Kermit, to Du Pont de Nemours, E. I., and Company. Peg-roll softening of fibrillated sheet. 3,811,979, Cl. 156-181.000.
Den Tex, Karel: *See—*
Charlson, Paul Marlin; Den Tex, Karel; and Fingerson, Conrad Ferdinand, 3,811,377.
Denki Kagaku Kogyo Kabushiki Kaisha: *See—*
Kadowaki, Takashi; Itoyama, Kenji; and Matsuzawa, Shoya, 3,812,203.
Dennis, William E.; and Vogel, George E., to Dow Corning Corporation. Quaternary ammonium salt catalyst. 3,812,081, Cl. 260-46.50r.
Derbyshire, George C., to Jacobs Manufacturing Company, Limited, The. Drill chuck. 3,811,693, Cl. 279-18.000.
Derose, Michael A.: *See—*
Schortmann, Walter E.; and Derose, Michael A., 3,812,006.
Derre, Andre; and Jourdin, Jacques, to Crouzet. Analog function generator. 3,812,338, Cl. 235-197.000.
Des Rosiers, Jacques: *See—*
Aubert, Emilien; and Des Rosiers, Jacques, 3,812,250.
Desert Pharmaceutical Company, Inc.: *See—*
Moorehead, Harvey Robert; and Reading, George R., 3,811,440.
Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Mueller, Hans-Karl; and Lumbeck, Gerd, 3,812,269.
Devansco, Inc.: *See—*
Evans, Dewey M.; and Johnson, Willard L., 3,811,252.
Dewaele, Sylvain A. R.: *See—*
Dulog, Lothar G.; and Dewaele, Sylvain A. R., 3,812,033.
Di Marino, Ciampino: *See—*
Sacerdoti, Giancarlo; Catitti, Aldo; and Di Marino, Ciampino, 3,811,740.
Dibella, Robert N.: *See—*
Avampato, Dominic C.; Dibella, Robert N.; and Vasas, Roger E., 3,811,950.
Dick, A. B., Company: *See—*
Rempala, Chester S., 3,812,375.
Dickens, John. Overhead by-pass flood control means. 3,811,463, Cl. 137-362.000.
Dickinson, Ben W. O., III; Dickinson, Robert W.; and Miller, Cecil R., said Miller, Cecil R.; assors. to Smith, Kline & French Laboratories and said Dickinson, Ben W. O., III, and Dickinson, Robert W., assors. to Agrophysics, Inc. Artificial method for modfying the reproductive cycle in animals. 3,811,424, Cl. 128-1.00r.
Dickinson, Ben Wade Oakes, III; and Dickinson, Robert Wayne, to Agrophysics, Inc. Device for insertion into the reproductive tract and method of using same. 3,811,423, Cl. 128-1.00r.
Dickinson, Ben Wade Oakes, III; and Dickinson, Robert Wayne, to Agrophysic, Inc. Method and apparatus for artificial insemination. 3,811,443, Cl. 128-235.000.
Dickinson, Robert W.: *See—*
Dickinson, Ben W. O., III; Dickinson, Robert W.; and Miller, Cecil R., 3,811,424.
Dickinson, Robert Wayne: *See—*
Dickinson, Ben Wade Oakes, III; and Dickinson, Robert Wayne, 3,811,423.,
Dickinson, Ben Wade Oakes, III; and Dickinson, Robert Wayne, 3,811,443.
Diebler, Herman G.; Gyori, Steven Andrew; and McCandless, William J. C., to Technicon Instruments Corporation. Temperature-controlled fluid manifold for a fluid system of an automated sample analyzer. 3,811,842, Cl. 23-259.000.
Diefendorf, Russell J., to Great Lakes Carbon Corporation. Boron deposition on carbon monofilament. 3,811,917, Cl. 117-47.00r.
Dieffenbach, Percy, to Masterpiece, Inc. Collapsible artificial shrub. 3,811,991, Cl. 161-24.000.
Diel, Burkhart; Gregor, Kurt; and Huber, Walther, to Siemens Aktiengesellschaft. Method for mass production of housings for semiconductor devices provided with required connecting terminals. 3,811,187, Cl. 29-630.00r.
Dierker, Joachim: *See—*
Prag, Rudolf; and Dierker, Joachim, 3,812,361.
Dieter, Julian A.: *See—*
Weichhand, Robert J.; Schuler, Ralph J.; and Dieter, Julian A., 3,811,330.
Dietrich, Henri; and Lehmann, Claude, to Ciba-Geigy Corporation. Derivatives of p-aminoalkylbenzene sulfonamide. 3,812,144, Cl. 260-309.700.
Dillenschneider, Jean-Paul, to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie. Vulcanization of EPDM elastomers. 3,812,087, Cl. 260-79.50c.
Dinger, Edward H., to General Electric Company. Current limit circuit for a DC motor. 3,812,409, Cl. 318-310.000.
Dipietro, Joseph; and Stepniczko, Heintich E., to Michigan Chemical Corporation. Apparatus for the determination of flammability and smoke density of polymers. 3,811,839, Cl. 23-253.0pc.
Dirne, Adrianus Petrus: *See—*
Asselman, George Albert Apolonia; and Dirne, Adrianus Petrus, 3,811,496.
Ditman, John G.: *See—*
Morfit, Oliver; and Ditman, John G., 3,811,843.
Dittrich, Robert George; Secord, Dean Brian; and Thelemaque, Louis Emanuel, to Bell Telephone Laboratories, Incorporated. Communication system switching network. 3,812,298, Cl. 179-18.0ea.
Dix, Rollin C. Mobile roadway repair unit. 3,811,147, Cl. 14-1.000.
Do All Company: *See—*
Anderson, William T., 3,811,179.
Dobo, Emerick J., to Monsanto Company. High speed production of filaments from low viscosity melts. 3,811,850, Cl. 65-1.000.
Doi, Tadashi, to Kao Soap Co., Ltd. Flexible pavement coating method. 3,811,911, Cl. 117-33.000.
Dolle, Waldemar: *See—*
Sundermann, Erich; and Viedt, Johanna (said Sundermann assor. to), 3,811,815.
Dombrowski, Ted A.: *See—*
Mansnerus, John A.; and Dombrowski, Ted A., 3,811,817.
Dominion Auto Accessories Limited: *See—*
Brudy, Peter E., 3,811,715.
Doncer, Alex J.; and White, Harold R., to Alar Engineering Corporation. Proportional sampling apparatus and method. 3,811,324, Cl. 73-421.00b.
Dorchak, Thomas P.: *See—*
Santangelo, Joseph G.; and Dorchak, Thomas P., 3,812,017.
Dostal, Zdenek Denny, to International Playtex Corporation. Absorbent material and methods of making the same. 3,811,445, Cl. 128-285.000.
Douglas, Frank C.; Gregory, Thomas K.; and Stielau, Robert W., to United Aircraft Corporation. High frequency heating method for vapor deposition of coatings onto filaments. 3,811,940, Cl. 117-228.000.
Dover Corporation: *See—*
Wood, Chester W., 3,811,486.
Dow Chemical Company, The: *See—*
Bieler, Barrie H.; Morgan, David C.; and Guebert, Kenneth W., 3,811,870.
Schmidt, Donald L.; Daniels, Arthur L.; and Petrella, Ronald V., 3,812,244.
Dow Corning Corporation: *See—*
Bey, Alvin E., 3,812,201.
Dennis, William E.; and Vogel, George E., 3,812,081.
Schulz, Jay R., 3,812,164.
Dresser Industries, Inc.: *See—*
Platt, Richard O., 3,811,808.
Driver, W. B. Remote control directional drilling system. 3,811,519, Cl. 175-73.000.
Drouhard, Alfred J., Jr.; and Weeks, John R., Jr., to Mansfield Sanitary, Inc. Flush control system. 3,811,135, Cl. 4-76.000.
Drzewiecki, Tadeusz M., to United States of America, Army. Pure fluidic de-coupler. 3,811,476, Cl. 137-842.000.
Du Bell, Thomas Loyd: *See—*
Taylor, Jack Rogers; and Du Bell, Thomas Loyd, 3,811,278.
Du Pont de Nemours, E. I., and Company: *See—*
Borchardt, Hans J., 3,812,040.
Dempsey, James Joseph; and Smith, Drexel Kermit, 3,811,979.
Johnson, Daniel D., 3,811,848.
Otterstedt, Jan-Erik Anders; and Pater, Richard, 3,812,123.
Rennolds, Philip Jackson, 3,811,942.
Short, Oliver A.; and Weaver, Richard V., 3,811,906.
Stalter, Neil J., 3,811,833.
van der Linde, Willem B.; and Weslager, Clinton A., 3,812,043.
Yuan, Edward L., 3,811,997.
Duffy, James J.: *See—*
Goldborn, Peter; and Duffy, James J., 3,812,218.
Dugan, Mary Ann, to Research Corporation. Novel compositions for radiotracer localization of deep vein thrombi. 3,812,245, Cl. 424-1.000.
Dula, Alfred A.; and Wehring, Elwood, to Pipe Specialties, Inc. Sealed tubular joint. 3,811,710, Cl. 285-55.000.
Dulog, Lothar G.; and Dewaele, Sylvain A. R., to S.A. Texaco Belgium N.V. Lubricating compositions containing benzo-(1',3',2-)dioxaphosphiles. 3,812,033, Cl. 252-46.700.
Dumas, Christ J.: *See—*
Simovits, Stephen S., Jr.; and Dumas, Christ J., 3,812,450.
Duncan, Eathel Lee, to Goodyear Tire & Rubber Company, The. Tire with an upper sidewall protector. 3,811,488, Cl. 152-209.00r.
Duncan, Larry K., to Grace, W. R., & Co. Process for separating cerium concentrate from ores. 3,812,233, Cl. 423-21.000.
Dunham-Bush, Inc.: *See—*
Moody, Harold W., Jr.; and Schaefer, Donald D., 3,811,805.
Dunkelberger, David L., to Rohm & Haas Company. Process for preparing graftlinked heteropolymer film. 3,812,205, Cl. 260-885.000.
Dunkleberger, La Rue Norman; and Shen, Lawrence Yun Lung, to Bell Telephone Laboratories, Incorporated. Ultrahigh vacuum sublimation pump. 3,811,794, Cl. 417-49.000.
Dunmyer, Joseph C., Jr.; and Godino, Rino L., to Wheeler, Foster, Corporation. Rotating disc contractor draw-off system. 3,811,844, Cl. 23-270.500.
Dunn, Kathy A.: *See—*
Glass, Marvin I.; and Dunn, Kathy A., 3,811,220.
Durchkeimer, Walter: *See—*
Schorr, Manfred; Durchkeimer, Walter; Behrendt, Lothar; and Duwel, Dieter, 3,812,131.
Duro-Test Corporation: *See—*
Koo, Ronald C.; and Shurgan, Joel, 3,812,393.
Duwel, Dieter: *See—*

Schorr, Manfred; Durchkeimer, Walter; Behrendt, Lothar; and Duwel, Dieter, 3,812,131.
Dye, John F., to Kendall Company, The. Receptacle closure cap. 3,811,592, Cl. 215-307.000.
Dzus Fastener Co., Inc.: *See—*
Schenk, Peter, 3,811,157.
E. & A. Becker KG, Maschinen- und Getriebebau: *See—*
Moogk, Friedrich, 3,811,331.
E. & F. Horster, Firma: *See—*
Heckhausen, Hans, 3,811,347.
Earle, Paul Lewis; Musz, Andrew; and Vandervelden, Jan Josef Maria, to Johns-Manville Corporation. Vibration impact texturing apparatus. 3,811,814, Cl. 425-385.000.
E'Ascoli, Ralph C.: *See—*
Kothe, Erich W.; Ebel, Lawrence C.; and E'Ascoli, Ralph C., 3,812,283.
Eastman Kodak Company: *See—*
Babbitt, John M.; Spayd, Richard W.; and Irani, Nayyir F., 3,811,897.
Darlak, Robert S.; and Wright, Charles J., 3,811,891.
Edwards, Evan A., 3,811,634.
Ehrlich, Sanford H., 3,811,895.
Endter, Dale S.; and Miller, Edwin E., 3,811,201.
Ernisse, Paul J.; and Ettinger, Arnold J., 3,812,500.
Ernisse, Paul Justin; and Mindler, Fredric Alton, 3,812,498.
Fisher, John G.; and Clark, Gary T., 3,812,093.
Gallagher, John F.; and Salo, Martin, 3,811,924.
Goddard, William H., 3,811,635.
Herz, Arthur Herman; and Westcott, Edwin Russell, 3,811,896.
Marchant, John C.; and Tinney, John R., 3,811,885.
Eaton Corporation: *See—*
Goscenski, Edward J., Jr., 3,811,341.
Eaves, Robert B., to Photo-Motion Corporation. Moire motion illusion apparatus and method. 3,811,213, Cl. 40-106.530.
Ebco Manufacturing Company: *See—*
Taylor, William, 3,811,294.
Ebel, Lawrence C.: *See—*
Kothe, Erich W.; Ebel, Lawrence C.; and E'Ascoli, Ralph C., 3,812,283.
Eby, Clyde Richard, to Cincinnati Milacron Inc. Quick change guard for tool and cutter grinder. 3,811,233, Cl. 51-269.000.
Eckdahl, Thomas H.: *See—*
Schilling, Paul K.; and Eckdahl, Thomas H., 3,811,560.
Eckdahl, Thomas H.; and Bateman, Robert F., to Plastics, Inc. Interlocking serving tray. 3,811,595, Cl. 220-23.400.
Eckert, Konrad; and Knapp, Heinrich, to Bosch, Robert, G.m.b.H. Control device for a fuel injection system. 3,811,419, Cl. 123-119.00r.
Economou, George J. Swinging doors. 3,811,222, Cl. 49-9.000.
Economou, George J. Adhesive tapes and bandages. 3,811,438, Cl. 128-156.000.
Ecoplastics Limited: *See—*
Guillet, James Edwin, 3,811,931.
Edax International, Inc.: *See—*
Walsh, Charles J.; and Barnhart, Morris W., 3,812,288.
Eddy, William R., to Phillips Petroleum Company. Apparatus and method for orienting articles. 3,811,551, Cl. 198-33.00r.
Edenhofer, Albrecht; Ramuz, Henri; and Spiegelberg, Hans, to Hoffmann-La Roche Inc. Piperazinyl substituted alkoxy benzophenones. 3,812,129, Cl. 260-268.0ph.
Edwards, Evan A., to Eastman Kodak Company. Cartridge stripping. 3,811,634, Cl. 242-55.000.
Edwards, Kenneth F.; and Vogel, Ralph A., to Essex International, Inc. Rod handling apparatus. 3,811,610, Cl. 226-171.000.
Egan, Georgette S., to Hughes Aircraft Company. Working surface for radiant energy beam cutter. 3,811,554, Cl. 198-131.000.
Ehrlich, Sanford H., to Eastman Kodak Company. Sensitized compounds and elements. 3,811,895, Cl. 96-88.000.
Eichinger, John W., to Buckeye Forge Division-Gulf & Western Industrial Products Company. Method of assembling closure member for metal containers. 3,811,174, Cl. 29-453.000.
Eifler, Raymond J.; and Hennessey, Walter F., to Bendix Corporation, The. Rear release contact retention assembly. 3,812,447, Cl. 339-59.00r.
Eisenwerke Gesellschaft Maximilianshutte m.b.H.: *See—*
Knuppel, Helmut; Brotzmann, Karl; and Fassbinder, Hans George, 3,811,386.
Eldby, Per: *See—*
Wessel, Per Christian; and Eldby, Per, 3,811,396.
Electronic Memories & Magnetics, Inc.: *See—*
Kvaternik, Joseph, 3,812,311.
Electronic shutter for photographic cameras: *See—*
Shimizu, Munetaka; and Takayama, Masao, 3,812,512.
Electroprint, Inc.: *See—*
Blake, David E., 3,811,765.
Elektriska Svetsningsaktiebolaget: *See—*
Tholander, Lars Helge; and Thostrup, Harry, 3,811,611.
Elliott, James B., to United Corporation. Scanning camera. 3,812,505, Cl. 95-11.000.
Ellis, John L.: *See—*
Weinstein, Martin; Singhal, Subhash C.; and Ellis, John L., 3,811,961.
Elm, Robert A., to Minnesota Mining and Manufacturing Company. Terminal strip. 3,812,449, Cl. 339-98.000.
Elmessaar, Heino: *See—*
Blomberg, Jarl Joel; Elmessaar, Heino; and Karden, Karl Gosta, 3,811,514.
ELTHRA Corporation: *See—*
Van Gilder, Burrows Corson; and Moyer, Elmo Emerson, 3,812,415.
Emura, Tomoyuki: *See—*
Ito, Ikoh; Sekihara, Takeshi; Emura, Tomoyuki; and Ueda, Takeshi, 3,812,073.
Enderlein, Hans Dieter Friedrich Konrad, to Sowell, John B., mesne. Semiconductor wafer transport device. 3,811,825, Cl. 432-122.000.
Enderlein, Hans Dieter Friedrich Konrad, to Sowell, John B., mesne. Diffusion furnace process tube. 3,811,826, Cl. 432-200.000.
Endo, Takaya: *See—*
Kagami, Teruo; Fujiwhara, Mitsuto; and Endo, Takaya, 3,811,892.
Endou, Koutarou; Yoneyama, Masakazu; Yamamoto, Nobuo; Ojihara, Motohiro; and Nakajima, Yosuke, to Fuji Photo Film Co., Ltd. Light-sensitive photographic material with antistatic layer. 3,811,889, Cl. 96-67.000.
Endter, Dale S.; and Miller, Edwin E., to Eastman Kodak Company. Apparatus for drying a photographic material. 3,811,201, Cl. 34-54.000.
Engelbrecht, Eduard. Method and apparatus for delivering a predetermined volume of a liquid. 3,811,484, Cl. 141-7.000.
Engelhardt, Edward L.; and Christy, Marcia E., to Merck & Co., Inc. Chemical compounds and processes for preparing same. 3,812,177, Cl. 260-501.210.
Engelsmann, Dieter; Wagensonner, Eduard; Rieder, Alois; and Von Fischern, Bernhard, to Agfe-Gevaert Aktiengesellschaft. Exposure indicator for a photographic camera. 3,812,503, Cl. 354-60.000.
Engineering Concrete Placer, Inc.: *See—*
Semple, Charles A., 3,811,802.
English, Jackson Pollard; and Berkelhammer, Gerald, to American Cyanamid Company. N-(2,2-Diloweralkoxyalkyl)-2,2-diloweralkoxylower-alkanamidines and their acid addition salts. 3,812,189, Cl. 260-564.00r.
Enterprise Brass Works: *See—*
Nelson, Lowell F., 3,811,456.
Environeering, Inc.: *See—*
Huppke, Glen P., 3,811,247.
Environment/One Corporation: *See—*
La Violette, Fred G., 3,812,370.
Environmental Research & Technology, Inc.: *See—*
Blau, Henry H., Jr., 3,811,776.
Eprova Aktiengesellschaft: *See—*
Suter, Hans; Zutter, Hans; and Muller, Hans Rudolf, 3,812,186.
Epstein, Irving. Releasable hook. 3,811,720, Cl. 294-83.00r.
Epstein, Lewis: *See—*
Baus, Rene, Jr.; and Epstein, Lewis, 3,811,770.
Epstein, Paul: *See—*
Van Horn, Joseph M.; Epstein, Paul; and Phillipps, Patrick G., 3,811,428.
Erickson, Lars E.: *See—*
Floyd, Alfred E.; and Erickson, Lars E., 3,811,717.
Erickson, William R. Closed loop system for the elimination of fluorine pollution from phosphoric plants. 3,811,246, Cl. 55-71.000.
Ernisse, Paul J.; and Ettinger, Arnold J., to Eastman Kodak Company. Automatic shutter control for photographic cameras. 3,812,500, Cl. 354-32.000.
Ernisse, Paul Justin; and Mindler, Fredric Alton, to Eastman Kodak Company. Shutter diaphragm apparatus for camera exposure control. 3,812,498, Cl. 354-29.000.
Ernsberger, Fred M.; and Nier, Thomas J., to PPG Industries Inc. Method and apparatus for mixing molten glass by bubbling. 3,811,858, Cl. 65-135.000.
Ernsberger, Fred M., to PPG Industries, Inc. Process and apparatus for electrolytically generating stirring bubbles in a glass melt. 3,811,859, Cl. 65-136.000.
ESB Incorporated: *See—*
Johnson, Robert William; and Shanker, Irvin Paul, 3,811,759.
Reinert, Donald G., 3,811,956.
Esco Corporation: *See—*
Smith, Floyd O., 3,811,270.
Esquire Inc.: *See—*
McNamara, Albert C., Jr., 3,812,342.
Esser, Franz; Hanstein, Friedrich; Hosch, Ludwig; and Mueller, Dieter, to Rohm GmbH. Structural elements of reduced inflammability. 3,812,208, Cl. 260-899.000.
Essex International, Inc.: *See—*
Edwards, Kenneth F.; and Vogel, Ralph A., 3,811,610.
Esso Research and Engineering Company: *See—*
Buntin, Robert R., 3,811,957.
Esten, Harold. Ballcock. 3,811,464, Cl. 137-414.000.
Estradier, Francoise: *See—*
Bugaut, Andree; and Estradier, Francoise, 3,811,831.
Eta Francais represente par le Ministre d'Etat Charge de la Defense Nationale, Delegation Ministerielle pour l'Armement Quai Henri: *See—*
Bertrand, Yves; and Grebert, Robert, 3,811,969.
Ethyl Corporation: *See—*
Hall, Crayton G., 3,812,213.
Kirsch, Warren B., 3,812,237.
Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., 3,812,195.
Niebylski, Leonard M.; and Brendel, Gottfried J., 3,811,972.

Ettinger, Arnold J.: *See—*
Ernisse, Paul J.; and Ettinger, Arnold J., 3,812,500.
Evans, Dewey M.; and Johnson, Willard L., to Devansco, Inc. Air cleaning device. 3,811,252, Cl. 55-228.000.
Everitt, Scott F., to Indiana National Bank, The, mesne. Sound reproduction system. 3,811,532, Cl. 181-156.000.
Faffaelli, Joseph Gino; and Palmer, Reed Albert, to International Telephone and Telegraph Corporation. Glow coil ignitor. 3,812,324, Cl. 219-553.000.
Fagen, John. Universal engine head lift. 3,811,576, Cl. 212-35.00r.
Faiss, Gerhard: *See—*
Kaiser, Gerhard; and Faiss, Gerhard, 3,811,556.
Faiveley S.A.: *See—*
Leger, Roland, 3,812,304.
Fanti, Roy: *See—*
Kuehl, Donald K.; Fanti, Roy; and Galasso, Salvatore F., 3,811,930.
Farber, Sheldon; and Wright, Arthur J., to National Cash Register Company, The. Phthalide. 3,812,146, Cl. 260-326.1yr.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Buschmann, Lothar; Prave, Paul; and Sukatsch, Dieter, 3,812,012.
Heise, Hartmut; and Mees, Bernhard, 3,812,138.
Hirschberg, Klaus; and Kramer, Lothar, 3,812,231.
Kleiner, Hans-Jerg; and Rittner, Siegbert, 3,812,222.
Kuhlkamp, Alfred; Rauterkus, Karl Josef; Schaefer, Horst; and Seip, Detlev, 3,812,072.
Landler, Josef; and Spietschka, Ernst, 3,812,130.
Merkle, Kurt; Fuchs, Otto; Troster, Helmut; and Noetzel, Siegfried, 3,812,051.
Noetzel, Siegfried, 3,812,053.
Noetzel, Siegfried; and Fischer, Edgar, 3,812,054.
Schorr, Manfred; Durchkeimer, Walter; Behrendt, Lothar; and Duwel, Dieter, 3,812,131.
Stache, Ulrich; Radscheit, Kurt; Firtsch, Werner; and Haede, Werner, 3,812,106.
Weber, Helmut; Aumuller, Walter; Muth, Karl; and Weyer, Rudi, 3,812,185.
Faress, Sidney M., to Uniroyal Inc. Thomas, Dallas C. Ironer roll cover and method. 3,811,164, Cl. 28-128.000.
Farnam, F. D., Co.: *See—*
Farnam, Robert G., 3,811,689.
Farnam, Robert G., to Farnam, F. D., Co. Preformed bushing. 3,811,689, Cl. 277-166.000.
Farnsworth, Richard G., to General Electric Company. Solid state totalizer. 3,812,385, Cl. 397-243.000.
Farr, Glyn Phillip Reginald, to Girling Limited. Brake adjusters. 3,811,538, Cl. 188-79.5ge.
Farr, Glyn Phillip Reginald, to Girling Limited. Internal shoe-drum brakes. 3,811,539, Cl. 188-106.00a.
Fassbinder, Hans George: *See—*
Knuppel, Helmut; Brotzmann, Karl; and Fassbinder, Hans George, 3,811,386.
Fassell, Wayne M., to Philco-Ford Corporation. Refractory article having high thermal shock resistance. 3,811,900, Cl. 106-55.000.
Faustel, Inc.: *See—*
Abler, Norman C., 3,811,637.
Fedders Corporation: *See—*
Bellmer, Friedrich O., 3,811,468.
Osterkorn, Charles Louis; Buck, Leo V.; Kloos, William W.; and Marino, Salvatore M., 3,812,322.
Federspiel, Joseph A., to FMC Corporation. Latch mechanism. 3,811,338, Cl. 74-527.000.
Feiner, Alfred, to Strabag Beu-A.G. Dam having contoured internal apron. 3,811,286, Cl. 61-31.000.
Feingold, Michael: *See—*
Bader, Henry; Feingold, Michael; and Jahngen, Edwin G., Jr., 3,812,191.
Feist, Karl K. Slide retainer and positioner. 3,811,645, Cl. 249-68.000.
Feldman, Allan Murray, to American Cyanamid Company. Nickel and cobalt dicyclohexyldithio-phosphinates as flame-retardants for styrene polymers. 3,812,080, Cl. 260-45.75r.
Felix, Ernst, to Zellweger, Ltd., Uster Factories for Apparatus and machines. Systems for monitoring yarns in multicoil production textile machines. 3,811,261, Cl. 57-81.000.
Feliz, Jack M. Recreational vehicle utility stowage and transfer system. 3,811,462, Cl. 137-344.000.
Felton, Lloyd Crosser. Dropper and stirrer dispensing a single drop. 3,811,603, Cl. Hynson, Westcott & Dunning, I.
Ferguson, Hugo S., to Reel Vortex, Inc. Cross-flow mower with canted reel and three-wheel suspension. 3,811,255, Cl. 56-13.300.
Ferraro, John J.; and McDonald, Bertrand Norval, to Babcock & Wilcox Company, The. Industrial technique. 3,811,498, Cl. 165-161.000.
Ferrell, Robert G. Stoma filter guard. 3,811,436, Cl. 128-140.000.
Ferro, Armand P.: *See—*
Kurz, Bruno F.; and Ferro, Armand P., 3,812,518.
Ferro Corporation: *See—*
Oswitch, Stanley; and Kipp, Kevin K., 3,812,074.
Fiber Industries, Inc.: *See—*
Jones, Charles Alonzo; Lawson, Jerry Joe; and Mayrose, William Carl, 3,811,264.
Fichter, Arthur A., Jr.; Danks, Ronald D.; Larsen, Farrell G.; and Throner, Guy C., Jr., to FMC Corporation. Smoke spotting cartridge. 3,811,381, Cl. 102-66.000.
Fiddes, Derek Edward, to Protective Plastics Limited. Swimming pool coping. 3,811,236, Cl. 52-102.000.
Fietz, Erwin: *See—*
Schmidt, Helmut, 3,811,459.
Fines Lille-Cail: *See—*
Giorgi, Jean Claude, 3,811,624.
Fingerson, Conrad Ferdinand: *See—*
Charlson, Paul Marlin; Den Tex, Karel; and Fingerson, Conrad Ferdinand, 3,811,377.
Fink, John. Hat-skeet or cup-skeet. 3,811,678, Cl. 273-126.00r.
Fink, Wilfried. Universal holder for thread cutting dies. 3,811,145, Cl. 10-123.00p.
Finnin, George R., to Sperry Rand Corporation. I/O device reserve system for a data processor. 3,812,471, Cl. 340-172.500.
Firtsch, Werner: *See—*
Stache, Ulrich; Radscheit, Kurt; Firtsch, Werner; and Haede, Werner, 3,812,106.
Fischer, Arthur. Flexible member and arcuate member attachable thereto for imparting curvature. 3,811,219, Cl. 46-25.000.
Fischer, Edgar: *See—*
Noetzel, Siegfried; and Fischer, Edgar, 3,812,054.
Fisher, John G.; and Clark, Gary T., to Eastman Kodak Company. Cationic thiadiazolyl monoazo dyes. 3,812,093, Cl. 260-146.00r.
Fisher, John M., to Goodrich, B. F., Company, The. Escape slide assembly. 3,811,534, Cl. 182-48.000.
Fiskin, Alexandr Mikhailovich: *See—*
Birger, Abram Isaakovich; Fiskin, Alexandr Mikhailovich; Samsonov, Ivan Sergeevich; Savushkin, Anatoly Alexandrovich; Zemtsov, Nikolai Nikolaevich; and Borisevich, Vitaly Arkadievich, 3,811,812.
Flachglas Aktiengesellschaft Delog-Detag: *See—*
Glaser, Hans-Joachim, 3,811,934.
Flamand, Guy Antoine: *See—*
Vermeerbergen, Leon Roger; and Flamand, Guy Antoine, 3,811,588.
Flambeau Products Corporation: *See—*
Saucy, Lawrence K.; Mason, Leroy W.; and Rau, Gerald A., 3,811,216.
Fleischer, Helen Krohn: *See—*
Fleischer, Oscar, 3,811,215.
Fleischer, Oscar; deceased (by Fleischer, Helen Krohn; executrix). Locking device for fishing rods. 3,811,215, Cl. 43-18.00r.
Fleischer, Robert L.; and Price, Paul B., to General Electric Company. Etchable copolymer body. 3,811,999, Cl. 161-109.000.
Fleischfresser, Gerald H.; and Mila, Truman R., to GTE Automatic Electric Laboratories, Incorporated. Arrangement for protecting a common highway in a common control communication switching system. 3,812,299, Cl. 179-18.0ah.
Fleissner, Heinz, to Vepa AG. Apparatus for continuous bonding of felt materials by sequential heating and cooling operations. 3,811,988, Cl. 156-498.000.
Flider, Frank S., to Justrite Manufacturing Company, The. Safety container for inflammable fluids. 3,811,605, Cl. 222-472.000.
Flogaus, William S.; Graves, Howard T.; Orlando, Harold J.; and Van Der Laske, Dennis P., to United States of America, Army. Miniature infrared short range thermal imager (MISTI). 3,812,357, Cl. 250-332.000.
Flory, Robert Earl, to RCA Corporation. Two color medium for full color TV film system. 3,812,528, Cl. 358-49.000.
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., to Texaco Inc. Surfactant oil recovery process usable in formations containing water having high concentrations of polyvalent ions such as calcium and magnesium. 3,811504, Cl. 166-273.000.
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., to Texaco Inc. Surfactant oil recovery process usable in formations containing water having high concentrations of polyvalent ions such as calcium and magnesium. 3,811505, Cl. 166-274.000.
Flournoy, Kenoth H.; and Shupe, Russell D., to Texaco Inc. Surfactant oil recovery process usable in formation containing water having high concentration of polyvalent ions such as calcium and magnesium. 3,811,507, Cl. 166-274.000.
Flow Research, Inc.: *See—*
Olsen, John H., 3,811,795.
Floyd, Alfred E.; and Erickson, Lars E., to Sargent and Company Division of Walter Kidde & Co. Latch bolt stop lever for fire door lock sets. 3,811,717, Cl. 292-92.000.
Fluck, Josef: *See—*
Zaugg, Roland; and Fluck, Josef, 3,811,267.
Flynn, James P., to Philco-Ford Corporation. Air conditioner condensate disposal apparatus. 3,811,293, Cl. 62-280.000.
Flynn, William T.: *See—*
Wolf, Erich L.; and Flynn, William T., 3,811,522.
FMC Corporation: *See—*
Brown, Martin S.; and Avramidis, Stellios A., 3,811,332.
Federspiel, Joseph A., 3,811,338.
Fichter, Arthur A., Jr.; Danks, Ronald D.; Larsen, Farrell G.; and Throner, Guy C., Jr., 3,811,381.
Shirley, Joseph Floyd; Caropreso, Frank Edward; and Fraser, George Lamar, 3,811,569.
Ford, James A.: *See—*
Caule, Elmer J.; Sperry, Philip R.; Pryor, Michael J.; and Ford, James A., 3,811,874.
Ford Motor Company: *See—*

Allison, William D., 3,811,337.
Bauer, David J., 3,811,725.
Dehar, David C., 3,811,650.
Glance, Patrick M., 3,811,698.
Jaklevic, Robert C.; Lambe, John J.; and Mikkor, Mati, 3,811,752.
Labana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, 3,811,910.
Minck, Robert W.; and Tischer, Ragnar P., 3,811,943.
Pink, Frank A., 3,811,647.
Pink, Frank A., 3,812,323.
Radin, Bernard G., 3,812,401.
Woodward, Gary F., 3,812,331.
Woodward, Gary F., 3,812,332.
Forest, Edward, to Xerox Corporation. Apparatus for photoelectrophoretic imaging using a periodic electric field. 3,811,764, Cl. 355-3.00p.
Forssman, Jan Robert Fleming, to Safety Vehicles Development AB. Silencer. 3,811,531, Cl. 181-50.000.
Foseco International, Ltd.: *See—*
Rumbold, Bernhard Carl; and Cartwright, John Edward, 3,811,898.
Foster Grant Co., Inc.: *See—*
Killian, Charles R., 3,811,318.
Foster, Howard F. Tensioning device. 3,811,655, Cl. 254-161.000.
Foster Wheeler Corporation: *See—*
Morfit, Oliver; and Ditman, John G., 3,811,843.
Fothergill, Graham Alwyn: *See—*
Osbond, John Mervyn; and Fothergill, Graham Alwyn, 3,812,133.
Fowler, James McFarland, Jr., to Becton, Dickinson and Company. Contamination control apparatus. 3,811,250, Cl. 55-274.000.
Fox, William L., II. Package structure. 3,811,563, Cl. 206-459.000.
Frankenberg, Henry E.; and Peyser, Harry A., to Continental Can Company. Plastic container. 3,811,597, Cl. 220-60.00r.
Franklin Gno Corporation: *See—*
Wernlund, Roger F.; Carroll, David I.; Kilpatrick, Wallace D.; and Cohen, Martin J., 3,812,355.
Franzmair,: *See—*
Bretschneider, Hermann; Klotzer, Wilhelm; and Franzmair,, 3,812,170.
Fraser, George Lamar: *See—*
Shirley, Joseph Floyd; Caropreso, Frank Edward; and Fraser, George Lamar, 3,811,569.
Frazier, Alvin W.: *See—*
Wennerberg, Arnold N.; and Frazier, Alvin W., 3,812,028.
Frederick, Norman L.; and Bennett, Charles L., to General Dynamics Corporation. Plunge milling tool. 3,811,163, Cl. 29-103.00a.
Fredsted, Tage: *See—*
Kroyer, Karl Kristian Kobs; and Fredsted, Tage, 3,811,905.
Freeman, Gene G.: *See—*
Cummings, Alan F.; and Freeman, Gene G., 3,811,633.
Frenkel, Shiman Tevelievich; Skripko, Gely Fomich; Golub, Georg Froimovich; Prudnikov, Evgeny Leonidovich; and Ganelin, Naum Borisovich. Tool for drilling holes and cutting slots. 3,811,520, Cl. 175-398.000.
Frey, Christoph: *See—*
Zographos, Georg; and Frey, Christoph, 3,811,883.
Friedman, Robert H., to Getty Oil Company. Methods for selective plugging. 3,811,508, Cl. 166-288.000.
Fries, Hjalmar Elias, to International Standard Electric Corporation. Check valve for pump or the like. 3,811,469, Cl. 137-525.100.
Fritzsche Dodge & Olcott Inc.: *See—*
Gilbertson, Gilbert, 3,812,263.
Fritzsche, Donald E., to General Electric Company. Electric broiler. 3,811,375, Cl. 99-425.000.
Frohberg, Gunther, to Pierburg, A., Auto- und Luftfahrt-Geratebau KG. Diaphragm pump. 3,811,803, Cl. 417-458.000.
Frosst, Charles E., & Co.: *See—*
Wasson, Burton K.; and Williams, Haydn W. R., 3,812,150.
Wasson, Burton Kendall, 3,812,125.
Weinstock, Leonard M.; Tull, Roger J.; and Mulvey, Dennis M., 3,812,182.
Fry, Peter William, to Integrated Photomatrix Limited. Device for comparing the magnitudes of electrical quantities. 3,812,431, Cl. 328-137.000.
Fryer, Edward R. Seal ring for nuclear reactors. 3,812,008, Cl. 176-30.000.
Fuchs, Otto: *See—*
Merkle, Kurt; Fuchs, Otto; Troster, Helmut; and Noetzel, Siegfried, 3,812,051.
Fudemoto, Isao; Kubota, Shiegeki; and Hayashi, Tatsuki. Waveform equalizer system. 3,812,436, Cl. 333-18.000.
Fuji Photo Film Co., Ltd.: *See—*
Endou, Koutarou; Yoneyama, Masakazu; Yamamoto, Nobuo; Ojihara, Motohiro; and Nakajima, Yosuke, 3,811,889.
Inoue, Eiichi; Nakayama, Takao; Oka, Yutaka; and Nakai, Yasuo, 3,811,884.
Kasugai, Tsuneo; and Minagawa, Nobuhiko, 3,811,913.
Ohta, Noboru; Oishi, Yasushi; and Ueda, Hirozo, 3,811,890.
Okutsu, Toshimitsu; Tsuji, Nobuo; Ohi, Reiichi; and Kondo, Tokiharu, 3,812,079.
Sato, Hiroshi; Nishio, Daijiro; and Takahashi, Takeshi, 3,812,145.
Shibaoka, Haruo; and Matsushita, Sachio, 3,811,888.
Yonezawa, Teruhiko; and Shirai, Akira, 3,811,894.
Fujimoto, Sakae: *See—*
Ohta, Wasaburo; Kasuya, Kazuhiko; Fujimoto, Sakae; and Yamauchi, Masayuki, 3,811,828.
Fujisawa Pharmaceutical Co., Ltd.: *See—*
Takano, Tadayoshi; Kariyone, Kazuo; Kurita, Masaru; Yazawa, Hisatoyo; Nakamura, Hitoshi; and Hasegawa, Mitsunori, 3,812,116.
Fujitsu Limited: *See—*
Kobayashi, Kengo; Hattori, Seiichi; and Tamura, Masaharu, 3,811,345.
Fujiwhara, Mitsuto: *See—*
Kagami, Teruo; Fujiwhara, Mitsuto; and Endo, Takaya, 3,811,892.
Fukuda, Shuzo: *See—*
Hosoe, Toshiaki; Okami, Yuji; Michishita, Katsumi; and Fukuda, Shuzo, 3,812,373.
Fuller Company: *See—*
Warshawsky, Jay, 3,811,823.
Funk, Albert G.: *See—*
Cook, Melvin Alonzo; Funk, Albert G.; and Hansen, Gary L., 3,811,971.
Funke, Maurice F.; and Bald, James F., Jr., to United States of America, Army. Energy deposition chemical transducer utilized in flueric sensing system. 3,812,368, Cl. 250-432.000.
Furukawa Electric Company Limited, The: *See—*
Hosoda, Kirokuro; and Shiina, Naonori, 3,812,225.
Gabbard, Ova G.: *See—*
Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Haeberle, Heinz H., 3,812,430.
Gabler, Rudolf; and Studinka, Josef, to Inventa AG fur Forschung und Patentverwertung. Process for the manufacture of polythiobisphenols. 3,812,192, Cl. 260-608.000.
Gaccetta, Richard. Device for teaching alphabetic order. 3,811,206, Cl. 35-35.00h.
Galasso, Francis S.; and Jacob, Bernarr A., to United Aircraft Corporation. Silicon carbide surfaced filaments with titanium carbide coating. 3,811,920, Cl. 117-69.000.
Galasso, Salvatore F.: *See—*
Kuehl, Donald K.; Fanti, Roy; and Galasso, Salvatore F., 3,811,930.
Galion, Jeffrey, Inc.: *See—*
Kuenzig, Fred J.; and Montano, Joseph V., 3,811,334.
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., to Nupro Company. Bellows sealed butterfly valve. 3,811,651, Cl. 251-335.00b.
Gallagher, Cornelius A.; and Glazar, Arthur J., to Servo Corporation of America. Roller bearing discriminator for a railroad hot box detector system. 3,812,343, Cl. 246-169.00a.
Gallagher, John F.; and Salo, Martin, to Eastman Kodak Company. Article of manufacture having a glossy substrate surface coated with a matte surface coating. 3,811,924, Cl. 117-76.00p.
Gallup, Raymond Charles; and Riley, Richard Edward, to Precision Processes (Textiles) Limited. Treatment of wool. 3,811,835, Cl. 8-128.00a.
Galowin, Lawrence S.: *See—*
Bilinski, Donald J.; Galowin, Lawrence S.; and Napolitano, Michael, 3,811,493.
Galy, Georges, to Societe d'Etudes de Poly-techniques Sepotec. Optical matrix for reading coded information on cards. 3,812,326, Cl. 235-61.11e.
Gamarra, Jose P.; Swidler, Ronald; and Wilson, Katherine W., to Cotton Incorporated. Durable press process for treating cellulosic material with methylolamides and acetic acid or formic acid vapors. 3,811,131, Cl. 2-243.000.
Gamaury, Jean-Francois: *See—*
d'Albignac, Jean Marie Louis Jules; and Gamaury, Jean-Francois, 3,811,836.
Ganelin, Naum Borisovich: *See—*
Frenkel, Shiman Tevelievich; Skripko, Gely Fomich; Golub, Georg Froimovich; Prudnikov, Evgeny Leonidovich; and Ganelin, Naum Borisovich, 3,811,520.
Gangelhoff, Fred R.; and Beyer, Harry A. Knife grinding and honing machine. 3,811,226, Cl. 51-8.00r.
Gardella, Adriano. Selvedge forming apparatus in shuttleless looms. 3,811,479, Cl. 139-124.00a.
Gardner, Ross, Jr., to Cabot Corporation, mesne. Earplugs. 3,811,437, Cl. 128-152.000.
Garner, Paul Johnson; and Collins, Thomas Robert Stephen, to Imperial Chemical Industries, Limited. Method of making a split mold. 3,811,175, Cl. 29-464.000.
Garrett Corporation, The: *See—*
McInerney, Charles E.; and Winiarz, Olgiero S., 3,811,741.
Garrison, Elbert W. Pet door panel. 3,811,224, Cl. 49-168.000.
Garth, Emory C., to Texas Instruments, Incorporated. High density digital systems and their method of fabrication with liquid cooling for semiconductor circuit chips. 3,812,402, Cl. 317-100.000.
Gartner, Klaus W.; and Phillips, Peter. Liquid concentrate and water mixing and dispensing device. 3,811,618, Cl. 239-312.000.
Gartner, Klaus W. Electronic combination lock including sequential signal generator and signal display. 3,812,403, Cl. 317-134.000.
Gash, Virgil W.; and Bissing, Donald E., to Monsanto Company. Preparation of monohaloacetyl halides. 3,812,183, Cl. 260-544.00y.
Gasparaitis, Bernard; and Maloney, Dennis J., to Motorola, Inc. Sealed printed circuit jack plug connector. 3,812,310, Cl. 200-51.00r.

Gaughan, Edmund J., to Stauffer Chemical Company. Certain phosphorus-containing imino oxazolidines, thiazolidines and perhydrooxazines. 3,812,117, Cl. 260-243.00r.
Gaydasch, Alexander, to Universal Oil Products Company. Pour point depression. 3,812,034, Cl. 252-57.000.
Ge-Na-Geschenke Gebr. Nagel KG: *See*—
Stoff, Werner, 3,811,990.
Gebhardt, Otto R., to Mueller Ernst, K.G., Firma. Head for powder spraying gun. 3,811,620, Cl. 239-499.000.
Gebhardt, Wallace A.: *See*—
Wolf, Walter A.; Corn, Prentice R.; and Gebhardt, Wallace A., 3,812,313.
Gebr. Buhler Nachfolger GmbH: *See*—
Schaub, Gerhard; and Schramm, Karl, 3,812,410.
GEC-Elliott Automation Limited: *See*—
Barraclough, Christopher George; and Brown, James Roger, 3,812,491.
General Dynamics Corporation: *See*—
Frederick, Norman L.; and Bennett, Charles L., 3,811,163.
General Electric Company: *See*—
Allison, James E.; and Boecker, Bob F., 3,811,600.
Barkan, Philip; Kelley, Fred W., Jr.; and Shook, Theodore A., 3,812,404.
Barton, Sterling C.; and Schmitt, Nickolas, 3,812,392.
Bellamy, Winthrop D.; and Chakrabarty, Anada M., 3,812,013.
Benz, Mark G., 3,811,962.
Boldebuck, Edith M., 3,812,069.
Boston, Ray W., Jr.; and Potts, Larry D., 3,811,370.
Butsch, Richard L.; and Brezosky, Bernard J., 3,811,746.
Dinger, Edward H., 3,812,409.
Farnsworth, Richard G., 3,812,385.
Fleischer, Robert L.; and Price, Paul B., 3,811,999.
Fritzsche, Donald E., 3,811,375.
Gorker, George E., 3,811,304.
Hobbs, Stanley Y., 3,812,077.
Kurz, Bruno F.; and Ferro, Armand P., 3,812,518.
Malone, Paul E., 3,812,377.
Markovitz, Mark, 3,812,214.
Milburn, Frank L., 3,812,316.
Nichols, Gus, 3,812,064.
Niedrach, Leonard W.; and Stoddard, William H., Jr., 3,811,184.
Nonken, Gordon C., 3,812,314.
Stefani, Joseph P., 3,812,445.
Taylor, Jack Rogers; and Du Bell, Thomas Loyd, 3,811,278.
Whitman, Nelson, 3,811,816.
Woodmansee, Donald E., 3,811,849.
General Industries, Inc.: *See*—
Gunter, Donald E., 3,812,420.
General Instrument Corporation: *See*—
Baker, Lamar T., 3,812,520.
General Microwave Corporation: *See*—
Hopfer, Samuel, 3,812,438.
General Motors Corporation: *See*—
Guyton, James H., 3,812,381.
Harkrader, Ronald L., 3,811,364.
General Power Corporation: *See*—
Coleman, Richard R., Jr.; and Weber, Helmut E., 3,811,796.
Gerber, Albert: *See*—
Villiger, Felix; and Gerber, Albert, 3,811,480.
Gerding, Charles Christian, to Jones & Laughlin Steel Corporation. Method and apparatus for minimizing surface defects in ITR cast strip. 3,811,491, Cl. 164-87.000.
Geschickter Fund for Medical Research: *See*—
Rice, Leonard M., 3,812,113.
Getty Oil Company: *See*—
Friedman, Robert H., 3,811,508.
Gewerkschaft Eisenhutte Westfalia: *See*—
Sann, Bernhard, 3,811,731.
Ghirga, Marcello: *See*—
Piccolo, Luigi; Calcagno, Benedetto; and Ghirga, Marcello, 3,811,908.
Piccolo, Luigi; Ghirga, Marcello; and Calcagno, Benedetto, 3,812,241.
Ghisoni, Pietro, to Mayer, Vita & C. gia F. lli Vita S.a.s. System to avoid thermal degradation of chemical compounds during the treatment of wood chips. 3,811,993, Cl. 162-18.000.
Gibel, Stephen J. Classifying muffler. 3,811,251, Cl. 55-276.000.
Gilbertson, Gilbert, to Fritzsche Dodge & Olcott Inc. Synergistic compositions of pharmaceutically active substances. 3,812,263, Cl. 424-282.000.
Gilchrist, James L., to Continental Oil Company. Method for determining formation parameters. 3,812,353, Cl. 250-258.000.
Gillette Company, The: *See*—
Sastri, Aiyaswami S., 3,811,189.
Gimenez, German Artigas, to Saint-Gobain Industries. Apparatus for homogenization of molten glass and additives. 3,811,861, Cl. 65-179.000.
Giorgi, Jean Claude, to Fines Lille-Cail. Rotary tubular crusher. 3,811,624, Cl. 241-176.000.
Giraudon, Raymond, to Rhone-Poulenc S.A. Ortho-phenylenediamine derivatives. 3,812,173, Cl. 260-471.00c.
Girling Limited: *See*—
Farr, Glyn Phillip Reginald, 3,811,538.
Farr, Glyn Phillip Reginald, 3,811,539.
Margetts, Hugh Grenville, 3,811,537.
Spinks, Ralph William, 3,811,664.
Glance, Patrick M., to Ford Motor Company. Structure for a motor vehicle. 3,811,698, Cl. 280-106.00r.
Glaser, Hans-Joachim, to Flachglas Aktiengesellschaft Delog-Detag. Heating member. 3,811,934, Cl. 117-212.000.
Glaser, Rudolf; Schmidtchen, Juergen; and Bauer, Peter, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Molding composition having improved environmental stress-crack resistance and low-temperature impact strength. 3,812,207, Cl. 260-897.00a.
Glass, John P. Rocket and propellant therefor. 3,811,380, Cl. 102-49.700.
Glass, Marvin, & Associates: *See*—
Glass, Marvin I.; and Dunn, Kathy A., 3,811,220.
Glass, Marvin I.; and Dunn, Kathy A., to Glass, Marvin, & Associates. Rag doll with changeable features. 3,811,220, Cl. 46-135.000.
Glazar, Arthur J.: *See*—
Gallagher, Cornelius A.; and Glazar, Arthur J., 3,812,343.
Glaze, John W., Jr., to Intech Corporation, mesne. Hosiery form. 3,811,607, Cl. 223-74.000.
Glazener, Carey A., to Maremont Corporation. Control means for the builder mechanism of textile yarn twister of like machine. 3,811,628, Cl. 242-26.100.
Globe Safety Products, Inc.: *See*—
Smilg, Benjamin, 3,811,400.
Goda, Kermit J., Jr.; and Aulenbach, Grant M., to Carpenter Technology Corporation. Free machining austenitic stainless steel alloy. 3,811,875, Cl. 75-124.000.
Goddard, William H., to Eastman Kodak Company. Spindle adapter. 3,811,635, Cl. 242-68.300.
Godino, Rino L.: *See*—
Dunmyer, Joseph C., Jr.; and Godino, Rino L., 3,811,844.
Goetz, Albert: *See*—
Schwemmer, Martin; Bors, Hans; and Goetz, Albert, 3,811,834.
Goldborn, Peter; and Duffy, James J., to Hooker Chemical Corporation. Dialkyl alkyl and cyclic phosphoramidomethyl phosphonates. 3,812,218, Cl. 260-926.000.
Goldman, Stanley M., to Stanley, G. M., & Co., Inc. Stock analyzer. 3,811,521, Cl. 177-1.000.
Gollomp, Bernard P., to Bendix Corporation, The. High speed measurement system. 3,812,334, Cl. 235-151.000.
Goloveev, Nail Khabibrakhmanovich: *See*—
Tarnavsky, Abram Lvovich; and Goloveev, Nail Khabibrakhmanovich, 3,811,178.
Golovoy, Amos: *See*—
Labana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, 3,811,910.
Golub, Georg Froimovich: *See*—
Frenkel, Shiman Tevelievich; Skripko, Gely Fomich; Golub, Georg Froimovich; Prudnikov, Evgeny Leonidovich; and Ganelin, Naum Borisovich, 3,811,520.
Gomm, Walter: *See*—
Brack, Alfred; and Gomm, Walter, 3,812,108.
Goodnow, Warren H.; Cauvin, Sidney L., Jr.; and Simard, Joseph G. C., to Kaiser Aluminum & Chemical Corporation. Control of an aluminum reduction cell. 3,812,024, Cl. 204-67.000.
Goodrich, B. F., Company, The. *See*—
Fisher, John M., 3,811,534.
Goodrich, George W., to Bendix Corporation, The. Flexible membrane display panel for generating characters visible in ambient light. 3,812,490, Cl. 340-324.00r.
Goodyear Aerospace Corporation: *See*—
Batcher, Kenneth E., 3,812,467.
Goodyear Tire & Rubber Company, The: *See*—
Angelis, William J.; Berger, Robert E.; and Conkey, Robert E., 3,811,366.
Brown, Newton D., 3,811,384.
Crossman, Richard L., 3,811,457.
Duncan, Eathel Lee, 3,811,488.
Holding, Thomas; Schisler, Robert C.; and Sawyer, John M., 3,811,570.
Johnson, Ernest D.; Kirschner, Gerald D.; Kondrajian, Edward; and Woodling, Gerald L., 3,811,385.
Larson, William M.; and Bender, Newell R., 3,812,003.
Taylor, Challen E.; and Stanley, John H., 3,811,659.
Gordon, Douglas M.; and Phimister, Thomas H., to Indian Head, Inc. Brake mechanism. 3,811,365, Cl. 92-63.000.
Gordon, Ronnie D., to Continental Oil Company. Process for increasing selectivity to 1-bromoalkane in the addition of hydrogen bromide to olefins. 3,812,212, Cl. 260-663.000.
Gorelick, Donald: *See*—
United States of America, National Aeronautics and Space administration, 3,811,429.
Gorker, George E., to General Electric Company. Looper controlled rolling mill. 3,811,304, Cl. 72-17.000.
Goscenski, Edward J., Jr., to Eaton Corporation. Differential gear mechanism. 3,811,341, Cl. 74-711.000.
Gospodar, Reinhard; Reichel, Kurt; Vogelsang, Gustav; and Thauer, Peter, to Volkswagenwerk Aktiengesellschaft. Induction pipe for internal combustion engines. 3,811,416, Cl. 123-52.00m.
Gotanda, Motohiro. Method of and apparatus for concentric supervision and control of rooms or parts of a house or a building. 3,812,492, Cl. 340-409.000.
Gould, Floyd T., to Honeywell Information Systems, Inc. Electroconductive recording medium and process of making the same. 3,811,935, Cl. 117-215.000.

Grace, W. R., & Co.: *See*—
Duncan, Larry K., 3,812,233.
Previte, Robert W.; and Chin, David, 3,812,076.
Grae, Bernard Aron; and Andrew, Dallas Roy, to RCA Corporation. Tape cartridge player cartridge magazine. 3,812,537, Cl. 360-132.000.
Gralenski, Nicholas M., to Watkins-Johnson Company. Composite X-ray tube/transformer assembly. 3,812,366, Cl. 250-421.000.
Grannen, Edward A., to Occidental Petroleum Corporation. Extraction of boron from aqueous solutions with salicyic acid derivatives and isoamyl alcohol. 3,812,238, Cl. 423-283.000.
Grant, Clarence L.: *See*—
Scammon, Lawrence W., Jr.; Grant, Clarence L.; and Wilks, Phillip H., 3,811,907.
Graves, Howard T.: *See*—
Flogaus, William S.; Graves, Howard T.; Orlando, Harold J.; and Van Der Laske, Dennis P., 3,812,357.
Graves, Howard T., to United States of America, Army. Point source discriminator thermal alarm. 3,812,483, Cl. 340-258.00r.
Graviner (Colnbrook) Limited. *See*—
McCulloch, Alister L., 3,811,511.
Gravlee, Leland C.; and Barringer, Hulbert V., to Becton Dickinson and Company. Dilating apparatus and method. 3,811,449, Cl. 128-343.000.
Gray, Frederick William, to Colgate-Palmolive Company. Dishwashing composition and method of making same. 3,812,045, Cl. 252-99.000.
Gray Tool Company: *See*—
McGee, John K.; and Holbert, Marvin L., Jr., 3,811,709.
Great Lakes Carbon Corporation: *See*—
Diefendorf, Russell J., 3,811,917
Joo, Louis A.; Martin, Thomas W.; and McKee, John A., 3,811,927.
Whittaker, Mack P.; and Grindstaff, Lloyd I., 3,812,240.
Grebert, Robert: *See*—
Bertrand, Yves; and Grebert, Robert, 3,811,969.
Grebow, Leon David: *See*—
Thun, Leonard; and Grebow, Leon David, 3,811,489.
Greenberg, Sherry F. Foot operated game apparatus. 3,811,676, Cl. 273-110.000.
Gregor, Kurt. *See*—
Diel, Burkhart; Gregor, Kurt; and Huber, Walther, 3,811,187.
Gregoric, Bran F. Self-propelled hydraulically driven vehicle. 3,811,704, Cl. 280-216.000.
Gregory, Thomas K.: *See*—
Douglas, Frank C.; Gregory, Thomas K.; and Stielau, Robert W., 3,811,940.
Grew, Edward Leon; and Robertson, Alastair Agnew, to Smith, Macfarlan, Limited. Reduction of thebaine. 3,812,132, Cl. 260-285.000.
Grey, Donald M.; Butler, Lee D.; Welker, Jerry W.; and Crane, Jack W., to Sperry Rand Corporation. Method of operation of a single bale unloading bale wagon. 3,811,584, Cl. 214-152.000.
Grey, Edward H.; and Shufelt, Robert C., to Sun Oil Company of Pennsylvania. Process for reactivation of soda lime. 3,812,200, Cl. 260-677.00a
Grgich, Milovan: *See*—
Lawrence, Arthur Charles; and Grgich, Milovan, 3,811,415.
Griffin & Company: *See*—
Wilding, Edwin L., 3,811,585.
Griffin, Ronald G. Adjustable gate hinge. 3,811,149, Cl. 16-130.000.
Griffis, Edgar E.: *See*—
Martin, Roger C., 3,811,148.
Grigsby-Barton, Inc.: *See*—
Pascente, Joseph E., 3,812,382.
Grimaldi, Dominick L.: *See*—
Lupkas, Raymond R.; and Grimaldi, Dominick L., 3,811,407.
Grime, Geoffrey, to Britax (London) Limited. Restraining device for a vehicle passenger. 3,811,701, Cl. 280-150.00b.
Grimm, Eberhard: *See*—
Bystron, Bruno; Grimm, Eberhard; and Oexler, Rudolf, 3,811,256.
Grindstaff, Lloyd I.: *See*—
Whittaker, Mack P.; and Grindstaff, Lloyd I., 3,812,240.
Grip-Pack Inc., mesne: *See*—
Cunningham, Ernest R., 3,811,243.
Grossi, Francesco: *See*—
Bragaglia, Giorgio; and Grossi, Francesco, 3,811,368.
Groswith, Charles T. III: *See*—
Abildgaard, William H.; Groswith, Charles T. III; Deman, Heiko T.; and Buan, Danilo P., 3,811,146.
Gruhe, William L., to MacLean-Fogg Lock Nut Co. Pierce nut applying tool. 3,811,171, Cl. 29-208.00d.
Gruber, William B.: *See*—
Bell, Lon E.; and Gruber, William B., 3,812,308.
Gryctko, Carl E.; Muchnick, Paul; and Jaconette, Frank C., 1/2% to I-T-E Imperial Corporation and Hubbell, Harvey, Incorporated. Modular ground fault interrupter. 3,812,400, Cl. 317-18.00d.
GTE Automatic Electric Laboratories, Incorporated: *See*—
Borbas, Robert A., 3,812,297.
Crosley, Thomas Whitley, 3,812,337.
Fleischfresser, Gerald H.; and Mila, Truman R., 3,812,299.
Herr, Kurt F., 3,812,302.
Padgett, Richard A., 3,812,293.
GTE Lenkurt Incorporated: *See*—
Stewart, James R., 3,811,225.
GTE Sylvania Incorporated: *See*—
Broadt, David R., 3,812,339.
Guebert, Kenneth W.: *See*—
Bieler, Barrie H.; Morgan, David C.; and Guebert, Kenneth W., 3,811,870.
Gugliotta, George; and Raimo, Anthony J., to Lasre Sciences, Inc. Apparatus for inspecting cigarettes or the like. 3,812,349, Cl. 250-223.00r.
Guillaume, Andre; and Schneider, Charles, to Rhone-Poulenc S.A. Process for gluing paper. 3,811,981, Cl. 156-332.000.
Guillet, Henri; and Luvet, Robert. Method and apparatus for clamping a split collar closing device. 3,811,757, Cl. 351-90.000.
Guillet, James Edwin, to Ecoplastics Limited. Metal container coated with photodegradable composition. 3,811,931, Cl. 117-132.00b.
Guillet, James Edwin. Crosslinking or olefin copolymers containing ketone groups using high energy radiation. 3,812,025, Cl. 204-159.140.
Gulf & Western Precision Engineering Company: *See*—
Soares, Edward W., Jr., 3,811,234.
Gulton Industries, Inc.: *See*—
Ahrano, Cary J., 3,812,309.
Gunter, Donald E., to General Industries, Inc. Bridge circuit changing fault location method and device. 3,812,420, Cl. 324-52.000.
Gurien, Harvey, to Hoffmann-La Roche Inc. Process for producing monoalkanoylfluoresceins. 3,812,153, Cl. 260-335.000.
Guyton, James H., to General Motors Corporation. Circuit board connector with screw fastener. 3,812,381, Cl. 317-101.00p.
Gyori, Steven Andrew: *See*—
Diebler, Herman G.; Gyori, Steven Andrew; and McCandless, William J. C., 3,811,842.
Gysin, Leonhard: *See*—
Zust, Armin; and Schindler, Walter, 3,812,126.
Haake, Robert, to Bell & Howell Company. Cassette tape recorder with indexing head. 3,811,685, Cl. 274-4.00f.
Hack, Heinrich, to Schenck, Carl, Maschinenfabrik GmbH. Balancing apparatus with an optical unbalance indicator. 3,811,327, Cl. 73-465.000.
Hackenbert, Hubert; and Zobel, Siegfried, to Afga-Gevaert Aktiengesellschaft. Photographic apparatus. 3,812,511, Cl. 254-258.000.
Hadeishi, Tetsuo, to United States of America, Atomic Energy Commission. Isotope-shift zeeman effect spectrometer. 3,811,778, Cl. 356-85.000.
Haeberle, Heinz H.: *See*—
Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Haeberle, Heinz H., 3,812,430.
Haede, Werner: *See*—
Stache, Ulrich; Radscheit, Kurt; Firtsch, Werner; and Haede, Werner, 3,812,106.
Haferkamp, Gilbert L.: *See*—
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,504.
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,505.
Hager Aktiebolag: *See*—
Hager, Bror Olof, 3,811,200.
Hager, Bror Olof, to Hager Aktiebolag. Drying of wood. 3,811,200, Cl. 34-9.500.
Hagglund, Ruben Jakob Valdemar. Interconnection element system. 3,811,785, Cl. 403-255.000.
Hahn, Gunter; and Hannappel, Gunther, to Messer Griesheim GmbH. Photoelectric scanning device for flame cutting machines. 3,812,412, Cl. 318-577.000.
Hahne, Eckhardt, to Andersen, Hans Christian. Apparatus for the closing of the toe of a circularly knit stocking along a looper-line. 3,811,390, Cl. 112-27.000.
Haitmanek, Louis F., to Thomas & Betts Corporation. Electrical connector. 3,812,448, Cl. 339-97.00c.
Hakansson, Sven Anders Samuel, to Kommanditbolaget United Stirling (Sweden) AB & Co. Stirling cycle engine power control means. 3,811,272, Cl. 60-518.000.
Hakka, Lennart, to Oy Airam Ab. Method for manufacturing anti-skid means intended for vehicle tires. 3,811,877, Cl. 75-208.00r.
Hall, Crayton G., to Ethyl Corporation. Preparation of dialkyl beryllium and recovery by distillation. 3,812,213, Cl. 260-665.00r.
Hall, Phil H., to International Business Machines Corporation. Verifying status while initializing readback cannels in a multichannel magnetic record readback system. 3,812,531, Cl. 360-26.000.
Hall, Samuel, Jr., to Plastic Container Corporation. Safety medicine bottle closure. 3,811,590, Cl. 215-9.000.
Halliburton Company: *See*—
Morrisett, O. L.; and Baker, Eugene E., 3,811,500.
Hamada, Noriaki: *See*—
Muraishi, Masakazu; Hamada, Noriaki; Shinkawa, Toshiyuki; and Arai, Tomiji, 3,811,726.
Hamma, Gerhard, to Maschinenfabrik Spaichingen GmbH. Control mechanism for circular knitting machines with rotating needle carrier. 3,811,297, Cl. 66-50.00r.
Hammer, Klaus-Dieter; Porrmann, Herbert; and Klenk, Ludwig, to Kalle Aktiengesellschaft. Fiber fleece containing a polymeric reinforcing material. 3,811,923, Cl. 117-76.00t.
Hammond, Aubrey J.: *See*—
Strickler, Charles J.; and Hammond, Aubrey J., 3,811,967.
Hammond, Philip D.; and Scott, John A., to Olin Corporation. Preparation of aromatic isocyanates in a tubular reactor. 3,812,169, Cl. 260-453.0pc.

Hamrick, Oscar, and Kessinger, Orville E., Jr., to Caterpillar Tractor Co. Band brake and method for making same. 3,811,542, Cl. 188-259.000.
Hand, Robert G., to Lee, Raymond, Organization, Inc., The. Hydrant repair tool. 3,811,344, Cl. 81-90.00e.
Handa, Takashi; and Saito, Minoru, to Adachi Plywood Co., Ltd. Fireproof laminated plywood core. 3,811,992, Cl. 161-267.000.
Hang, Warren Kenneth: *See—*
Carlson, David Emil; Hang, Warren Kenneth; and Stockdale, George Fairbank, 3,811,855.
Hanley, Hope. Embroidery frame. 3,811,209, Cl. 38-102.600.
Hannappel, Gunther: *See—*
Hahn, Gunter; and Hannappel, Gunther, 3,812,412.
Hansen, Gary L.: *See—*
Cook, Melvin Alonzo; Funk, Albert G.; and Hansen, Gary L., 3,811,971.
Hanson, Robert Louis, to Bell Telephone Laboratories, Incorporated. Tone detector. 3,812,432, Cl. 328-138.000.
Hanson Scale Company: *See—*
Artwick, Kert Edward; and O'Neil, Robert Anthony, 3,811,523.
Hanstein, Friedrich: *See—*
Esser, Franz; Hanstein, Friedrich; Hosch, Ludwig; and Mueller, Dieter, 3,812,208.
Hapke, Kenyon A.; and Bagby, John P., to Bell & Howell Company. Film snubber control system. 3,811,612, Cl. 226-195.000.
Happel, John; and Umemura, Sumio, to National Lead Company. Multiple stage carbonylation process. 3,812,175, Cl. 260-486.0ac.
Hardy, Sheila. Paint spray booth. 3,811,371, Cl. 98-11.00j.
Harford, James W.; and Jeffries, Stuart W., to Cybrix Corporation. Magnetic tape cassette changer. 3,811,625, Cl. 242-181.000.
Harigaya, Hiroshi; Kasai, Kazutomo; and Asahina, Michio, to Kabushiki Kaisha Suwa Seikosha. Silver alloys having high sulphuration resistance. 3,811,876, Cl. 75-173.00r.
Harkrader, Ronald L., to General Motors Corporation. Hydraulic actuator. 3,811,364, Cl. 91-422.000.
Harris, Eugene. Weighted prosthetic breast. 3,811,133, Cl. 3-36.000.
Harris, John L., to Deltrol Corporation. Switching mechanism. 3,812,306, Cl. 200-39.00r.
Harris-Intertype Corporation: *See—*
Marciniak, John J., 3,811,350.
Harrison, Robert E., to Hoerner Waldorf Corporation. Handled bag. 3,811,613, Cl. 229-54.00c.
Harsco Corporation: *See—*
Tarkenton, Ernest L., 3,811,711.
Hartmann, Ludwig A., to ICI America, Inc. Method of producing tranquilization with dioxolanyl alcohols and their halogen derivatives. 3,812,261, Cl. 424-278.000.
Hartmann, Rudolf; and Zimmermann, Horst, to Battelle-Institut e.V. Multi-cylinder stirling gas motor with double-acting pistons. 3,811,283, Cl. 60-484.000.
Hartwig, Walter J., to Allis-Chalmers Corporation. Side stripper for raveling grate conveyor. 3,811,557, Cl. 198-230.000.
Hartz, Gerald, to Reynolds Metals Company. Method of feeding filled containers to a retort or the like. 3,812,270, Cl. 426-231.000.
Harwart, Alois: *See—*
Pfeiffer, Heinrich; Kolb, Karl Heinz; Harwart, Alois; and Schulze, Paul E., 3,812,151.
Hasegawa, Mitsunori: *See—*
Takano, Tadayoshi; Kariyone, Kazuo; Kurita, Masaru; Yazawa, Hisatoyo; Nakamura, Hitoshi; and Hasegawa, Mitsunori, 3,812,116.
Hassler, Heinrich; and Schreiner, Horst, to Siemens Aktiengesellschaft. Method for the manufacture of heterogeneous penetration compound metal. 3,811,939, Cl. 117-227.000.
Haszeldine, Robert Neville: *See—*
Banks, Ronald Eric; and Haszeldine, Robert Neville, 3,812,206.
Hattori, Seiichi: *See—*
Kobayashi, Kengo; Hattori, Seiichi; and Tamura, Masaharu, 3,811,345.
Hauck, Erwin A.; Birchmeier, Hans P.; and Kim, Dongsung R., to Burroughs Corporation. Multiprocessing system having means for partitioning into independent processing subsystems. 3,812,469, Cl. 340-172.500.
Haugh, Connor F.: *See—*
Bossen, Douglas C.; Haugh, Connor F.; and Hsiao, Mu-yue, 3,812,336.
Hautala, Earl: *See—*
Weaver, Merle L.; Hautala, Earl; and Nonaka, Masahide, 3,812,274.
Hawrylo, Frank Zygmunt; and Pankove, Jacques Isaac; to RCA Corporation. Method of epitaxially depositing gallium nitride from the liquid phase. 3,811,963, Cl. 148-172.000.
Hayakawa, Shigeru: *See—*
Hirose, Namio; Matsuo, Yoshihiro; and Hayakawa, Shigeru, 3,811,938.
Hayashi, Hiedo: *See—*
Sato, Hisatake; and Hayashi, Hiedo, 3,812,216.
Hayashi, Izuo, to Bell Telephone Laboratories, Incorporated. Spontaneously emitting hetero-structure junction diodes. 3,812,516, Cl. 357-16.000.
Hayashi, Tatsuki: *See—*
Fudemoto, Isao; Kubota, Shiegeki; and Hayashi, Tatsuki, 3,812,436
Hayashi, Toshio; Yoshizaki, Akira; and Tsujimoto, Kayoshi, to Minolta Camera Kabushiki Kaisha. Electrical exposure time control device for use in a photographic camera. 3,812,499, Cl. 354-31.000.
Hayashibara Biochemical Laboratories, Incorporated: *See—*
Okada, Shigetaka; and Tsuyama, Naoto, 3,812,011.
Hayford, Donald S.: *See—*
Hayford, William H., Jr.; Hayford, Theodore; and Hayford, Donald S., 3,811,242.
Hayford, Theodore: *See—*
Hayford, William H., Jr.; Hayford, Theodore; and Hayford, Donald S., 3,811,242.
Hayford, William H., Jr.; Hayford, Theodore; and Hayford, Donald S. Method and apparatus for compressing foam blocks for storage and/or shipment. 3,811,242, Cl. 53-24.000.
Haynes, Freddie J. Chock. 3,811,536, Cl. 188-32.000.
Hays, Gary R. Apparatus for exposing and developing photosensitive sheets. 3,811,771, Cl. 355-100.000.
Hearn, Robert Renner, to Creators Limited. Decorative trim strips. 3,811,989, Cl. 161-5.000.
Heckhausen, Hans, to E. & F. Horster, Firma. Device for stripping hoses. 3,811,347, Cl. 83-1.000.
Hedge, John A., to Sun Research and Development Company. Complexation of 2,6-dimethylnaphthalene with p-nitrobenzoic acid. 3,812,198, Cl. 260-674.00n.
Heidrich, Horst. Extruder for processing plastics and rubber. 3,811,658, Cl. 259-191.000.
Heinz, Arnold; and Kuhling, Dieter, to Henkel & Cie GmbH. Method of oxidative treatment of human hair. 3,812,247, Cl. 424-62.000.
Heise, Hartmut; and Mees, Bernhard, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for preparing benzoxazolones-(2) and benzothiazolones-(2). 3,812,138, Cl. 260-304.000.
Heldenbrand, Stanley W.; Johnson, David L.; and Mote, Neil H., to Seaco Computer-Display Incorporated. Viewer-copier apparatus. 3,811,769, Cl. 355-45.000.
Heller, Jorge; and Baker, Richard W., to Alza Corporation. Bioerodible ocular device. 3,811,444, Cl. 128-260.000.
Henderson, Charles B., to Atlantic Research Corporation. Gelled hydrazine propellant compositions containing hydrazine nitrate and a finely divided metal. 3,811,970, Cl. 149-36.000.
Hendricks, Udo: *See—*
Braden, Rudolf; Hendricks, Udo; Oertel, Gunter; and Schliebs, Reinhard, 3,812,221.
Hendrix, Charles E.: *See—*
Afendykiw, Marko; Boyle, John M.; and Hendrix, Charles E., 3,812,493.
Henkel & Cie GmbH: *See—*
Heinz, Arnold; and Kuhling, Dieter, 3,812,247.
Roderhoff, Bernhard, 3,811,980.
Hennessey, Walter F.: *See—*
Eifler, Raymond J.; and Hennessey, Walter F., 3,812,447.
Henney, John William; and Jones, James William Samuel, to United Kingdom Atomic Energy Authority. Silicon nitride ceramics. 3,811,928, Cl. 117-106.000.
Henri, Dominique, to U.S. Philips Corporation. Light emitting diode device for displaying characters. 3,812,406, Cl. 317-235.00n.
Henry, Vincent, to VJG, Inc. Wipe on color proofing process and product. 3,811,882, Cl. 96-13.000.
Hercules Incorporated: *See—*
Jamison, Joel D., 3,812,253.
Podlas, Thomas J., 3,811,902.
Regelson, William, 3,812,248.
Herr, Kurt F., to GTE Automatic Electric Laboratories, Incorporated. Test desk including a manually controlled connect matrix. 3,812,302, Cl. 179-175.20r.
Hersey Products Inc.: *See—*
Swenson, George H., 3,811,323.
Herstein, Barry S.: *See—*
Salmon, Robert W.; and Herstein, Barry S., 3,811,218.
Herubel, Jean Frederic, to Schlumberger, N., & Cie. Machine for separating a shoulder from a forequarter of meat. 3,811,152, Cl. 17-1.00r.
Herz, Arthur Herman; and Westcott, Edwin Russell, to Eastman Kodak Company. Silver halide emulsion stabilized with isoselenoureas or ketoselenozolidines. 3,811,896, Cl. 96-100.000.
Hess & Cie Metallwarenfabrik: *See—*
Ruegg, Max, 3,811,369.
Hess, Hans-Jurgen E.: *See—*
Cronin, Timothy H.; and Hess, Hans-Jurgen E., 3,812,127.
Hester, Jackson B., Jr., to Upjohn Company, The. 4H-1,2,4-Triazolobenzophenone compounds. 3,812,140, Cl. 260-308.00r.
Hickman Developments, Inc.: *See—*
Moore, Robert G., 3,811,700.
Hiemke, Rudolf: *See—*
Lippke, Paul R., 3,812,348.
Higatsberger, Michael J.; Rumpold, Karl O.; and Viehbock, Franz P. Method and arrangement for determining the C-content in chemical processes. 3,812,364, Cl. 250-395.000.
Higdon, Buster W.; Hobbs, Charles C.; and Onore, Michael J., to Celanese Corporation. Vapor phase decomposition of methyl formate to yield methanol. 3,812,210, Cl. 260-638.00r.
Higgins, Jerome C. Removable cover for paint container rim. 3,811,606, Cl. 272-570.000.

Higgins, Ronald W.; and Massaro, Donald J., to Memorex Corporation. Disk recorder arm assembly. 3,812,535, Cl. 360-103.000.
Hilbert, Francis H., to Motorola, Inc. Dynamic peaking system. 3,812,525, Cl. 358-38.000.
Hill, Charles E.; and Brobeck, William R., to Avco Corporation. Power supply with unidirectional current flow for a pneumatic tire low pressure monitoring and warning system. 3,812,458, Cl. 340-58.000.
Hill, William E.; and Beason, Lew R., to United States of America, Army, mesne. Composite modified double-base propellants with very high burning rates. 3,811,966, Cl. 149-19.200.
Himes, Robert S.: *See—*
Andersen, Poul H.; Povilaitus, Frank R.; and Himes, Robert S., 3,812,312.
Hinchliffe, Basil W., to Koppers Company, Inc. Multi-stage coke cooler. 3,812,018, Cl. 202-230.000.
Hines, Edward, Lumber Co.: *See—*
Miles, Thomas R., 3,811,353.
Hirano, Reiji; Ito, Matsutoshi; and Ishiwta, Juichi, to Canon Kabushiki Kaisha. Display device for use in a desk top calculator. 3,812,489, Cl. 340-324.00r.
Hirohashi, Toshiyuki: *See—*
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Hirose, Namio, Matsuo, Yoshihiro; and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Production of barium titanate cermics having a positive temperature coefficient of electrical resistance. 3,811,938, Cl. 117-224.000.
Hirschberg, Klaus; and Kramer, Lothar, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for stabilizing the drawpoint on a feed godet roll in drawing polyester filaments. 3,812,231, Cl. 264-290.00t.
Hitachi, Ltd.: *See—*
Mitani, Eisuke; Tsuyama, Hitoshi; Itoh, Michiyasu; and Taya, Shunroku, 3,812,356.
Hitchcock, Myron H.: *See—*
Brodes, Donald L., and Hitchcock, Myron H., 3,812,291.
Hitosugi, Takeo. Die press and adjusting mechanism therefor. 3,811,809, Cl. 425-173.000.
Hizaki, Nobuo: *See—*
Nose, Kiyoo; Kokura, Yoshiji; Hizaki, Nobuo; and Nishikawa, Shigeydshi, 3,812,407.
Hobbs, Charles C.: *See—*
Higdon, Buster W.; Hobbs, Charles C.; and Onore, Michael J., 3,812,210.
Hobbs, Stanley Y., to General Electric Company. Fiber reinforced composite materials. 3,812,077, Cl. 260-40.00r.
Hodgson, Victor Francis: *See—*
Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis, 3,812,227.
Hodogaya Chemical Co., Ltd.: *See—*
Nagatomi, Makoto; Isogawa, Takayuki; Onodera, Nobuo; and Ishikawa, Nobuo, 3,811,864.
Hoegerle, Karl; Muller, Jean-Claude; Vogel, Christian; and Rumpf, Jurg, to Ciba-Geigy Corporation. 2-(N'-methoxy-N'-methyl-ureido)-benzamide. 3,812,168, Cl. 260-453.00r.
Hoenisch, Walter Harold, to King-Seeley Thermos Co. Refrigeration fan control system. 3,811,292, Cl. 62-183.000.
Hoerbiger Ventilwerke Aktiengesellschaft: *See—*
Kuhnelt, Herbert F., 3,811,458.
Hoerner Waldorf Corporation. *See—*
Harrison, Robert E., 3,811,613.
Hof, Georg: *See—*
Schlomer, Josef; and Hof, Georg, 3,811,976.
Hofer, Kurt; and Voykowitsch, Anton, to Sandoz Ltd. Novel dibenzofuran and dibenzothiophene derivatives. 3,812,152, Cl. 260-329.300.
Hoffman, John E., to Sporlan Valve Company. Method of determining acid and water in oil. 3,811,837, Cl. 23-230.0hc.
Hoffmann-La Roche Inc.: *See—*
Bretschneider, Hermann; Klotzer, Wilhelm; and Franzmair,, 3,812,170.
Chodnekar, Madhukar S.; Thommen, Hans; and Schwieter, Ulrich, 3,812,262.
Edenhofer, Albrecht; Ramuz, Henri; and Spiegelberg, Hans, 3,812,129.
Gurien, Harvey, 3,812,153.
Leimgruber, Willy; and Weigele, Manfred, 3,812,181.
Metlesics, Werner; and Sternbach, Leo Henryk, 3,812,103.
Metlesics, Werner; and Sternbach, Leo Henryk, 3,812,143.
Osbond, John Mervyn; and Fothergill, Graham Alwyn, 3,812,133.
Hofmann, Hans-Peter: *See—*
Kraft, Helmut; Zimmermann, Frank; and Hofmann, Hans-Peter, 3,812,258.
Hogg, Walter R.: *See—*
Coulter, Wallace H.; and Hogg, Walter R., 3,812,335.
Holbert, Marvin L., Jr.: *See—*
McGee, John K.; and Holbert, Marvin L., Jr., 3,811,709.
Holbrook, Le Grand K., to Medical Development Corporation. Valve and related structure for vacuum operated liquid-fill bottles. 3,811,485, Cl. 141-59.000.
Holding, Thomas; Schisler, Robert C.; and Sawyer, John M., to Goodyear Tire & Rubber Company, The. Polyurethane screen with backing member. 3,811,570, Cl. 209-399.000.
Holland, Dewey G.: *See—*
Uffner, Melville W.; and Holland, Dewey G., 3,811,933.
Holland, John H., to Arkansas Rock and Gravel Co. Particulate material retaining gate. 3,811,602, Cl. 222-178.000.
Hollstein, Elmer J.; and Butte, Walter A., Jr., to Sun Research and Development Company. Preparation of 2-pyrrolidone. 3,812,148, Cl. 260-326.5fn.
Hollstein, Elmer J., to Sun Research and Development Company. Preparation of 2-pyrrolidinone. 3,812,149, Cl. 260-326.5fn.
Honeycutt, Thomas E.; Otto, William F.; and Cason, Charles M., III, to United States of America, Army. Continuous wave lidar for range and velicity measurement. 3,811,774, Cl. 356-5.000
Honeywell, Inc.: *See—*
Abel, Irving R., 3,811,749.
Larsen, Larry D.; and Kobek, Edward F., 3,812,362.
Stone, Albert E., 3,812,345.
Honeywell Information Systems, Inc.: *See—*
Gould, Floyd T., 3,811,935.
Honeywell Information Systems Italia: *See—*
Collina, Giancarlo L.; and Tessera, Giancarlo, 3,812,464.
Honold, Ernst; Hubner, Werner; and Sturm, Hans-Dieter, to Klein, Schanzlin & Becker Aktiengesellschaft. Shaft seal. 3,811,687, Cl. 277-28.000.
Hooker Chemical Corporation: *See—*
Goldborn, Peter; and Duffy, James J., 3,812,218.
Hooper, Bernard, to Villiers, Norton, Limited. Vehicle motor mounts 3,811,528, Cl. 180-33.00a.
Hoover, Charles J. Cable winch having variable ratio interlock. 3,811,656, Cl. 254-184.000.
Hoover, Charles J. Cable winch having a clutch including friction drive and cooling means. 3,811,657, Cl. 254-187.000.
Hopfer, Samuel, to General Microwave Corporation. Conical spiral conductor for applying low frequency signals to a microwave structure. 3,812,438, Cl. 333-97.00r.
Hopper, Frederick W., to Martin Marietta Corporation. Precession control device for a class of spin stabilized space vehicles. 3,811,641, Cl. 244-1.0sa.
Horgan, William J., Jr., to Blumcraft of Pittsburgh. Method of assembling posts and rails. 3,811,176, Cl. 29-469.000.
Horl, Gunter. Apparatus for supporting relatively movable complemental mold parts. 3,811,811, Cl. 425-192.000.
Horny, Armand J. Reinforced aluminum shingle. 3,811,240, Cl. 52-560.000.
Horton, Claude W.: *See—*
Lane, Richard N.; and Horton, Claude W., 3,812,456.
Hosch, Ludwig: *See—*
Esser, Franz; Hanstein, Friedrich; Hosch, Ludwig; and Mueller, Dieter, 3,812,208.
Hosoda, Kirokuro; and Shiina, Naonori, to Furukawa Electric Company Limited, The. Method of manufacturing foamed cross-linked polyolefin slabs involving multiple expansion techniques and direct gas pressure. 3,812,225, Cl. 264-54.000.
Hosoe, Toshiaki; Okami, Yuji; Michishita, Katsumi; and Fukuda, Shuzo, to Nippon Kokan Kabushiki Kaisha. Method and apparatus for identifying the periodicity of surface defects of strip materials. 3,812,373, Cl. 250-562.000.
Hosono, Hiroo: *See—*
Nagahiro, Michinori; Yabu, Toshiomi; Hosono, Hiroo; and Ushihara, Masaharu, 3,811,640.
Hostetler, Eldon: *See—*
Murto, Robert A.; and Hostetler, Eldon, 3,811,412
Houdaille Industries, Inc.: *See—*
Dahlman, George L.; and Kern, Leon O., 3,811,694.
Howard, Lyman S.: *See—*
Killen, Richard J.; Brandom, Boyce; and Howard, Lyman S., 3,811,244.
Howe, David G.; and Meussner, Russell A., to United States of America, Navy. Method of enhancing V_3Ga thin film growth. 3,811,185, Cl. 29-599.000.
Howell, James E.; Hudson, Wayne T.; and Krzyzewski, Henry A., to United States of America, Army. Tri-frequency instrumentation antenna. 3,812,494, Cl. 343-852.000.
Hoya Lens Co., Ltd.: *See—*
Onoki, Fumio; and Kamiya, Hajime, 3,811,753.
Hsiao, Mu-yue: *See—*
Bossen, Douglas C.; Haugh, Connor F.; and Hsiao, Mu-yue, 3,812,336.
Hubbell, Harvey, Incorporated: *See—*
Gryctko, Carl E.; Muchnick, Paul; and Jaconette, Frank C., 3,812,400.
Hubele, Adolf, to Ciba-Geigy AG. Antimicrobial treatment of fibre products with phenylthioureas. 3,811,932, Cl. 117-138.500.
Huber, Hans-Peter: *See—*
Zahn, Wolfgang; and Huber, Hans-Peter, 3,811,768.
Huber, Walther: *See—*
Diel, Burkhart; Gregor, Kurt; and Huber, Walther, 3,811,187.
Hubner, Werner: *See—*
Honold, Ernst; Hubner, Werner; and Sturm, Hans-Dieter, 3,811,687.
Huddle, Carl F., to Tension Structures Co. Structural membrane attachment to an arch. 3,811,454, Cl. 135-1.00r.

Hudson, Wayne T.. *See—*
Howell, James E.; Hudson, Wayne T.; and Krzyzewski, Henry A., 3,812,494.
Huebler, Jack: *See—*
Massey, Lester G.; Tarman, Paul B.; and Huebler, Jack, 3,812,048.
Hughes Aircraft Company: *See—*
Braunstein, Morris; and Bleha, William P., Jr., 3,811,180.
Egan, Georgette S., 3,811,554.
Myer, Gary D., 3,811,751.
Hughes Co., Inc.: *See—*
Ajero, Fortunato S., 3,811,550.
Humphreys Corporation: *See—*
Scammon, Lawrence W., Jr.; Grant, Clarence L.; and Wilks, Phillip H., 3,811,907.
Hunsberger, Arnold, to U.S. Elevator Manufacturing Corporation. Adjustable worn drive unit. 3,811,335, Cl. 74-409.000.
Hunt, John Oliver Alfred: *See—*
Wren, Frederick James; Instone, Eric Frank; Hunt, John Oliver Alfred; and Wright, Alan John, 3,811,744.
Huppe, Robert L.: *See—*
Landrum, Leslie H.; and Huppe, Robert L., 3,812,243.
Huppke, Glen P., to Environeering, Inc. Foam type gas scrubber 3,811,247, Cl. 55-178.000.
Hurletron Incorporated: *See—*
Coberley, Daniel A., 3,812,351.
Husted, John M.: *See—*
Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Haeberle, Heinz H., 3,812,430.
Hutchison, Stanley O., to Chevron Research Company. High pressure jet well cleaning. 3,811,499, Cl. 166-67.000.
Hydraulic Systems, Inc.: *See—*
Bickford, John C., 3,811,798.
I-T-E Imperial Corporation: *See—*
Gryctko, Carl E.; Muchnick, Paul; and Jaconette, Frank C., 3,812,400.
ICI America Inc.: *See—*
D'Alelio, Gaetano F.; and Kuehn, Erich, 3,812,047.
Hartmann, Ludwig A., 3,812,261.
Iijima, Tetsuya: *See—*
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,811,343.
Ikawa, Kenji: *See—*
Tanaka, Hozumi; Ikawa, Kenji; and Takami, Fumitaka, 3,812,124.
Ikeda Bussan Company, Limited: *See—*
Muraishi, Masakazu; Hamada, Noriaki; Shinkawa, Toshiyuki; and Arai, Tomiji, 3,811,726.
Ikegami, Yoshizo, to Konan Camera Research Institute. Magnetic recording appliance with control for transferring desired information from an endless tape. 3,812,530, Cl. 360-5.000.
Illian, Ludwig Wilhelm. Method and apparatus to test electronic circuit assembly samples. 3,812,426, Cl. 324-73.00r.
Illinois Tool Works, Inc.: *See—*
Poupitch, Ougljesa Jules, 3,811,561.
Imashiro, Yoshio: *See—*
Masuda, Katsutada; and Imashiro, Yoshio, 3,812,128.
Imperial Chemical Industries, Limited: *See—*
Burdett, Marion; and Walbridge, Derek John, 3,812,075.
Garner, Paul Johnson; and Collins, Thomas Robert Stephen, 3,811,175.
Sherrard-Smith, Kenneth Irwin, 3,811,165.
Inaba, Shigeho: *See—*
Ishizumi, Kikuo; Mori, Kazuo; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,102.
Kimura, Michio; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,112.
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,135.
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao, Inaba, Shigeho; and Yamamoto, Hisao, 3,812,118.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi; and Yamamoto, Hisao, 3,812,257.
Inaba, Shin-Ichi; Okimoto, Ken-Ichi; Tamura, Setsuo; and Uenaka, Toshiyuki, to Kobe Steel, Ltd. Method for charging materials into blast furnace. 3,811,868, Cl. 75-42.000.
Inaga, Hisashi: *See—*
Kobayashi, Torao; and Inaga, Hisashi, 3,811,399.
Inamorato, Jack Thomas, to Colgate-Palmolive Company. Non-gelling heavy duty liquid laundry detergent. 3,812,041, Cl. 252-89.000.
Indexette Tapers, Inc.: *See—*
Stone, Wayne B., Jr.; and Beaumont, Alan, 3,812,538.
Indian Head, Inc.: *See—*
Gordon, Douglas M.; and Phimister, Thomas H., 3,811,365.
Indiana National Bank, The, mesne: *See—*
Everitt, Scott F., 3,811,532.
Industrial Science & Technology, Agency of: *See—*
Takeyama, Hidehiko; and Takada, Koji, 3,812,376.
Ingersoll-Rand Company: *See—*
Buse, Frederick W.; and Sensinger, Warner E., Jr., 3,811,801.
Ingram, James Charles: *See—*
Smith, Albert Ernest; and Ingram, James Charles, 3,812,224.
Inmot Corporation: *See—*
Burrell, Harry; and Miller, Robert C., Jr., 3,811,915.
Inoue, Eiichi; Nakayama, Takao; Oka, Yutaka; and Nakai, Yasuo, to Fuji Photo Film Co., Ltd. and said Nakayama, Takao, Oka, Yutaka and Nakai, Yasuo assors. to Dai Nippon Printing Co., Ltd. Process for forming images. 3,811,884, Cl. 96-27.00r.
Inoue, Mutsuhiro; and Tanaka, Kano, to Canon Kabushiki Kaisha. Mark reader. 3,812,327, Cl. 235-61.11e.
Inoue, Noriyuki, to Xerox Corporation. Electrostatographic apparatus with air baffle. 3,811,670, Cl. 271-80.000.
Institut Francais du Petrole des Carburants et Lubrifiants: *See—*
Capdevielle, Pierre; and Kermarrec, Francois, 3,811,460.
Instone, Eric Frank: *See—*
Wren, Frederick James; Instone, Eric Frank; Hunt, John Oliver Alfred; and Wright, Alan John, 3,811,744.
Intech Corporation, mesne: *See—*
Glaze, John W., Jr., 3,811,607.
Integrated Photomatrix Limited: *See—*
Fry, Peter William, 3,812,431.
Porter, David Charles, 3,812,386.
International Business Machines Corporation: *See—*
Abraham, Dennis G.; and McSparran, Ray A., 3,812,414.
Bossen, Douglas C.; Haugh, Connor F.; and Hsiao, Mu-yue, 3,812,336.
Brearley, Donald William, 3,811,547.
Charlson, Paul Marlin; Den Tex, Karel; and Fingerson, Conrad Ferdinand, 3,811,377.
Christiansen, Carl L.; Kanter, Lawrence E.; and Monroe, George R., 3,812,475.
Clecak, Nicholas J.; Cox, Robert J.; and Mareau, Wayne M., 3,812,162.
Hall, Phil H., 3,812,531.
Keidl, Steven Dennis, 3,812,413.
Larnerd, John D.; McGarigle, Donald M.; and Samuelson, Carl E., 3,811,186.
Ruszczyk, James F.; and Seerist, Duane R., 3,811,856.
Ryan, William J., Sr.; Schirmer, Edward F.; Thoma, Nandor G.; Tolley, James H.; and Wilder, Donald L., 3,811,182.
Southworth, Richard Alvin, 3,812,388.
Tucker, Stuart G., 3,812,473.
Wieder, Harold, 3,812,477.
International Computers Limited: *See—*
Burton, Christopher Philip, 3,812,487.
International Nickel Company, Inc., The. *See—*
Parry, Philip James; and Twigg, Peter Lindsay, 3,811,960.
Snape, Edwin, 3,811,872.
International Nickel Company, The: *See—*
De Barbadillo, John Joseph, II, 3,811,873.
International Playtex Corporation: *See—*
Dostal, Zdenek Denny, 3,811,445.
International Standard Electric Corporation: *See—*
Fries, Hjalmar Elias, 3,811,469.
Johansson, Johan A. E., 3,812,282.
International Synthetic Rubber Company Limited, The: *See—*
Bennett, Donald Alfred, 3,812,088.
International Telephone and Telegraph Corporation: *See—*
Austin, Robert R.; and Creighton, David M., 3,811,253.
Faffaelli, Joseph Gino; and Palmer, Reed Albert, 3,812,324.
Levin, Herbert L., 3,811,747.
Stewart, Edward F., 3,812,303.
Inventa AG fur Forschung und Patentverwertung: *See—*
Gabler, Rudolf; and Studinka, Josef, 3,812,192.
Irani, Nayyir F.: *See—*
Babbitt, John M., Spayd, Richard W.; and Irani, Nayyir F., 3,811,897.
Ireco Chemicals: *See—*
Cook, Melvin Alonzo; Funk, Albert G.; and Hansen, Gary L., 3,811,971.
Ireks Arkady G.m.b.H., Firma: *See—*
Menzel, Waldemar, 3,811,494.
Ishidera, Takashi: *See—*
Sato, Kiyoomi; and Ishidera, Takashi, 3,811,545.
Ishihara, Masao; Wada, Tsuneo; Yamaguchi, Hisashi; and Sugita, Sadao, to Konishiroku Photo Industry Co., Ltd. Photographic material comprising bis-acylhydrazinium compounds. 3,811,887, Cl 96-50.00r.
Ishikawa, Nobuo: *See—*
Nagatomi, Makoto; Isogawa, Takayuki; Onodera, Nobuo; and Ishikawa, Nobuo, 3,811,864.
Ishiwta, Juichi: *See—*
Hirano, Reiji; Ito, Matsutoshi; and Ishiwta, Juichi, 3,812,489.
Ishizumi, Kikuo: *See—*
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro, Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Ishizumi, Kikuo; Mori, Kazuo; Inaba, Shigeho; and Yamamoto, Hisao, to Sumitomo Chemical Company, Ltd. Process for producing benzodiazepine derivatives. 3,812,102, Cl. 260-239.30d.
Isogawa, Takayuki: *See—*
Nagatomi, Makoto; Isogawa, Takayuki; Onodera, Nobuo; and Ishikawa, Nobuo, 3,811,864.
Itek Corporation: *See—*
Chin, Dick Yen, 3,812,371.

MacGovern, Alan J., 3,812,352.
Wirtz, John S.; and Nellis, David C., 3,812,372.
Ito, Ikoh; Sekihara, Takeshi; Emura, Tomoyuki; and Ueda, Takeshi, to Sumitomo Chemical Company, Limited. Process for producing vinyl chloride resin. 3,812,073, Cl. 260-30.40r.
Ito, Kunihiro, to Kawasahi Jukogyo Kabushiki Kaisha. Flying shear for cutting stock into desired sectional lengths. 3,811,354, Cl. 83-320.000.
Ito, Matsutoshi: *See—*
Hirano, Reiji; Ito, Matsutoshi; and Ishiwta, Juichi, 3,812,489.
Ito, Yuko, to Kabushiki Kaisha Nihon Hatch Cover Kenkyusho. Hatch covers. 3,811,223, Cl. 49-127.000.
Itoh, Michiyasu: *See—*
Mitani, Eisuke; Tsuyama, Hitoshi; Itoh, Michiyasu; and Taya, Shunroku, 3,812,356.
Itoyama, Kenji: *See—*
Kadowaki, Takashi, Itoyama, Kenji, and Matsuzawa, Shoya, 3,812,203.
ITT Industries, Inc.: *See—*
Knapp, Wilhelm, and Ohmayer, Siegfried, 3,811,540.
Ivas, Thomas W.; and Slavik, William H., to Motorola, Inc. Preset control system for a color television receiver. 3,812,524, Cl. 358-28.000.
Iwai, Issei; Ohki, Eiji; Oida, Sadao; Takagi, Hiromu; and Ohashi, Yoshihiko, to Sankyo Company Limited. 4Beta-alkoxy-4alpha-(3'-hydroxyphenyl)-3alpha,5alpha-propanopiperidine derivatives. 3,812,134, Cl. 260-293.540.
Izumi, Takahiro: *See—*
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Inaba, Shigeho, and Yamamoto, Hisao, 3,812,135.
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro, Ishizumi, Kikuo; Akatsu, Mitsuhiro, Maruyama, Isamu; Kume, Yoshiharu, Mori, Kazuo, and Izumi, Takahiro, 3,812,101.
Izura, Yoshiteru; and Okano, Keisuke, to Matsushita Electric Industrial Co., Ltd. Color still picture projecting apparatus. 3,812,522, Cl. 358-1.000.
Jackson, Gordon Frederick William, to C.A.V. Limited. Liquid fuel pumping apparatus. 3,811,799, Cl. 417-221.000.
Jacob, Bernarr A.: *See—*
Galasso, Francis S.; and Jacob, Bernarr A., 3,811,920.
Jacobs, Bernardus Antonius; and Kramer, Pieter, to U.S. Philips Corporation. Apparatus for aligning a mask with respect to a semiconductor substrate. 3,811,779, Cl. 356-172.000.
Jacobs, Joh., & Company: *See—*
Schmidt, Ernst Georg Ferdinand Heinrich, 3,812,273.
Jacobs Manufacturing Company, Limited, The. *See—*
Derbyshire, George C., 3,811,693.
Jacobsen, Karl Olav. Apparatus for manufacturing large, bonded panel elements such as wall elements for housing construction. 3,811,982, Cl. 156-382.000.
Jacobson, Arthur F.: *See—*
Jacobson, Harold D.; and Jacobson, Arthur F., 3,811,434.
Jacobson, Harold D.; and Jacobson, Arthur F., to Jacobson, S. I., Mfg. Co. Inflatable splint. 3,811,434, Cl. 128-89.00r.
Jacobson, S. I., Mfg. Co.: *See—*
Jacobson, Harold D.; and Jacobson, Arthur F., 3,811,434.
Jacoby, Jerold L.: *See—*
Bhuta, Pravin G.; Johnson, Robert L.; Aprahamian, Robert; and Jacoby, Jerold L., 3,812,454.
Jaconette, Frank C.: *See—*
Gryctko, Carl E.; Muchnick, Paul; and Jaconette, Frank C., 3,812,400.
Jaeggi, Hans-Peter: *See—*
Buchter, Jean-Edouard; and Jaeggi, Hans-Peter, 3,811,382.
Jahngen, Edwin G., Jr.: *See—*
Bader, Henry; Feingold, Michael, and Jahngen, Edwin G., Jr., 3,812,191.
Jaklevic, Robert C.; Lambe, John J.; and Mikkor, Mati, to Ford Motor Company. Light reflex-refracting coating system for coloring metals. 3,811,752, Cl. 350-164.000.
James, Fred, to Library Binding Service, Inc. End paper assembly. 3,811,998, Cl. 161-100.000.
James, Robert L.: *See—*
Neikam, William C.; and James, Robert L., 3,812,171.
Jamison, Joel D., to Hercules Incorporated. O,O-Di(C_1 and C_2 alkyl) phosphorodithioate and phosphorothioate esters as insecticides and acaricides. 3,812,253, Cl. 424-200.000.
Jannssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendirk; Postma, Lambertus; and Vondeling, Jacob Klass, to U.S. Philips Corporation. Photomask. 3,811,893, Cl. 96-79.000.
Janome Sewing Machine Co., Ltd.: *See—*
Kasuga, Noboru, 3,811,392.
Jarratt, Robert L., Trustee; in bankruptcy for Semiconductor Electronic Memories, Inc.: *See—*
Wesson, Richard A.; and Platter, Sandford, 3,811,829.
Jarrett, Noel: *See—*
Russell, Allen S.; Jarrett, Noel; Bruno, Marshall J.; and Remper, John A., 3,811,916.
Jarvis, Howell R.; and Cole, Ernest A., Jr., to Petrolite Corporation. Separator for oil-continuous dispersions. 3,812,027, Cl. 204-302.000.
Jeambey, Calhoun G. Fifth wheel trailer and prime mover therefor. 3,811,707, Cl. 280-423.00r.
Jeffries, Stuart W.: *See—*
Harford, James W.; and Jeffries, Stuart W., 3,811,625.
Jennings, Joseph W. Method of shaving. 3,811,349, Cl. 83-14.000.
Jeno's Inc.: *See—*
Paulucci, Jeno F., 3,811,594.
Johansson, Johan A. E., to International Standard Electric Corporation. Tearable insulation sheath for cables. 3,812,282, Cl. 174-68.00c.
Johns-Manville Corporation: *See—*
Earle, Paul Lewis; Musz, Andrew; and Vandervelden, Jan Josef Maria, 3,811,814.
Pintard, Frederick Bruce, 3,811,714.
Johnson, Charles. Paint applicator. 3,811,783, Cl. 401-9.000.
Johnson, Daniel D., to Du Pont de Nemours, E. I., and Company. Antistatic additive compositions. 3,811,848, Cl. 44-62.000.
Johnson, David L.: *See—*
Heldenbrand, Stanley W.; Johnson, David L.; and Mote, Neil H., 3,811,769.
Johnson, Ernest D.; Kirschner, Gerald D.; Kondrajian, Edward; and Woodling, Gerald L., to Goodyear Tire & Rubber Company, The. Transportation system. 3,811,385, Cl. 104-167.000.
Johnson, Gordon, Company: *See—*
Scheier, Donald J.; and Bonuchi, James A., 3,811,555.
Johnson, James D.; and Maytum, Alan T., to Rockwell International Corporation. Wheel speed sensor. 3,812,391, Cl. 310-168.000.
Johnson, Morris A.; and Yang, Kang, to Continental Oil Company. Process for the reaction of bromoalkanes with inorganic chlorides. 3,812,211, Cl. 260-658.00r.
Johnson, Robert L.: *See—*
Bhuta, Pravin G.; Johnson, Robert L.; Aprahamian, Robert; and Jacoby, Jerold L., 3,812,454.
Johnson, Robert W., Jr.: *See—*
Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., 3,812,195.
Johnson, Robert William; and Shanker, Irvin Paul, to ESB Incorporated. Dual film picture viewer. 3,811,759, Cl. 352-79.000.
Johnson, Roy D.; and Rubis, Casimer Joseph, to United States of America, Navy. Dynamic braking of a gas turbine powered ship propulsion system utilizing a D.C. electric drive. 3,812,411, Cl. 318-376.000.
Johnson Service Company: *See—*
Mann, Ronald P., 3,812,465.
Johnson, Willard L.: *See—*
Evans, Dewey M.; and Johnson, Willard L., 3,811,252.
Johnston, Otis A., to Western Geophysical Company of America. Soil-compaction method and apparatus for a seismic energy source transducer. 3,811,530, Cl. 181-.5vm
Jones & Laughlin Steel Corporation: *See—*
Gerding, Charles Christian, 3,811,491.
Jones, Charles Alonzo; Lawson, Jerry Joe; and Mayrose, William Carl, to Fiber Industries, Inc. Yarn creeling and transferring process. 3,811,264, Cl. 57-159.000.
Jones, George T. Foundation structure for mobile home. 3,811,722, Cl. 296-23.003.
Jones, Howard: *See—*
Shen, Tsung-Ying; and Jones, Howard, 3,812,109.
Shen, Tsung-Ying; and Jones, Howard, 3,812,180.
Jones, James William Samuel: *See—*
Henney, John William; and Jones, James William Samuel, 3,811,928.
Jones, Leon. Cow milking machine system, and vacuum regulator incorporated therein. 3,811,467, Cl. 137-494.000.
Jones, R. A., & Company, Incorporated: *See—*
Weichhand, Robert J.; Schuler, Ralph J.; and Dieter, Julian A., 3,811,330.
Jones, Robert J., to TRW Inc. Compliant polyimides. 3,812,082, Cl. 260-49.000.
Jones, Robert J.; and Burns, Eugene A., to TRW Inc. Thermosetting perhalogenated polymers. 3,812,083, Cl. 260-63.0uy.
Jonker, Hendirk: *See—*
Jannssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendirk; Postma, Lambertus; and Vondeling, Jacob Klass, 3,811,893.
Joo, Louis A.; Martin, Thomas W.; and McKee, John A., to Great Lakes Carbon Corporation. Process for vapor deposition on glassy-carbon substrate. 3,811,927, Cl. 117-106.00r.
Joonase, Paul. Method for preparing tubular thermoplastic filaments. 3,811,984, Cl. 156-251.000.
Jordan, Alexander: *See—*
Linn, Thomas Daniel; Klauser, John George; Jordan, Alexander; and Tikijian, George Haig, 3,812,474.
Jordan, Anthony, to Chicago Magnet Wire Corp. Package for dispensing wire with preset tension. 3,811,639, Cl. 242-129.800.
Jorgensen, William A. W.: *See—*
Mc Burnie, Stuart G.; Jorgensen, William A. W.; and Rocher, Michel L. E., 3,811,719.
Jourdin, Jacques: *See—*
Derre, Andre; and Jourdin, Jacques, 3,812,338.
Judd, Robert R.: *See—*
Chao, Hung-Chi; Judd, Robert R.; Rueckl, Roger L.; and Russell, Charles K., 3,811,878.
Jung, Margarete, to Varta A.G. Hydrazine fuel cell and method of operating same. 3,811,949, Cl. 136-86.00d.
Junkert, Kenneth G.: *See—*
Kimura, Noboru; and Junkert, Kenneth G., 3,812,533.

Jurett, John Calvin; and Castillo, Adolfo, to Automated Building Components, Inc. Apparatus for unloading and stacking wooden structural frames. 3,811,578, Cl. 214-7.000.

Justrite Manufacturing Company, The: *See—*
Flider, Frank S., 3,811,605.

Kabushiki Kaisha Dowa: *See—*
Miyahara, Kingo, 3,811,818.

Kabushiki Kaisha Kito: *See—*
Kanetake, Norio, 3,811,929.

Kabushiki Kaisha Komatsu Seisakusho: *See—*
Kobayashi, Hideyoshi, 3,811,793.

Kabushiki Kaisha Koparu: *See—*
Shimizu, Munetaka; and Takayama, Masao, 3,812,512.

Kabushiki Kaisha Nihon Hatch Cover Kenkyusho: *See—*
Ito, Yuko, 3,811,223.

Kabushiki Kaisha Suwa Seikosha: *See—*
Harigaya, Hiroshi; Kasai, Kazutomo, and Asahina, Michio, 3,811,876.

Kabushiki Kaisha Yoshikawa Seisakusho: *See—*
Yoshikawa, Junihiko, 3,811,541.

Kabushikikaisha Copal: *See—*
Sato, Takayoshi, 3,812,502.

Kadowaki, Takashi; Itoyama, Kenji; and Matsuzawa, Shoya, to Denki Kagaku Kogyo Kabushiki Kaisha. Chloroprene rubber composition and method of producing the same. 3,812,203, Cl. 260-845.000.

Kaelin, Joseph Richard. Aeration device for the surface acration of liquids. 3,811,662, Cl. 261-91.000.

Kagami, Teruo; Fujiwhara, Mitsuto, and Endo, Takaya, to Konishiroku Photo Industry Co., Ltd. Light-sensitive silver halide color photographic material containing cyan-colored couplers. 3,811,892, Cl. 96-74.000.

Kaiser Aluminum & Chemical Corporation: *See—*
Goodnow, Warren H.; Cauvin, Sidney L., Jr.; and Simard, Joseph G. C., 3,812,024.

Kaiser, Gerhard, and Faiss, Gerhard, to Wagner, Gustav, Maschinenfabrik. Conveyor apparatus, especially for sectional steel. 3,811,556, Cl. 198-204.000.

Kaiser, Robert G., to Clark & Vicario Corporation. Conduit system for conveying fibrous stock from deaerator chamber to headbox in papermaking machine. 3,812,007, Cl. 162-343.000.

Kalaf, Abe M.; and Chiaro, Dominic A., to Bus-Rx, Inc. Method of and apparatus for collecting cuttings from a drilled hole. 3,811,518, Cl. 175-60.000.

Kali-Chemie Aktiengesellschaft: *See—*
Thies, Peter Willibrord, 3,812,154.

Kalle Aktiengesellschaft: *See—*
Hammer, Klaus-Dieter; Porrmann, Herbert; and Klenk, Ludwig, 3,811,923.

Kalninch, Arvid Yanovich: *See—*
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna, Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.

Kamata, Tokumaro: *See—*
Katagiri, Keizo; Sakaguchi, Namoru; and Kamata, Tokumaro, 3,812,005.

Kamiya, Hajime: *See—*
Onoki, Fumio; and Kamiya, Hajime, 3,811,753.

Kamuro, Setsufumi: *See—*
Miyata, Etsutaro; Kamuro, Setsufumi; and Sano, Kenji, 3,812,285.

Kamyr Aktiebolag: *See—*
Ostberg, Bengt Sven Erik, 3,811,994.

Kanayama, Mitsutoshi; and Konishi, Motofumi, to Canon Kabushiki Kaisha. Film reproduction device. 3,811,772, Cl. 355-111.000.

Kaneko, Norio: *See—*
Uchiyama, Masao; and Kaneko, Norio, 3,812,196.

Kanetake, Norio, to Kabushiki Kaisha Kito. Metallic cementation. 3,811,929, Cl. 117-107.20r.

Kanij, Johannes Bastiaan Willem: *See—*
Noothout, Arend Jaman; Kanij, Johannes Bastiaan Willem; and Votocek, Otakar, 3,812,049.

Kanter, Lawrence E.: *See—*
Christiansen, Carl L.; Kanter, Lawrence E.; and Monroe, George R., 3,812,475.

Kantor, Sidney: *See—*
Martin, John Henry Edward James; and Kantor, Sidney, 3,812,249.

Kao Soap Co., Ltd.: *See—*
Doi, Tadashi, 3,811,911.

Kaplan, Sam H., to Zenith Radio Corporation. Cathode ray tube image screen with single, optically continuous filter. 3,812,394, Cl. 313-467.000.

Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, to Merck & Co., Inc. Hydrazides. 3,812,187, Cl. 260-557.00b.

Karden, Karl Gosta: *See—*
Blomberg, Jarl Joel; Elmessaar, Heino; and Karden, Karl Gosta, 3,811,514.

Karhade, Manohar G.: *See—*
Bowman, Lloyd D.; Karhade, Manohar G.; and Schneiderman, Daniel L., 3,812,330.

Karitani, Tadakazu: *See—*
Tomita, Akio, Karitani, Tadakazu; and Ohtsuki, Takashi, 3,811,567.

Kariyone, Kazuo: *See—*
Takano, Tadayoshi; Kariyone, Kazuo; Kurita, Masaru; Yazawa, Hisatoyo, Nakamura, Hitoshi; and Hasegawa, Mitsunori, 3,812,116.

Kasai, Kazutomo: *See—*
Harigaya, Hiroshi; Kasai, Kazutomo; and Asahina, Michio, 3,811,876.

Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna. Polymer derivative of 1-methyl-5[5-oxo-4-ethyl-tetrahydrofuryl-(3)-methyl]imidazole with cellulose glycolic acid. 3,812,099, Cl. 260-213.000.

Kassel, Aaron, to Technicon Instruments Corporation. Gating flow cell structure for continuous-flow analysis systems. 3,811,841, Cl. 23-253.00r.

Kasuga, Noboru, to Janome Sewing Machine Co., Ltd. Double chain stitching method and device for sewing machine. 3,811,392, Cl. 112-168.000.

Kasugai, Tsuneo; and Minagawa, Nobuhiko, to Fuji Photo Film Co., Ltd. Method for preparing a support for a photographic light-sensitive material. 3,811,913, Cl. 117-34.000.

Kasuya, Kazuhiko: *See—*
Ohta, Wasaburo; Kasuya, Kazuhiko; Fujimoto, Sakae; and Yamauchi, Masayuki, 3,811,828.

Katagiri, Keizo; Sakaguchi, Namoru; and Kamata, Tokumaro, to Nippon Kakoh Seishi K.K. Self-sticking material and a process for producing the same. 3,812,005, Cl. 161-247.000.

Kato, Taketoshi: *See—*
Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi, Watanabe, Masaharu; and Akatsuka, Minoru, 3,812,519.

Katsimbas, Themistoklis; Dalibor, Horst; and Quednau, Peter, to Reichhold-Albert-Chemie Aktiengesellschaft. Stoving lacquers. 3,812,067, Cl. 260-28.50r.

Kaufman, Bernard; and Kitovich, William. Gasoline engine and electric motor system for boats or the like. 3,812,379, Cl. 290-50.000.

Kaunzinger, Helmuth M.; and Buser, Rudolf G., to United States of America, Army. Electronic field mill. 3,812,419, Cl. 324-32.000.

Kawakami, Shinya. Massaging device. 3,811,430, Cl. 128-33.000.

Kawasahi Jukogyo Kabushiki Kaisha: *See—*
Ito, Kunihiro, 3,811,354.

Kay, John A., Jr.: *See—*
Thompson, Howard G.; and Kay, John A., Jr., 3,811,516.

Keeley, Robert A.; and McFarland, A. Rae. Temperature responsive gauge. 3,811,402, Cl. 116-114.500.

Keenan, Daniel J.; and Welzein, Norman F., said Welzein assor. to Adams, Samuel C. Fuel spray back inhibitor for two cycle engines. 3,811,417, Cl. 123-73.00a.

Keidl, Steven Dennis, to International Business Machines Corporation. Drive circuit for inductive load. 3,812,413, Cl. 318-696.000.

Kelley, Fred W., Jr.: *See—*
Barkan, Philip; Kelley, Fred W., Jr.; and Shook, Theodore A., 3,812,404.

Kelley, Louis E., to Rohm & Haas Company. Composition comprised of a water-insoluble N-methylol-amide-acrylic acid ester copolymer with a polyalkylene glycol. 3,812,070, Cl. 260-29.4ua.

Kelly, Michael J. Elastic scale instrument. 3,811,191, Cl. 33-137.001.

Keltz, Laurence. Voltage regulating system. 3,812,417, Cl. 322-55.000.

Kemnitz, Robert H., to Allis-Chalmers Corporation. Gyratory crusher with a pair of interchangeable axial thrust bearings. 3,811,626, Cl. 241-214.000.

Kendall Company, The: *See—*
Dye, John F., 3,811,592.

Kennecott Copper Corporation: *See—*
Santangelo, Joseph G.; and Dorchak, Thomas P., 3,812,017.

Kennedy, William A., Jr., to Corken Pump Company. Automatic pressure control system for pumps. 3,811,792, Cl. 417-28.000.

Kermarrec, Francois: *See—*
Capdevielle, Pierre; and Kermarrec, Francois, 3,811,460.

Kern, Leon O.: *See—*
Dahlman, George L.; and Kern, Leon O., 3,811,694.

Kerns, Gary Paul: *See—*
Woods, James F.; and Kerns, Gary Paul, 3,811,571.

Kerr, Edwin L., to Perkin-Elmer Corporation, The. Method and apparatus for measuring thin film absorption at laser wavelengths. 3,811,782, Cl. 356-201.000.

Kessinger, Orville E., Jr.: *See—*
Hamrick, Oscar; and Kessinger, Orville E., Jr., 3,811,542.

Key Chemicals, Inc.: *See—*
Carstens, Ronald A.; and Butcher, William J., 3,812,055.

Kiessling, Rudolf H., to Square D Company. Electric terminal connector. 3,812,453, Cl. 339-266.00r.

Killen, Dennis: *See—*
Blackwell, James Brian; Killen, Dennis; and Hodgson, Victor Francis, 3,812,227.

Killen, Richard J.; Brandom, Boyce; and Howard, Lyman S., to Dart Industries, Inc. Hose winding and packaging machine. 3,811,244, Cl. 53-116.000.

Killian, Charles R., to Foster Grant Co., Inc. Method and apparatus for determining progress of a chemical reaction occurring within beads in a liquid suspension. 3,811,318, Cl. 73-61.00r.

Kilpatrick, Wallace D.: *See—*
Wernlund, Roger F.; Carroll, David I.; Kilpatrick, Wallace D.; and Cohen, Martin J., 3,812,355.

Kim, Chung: *See—*
United States of America, National Aeronautics and Space administration, 3,811,429.

Kim, Dongsung R.: *See—*
Hauck, Erwin A.; Birchmeier, Hans P.; and Kim, Dongsung R., 3,812,469.

Kimura, Michio; Inaba, Shigeho; and Yamamoto, Hisao, to Sumitomo Chemical Company, Ltd. Indolylacetic acid derivatives. 3,812,112, Cl. 260-240.00j.

Kimura, Noboru; and Junkert, Kenneth G., to Vermont Research Corporation, mesne. Information storage unit transducer positioning system. 3,812,533, Cl. 360-77.000.

Kimura, Tadasu; Kobayashi, Juichi; and Nakamoto, Hideo, to Mitsubishi Rayon Company Limited. Polyester prepolymer useful for coating and a method of preparing the same. 3,812,063, Cl. 260-9.000.

King, Robert W., to Copeland Refrigeration Corporation. Lubricating system for rotary machine. 3,811,806, Cl. 418-100.000.

King-Seeley Thermos Co.: *See—*
Hoenisch, Walter Harold, 3,811,292.

Kioritz Corporation: *See—*
Kobayashi, Torao; and Inaga, Hisashi, 3,811,399.

Kipp, Kevin K.: *See—*
Oswitch, Stanley; and Kipp, Kevin K., 3,812,074.

Kirsch, Warren B., to Ethyl Corporation. Beryllium hydride containing stabilizing agents. 3,812,237, Cl. 423-266.000

Kirschner, Gerald D.: *See—*
Johnson, Ernest D.; Kirschner, Gerald D.; Kondrajian, Edward, and Woodling, Gerald L., 3,811,385.

Kish, Donald Eugene; and Smith, James Lanson, to Bell Telephone Laboratories, Incorporated. Code translator employing sequential memories. 3,812,480, Cl. 340-174.0tf.

Kitamura, Hajima: *See—*
Koyanagi, Shiniche; Kitamura, Hajima; and Maruyama, Akiyoshi, 3,812,215.

Kitazume, Shoji: *See—*
Tashiro, Kijuro, Yokoyama, Masuzo; and Kitazume, Shoji, 3,812,089.

Kitovich, William: *See—*
Kaufman, Bernard; and Kitovich, William, 3,812,379

Klauser, John George: *See—*
Linn, Thomas Daniel, Klauser, John George; Jordan, Alexander, and Tikijian, George Haig, 3,812,474.

Klebanow, Ivan J. System for child photography. 3,812,506, Cl. 354-80.000.

Klein, Schanzlin & Becker Aktiengesellschaft: *See—*
Honold, Ernst; Hubner, Werner; and Sturm, Hans-Dieter, 3,811,687.

Kleiner, Hans-Jerg; and Rittner, Siegbert, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of alkane phosphonic acid diesters. 3,812,222, Cl. 260-970.000.

Klenk, Ludwig: *See—*
Hammer, Klaus-Dieter, Porrmann, Herbert; and Klenk, Ludwig, 3,811,923.

Klockner-Werke AG.: *See—*
Wehner, Karl-Heinz; Bell, Gunter, and Watermann, Willy, 3,811,288.

Kloos, William W.: *See—*
Osterkorn, Charles Louis, Buck, Leo V.; Kloos, William W.; and Marino, Salvatore M., 3,812,322.

Klotzer, Wilhelm: *See—*
Bretschneider, Hermann; Klotzer, Wilhelm; and Franzmair,, 3,812,170.

Klukos, Edward O. Method for screw-mounting objects to a work piece. 3,811,170, Cl. 29-429.000.

Knapp, Heinrich: *See—*
Eckert, Konrad; and Knapp, Heinrich, 3,811,419.

Knapp, Wilhelm; and Ohmayer, Siegfried, to ITT Industries, Inc. Self-adjusting device for disc brakes. 3,811,540, Cl. 188-196.00d.

Knoll AG, Chemische Fabriken: *See—*
Kraft, Helmut; Zimmermann, Frank; and Hofmann, Hans-Peter, 3,812,258.

Knuppel, Helmut; Brotzmann, Karl; and Fassbinder, Hans George, to Eisenwerke Gesellschaft Maximilianshutte m.b.H. Tuyere for introducing oxygen and a protective medium into converter vessels. 3,811,386, Cl. 110-182.500.

Ko, Yung Ling: *See—*
Ralston, Robert E.; and Ko, Yung Ling, 3,811,955.

Kobayashi, Hideyoshi, to Kabushiki Kaisha Komatsu Seisakusho. Safety device for detecting water level in a water tight chamber of an amphibian bulldozer. 3,811,793, Cl. 417-40.000.

Kobayashi, Hisamine. Self-separating vibratory finishing apparatus. 3,811,231, Cl. 51-163.000.

Kobayashi, Juichi: *See—*
Kimura, Tadasu; Kobayashi, Juichi; and Nakamoto, Hideo, 3,812,063.

Kobayashi, Kengo; Hattori, Seiichi, and Tamura, Masaharu, to Fujitsu Limited. Adaptive control system for numerical control. 3,811,345, Cl. 82-2.00b.

Kobayashi, Torao; and Inaga, Hisashi, to Kioritz Corporation. Inboard motor boat. 3,811,399, Cl. 115-39.000.

Kobe Steel, Ltd.: *See—*
Inaba, Shin-Ichi; Okimoto, Ken-Ichi; Tamura, Setsuo; and Uenaka, Toshiyuki, 3,811,868.

Kobek, Edward F.: *See—*
Larsen, Larry D.; and Kobek, Edward F., 3,812,362.

Kobetz, Paul: *See—*
Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., 3,812,195.

Kohl, Karl. Mounting support for the knitting needle of a warp knitting machine. 3,811,298, Cl. 66-86.000.

Kohn, Gustave K.: *See—*
Brown, Melancthon S.; and Kohn, Gustave K., 3,812,174.

Kokura, Yoshiji: *See—*
Nose, Kiyoo; Kokura, Yoshiji; Hizaki, Nobuo; and Nishikawa, Shigeydshi, 3,812,407.

Kolar, Vladimir: *See—*
Peschl, Ervin; Zmatlik, Josef; Sedlecky, Jaromir; and Kolar, Vladimir, 3,811,299.

Kolb, Karl Heinz: *See—*
Pfeiffer, Heinrich; Kolb, Karl Heinz; Harwart, Alois; and Schulze, Paul E., 3,812,151.

Kolob Holding Limited: *See—*
Armstrong, Alvin P., 3,811,697.

Kommanditbolaget United Stirling (Sweden) AB & Co.: *See—*
Hakansson, Sven Anders Samuel, 3,811,272.

Kona Boats: *See—*
Page, Stewart E., 3,811,143.

Konan Camera Research Institute: *See—*
Ikegami, Yoshizo, 3,812,530.

Kondo, Tokiharu: *See—*
Okutsu, Toshimitsu; Tsuji, Nobuo; Ohi, Reiichi; and Kondo, Tokiharu, 3,812,079.

Kondrajian, Edward: *See—*
Johnson, Ernest D.; Kirschner, Gerald D.; Kondrajian, Edward; and Woodling, Gerald L., 3,811,385.

Konigsbacher, Kurt: *See—*
Corey, Harold; Bakal, Abraham; Konigsbacher, Kurt; and Schoenholz, Daniel, 3,812,268.

Koninklijke Nederlandsche Gist- en Spiritusfabriek N.V.: *See—*
Marx, Arthur F.; and Kooreman, Hermanus J., 3,812,105.

Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V.: *See—*
Latenstein, Anthonie Van, 3,811,866.

Konishi, Motofumi: *See—*
Kanayama, Mitsutoshi; and Konishi, Motofumi, 3,811,772.

Konishiroku Photo Industry Co., Ltd.: *See—*
Ishihara, Masao; Wada, Tsuneo; Yamaguchi, Hisashi; and Sugita, Sadao, 3,811,887.
Kagami, Teruo; Fujiwhara, Mitsuto; and Endo, Takaya, 3,811,892.

Konzorr, Hubert, to Union Sils van de Loo & Co. Pedal for bicycles and similar vehicles. 3,811,339, Cl. 74-594.400.

Koo, Ronald C.; and Shurgan, Joel, to Duro-Test Corporation. Reduced impurity filament for electric lamps. 3,812,393, Cl. 313-344.000.

Kooreman, Hermanus J.: *See—*
Marx, Arthur F.; and Kooreman, Hermanus J., 3,812,105.

Koppers Company, Inc.: *See—*
Hinchliffe, Basil W., 3,812,018.
Tatterson, Benjamin F., 3,811,572.

Koshiba, Masao: *See—*
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,118.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi; and Yamamoto, Hisao, 3,812,257.

Kothe, Erich W.; Ebel, Lawrence C.; and E'Ascoli, Ralph C., to Anaconda Company, The, mesne. Pressure resistant cable. 3,812,283, Cl. 174-105.00r.

Kotter, James I. Pipe holding attachment for C-clamps and vises. 3,811,668, Cl. 269-258.000.

Koyanagi, Shiniche; Kitamura, Hajima; and Maruyama, Akiyoshi, to Shinetsu Chemical Company. Method for manufacturing vinyl chloride graft polymers. 3,812,215, Cl. 260-878.00r.

Kozel, James A.; and Ostrowski, Edwin A., to Controls Company of America. Drain valve. 3,812,398, Cl. 251-331.000.

Kozlovsky, Viktor Stepanovich: *See—*
Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich; Kozlovsky, Viktor Stepanovich; Oblasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich; and Rud, Svetlana Ivanovna, 3,811,852.

Kraft, Helmut; Zimmermann, Frank; and Hofmann, Hans-Peter, to Knoll AG, Chemische Fabriken. Pharmaceutical composition essentially containing and method of treatment with, 3 beta-acetoxy 11-oxo noroleanene-(12) 20 beta-carboxylic acid N-methyl piperidol-(4 ester. 3,812,258, Cl. 424-267.000.

Kramer, David C., to Rusco Industries, Inc. Structure and method of making magnetic cards. 3,811,977, Cl. 156-108.000.

Kramer, Lothar: *See—*
Hirschberg, Klaus; and Kramer, Lothar, 3,812,231.

Kramer, Pieter. *See—*
Jacobs, Bernardus Antonius, and Kramer, Pieter, 3,811,779.
Kramer, Willi: *See—*
Muskulus, Willi, and Kramer, Willi, 3,811,630.
Krapcho, John, to Squibb, E. R., & Sons, Inc. Benzothiazines. 3,812,114, Cl. 260-243.00r
Krasin, Lester Q.: *See—*
Crossland, Edward J., Blossom, James H.; and Krasin, Lester Q., 3,812,462.
Kraushaar, William L.: *See—*
United States of America, National Aeronautics and Space Administration, 3,812,358.
Krenowicz, Robert A.; and Scott, William P., to Continental Oil Company. Lubricating oils. 3,812,035, Cl. 252-59.000.
Kresse, Heinz, to Siemens A.G. Pressure receiver. 3,811,427, Cl. 128-2.05d.
Kronberg, George H.. *See—*
Adams, Herbert J. F., Kronberg, George H.; and Takman, Bertil H., 3,812,147.
Kroyer, Karl Kristian Kobs: *See—*
Kroyer, Karl Kristian Kobs, and Fredsted, Tage (said Fredsted assor. to said), 3,811,905.
Kroyer, Karl Kristian Kobs; and Fred.ted, Tage, said Fredsted assor. to said Kroyer, Karl Kristian Kobs. Aggregate for road construction and method for the production of said aggregate. 3,811,905, Cl 106-288.00b
Krumbein, Fritz: *See—*
Rube, Helmut; and Krumbein, Fritz, 3,811,760.
Krumbein, Fritz, to Bosch, Robert, Photokino GmbH. Drive means for film advancing sprockets in cinematographic apparatus. 3,811,761, Cl. 352-166.000
Krummel, Harry Karl. *See—*
Connor, Daniel S.; and Krummel, Harry Karl, 3,812,044.
Krylov, Valentin Feoktistovich: *See—*
Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich, Kozlovsky, Viktor Stepanovich; Oblasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich, and Rud, Svetlana Ivanovna, 3,811,852.
Krzyzewski, Henry A.: *See—*
Howell, James E.; Hudson, Wayne T.; and Krzyzewski, Henry A., 3,812,494.
Kubo, Shuniti: *See—*
Saito, Takashi; and Kubo, Shuniti, 3,811,914.
Kubota, Shiegeki. *See—*
Fudemoto, Isao; Kubota, Shiegeki; and Hayashi, Tatsuki, 3,812,436.
Kuehl, Donald K.; Fanti, Roy; and Galasso, Salvatore F., to United Aircraft Corporation. Process for pyrolytic deposition of boron on a metal substrate. 3,811,930, Cl. 117-107.20r.
Kuehn, Erich: *See—*
D'Alelio, Gaetano F.; and Kuehn, Erich, 3,812,047.
Kuemmerlin, Walter, to Zarges Leichtbau GmbH, Firma. Joint for collapsible ladders. 3,811,151, Cl. 16-144.000.
Kuenzig, Fred J.; and Montano, Joseph V., to Galion, Jeffrey, Inc. Chain construction. 3,811,334, Cl. 74-251.00r.
Kuhling, Dieter: *See—*
Heinz, Arnold; and Kuhling, Dieter, 3,812,247.
Kuhlkamp, Alfred; Rauterkus, Karl Josef; Schaefer, Horst; and Seip, Detlev, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of paper coating compositions. 3,812,072, Cl. 260-29.6rw.
Kuhnelt, Herbert F., to Hoerbiger Ventilwerke Aktiengesellschaft. Pneumatic pulse diverters. 3,811,458, Cl. 137-106.000.
Kullman, Russell M. H.: *See—*
Cashen, Norton A.; Kullman, Russell M. H., and Reinhardt, Robert M., 3,811,210.
Kulykivsky, Gregory H.: *See—*
Berk, Walter E.; and Kulykivsky, Gregory H., 3,812,513.
Kume, Yoshiharu: *See—*
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Kunchal, Kumar: *See—*
Adams, Harry A.; Kunchal, Kumar; and Callahan, James L., 3,812,236.
Kunitomi, Yoshio, to Citizen Watch Co., Ltd. Apparatus for automatic digital measurement of watch performance by utilizing ticks. 3,811,315, Cl. 73-6.000.
Kurasawa, Yoshiya; and Otani, Syuichi, to Nissan Motor Company, Limited. Safety device for motor vehicle. 3,811,702, Cl. 280-150.0sb.
Kurita, Masaru: *See—*
Takano, Tadayoshi, Kariyone, Kazuo; Kurita, Masaru; Yazawa, Hisatoyo; Nakamura, Hitoshi; and Hasegawa, Mitsunori, 3,812,116.
Kurz, Bruno F.; and Ferro, Armand P., to General Electric Company. Photodiode with patterned structure. 3,812,518, Cl. 357-30.000.
Kustom Electronics, Inc.: *See—*
Aker, John L., 3,812,278.
Kvaerner Brug A/S: *See—*
Wessel, Per Christian; and Eldby, Per, 3,811,396.
Kvaternik, Joseph, to Electronic Memories & Magnetics, Inc. Miniature type switch probe for testing integrated circuit assemblies or the like. 3,812,311, Cl. 200-61.420.
La Calhene and Piercan S.A.: *See—*
Segonzac, Jean-Michel; and Lucas, Jean-Marie, 3,811,132.
La Rocca, Gerard A. Liquid coating measuring apparatus. 3,812,421, Cl. 324-58.50b.
La Telemecanique Eletrique: *See—*
Lalande, Michel, 3,812,416.
La Violette, Fred G., to Environment/One Corporation. Low cost portable room air cleaner. 3,812,370, Cl. 250-527.000.
Labana, Santokh S.; Golovoy, Amos; and Chang, Yun Feng, to Ford Motor Company. Two-step method of making a color picture tube. 3,811,910, Cl. 117-17.000.
Lacroix, Armand Jean-Baptiste: *See—*
Caruel, Jacques Emile Jules; Quillevere, Herve Alain; Castellant, Jean-Pierre Jules Emile; and Lacroix, Armand Jean-Baptiste, 3,811,276.
Ladell, John L., to Ontario Research Foundation. Method of forming iron ore pellets using a finely divided tree bark binder. 3,811,865, Cl 75-3.000.
Laevosan-Gesellschaft Chem.-Pharm. Industrie Franck & Dr. Freudl: *See—*
Nitsch, Ernst, 3,812,010.
Lafont, Andre: *See—*
Pont, Dominique; Lafont, Andre; and Voisin, Alain, 3,811,527.
Lahti, Archie E.; and McBresth, Donald G., to Sperry Rand Corporation. Processor interrupt pointer. 3,812,463, Cl. 340-172.500.
Lahti, Uolevi L. Spherical loudspeaker. 3,812,301, Cl. 179-146.00b.
Laing, Nikolaus. Rotary heat exchangers in the form of turbines. 3,811,495, Cl. 165-85.000.
Lalande, Michel, to La Telemecanique Eletrique. Forced commutation invertors. 3,812,416, Cl. 321-45.00r.
Lalangas, Petros: *See—*
Bridges, Thomas F.; Lalangas, Petros; and Sjostrom, Carl H., 3,811,593.
Lambe, John J.: *See—*
Jaklevic, Robert C.; Lambe, John J.; and Mikkor, Mati, 3,811,752.
Lancz, Albert Jay, to Colgate-Palmolive Company. Germicidal liquid cleaner. 3,812,046, Cl. 252-106.000.
Landler, Josef; and Spietschka, Ernst, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for preparing naphthalene-1,8-dicarboxylic acid imide. 3,812,130, Cl. 260-281.000.
Landrum, Leslie H.; and Huppe, Robert L., to Pritchard, J. F., and Company. Combined process for recovering S from H_2S in claus plant and treating tailgas to remove H_2S and SO_2. 3,812,243, Cl. 423-574.000.
Lane, Richard N.; and Horton, Claude W., to United States of America, Navy, mesne. Hydro-acoustic filter. 3,812,456, Cl. 340-8.00r.
Lange, Harold Carl: *See—*
MacLeay, Ronald Edward; Lange, Harold Carl; and Sheppard, Chester Stephen, 3,812,094.
Lapeyre, James M. Method for extracting means from crustaceans. 3,812,271, Cl. 426-312.000.
Lapporte, Seymour J.; and Toland, William G., to Chevron Research Company. Methylene and oxymethylene bis-ester production. 3,812,176, Cl. 260-494.000.
Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., to Ethyl Corporation. Preparation of dimethyl beryllium. 3,812,195, Cl. 260-665.00r.
Larnerd, John D.; McGarigle, Donald M.; and Samuelson, Carl E., to International Business Machines Corporation. Method of aligning and attaching circuit devices on a substrate. 3,811,186, Cl. 29-626.000.
Larsen, Farrell G.: *See—*
Fichter, Arthur A., Jr.; Danks, Ronald D.; Larsen, Farrell G.; and Throner, Guy C., Jr., 3,811,381.
Larsen, Larry D.; and Kobek, Edward F., to Honeywell Inc. Smoke detector circuit. 3,812,362, Cl. 250-370.000.
Larson, Charles O., to Larson, Chas. O., Co. Method forming a drive fastener device. 3,811,269, Cl. 59-77.000.
Larson, Chas. O., Co.: *See—*
Larson, Charles O., 3,811,269.
Larson, William M.; and Bender, Newell R., to Goodyear Tire & Rubber Company, The. Polyurethane composition and laminates made therewith. 3,812,003, Cl. 161-156.000.
Lashley, Raymond. High speed train track. 3,811,616, Cl. 238-150.000.
Lasky, Ronald J., to Stock Equipment Company. Method of compensating for unknown length of transmission line in electromagnetic tachometer. 3,812,429, Cl. 324-166.000.
Lasre Sciences, Inc.: *See—*
Gugliotta, George; and Raimo, Anthony J., 3,812,349.
Latenstein, Anthonie Van, to Koninklijke Nederlandsche Hoogovens en Staalfabricken N.V. Process and apparatus for the manufacturing of roasted, baked or sintered ore pellets as well as the ore pellets thus obtained. 3,811,866, Cl. 75-5.000.
Lathers, Paul Anthony, to Unipas, Inc. Control unit. 3,811,394, Cl. 114-144.00r.
Lavoie, Gilbert V. Bag opening and emptying machine. 3,811,586, Cl. 214-305.000.
Lawrence, Arthur Charles; and Grgich, Milovan. Vapour heating and vapour generating units. 3,811,415, Cl. 122-478.000.
Lawson, Jerry Joe: *See—*
Jones, Charles Alonzo; Lawson, Jerry Joe; and Mayrose, William Carl, 3,811,264.
Lazarus, Martin: *See—*

Szabo, Louis R.; and Lazarus, Martin, 3,812,350.
Le Marchand, Alain, to Societe Anonyme D.B.A. Distributing valve. 3,811,472, Cl. 137-625.680.
Le Materiel Compact: *See—*
Cordonnier, Gerard Anatole, 3,811,763.
Le Poole, Jan Bart. Permanent magnet lens systems. 3,812,365, Cl. 250-396.000.
Lee, Bong Kuk; Ryu, Dewey D. Y.; Miraglia, Gennaro John; Basch, Harold I.; and Mukherjee, Barid B., to Squibb, E. R., & Sons, Inc. 7-(1,4-Cyclohexadienyl-acylamino)cephalosporins. 3,812,110, Cl. 260-240.00g.
Lee, Raymond, Organization, Inc., The: *See—*
Cocker, Bernice, 3,811,533.
Hand, Robert G., 3,811,344.
Wyler, Mark, 3,811,356.
Leger, Roland, to Faiveley S.A. High speed current collection. 3,812,304, Cl. 191-66.000.
Lehigh Press, Inc., The: *See—*
Braber, Robert J., 3,811,564.
Lehmann, Claude: *See—*
Dietrich, Henri; and Lehmann, Claude, 3,812,144.
Lehner-Stirnemann, Max. Method for making price shields or the like. 3,811,985, Cl. 156-277.000.
Leimgruber, Willy; and Weigele, Manfred, to Hoffmann-La Roche Inc. O-(α-hydroxycinnamoyl) benzoic acid and related compounds. 3,812,181, Cl. 260-520.000.
Leinkram, Charles Z.; and Oaks, William D., to United States of America, Navy. Approach to shingling of solar cells. 3,811,181, Cl 29-572.000.
Lejeune, Daniel, to Compagnie General des Etablissements Michelin raison Sociale Michelin & Cie. Reinforced resin wheel. 3,811,737, Cl. 301-63.0pw.
Lemelson, Jermone H. Video detection system. 3,812,287, Cl. 178-6.800.
Lemelson, Jerome H. Credit verification apparatus. 3,812,461, Cl. 340-149 00a.
Lengsfeld, Wolfgang, to BASF Wyandotte Corporation. Process for making oxyalkylated polyamino-1,3,5-triazines. 3,812,122, Cl. 260-249.600.
Lenz, Conrad. Straining vat and process. 3,811,372, Cl. 99-277.100.
Leonard, Ronald J.; and Ahrens, James M., to Baxter Laboratories, Inc. Method for testing membranous devices for leaks. 3,811,317, Cl. 73-40.000.
Lerwick, Everett R.; and Cook, William A. Endarterectomy apparatus. 3,811,446, Cl. 128-303.000.
Lescop, Pierre; Michel, Pierre; and Vigneau, Joel Olivier, to Societe Nationale d'Etude & de Construction de Moteurs d'Aviation (snecma). Process for improving the resistance of surfaces against erosion. 3,811,919, Cl. 117-62.000.
Lesh, Nathan George; O'Day, Peter Joseph; and Unger, Burton Abram, to Bell Telephone Laboratories, Incorporated. Technique for the fabrication of a bilevel thin film integrated circuit. 3,811,973, Cl. 156-3.000.
Lesk, Adolf, Baumann, Rudolf, and Link, Otmar, to Zimmermann, Adolf, Maschinenbau. Apparatus for reversing the conveying-air in pneumatic suction-conveying installations. 3,811,248, Cl. 55-272.000.
Levene, Leon, to Owens-Illinois, Inc. Process for producing protective glass coatings. 3,811,918, Cl. 117-47.00h.
Lever Brothers Company: *See—*
Alsbury, Allan, 3,812,060.
Levin, Herbert L., to International Telephone and Telegraph Corporation. Transit/combination case providing unique latch accessibility and novel stacking and latching features. 3,811,747, Cl. 312-308.000.
Levine, Seymour D.. *See—*
Bodanszky, Miklos, Ondetti, Miguel A.; Von Saltza, Malcolm H.; Narayanan, Venkatachlal L.; and Levine, Seymour D., 3,812,092.
Lewek, Stanley S.: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
Lewis, Geoffrey Arthur, to Lucas, Joseph, (Industries) Limited. Fuel pumps for use in conduction with gas turbine engines. 3,811,797, Cl 417-199.00a.
Liang, Charles C.; McDonald, Bruce; and Vierow, William F., to Mallory, P. R., & Co., Inc. Electric cell with capacitance buffer. 3,811,944, Cl. 136-6.00r.
Library Binding Service, Inc.: *See—*
James, Fred, 3,811,998.
Licentia Potent-Verwaltungs-GmbH: *See—*
Trenkler, Gerhard, 3,812,428.
Lievens, Ronald J.: *See—*
Mikulina, Thomas W.; Lievens, Ronald J.; and Brockman, George T., 3,811,790.
Light, Gordon S.: *See—*
Cunningham, Russell E.; and Light, Gordon S., 3,812,347.
Lilly, Eli, and Company: *See—*
Wagers, William D., Jr.; Vandenberg, Willard J.; Bollman, Robert L.; Ramsey, Robert E.; Swisher, Daniel G.; and Taylor, John E., Jr., 3,811,552.
Lim, Frank H.: *See—*
Burnett, David B.; Alston, Robert B.; and Lim, Frank H., 3,811,501.
Burnett, David B.; and Lim, Frank H., 3,811,503.
Lin, Chao-Han; and Wright, Arthur J., to National Cash Register Company, The. Benzopyran compounds. 3,812,157, Cl. 260-345.200.
Lindeman, Richard Jay; and Pestka, John August. Panel mounting fastener. 3,811,154, Cl. 24-73.00p.
Lindmayer, Joseph, to Communications Satellite Corporation. Fine geometry solar cell. 3,811,954, Cl. 136-89.000.
Lindstrom, Roald W.: *See—*
Bauer, Donald J.; Lindstrom, Roald W.; and Schultze, Lawrence E., 3,812,232.
Link, Otmar: *See—*
Lesk, Adolf; Baumann, Rudolf; and Link, Otmar, 3,811,248.
Linke, Siegfried. Magnetic head having guide surfaces for the magnetic recording medium made of ceramic material. 3,812,536, Cl. 360-122.000.
Linn, John C.: *See—*
Ranatza, Samuel; and Linn, John C., 3,812,344.
Linn, Thomas Daniel; Klauser, John George; Jordan, Alexander; and Tikijian, George Haig, to Union Carbide Corportion. Numarial control system and method for variable shape programming and control of machine motion. 3,812,474, Cl. 340-172.500.
Linville, Creath Q. Preparation of an additive for alcoholic beverages. 3,812,272, Cl. 426-380.000.
Lippke, Paul R.; deceased (by Hiemke, Rudolf; executor). Device for electro-optically ascertaining holes in moving webs. 3,812,348, Cl. 250-561.000.
Lipton, Thomas J., Inc.: *See—*
Sanderson, Gary Warner; and Coggon, Philip, 3,812,266.
Liston, Joseph: *See—*
Roth, Larry L.; and Liston, Joseph, 3,811,804.
Liston, Max D., to Abbott Laboratories. Chemical analysis cuvette. 3,811,780, Cl. 356-180.000.
Lloyd, Henry Bassell: *See—*
Middleton, Malcolm Cecil; and Lloyd, Henry Bassell, 3,811,490.
Lohmuller, Ulrich, to Wintershall Aktiengesellschaft. Method for the prevention of the formation of solid residues on thermal treatment of furfural. 3,812,163, Cl. 260-347.900.
Lommers, Anthonius Johannes Josephus Cornelis; and Van Alphen, Adrianus Joannes Maria. Integrated differential amplifier. 3,812,434, Cl. 330-19.000.
Lord, Peter Herent. Catheters. 3,811,450, Cl. 128-349.00r.
Losinger AG: *See—*
Villiger, Felix; and Gerber, Albert, 3,811,480.
Lowy, George W., to Baxter Laboratories, Inc. Multi-wavelength photometer employing a rotating variable wavelength filter. 3,811,781, Cl. 356-188.000.
Lubowitz, Hyman R., to TRW Inc. Polybasic aromatic carboxylic acids, esters and anhydrides. 3,812,159, Cl. 260-346.300.
Lucas Aerospace Limited: *See—*
Wise, John Arthur; Wellings, Raymond Joseph; and Williams, Eric, 3,811,281.
Lucas, Jean-Marie: *See—*
Segonzac, Jean-Michel; and Lucas, Jean-Marie, 3,811,132.
Lucas, Joseph, (Electrical) Limited: *See—*
Rees, Alfred, 3,812,305.
Lucas, Joseph, (Industries) Limited: *See—*
Lewis, Geoffrey Arthur, 3,811,797.
Needham, Victor; and Bowen, Brian Francis, 3,812,019.
Lucien International: *See—*
Prost, Roger, 3,812,015.
Lucki, Stanley J.: *See—*
Chen, Nai Yuen; and Lucki, Stanley J., 3,812,199.
Luk Lamellen- und Kupplungsbau GmbH: *See—*
Maucher, Paul, 3,811,544.
Lumbeck, Gerd: *See—*
Mueller, Hans-Karl; and Lumbeck, Gerd, 3,812,269.
Lupkas, Raymond R.; and Grimaldi, Dominick L., to Pitney-Bowes, Inc. Flap turning and sealing system for postage meter mailing machine. 3,811,407, Cl. 118-32.000.
Lurie, Randolph D., to Continental Can Company, Inc. Laminate construction. 3,812,002, Cl. 161-119.000.
Lutz, Roman, to Siemens Aktiengesellschaft. System for indicating parity-disturbing interferences in transmissions for teleprinters. 3,812,290, Cl. 178-23.00a.
Luvet, Robert: *See—*
Guillet, Henri; and Luvet, Robert, 3,811,757.
Ly, Manuel G.: *See—*
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, 3,812,187.
M&W Gear Company: *See—*
Meiners, Elmo R., 3,811,387.
MacDonald, Alfred P. Sander scraping attachment. 3,811,160, Cl. 29-76.00a.
MacGovern, Alan J., to Itek Corporation. Encoder readout system. 3,812,352, Cl. 250-23.0zg.
MacKenzie, John D., to University of California, The Regents of the. Method of making foam glass products with excreta and glass batch. 3,811,851, Cl. 65-22.000.
MacLean-Fogg Lock Nut Co.: *See—*
Grube, William L., 3,811,171.
MacLeay, Ronald Edward: *See—*
Sheppard, Chester Stephen; MacLeay, Ronald Edward; and Bafford, Richard Anthony, 3,812,095.

MacLeay, Ronald Edward; Lange, Harold Carl; and Sheppard, Chester Stephen, to Pennwalt Corporation. Tertiary aliphatic alpha-(imido)azo compounds. 3,812,094, Cl. 260-152.000.
MacNeill, John H.; and Willey, Ronald R., to Optical Business Machines, Inc. Opticscan arrangement for optical character recognition systems. 3,812,459, Cl. 340-146.30f.
Macovski, Albert; and Schaefer, Louis F., to United States of America, National Aeronautics and Space Administration, mesne. Two-dimensional filtering for encoded television camera. 3,812,527, Cl. 358-47.000.
Maher, Caleb H., to Sprague Electric Company. Low temperature fired electrical components and method of making same. 3,811,937, Cl. 117-217.000.
Mahood, James A., to Bio-Logics Systems, Inc. Noise rejecting, demand variable real time clock. 3,812,472, Cl. 340-172.500.
Maillet, Wilfrid G.: *See—*
Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Haeberle, Heinz H., 3,812,430.
Mallory, P. R., & Co.: *See—*
Anderson, Daniel J., 3,812,038.
Mallory, P. R., & Co., Inc.: *See—*
Liang, Charles C.; McDonald, Bruce; and Vierow, William F., 3,811,944.
Ralston, Robert E.; and Ko, Yung Ling, 3,811,955.
Malone, Paul E., to General Electric Company. System for independent or common control of prime movers. 3,812,377, Cl. 290-4.000.
Maloney, Dennis J.: *See—*
Gasparaitis, Bernard; and Maloney, Dennis J., 3,812,310.
Manke, Girard M.: *See—*
Mineck, David W.; and Manke, Girard M., 3,812,333.
Mann, Douglas G., to Clambake International, Incorporated. Cooking apparatus. 3,811,374, Cl. 99-341.000.
Mann, Ronald P., to Johnson Service Company. Remote set point control. 3,812,465, Cl. 340-172.500.
Mansfield Sanitary, Inc.: *See—*
Drouhard, Alfred J., Jr.; and Weeks, John R., Jr., 3,811,135.
Mansnerus, John A.; and Dombrowski, Ted A., to Bell Company, Inc., The. Lamp for producing colored flame. 3,811,817, Cl. 431-126.000.
Marchant, John C.; and Tinney, John R., to Eastman Kodak Company. Laser stabilization and/or photodevelopment of silver halide materials. 3,811,885, Cl. 96-27.00r.
Marchese, Vincent P.; and Rakowsky, Edward L., to Singer Company, The. Apparatus for remote ignition of explosives. 3,811,359, Cl. 89-1.813.
Marciniak, John J., to Harris-Intertype Corporation. Sheet material trimming method and apparatus. 3,811,350, Cl. 83-39.000.
Marcovitch, Jacob, to Rotary Profile Anstalt. Profiling of workpieces. 3,811,308, Cl. 72-210.000.
Mare, Peter D.; and Ross, Albert L. Band label applying and container positioning apparatus. 3,811,986, Cl. 156-494.000.
Mareau, Wayne M.: *See—*
Clecak, Nicholas J.; Cox, Robert J.; and Mareau, Wayne M., 3,812,162.
Maremont Corporation: *See—*
Glazener, Carey A., 3,811,628.
Margetts, Hugh Grenville, to Girling Limited. Shoe drum brakes. 3,811,537, Cl. 188-79.50p.
Marie Luise Batzner Coulthard: *See—*
Coulthard, James Albert, 3,811,750.
Marino, Salvatore M.: *See—*
Osterkorn, Charles Louis; Buck, Leo V.; Kloos, William W.; and Marino, Salvatore M., 3,812,322.
Markawski, Stanley J., to United Aircraft Corporation. Annular combustion chamber for dissimilar fluids in swirling flow relationship. 3,811,277, Cl. 60-39.650.
Markovitz, Mark, to General Electric Company. Hardenable composition consisting of an epoxy resin and a metal acetylacetonate. 3,812,214, Cl. 260-830.0tw.
Maroth, Arthur M. Hypodermic syringe holder and applicator. 3,811,442, Cl. 128-218.00r.
Marse, Allan V.: *See—*
Metcalfe, Joseph E., III; Rightmire, Robert A.; and Marse, Allan V., 3,811,947.
Marsh, James Courtland, Jr., to RCA Corporation. Independent electron gun bias control. 3,812,397, Cl. 315-31.0tv.
Marshall, Albert H.; and Siragusa, George A., to United States of America, Navy. Programmable laser marksmanship trainer. 3,811,204, Cl. 35-25.000.
Martel, Leslie B.: *See—*
Defg, Emil W.; Silverberg, Carl G.; and Martel, Leslie B., 3,811,857.
Martenson, Earl D.: *See—*
Beaty, Ronald W.; and Martenson, Earl D., 3,811,787.
Martin, Albert E.: *See—*
Squillace, Anthony S.; Martin, Albert E.; and Rudmann, Jerald J., 3,811,974.
Martin, Anthony N., to United Aircraft Corporation. Slaved fuel control for multi-engined aircraft. 3,811,273, Cl. 60-39.150.
Martin, Henry; and Pissiotas, Georg, to Ciba-Geigy AG. 2,4,5-Halogenimidazoles for combating insects and acarina. 3,812,260, Cl. 424-273.000.
Martin, John Henry Edward James; and Kantor, Sidney, to American Cyanamid Company. Antibiotic BL580. 3,812,249, Cl. 424-121.000.
Martin Marietta Corporation: *See—*
Hopper, Frederick W., 3,811,641.
Martin, Norman Eugene. Micro-wave heater. 3,812,315, Cl. 219-10.550.
Martin, Roger C., to Griffis, Edgar E. Screw conveyor steamer for scallop processing. 3,811,148, Cl. 15-3.140.
Martin, Thomas W.: *See—*
Joo, Louis A.; Martin, Thomas W.; and McKee, John A., 3,811,927.
Martin, Wilhelm N.: *See—*
Wilkinson, Michael C.; Blais, Leo; Martin, Wilhelm N.; and Tesainer, Silvano, 3,811,987.
Marui, Masatoshi: *See—*
Nakajima, Tohru; and Marui, Masatoshi, 3,812,497.
Marusak, Francis J.: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
Maruyama, Akiyoshi: *See—*
Koyanagi, Shiniche; Kitamura, Hajima; and Maruyama, Akiyoshi, 3,812,215.
Maruyama, Isamu: *See—*
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Marx, Arthur F.; and Kooreman, Hermanus J., to Koninklijke Nederlandsche Gist- en Spiritusfabriek N.V. 19-Nor-progesterone derivatives. 3,812,105, Cl. 260-239.55c.
Marx, Richard Everet, to RCA Corporation. Impedance control using transferred electron devices. 3,812,437, Cl. 333-81.00a.
Maschinenfabrik Spaichingen GmbH: *See—*
Hamma, Gerhard, 3,811,297.
Mason, Leroy W.: *See—*
Sauey, Lawrence K.; Mason, Leroy W.; and Rau, Gerald A., 3,811,216.
Massachusetts Institute of Technology: *See—*
Morgenthaler, Frederic R., 3,811,941.
Massaro, Donald J.: *See—*
Higgins, Ronald W.; and Massaro, Donald J., 3,812,535.
Massey, Lester G.; Tarman, Paul B.; and Huebler, Jack, to Consolidated Natural Gas Service Co., Inc. Oxygen process pellets. 3,812,048, Cl. 252-186.000.
Massey-Ferguson Inc.: *See—*
Reuter, Floyd W., 3,811,232.
Thompson, Howard G.; and Kay, John A., Jr., 3,811,516.
Masterpiece, Inc.: *See—*
Dieffenbach, Percy, 3,811,991.
Mastrobuono, Antonio C. Rotary turbine engine. 3,811,275, Cl. 60-39.340.
Masuda, Katsutada; and Imashiro, Yoshio, to Takeda Chemical Industries, Ltd. N-acyl sydnonimine derivatives. 3,812,128, Cl. 260-268.00n.
Matisa Materiel Industriel S.A.: *See—*
Buchter, Jean-Edouard; and Jaeggi, Hans-Peter, 3,811,382.
Matsubs, Mutsuhide; Ogiso, Mitsutoshi; and Yazaki, Mutsunohu, to Canon Kabushiki Kaisha. Camera provided with a device for automatically photographing dates of photographing. 3,812,508, Cl. 354-106.000.
Matsuhisa, Koh: *See—*
Suzuki, Takami; and Matsuhisa, Koh, 3,811,546.
Matsumoto, Yoshimitsu: *See—*
Yoshizumi, Shuzo; and Matsumoto, Yoshimitsu, 3,812,318.
Matsuo, Yoshihiro: *See—*
Hirose, Namio; Matsuo, Yoshihiro; and Hayakawa, Shigeru, 3,811,938.
Matsushita Electric Industrial Co., Ltd.: *See—*
Hirose, Namio; Matsuo, Yoshihiro; and Hayakawa, Shigeru, 3,811,938.
Izura, Yoshiteru; and Okano, Keisuke, 3,812,522.
Nagahiro, Michinori; Yabu, Toshiomi; Hosono, Hiroo, and Ushihara, Masaharu, 3,811,640.
Nakamura, Harutoki, 3,811,845.
Yoshino, Hirokazu; Yamaguchi, Tetsuo; and Tsuboka, Eiichi, 3,812,488.
Yoshizumi, Shuzo; and Matsumoto, Yoshimitsu, 3,812,318.
Matsushita, Sachio: *See—*
Shibaoka, Haruo; and Matsushita, Sachio, 3,811,888.
Matsuzaki, Toichiro: *See—*
Mima, Hiroyuki; and Matsuzaki, Toichiro, 3,812,251.
Matsuzawa, Shoya: *See—*
Kadowaki, Takashi; Itoyama, Kenji; and Matsuzawa, Shoya, 3,812,203.
Mattix, Jacob M. Concealed corner locking clip. 3,811,241, Cl. 287-189.350.
Maucher, Paul, to Luk Lamellen- und Kupplungsbau GmbH. Clutch with spring loaded operator fulcrum. 3,811,544, Cl. 192-89.00b.
Maurer, James Herbert, to Penumo Dynamics Corporation. Mechanically fastened transistion fitting. 3,811,958, Cl. 136-233.000.
Maydowski, Reinhard: *See—*
Mayer, Manfred; and Maydowski, Reinhard, 3,811,631.

Mayer, Manfred; and Maydowski, Reinhard, to Barmag Barmer Maschinenfabrik Aktiengesellschaft. Winding tube changing mechanisms. 3,811,631, Cl. 242-18.00r.
Mayer, Max. Pneumatic holding device. 3,811,667, Cl. 269-23.000.
Mayer, Vita & C. gia F. lli Vita S.a.s.: *See—*
Ghisoni, Pietro, 3,811,993.
Mayfield, Susan. Puzzle for psychological testing. 3,811,203, Cl. 35-22.00r.
Mayo, Ralph E.: *See—*
Delany, Edward B.; and Mayo, Ralph E., 3,812,367.
Mayrose, William Carl: *See—*
Jones, Charles Alonzo; Lawson, Jerry Joe; and Mayrose, William Carl, 3,811,264.
Maytum, Alan T.: *See—*
Johnson, James D.; and Maytum, Alan T., 3,812,391.
Mc Burnie, Stuart G.; Jorgensen, William A. W.; and Rocher, Michel L. E., to Velto Industries, Ltd. Door latching assembly. 3,811,719, Cl. 292-254.000.
McBresth, Donald G.: *See—*
Lahti, Archie E.; and McBresth, Donald G., 3,812,463.
McCandless, William J. C.: *See—*
Diebler, Herman G.; Gyori, Steven Andrew; and McCandless, William J. C., 3,811,842.
McConnell, William C., to PPG Industries, Inc. Control of Pythium spp. and Sclerotium spp. using azides. 3,812,254, Cl. 424-226.000.
McCoy, Frederic C.; and Schlicht, Raymond C., to Texaco Inc. Selective adsorption of phenols from solution in water. 3,812,031, Cl. 210-30.000.
McCulloch, Alister L., to Graviner (Colnbrook) Limited. Fire extinguishing systems. 3,811,511, Cl. 169-28.000.
McDonald, Bertrand Norval: *See—*
Ferraro, John J.; and McDonald, Bertrand Norval, 3,811,498.
McDonald, Bruce: *See—*
Liang, Charles C.; McDonald, Bruce; and Vierow, William F., 3,811,944.
McDonnell Douglas Corporation: *See—*
Meier, Rudolf H.; Day, Richard P.; and Thompson, Christopher J. C., 3,812,359.
McFadden, Lawrence D. Muffler and muffler core puncher. 3,811,352, Cl. 83-54.000.
McFarland, A. Rae: *See—*
Keeley, Robert A.; and McFarland, A. Rae, 3,811,402.
McGarigle, Donald M.: *See—*
Larnerd, John D.; McGarigle, Donald M.; and Samuelson, Carl E., 3,811,186.
McGee, John K.; and Holbert, Marvin L., Jr., to Gray Tool Company. Full bare casing head. 3,811,709, Cl. 285-39.000.
McInerney, Charles E.; and Winiarz, Olgierd S., to Garrett Corporation, The. Bearing. 3,811,741, Cl. 308-12.200.
McKee, John A.: *See—*
Joo, Louis A.; Martin, Thomas W.; and McKee, John A., 3,811,927.
McLaughlin, Carol Lynn: *See—*
Baile, Clifton A.; McLaughlin, Carol Lynn; and Webb, Robert Lee, 3,812,255.
McMullen, John J., Associates, Inc.: *See—*
Bridges, Thomas F.; Lalangas, Petros; and Sjostrom, Carl H., 3,811,593.
McNamara, Albert C., Jr., to Esquire Inc. Lighting fixture lens 3,812,342, Cl. 240-46.010
McSparran, Ray A.: *See—*
Abraham, Dennis G.; and McSparran, Ray A., 3,812,414.
Medical Development Corporation: *See—*
Holbrook, Le Grand K., 3,811,485
Mees, Bernhard. *See—*
Heise, Hartmut; and Mees, Bernhard, 3,812,138.
Meier, Rudolf H.; Day, Richard P.; and Thompson, Christopher J. C., to McDonnell Douglas Corporation. Exoatmospheric environmental test apparatus. 3,812,359, Cl. 250-347.000.
Meijer, Roelf Jan; Neelan, Gregorius Theodorus Maria; and Vree, Jules Herman, to U.S. Philips Corporation. Heat exchanger. 3,811,497, Cl. 165-157.000.
Meiners, Elmo R., to M&W Gear Company. Method and apparatus for minimum tillage farming. 3,811,387, Cl. 111-1.000.
Meiser, Werner; Buchel, Karl Heinz; and Plempel, Manfred, to Bayer Aktiengesellschaft. Imidazolyl ketones. 3,812,142, Cl. 260-309.000.
Melco Industries Inc.: *See—*
Conforti, Arthur R., 3,811,391.
Mell, Leonard E.: *See—*
Crosser, David Keith; Mell, Leonard E.; and Reuvers, John F., 3,812,532.
Melle-Bezons: *See—*
Bouniot, Albert, 3,812,161.
Memorex Corporation: *See—*
Higgins, Ronald W.; and Massaro, Donald J., 3,812,535.
Menzel, John K.: *See—*
Press, Irving D.; Rink, Helm A.; and Menzel, John K., 3,811,649.
Menzel, Waldemar, to Ireks Arkady G.m.b.H., Firma. Ice cream machine. 3,811,494, Cl. 165-65.000.
Merck & Co., Inc.: *See—*
Baldwin, John J.; and Novello, Frederick C., 3,812,136.
Engelhardt, Edward L.; and Christy, Marcia E., 3,812,177.
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, 3,812,187.
Shen, Tsung-Ying; and Jones, Howard, 3,812,109.
Shen, Tsung-Ying; and Jones, Howard, 3,812,180.
Merkle, Kurt; Fuchs, Otto; Troster, Helmut; and Noetzel, Siegfried, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Day light fluorescent pigments and process for their preparation. 3,812,051, Cl. 252-301.20r.
Merser, Francis Gerard. System for raising sails. 3,811,158, Cl. 24-239.000.
Messer Griesheim GmbH: *See—*
Hahn, Gunter; and Hannappel, Gunther, 3,812,412.
Metcalfe, Joseph E., III; Rightmire, Robert A.; and Marse, Allan V., to Standard Oil Company, The. Electrical energy storage device utilizing an electrode composed of an amorphous carbon and sulfur-carbon complex. 3,811,947, Cl. 136-6.0lf.
Metlesics, Werner; and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. 2,3-Dihydro-1,4-benzodiazepines. 3,812,103, Cl. 260-239.30d.
Metlesics, Werner; and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. Process for 2,3-dihydro-5-phenyl-5H-imidazo [2,1-a]-isoindoles. 3,812,143, Cl. 260-309.600.
Metropolitan Watersaving Co., Inc.: *See—*
Throckmorton, Thomas Marvin; and Crawford, Charles M., III, 3,811,134.
Meussner, Russell A.: *See—*
Howe, David G.; and Meussner, Russell A., 3,811,185.
Meyer, Roth & Pastor Machinenfabrik GmbH: *See—*
Rahn Paul, 3,811,268.
Michel, Pierre: *See—*
Lescop, Pierre; Michel, Pierre; and Vigneau, Joel Olivier, 3,811,919.
Michigan Chemical Corporation: *See—*
Dipietro, Joseph; and Stepniczko, Heintich E., 3,811,839.
Michishita, Katsumi: *See—*
Hosoe, Toshiaki; Okami, Yuji; Michishita, Katsumi; and Fukuda, Shuzo, 3,812,373.
Middleton, Malcolm Cecil; and Lloyd, Henry Bassell, to British Steel Corporation. Continuous casting of rimming steel. 3,811,490, Cl. 164-49.000.
Mielke, Bodo, to Roller-Werke Franke & Heidecke. Electromagnetic drive for photographic shutter diaphragms. 3,812,501, Cl. 354-44.000.
Mikkor, Mati: *See—*
Jaklevic, Robert C.; Lambe, John J.; and Mikkor, Mati, 3,811,752.
Mikulina, Thomas W.; Lievens, Ronald J.; and Brockman, George T., to Trane Company, The. Air moving apparatus. 3,811,790, Cl. 415-145.000.
Mila, Truman R.: *See—*
Fleischfresser, Gerald H.; and Mila, Truman R., 3,812,299.
Milburn, Frank L., to General Electric Company. Door seal gasket for combined microwave and self-cleaning oven. 3,812,316, Cl. 219-10.550.
Miles Laboratories, Inc.: *See—*
Bauer, Robert; Rosenfield, Richard Gordon; and Rupe, Chauncey Orvis, 3,811,840.
Miles, Peter: *See—*
Randell, Donald Richard; Miles, Peter; and Virgin, Allan Geoffrey, 3,812,193.
Miles, Thomas R., to Hines, Edward, Lumber Co. Apparatus for cutting lumber to specified clear lengths. 3,811,353, Cl. 83-71.000.
Miller, Cecil R.: *See—*
Dickinson, Ben W. O., III; Dickinson, Robert W.; and Miller, Cecil R., 3,811,424.
Miller, Edwin E.: *See—*
Endter, Dale S.; and Miller, Edwin E., 3,811,201.
Miller, Jack, to Becton, Dickinson and Company. Method and apparatus for determination of hematocrit. 3,812,425, Cl. 324-71.0cp.
Miller, Robert C.; and Carr, Walter J., Jr., to Westinghouse Electric Corporation. Perimeter intrusion detection system. 3,812,484, Cl. 340-258.00c.
Miller, Robert C., Jr.: *See—*
Burrell, Harry; and Miller, Robert C., Jr., 3,811,915.
Mills, Archie W. Automatic food holding and turning apparatus. 3,811,376, Cl. 99-427.000.
Mima, Hiroyuki; and Matsuzaki, Toichiro, to Takeda Chemical Industries, Ltd. Stabilized aqueous composition. 3,812,251, Cl. 424-148.000.
Minagawa, Nobuhiko: *See—*
Kasugai, Tsuneo; and Minagawa, Nobuhiko, 3,811,913.
Minck, Robert W.; and Tischer, Ragnar P., to Ford Motor Company. Mass transportation electrode for energy conversion device. 3,811,943, Cl. 136-6.0fs.
Mindler, Fredric Alton: *See—*
Ernisse, Paul Justin; and Mindler, Fredric Alton, 3,812,498.
Mineck, David W.; and Manke, Girard M., to Collins Radio Company. Lagged roll synchronization and washout means for aircraft lateral axis control system. 3,812,333, Cl. 235-150.200.
Minieri, Pasquale P., to Tenneco Chemicals, Inc. Surface-coating compositions containing N-(substituted indazolyl-Nl-methyl)hexa methylenetetraammonium halides. 3,812,065, Cl. 260-22.00r.
Minnesota Mining and Manufacturing Company: *See—*
Elm, Robert A., 3,812,449.
Minolta Camera Kabushiki Kaisha: *See—*
Hayashi, Toshio; Yoshizaki, Akira; and Tsujimoto, Kayoshi, 3,812,499.

Minton, Richard L., to Bantam Steam Company, Inc. Heat exchanger apparatus for producing steam or the like. 3,811,414, Cl. 122-250.00r.

Miraglia, Gennaro John: *See—*
Lee, Bong Kuk; Ryu, Dewey D. Y.; Miraglia, Gennaro John; Basch, Harold I.; and Mukherjee, Barid B., 3,812,110.

Mishkin, Alexandr Ilich: *See—*
Bazhal, Anatoly Ignatievich; Mishkin, Alexandr Ilich; and Bessarab, Anatoly Antonovich, 3,811,515.

Mitani, Eisuke; Tsuyama, Hitoshi; Itoh, Michiyasu; and Taya, Shunroku, to Hitachi, Ltd. Mass-spectrometer of double focussing type. 3,812,356, Cl. 250-296.000.

Mitchell, Peter G.: *See—*
Cronson, Harry M.; and Mitchell, Peter G., 3,812,423.

Mitsubishi Petrochemical Company Limited: *See—*
Tashiro, Kijuro; Yokoyama, Masuzo; and Kitazume, Shoji, 3,812,089.
Uchiyama, Masao; and Kaneko, Norio, 3,812,196.

Mitsubishi Rayon Company Limited: *See—*
Kimura, Tadasu; Kobayashi, Juichi; and Nakamoto, Hideo, 3,812,063.

Miyahara, Kingo, to Kabushiki Kaisha Dowa. Liquid fuel burner. 3,811,818, Cl. 431-168.000.

Miyata, Etsutaro; Kamuro, Setsufumi; and Sano, Kenji, to Sharp Kabushiki Kaisha. Television channel indicator. 3,812,285, Cl. 178-5.800.

Mobil Oil Corporation: *See—*
Andress, Harry J., Jr.; and Ashjian, Henry, 3,811,847.
Chen, Nai Yuen; and Lucki, Stanley J., 3,812,199.
Snyder, Paul W., Jr., 3,812,029.
Theissen, Robert J., 3,812,184.

Moeller, Henry W. Method of cultivating mollusks. 3,811,411, Cl. 119-4.000.

Moffatt, John G.; and Russell, Alan F., to Syntex (U.S.A.) Inc. O²,2'-Anhydro-1-(beta-D-arabinofuranosyl)-cytosine derivatives and methods of making and related procedures. 3,812,098, Cl. 260-211.50r.

Moller, Hans Gunter. Deep-drawing mould for shaping thermoplastic panels. 3,811,810, Cl. 425-185.000.

Mollon, Leslie, to Brooks & Perkins, Incorporated. Installation of cargo handling system. 3,811,788, Cl. 408-72.000.

Monroe, George R.: *See—*
Christiansen, Carl L.; Kanter, Lawrence E.; and Monroe, George R., 3,812,475.

Monsanto Company: *See—*
Boustany, Kamel; and D'Amico, John J., 3,812,139.
Chupp, John Paul, 3,812,121.
Dobo, Emerick J., 3,811,850.
Gash, Virgil W.; and Bissing, Donald E., 3,812,183.
Petrovich, John P.; and Tyssee, Donald A., 3,812,190.
Wright, Robert Lee, 3,812,068.

Montano, Joseph V.: *See—*
Kuenzig, Fred J.; and Montano, Joseph V., 3,811,334.

Montecatini Edison S.p.A.: *See—*
Natta, Giulio; Beati, Enrico; Severini, Febo; and Toffano, Silvio, 3,812,204.

Montgomery, Carroll Sherman. *See—*
Starer, Ira; Montgomery, Carroll Sherman; and O'Bara, Edward John, 3,812,194.

Montgomery, Earl D., to American Standard Corporation. Gem faceter. 3,811,229, Cl. 51-125.000.

Montillier, Jean-Pierre, to Pitney-Bowes, Inc. Photoconductive charge-transfer complex with crystallization preventer. 3,811,879, Cl. 96-1.500.

Moody, Harold W., Jr.; and Schaefer, Donald D., to Dunham-Bush, Inc. Hydrodynamic thrust bearing arrangement for rotary screw compressor. 3,811,805, Cl. 418-88.000.

Moogk, Friedrich, to E. & A. Becker KG, Maschinen- und Getriebebau. V-belt driving device. 3,811,331, Cl. 74-230.17a.

Moore, Robert G., to Hickman Developments, Inc. Axle clamp for shear rubber vehicle suspension. 3,811,700, Cl. 280-124.00r.

Moore, Romayne T.; and Powelson, Lilliam E. Contractible level for artificial breast alignment. 3,811,197, Cl. 33-374.000.

Moorehead, Harvey Robert; and Reading, George R., to Desert Pharmaceutical Company, Inc. Catheter placement unit with pressure closure. 3,811,440, Cl. 128-214.400.

Morehouse, James O.: *See—*
Shumaker, John F.; and Morehouse, James O., 3,811,582.

Moret, Michel A. Device for operating a pump so as to produce therefrom a pulsating jet of liquid. 3,811,432, Cl. 128-66.000.

Moreton, Derek Vidion. International Computers Limited Visual display device. 3,812,485, Cl. 340-324.00a.

Morfit, Oliver; and Ditman, John G., to Foster Wheeler Corporation. Solvent deasphalting. 3,811,843, Cl. 23-270.500.

Morgan, David C.: *See—*
Bieler, Barrie H.; Morgan, David C.; and Guebert, Kenneth W., 3,811,870.

Morgan, Donald F., to American Esna Corporation. Bowling ball indicia display means and method of assemblying same. 3,811,211, Cl. 40-2.200.

Morgan, Johnathan D.; and Ramsey, Roy A., to Phillips Petroleum Company. Regeneration of cobalt-molybdenum catalyst used for the removal of diolefins and acetylenes from an olefinic feed. 3,812,057, Cl. 252-416.000.

Morgenthaler, Frederic R., to Massachusetts Institute of Technology. Article for processing electromagnetic wave energy. 3,811,941, Cl. 117-234.000.

Mori, Kazuo: *See—*
Ishizumi, Kikuo; Mori, Kazuo; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,102.
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.

Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, to Nissan Motor Company, Limited. Gear train arrangements. 3,811,343, Cl. 74-759.000.

Moriarty, Maurice J. Seal. 3,811,690, Cl. 277-193.000.

Morikawa, Naotake: *See—*
Saito, Tomoo; Morikawa, Naotake; and Watanabe, Kazuo, 3,811,838.

Morooka, Shigeaki: *See—*
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,118.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi; and Yamamoto, Hisao, 3,812,257.

Morrell, Albert Maxwell; and Van Hekken, Frans, to RCA Corporation. Correcting lens. 3,811,754, Cl. 350-189.000.

Morris, Joe P.: *See—*
Archer, David H.; Brecher, Lee E.; Morris, Joe P.; Talko, Francis; and Taylor, Herbert L., 3,811,936.

Morrisett, O. L.; and Baker, Eugene E., to Halliburton Company. Dual sleeve multiple stage cementer and its method of use in cementing oil and gas well casing. 3,811,500, Cl. 166-154.000.

Morrison, David J., to Schering Corporation. Automated system and method for filling containers with viscous materials. 3,811,483, Cl. 141-1.000.

Morse, Charles P., to Rockwell International Corporation. Solid propellants containing reinforcing filament and process of making. 3,811,358, Cl. 86-20.00r.

Morse, Glenn B. Belt guard. 3,811,340, Cl. 74-611.000.

Morton, Albert W. Urinary drainage catheter. 3,811,448, Cl. 128-349.00b.

Morton Norwich Products, Inc.: *See—*
O'Connor, Donald J., 3,811,599.

Morzynski, Stanislaw. System for locking a hub of rotofynamic pump rotor on pump shaft. 3,811,716, Cl. 287-53.00r.

Mosterd, Jacob Hendrik. Device for closing a bag. 3,811,245, Cl. 53-124.00a.

Mote, Neil H.: *See—*
Heldenbrand, Stanley W.; Johnson, David L.; and Mote, Neil H., 3,811,769.

Motor Devices Corporation: *See—*
Amendolia, Pasquale J., 3,811,316.

Motorola, Inc.: *See—*
Clark, Lowell Eugene, 3,812,405.
Davis, William Fosom; and Pace, Wilson David, 3,812,521.
Gasparaitis, Bernard; and Maloney, Dennis J., 3,812,310.
Hilbert, Francis H., 3,812,525.
Ivas, Thomas W.; and Slavik, William H., 3,812,524.
Wilcox, Milton E., 3,812,387.

Moyer, Elmo Emerson: *See—*
Van Gilder, Burrows Corson; and Moyer, Elmo Emerson, 3,812,415.

Moyer, Ronald C., to Air Products and Chemicals, Inc. Polyfluorocycloakyl phosphates. 3,812,217, Cl. 260-924.000.

Muchnick, Fred B. Yarn bobbin support device. 3,811,636, Cl. 242-129.500.

Muchnick, Paul: *See—*
Gryctko, Carl E.; Muchnick, Paul; and Jaconette, Frank C., 3,812,400.

Muckelroy, William L. Ceramic inductor. 3,812,442, Cl. 336-83.000.

Mueller, Dieter: *See—*
Esser, Franz; Hanstein, Friedrich; Hosch, Ludwig; and Mueller, Dieter, 3,812,208.

Mueller Ernst, K.G., Firma: *See—*
Gebhardt, Otto R., 3,811,620.

Mueller, Hans-Karl; and Lumbeck, Gerd, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Propionic acid coated silica as a food preservative. 3,812,269, Cl. 426-227.000.

Muesing, Lawrence: *See—*
Whitney, William G.; and Muesing, Lawrence, 3,811,136.

Mukherjee, Barid B.: *See—*
Lee, Bong Kuk; Ryu, Dewey D. Y.; Miraglia, Gennaro John; Basch, Harold I.; and Mukherjee, Barid B., 3,812,110.

Mukherjee, Joan M. W. Method of making lithographic master. 3,811,886, Cl. 96-33.000.

Muller, Hans. Culture-growing apparatus. 3,812,016, Cl. 195-139.000.

Muller, Hans Rudolf: *See—*
Suter, Hans; Zutter, Hans; and Muller, Hans Rudolf, 3,812,186.

Muller, Jean-Claude: *See—*
Hoegerle, Karl; Muller, Jean-Claude; Vogel, Christian; and Rumpf, Jurg, 3,812,168.

Mulvey, Dennis M.: *See—*
Weinstock, Leonard M.; Tull, Roger J.; and Mulvey, Dennis M., 3,812,182.

Muraishi, Masakazu; Hamada, Noriaki; Shinkawa, Toshiyuki; and Arai, Tomiji, to Nissan Motor Company, Limited and Ikeda Bussan Company, Limited. Movable seat for a motor vehicle. 3,811,726, Cl. 297-341.000.

Muramatsu, Shigeru: *See—*
Ariyama, Kenzo; Muramatsu, Shigeru; and Namiki, Ryoichi, 3,811,821.

Murase, Yasuo; and Takeuchi, Shizuka, to Toyoda Automatic Loom Works, Ltd. Dual pressure relief valve system. 3,811,471, Cl. 137-596.130.

Murtha, John C.; and Ross, James A., Jr., to Westinghouse Electric Corporation. Programmable digital signal processor. 3,812,470, Cl. 340-172.500.

Murto, Robert A.; and Hostetler, Eldon, to Chore-Time Equipment, Inc. Poultry feeder. 3,811,412, Cl. 119-53.000.

Muskulus, Willi; and Kramer, Willi, to Balzer & Droll KG. Coil winding apparatus. 3,811,630, Cl. 242-7.110.

Musz, Andrew: *See—*
Earle, Paul Lewis; Musz, Andrew; and Vandervelden, Jan Josef Maria, 3,811,814.

Muth, Karl: *See—*
Weber, Helmut, Aumuller, Walter; Muth, Karl; and Weyer, Rudi, 3,812,185.

Myer, Gary D., to Hughes Aircraft Company. Self-illuminated liquid crystal display panel. 3,811,751, Cl. 350-160.01c.

Naarden International N.V.: *See—*
De Rijke, David; and Boelens, Harmannus, 3,812,059.

Nagahiro, Michinori; Yahu, Toshiomi; Hosono, Hiroo; and Ushihara, Masaharu, to Matsushita Electric Industrial Co., Ltd. Taken-up tape quantity indicating system. 3,811,640, Cl. 242-191.000

Nagashima, Kazuo; and Ono, Tadahiro, to Toshiba Machine Co., Ltd. Method and apparatus for controlling the accuracy of machining of a machine tool. 3,811,228, Cl. 51-49.000.

Nagatomi, Makoto; Isogawa, Takayuki; Onodera, Nobuo, and Ishikawa, Nobuo, to Hodogaya Chemical Co., Ltd. Diphenyl ether herbicidal compositions. 3,811,864, Cl. 71-124.000.

Nakai, Yasuo: *See—*
Inoue, Eiichi, Nakayama, Takao; Oka, Yutaka; and Nakai, Yasuo, 3,811,884.

Nakajima, Tohru, and Marui, Masatoshi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Camera with automatic exposure controls. 3,812,497, Cl. 354-28.000.

Nakajima, Yosuke: *See—*
Endou, Koutarou; Yoneyama, Masakazu; Yamamoto, Nobuo, Ojihara, Motohiro, and Nakajima, Yosuke, 3,811,889.

Nakamoto, Hideo: *See—*
Kimura, Tadasu; Kobayashi, Juichi; and Nakamoto, Hideo, 3,812,063.

Nakamura, Akira; Arai, Hiroshi; and Ohta, Jun, to Toyota Jidosha Kogyo Kabushiki Kaisha. Brake system with skid control. 3,811,739, Cl. 303-21.0be.

Nakamura, Harutoki, to Matsushita Electric Industrial Co., Ltd. Vehicle exhaust control equipment. 3,811,845, Cl. 23-288.00f.

Nakamura, Hitoshi: *See—*
Takano, Tadayoshi; Kariyone, Kazuo, Kurita, Masaru; Yazawa, Hisatoyo; Nakamura, Hitoshi; and Hasegawa, Mitsunori, 3,812,116.

Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, to Tokyo Shibaura Electric Co., Ltd. Silicon double doped with P and As or B and As. 3,812,519, Cl. 357-38.000.

Nakatani, Hiroshi: *See—*
Yamamoto, Michihiro, Morooka, Shigeaki; Koshiba, Masao, Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi, and Yamamoto, Hisao, 3,812,257.

Nakayama, Takao: *See—*
Inoue, Eiichi; Nakayama, Takao; Oka, Yutaka, and Nakai, Yasuo, 3,811,884.

Namiki, Ryoichi: *See—*
Ariyama, Kenzo; Muramatsu, Shigeru, and Namiki, Ryoichi, 3,811,821.

Napolitano, Michael: *See—*
Bilinski, Donald J.; Galowin, Lawrence S.; and Napolitano, Michael, 3,811,493.

Narahara, Hisaaki, to Sony Corporation. System for magnetically recording and reproducing television signals. 3,812,523, Cl. 358-4.000.

Narayanan, Venkatachlal L.: *See—*
Bodanszky, Miklos; Ondetti, Miguel A.; Von Saltza, Malcolm H.; Narayanan, Venkatachlal L.; and Levine, Seymour D., 3,812,092.

Nasser, Benny E., Jr., to Phillips Petroleum Company. Activation of olefin polymerization catalysts. 3,812,058, Cl. 252-458.000.

National Cash Register Company, The: *See—*
de la Torriente, Leandro J.; and Crainich, Victor A., Jr., 3,812,056.
Farber, Sheldon; and Wright, Arthur J., 3,812,146.
Lin, Chao-Han; and Wright, Arthur J., 3,812,157.
Tink, Robert MacMillan; and Baker, Bob Jim, 3,812,292.
Yamanaka, Izumi; Sato, Hironobu; and Takeuchi, Yoshihiro, 3,811,615.

National Lead Company: *See—*
Happel, John; and Umemura, Sumio, 3,812,175.

National Research Development Corporation: *See—*
Briggs, Philip Stanley, 3,811,832.

Natta, Giulio; Beati, Enrico; Severini, Febo; and Toffano, Silvio, to Montecatini Edison S.p.A. Polymeric composition comprising polyvinyl chloride. 3,812,204, Cl. 260-878.00r.

Neale, Robert E.; Wilhelmsen, Paul C.; and Winterhalter, David R., to Berkeley Applied Research Corporation. Folding puzzle. 3,811,682, Cl. 273-155.000.

Nedvich, Richard J.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,811,651.

Needham, Victor; and Bowen, Brian Francis, to Lucas, Joseph, (Industries) Limited. Method of producing electric wiring arrangement. 3,812,019, Cl. 204-15.000.

Neelan, Gregorius Theodorus Maria: *See—*
Meijer, Roelf Jan; Neelan, Gregorius Theodorus Maria; and Vree, Jules Herman, 3,811,497.

Neff, Frederick R. Stop motion converter. 3,811,548, Cl. 198-19.000.

Neikam, William C.; and James, Robert L., to Sun Research and Development Company. Production of nitriles by ammoxidation. 3,812,171, Cl. 260-465.00c.

Nellis, David C.: *See—*
Wirtz, John S.; and Nellis, David C., 3,812,372.

Nelmor Co. Inc.: *See—*
Person, Irving T., 3,811,568.

Nelson, Lowell F., to Enterprise Brass Works. Shut-off valve assembly with condition responsive trip means. 3,811,456, Cl. 137-39.000.

Nelson, Ted, Company: *See—*
Beasley, Robert W., 3,811,646.

Nesteruk, Edward P. Method of applying a hot luster coating to glass by electrostatic means. 3,811,925, Cl. 117-93.40r.

New England Nuclear Corporation: *See—*
Novitch, Howard, 3,811,591.

Newton, Richard C., to Phillips Petroleum Company. Non-twisted, heather yarn and method for producing same. 3,811,263, Cl. 57-140.00r.

Nichicon Capacitor, Limited: *See—*
Nose, Kiyoo; Kokura, Yoshiji; Hizaki, Nobuo; and Nishikawa, Shigeydshi, 3,812,407.

Nichols, Gus, to General Electric Company. Polyanhydrides useful as flexibilizing curing agents for epoxy resins. 3,812,064, Cl. 260-18.0ep.

Niehylski, Leonard M.; and Brendel, Gottfried J., to Ethyl Corporation. Process for making a lithium doped beryllium hydride composite. 3,811,972, Cl. 149-109.000.

Nieder-Vahrenholz, Hans Georg: *See—*
Schafer, Heinrich; and Nieder-Vahrenholz, Hans Georg, 3,812,234.

Niedrach, Leonard W.; and Stoddard, William H., Jr., to General Electric Company. Sensor and method of manufacture. 3,811,184, Cl. 29-592.000.

Nier, Thomas J.: *See—*
Ernsberger, Fred M.; and Nier, Thomas J., 3,811,858.

Nier, Thomas J., to PPG Industries, Inc. Processing of stirring molten glass with bubbles from electrolysis. 3,811,860, Cl. 65-135.000.

Nilsson, Sven Walter, to SKF Industrial Trading and Development Company NV. Means for interconnecting two machine elements. 3,811,784, Cl. 403-2.000.

Nippon Automation Co., Ltd.: *See—*
Sakamoto, Michio; and Tanaka, Masao, 3,812,441.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Tomisawa, Norio; Amano, Takehisa; Uchiyama, Yasuji; and Okumura, Takatoshi, 3,812,478.

Nippon Kakoh Seishi K.K.: *See—*
Katagiri, Keizo; Sakaguchi, Namoru; and Kamata, Tokumaro, 3,812,005.

Nippon Kokan Kabushiki Kaisha: *See—*
Hosoe, Toshiaki; Okami, Yuji; Michishita, Katsumi; and Fukuda, Shuzo, 3,812,373.

Nippon Oil Company, Limited: *See—*
Sato, Hisatake; and Hayashi, Hiedo, 3,812,216.

Nippon Paint Co., Ltd.: *See—*
Takimoto, Yasuyuki; and Yoshikawa, Toshikazu, 3,812,078.

Nippon Piston Ring Co., Ltd.: *See—*
Sugahara, Eisuke, 3,811,691.

Nischk, Gunther. *See—*
Wolf, Gerhard Dieter; Blankenstein, Gunter; and Nischk, Gunther, 3,812,085.

Nishikawa, Shigeydshi: *See—*
Nose, Kiyoo; Kokura, Yoshiji; Hizaki, Nobuo; and Nishikawa, Shigeydshi, 3,812,407.

Nishio, Daijiro: *See—*
Sato, Hiroshi; Nishio, Daijiro; and Takahashi, Takeshi, 3,812,145.

Nissan Motor Company, Limited: *See—*
Kurasawa, Yoshiya; and Otani, Syuichi, 3,811,702.
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,811,343.
Muraishi, Masakazu; Hamada, Noriaki; Shinkawa, Toshiyuki; and Arai, Tomiji, 3,811,726.

Nitsch, Ernst, to Laevosan-Gesellschaft Chem.-Pharm. Industrie Franck & Dr. Freudl. Method of producing fructose and glucose from sucrose. 3,812,010, Cl. 195-31.00f.

Niwa, Shinichi, to Sanyo Electric Co., Ltd. Electrolyte for electrolytic capacitor. 3,812,039, Cl. 252-62.200.

Noetzel, Siegfried: *See—*

Merkle, Kurt; Fuchs, Otto; Troster, Helmut; and Noetzel, Siegfried, 3,812,051.
Noetzel, Siegfried, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Daylight fluorescent pigments and process for preparing same. 3,812,053, Cl. 252-301.20r.
Noetzel, Siegfried; and Fischer, Edgar, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Daylight fluorescent pigments and process for preparing them. 3,812,054, Cl. 252-301.20r.
Nomura, Takayuki. Box-shaped guide bushing and driving control unit for cutting tools for head stock moving type screw machines encasing cutting tool driving system. 3,811,346, Cl. 82-25.000.
Nonaka, Masahide: *See*—
Weaver, Merle L.; Hautala, Earl; and Nonaka, Masahide, 3,812,274.
Nonken, Gordon C., to General Electric Company. High power electrical bushing having a vacuum switch encapsulated therein. 3,812,314, Cl. 200-144.00b.
Noothout, Arend Jaman; Kanij, Johannes Bastiaan Willem; and Votocek, Otakar, to Reactor Centrum Nederland. Precipitation delaying process employing a synergistic mixture of complexing agents. 3,812,049, Cl. 252-301.10s.
Nordson Corporation: *See*—
Baker, Robert G.; and Reighard, Alan B., 3,811,405.
Reighard, Alan B.; and Tamny, Simon Z., 3,811,601.
Nordstrom, Knut Lennart. Method and apparatus for cold drawing or rolling of metal wire rod. 3,811,309, Cl. 72-235.000.
North American Philips Corporation: *See*—
Crowell, Merton H., 3,812,396.
North American Rockwell Corporation: *See*—
Squillace, Anthony S.; Martin, Albert E.; and Rudmann, Jerald J., 3,811,974.
Nose, Kiyoo; Kokura, Yoshiji; Hizaki, Nobuo; and Nishikawa, Shigeydshi, to Nichicon Capacitor, Limited. Capacitor. 3,812,407, Cl. 317-258.000.
Nouel, Jean-Paul, to U.S. Philips Corporation. Method of producing a carrier for a scintigraphic preparation and scintigraphic preparations including said carrier. 3,812,264, Cl. 424-1.000.
Nova Hut Klementa Gottwalda narodni podnik: *See*—
Stefek, Oldrich; Triska, Vojtech; and Bednar, Ladislav, 3,811,310.
Novak, Joseph F. Dual action triggering valve device for inflatable equipment. 3,811,461, Cl. 137-318.000.
Novello, Frederick C.: *See*—
Baldwin, John J.; and Novello, Frederick C., 3,812,136.
Novitch, Howard, to New England Nuclear Corporation. Dually sealable, non-leaking vial for shipping radioactive materials. 3,811,591, Cl. 215-12.00r.
Nozik, Arthur Jack, to American Cyanamid Company. Light-transmitting electrically conducting cadmium stannate and methods of producing same. 3,811,953, Cl. 136-89.000.
Nupro Company: *See*—
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,811,651.
Oaks, William D.: *See*—
Leinkram, Charles Z.; and Oaks, William D., 3,811,181.
O'Bara, Edward John: *See*—
Starer, Ira; Montgomery, Carroll Sherman; and O'Bara, Edward John, 3,812,194.
Obenshain, George R.: *See*—
Yakubek, Louis P.; and Obenshain, George R., 3,811,862.
Oblasti, Dolgoprudny Moskovskoi: *See*—
Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich; Kozlovsky, Viktor Stepanovich; Oblasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich; and Rud, Svetlana Ivanovna, 3,811,852.
O'Brien, John R. Saddle hanger. 3,811,574, Cl. 211-13.000.
Occidental Energy Development Company: *See*—
Creutz, Hans-Gerhard; Romanowski, Edward A.; and Symons, Philip C., 3,811,946.
Occidental Petroleum Corporation: *See*—
Grannen, Edward A., 3,812,238.
O'Connor, Donald J., to Morton-Norwich Products, Inc. Two-pack combination container and tablet dispenser. 3,811,599, Cl. 221-265.000.
O'Day, Peter Joseph: *See*—
Lesh, Nathan George; O'Day, Peter Joseph, and Unger, Burton Abram, 3,811,973.
Oertel, Gunter: *See*—
Braden, Rudolf; Hendricks, Udo; Oertel, Gunter; and Schliebs, Reinhard, 3,812,221.
Oexler, Rudolf: *See*—
Bystron, Bruno; Grimm, Eberhard; and Oexler, Rudolf, 3,811,256.
Offshore Company, The: *See*—
Swenson, William J., 3,811,322.
Ogiso, Matsutoshi: *See*—
Aizawa, Hiroshi; and Ogiso, Matsutoshi, 3,812,510.
Ogiso, Mitsutoshi: *See*—
Matsubs, Mutsuhide; Ogiso, Mitsutoshi; and Yazaki, Mutsunobu, 3,812,508.
Ohashi, Yoshihiko: *See*—
Iwai, Issei; Ohki, Eiji; Oida, Sadao; Takagi, Hiromu; and Ohashi, Yoshihiko, 3,812,134.
Ohayon, Gabriel, to Rhone-Poulenc Textile. Device for the production of false twisted yarns. 3,811,260, Cl. 57-77.300.
Ohi, Reiichi: *See*—
Okutsu, Toshimitsu; Tsuji, Nobuo; Ohi, Reiichi; and Kondo, Tokiharu, 3,812,079.
Ohki, Eiji: *See*—
Iwai, Issei; Ohki, Eiji; Oida, Sadao; Takagi, Hiromu; and Ohashi, Yoshihiko, 3,812,134.
Ohmayer, Siegfried: *See*—
Knapp, Wilhelm; and Ohmayer, Siegfried, 3,811,540.
Ohringer, Jack G. Slit diaphragm valve. 3,811,466, Cl. 137-493.000.
Ohta, Jun: *See*—
Nakamura, Akira; Arai, Hiroshi; and Ohta, Jun, 3,811,739.
Ohta, Noboru; Oishi, Yasushi; and Ueda, Hirozo, to Fuji Photo Film Co., Ltd. Silver halide color photographic material. 3,811,890, Cl. 96-74.000.
Ohta, Wasaburo; Kasuya, Kazuhiko; Fujimoto, Sakae; and Yamauchi, Masayuki, to Ricoh Co., Ltd. Process and device for heating and fixing an image upon a recording medium. 3,811,828, Cl. 432-227.000.
Ohtsuka, Kunio: *See*—
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,811,343.
Ohtsuki, Takashi: *See*—
Tomita, Akio; Karitani, Tadakazu; and Ohtsuki, Takashi, 3,811,567.
Oida, Sadao: *See*—
Iwai, Issei; Ohki, Eiji; Oida, Sadao; Takagi, Hiromu; and Ohashi, Yoshihiko, 3,812,134.
Oishi, Yasushi: *See*—
Ohta, Noboru; Oishi, Yasushi; and Ueda, Hirozo, 3,811,890.
Ojihara, Motohiro: *See*—
Endou, Koutarou; Yoneyama, Masakazu; Yamamoto, Nobuo; Ojihara, Motohiro; and Nakajima, Yosuke, 3,811,889.
Oka, Yutaka: *See*—
Inoue, Eiichi; Nakayama, Takao; Oka, Yutaka; and Nakai, Yasuo, 3,811,884.
Okada, Shigetaka; and Tsuyama, Naoto, to Hayashibara Biochemical Laboratories, Incorporated. Method of converting starch to β-cyclodextrin. 3,812,011, Cl. 195-31.00r.
Okami, Yuji: *See*—
Hosoe, Toshiaki; Okami, Yuji; Michishita, Katsumi; and Fukuda, Shuzo, 3,812,373.
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Inaba, Shigeho; and Yamamoto, Hisao, to Sumitomo Chemical Company, Ltd. Pyroloindole and pyridoindole derivatives. 3,812,135, Cl. 260-293.550.
Okano, Keisuke: *See*—
Izura, Yoshiteru; and Okano, Keisuke, 3,812,522.
Okazaki, Nobuo: *See*—
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,811,343.
Okimoto, Ken-Ichi: *See*—
Inaba, Shin-Ichi; Okimoto, Ken-Ichi; Tamura, Setsuo; and Uenaka, Toshiyuki, 3,811,868.
Okumura, Takatoshi: *See*—
Tomisawa, Norio; Amano, Takehisa; Uchiyama, Yasuji; and Okumura, Takatoshi, 3,812,478.
Okutsu, Toshimitsu; Tsuji, Nobuo; Ohi, Reiichi; and Kondo, Tokiharu, to Fuji Photo Film Co., Ltd. Stabilized linear polyesters. 3,812,079, Cl. 260-45.80a.
Olin Corporation: *See*—
Caule, Elmer J.; Sperry, Philip R.; Pryor, Michael J.; and Ford, James A., 3,811,874.
Hammond, Philip D.; and Scott, John A., 3,812,169.
Olina, Inese Petrovna: *See*—
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.
Olney, Henry L. Bobbin retainer attachment for a thread carrying spool. 3,811,608, Cl. 223-106.000.
Olsen, John H., to Flow Research, Inc. High pressure fluid intensifier and method. 3,811,795, Cl. 417-53.000.
Olson, Donald R., to United States of America. Chemical heater tube. 3,811,422, Cl. 126-263.000.
Ondetti, Miguel A.: *See*—
Bodanszky, Miklos; Ondetti, Miguel A.; Von Saltza, Malcolm H.; Narayanan, Venkatachlal L.; and Levine, Seymour D., 3,812,092.
Ondetti, Miguel A., to Squibb, E. R., & Sons, Inc. D-analogs of secretin. 3,812,091, Cl. 260-112.500.
O'Neil, Robert Anthony: *See*—
Artwick, Kert Edward; and O'Neil, Robert Anthony, 3,811,523.
Ono, Tadahiro: *See*—
Nagashima, Kazuo; and Ono, Tadahiro, 3,811,228.
Onodera, Nobuo: *See*—
Nagatomi, Makoto; Isogawa, Takayuki; Onodera, Nobuo; and Ishikawa, Nobuo, 3,811,864.
Onoki, Fumio; and Kamiya, Hajime, to Hoya Lens Co., Ltd. Coated optical component made of plastic. 3,811,753, Cl. 350-175.0ng.
Onore, Michael J.: *See*—
Higdon, Buster W.; Hobbs, Charles C.; and Onore, Michael J., 3,812,210.
Ontario Research Foundation: *See*—
Ladell, John L., 3,811,865.

Optical Business Machines, Inc.: *See*—
MacNeill, John H.; and Willey, Ronald R., 3,812,459.
Orlando, Harold J.: *See*—
Flogaus, William S.; Graves, Howard T.; Orlando, Harold J.; and Van Der Laske, Dennis P., 3,812,357.
Osbond, John Mervyn; and Fothergill, Graham Alwyn, to Hoffmann-La Roche Inc. N-Phenylpropylene substituted tetrahydroisoquinolines. 3,812,133, Cl. 260-289.00r.
Ostapiak, Roman; and Scuderi, Rudolph, to Bell Telephone Laboratories, Incorporated. Pulse width stabilized blocking oscillator. 3,812,435, Cl. 331-112.000.
Ostberg, Bengt Sven Erik, to Kamyr Aktiebolag. Method of continuous cellulose digestion and digester adapted for performing the method. 3,811,994, Cl. 162-19.000.
Oster Corporation: *See*—
Bowerman, Leonard E., 3,812,389.
Osterkorn, Charles Louis; Buck, Leo V.; Kloos, William W.; and Marino, Salvatore M., to Fedders Corporation. Heating element assembly. 3,812,322, Cl. 219-532.000.
Ostrowski, Edwin A.: *See*—
Kozel, James A.; and Ostrowski, Edwin A., 3,812,398.
Oswitch, Stanley; and Kipp, Kevin K., to Ferro Corporation. Prefabricated gel coats. 3,812,074, Cl. 260-31.870.
Otani, Syuichi: *See*—
Kurasawa, Yoshiya; and Otani, Syuichi, 3,811,702.
Otterstedt, Jan-Erik Anders; and Pater, Richard, to Du Pont de Nemours, E. I., and Company. U.V.-absorbing ortho-hydroxyphenyl substituted phenanthrolines. 3,812,123, Cl. 260-288.00p.
Otto, William F.: *See*—
Honeycutt, Thomas E.; Otto, William F.; and Cason, Charles M., III, 3,811,774.
Owens-Illinois, Inc.: *See*—
Crawford, James E.; and Russell, Richard H., 3,811,921.
Levene, Leon, 3,811,918.
Riggs, Darius O., 3,811,553.
Semersky, Frank E., 3,812,009.
Yakubek, Louis P.; and Obenshain, George R., 3,811,862.
Oy Airam Ab: *See*—
Hakka, Lennart, 3,811,877.
Oy Cyklop AB: *See*—
Back, Karl Johan, 3,811,481.
Back, Karl Johan; and Walhelm, Ragnar Ilmari Olof, 3,811,482.
Pace, Wilson David: *See*—
Davis, William Fosom; and Pace, Wilson David, 3,812,521.
Padgett, Richard A., to GTE Automatic Electric Laboratories, Incorporated. Arrangement for providing priority override of billing buffer entry selector. 3,812,293, Cl. 179-7.00r.
Page, Stewart E., to Kona Boats. Water ski holder. 3,811,143, Cl. 9-310.00r.
Pahk, Ung Soo. Germanium derivative. 3,812,167, Cl. 260-429.00r.
Palmer, Reed Albert: *See*—
Faffaelli, Joseph Gino; and Palmer, Reed Albert, 3,812,324.
Pankove, Jacques Isaac: *See*—
Hawrylo, Frank Zygmunt; and Pankove, Jacques Isaac, 3,811,963.
Paraskevakos Electronics & Communication, Inc.: *See*—
Paraskevakos, Theodore G., 3,812,296.
Paraskevakos, Theodore G., to Paraskevakos Electronics & Communication, Inc. Apparatus for generating and transmitting digital information. 3,812,296, Cl. 179-18.00b.
Parmenter, George Shearer, to Solartron Electronic Group Limited, The. Scanner with reed relays. 3,812,439, Cl. 335-151.000.
Parrochia, Maxime. Garment bag. 3,811,543, Cl. 190-43.000.
Parry, Philip James; and Twigg, Peter Lindsay, to International Nickel Company, Inc., The. Process of producing nickel chromium alloy products. 3,811,960, Cl. 148-11.50f.
Pascente, Joseph E., to Grigsby-Barton, Inc. Synchronous switching circuit. 3,812,382, Cl. 307-133.000.
Pater, Richard: *See*—
Otterstedt, Jan-Erik Anders; and Pater, Richard, 3,812,123.
Paulucci, Jeno F., to Jeno's Inc. Unitary container for a food product. 3,811,594, Cl. 220-20.000.
Pavlushkin, Nikolai Mikheevich: *See*—
Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich; Kozlovsky, Viktor Stepanovich; Oblasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich; and Rud, Svetlana Ivanovna, 3,811,852.
Peabody Engineering Corporation: *See*—
Arnold, Orlan M.; and Vancini, Carlo A., 3,811,249.
Pearce, Jai K.: *See*—
Schempp, Eberhard G.; and Pearce, Jai K., 3,812,275.
Pearson, Raymond H., to Whitehall Electronics Corporation. Marine seismic streamer connector structure. 3,812,455, Cl. 340-7.00r.
Pecoraro, George A. Method of making float glass. 3,811,854, Cl. 65-27.000.
Pedersen, Thomas Josef, to Bell Telephone Laboratories, Incorporated. Bilateral time division multiplex switching system. 3,812,294, Cl. 179-15.0ag.
Peis, Gunter. Device for cleaning soles of shoes. 3,811,207, Cl. 36-2.5al.
Penn, Paul E.; and Waymire, John, to Dart Controls, Inc. Trash masher motor control. 3,812,408, Cl. 318-282.000.
Pennsylvania Engineering Corporation: *See*—
Schempp, Eberhard G.; and Pearce, Jai K., 3,812,275.
Pennwalt Corporation: *See*—
MacLeay, Ronald Edward; Lange, Harold Carl; and Sheppard, Chester Stephen, 3,812,094.
Sheppard, Chester Stephen; MacLeay, Ronald Edward; and Bafford, Richard Anthony, 3,812,095.
Penumo Dynamics Corporation: *See*—
Maurer, James Herbert, 3,811,958.
Perkin-Elmer Corporation, The: *See*—
Kerr, Edwin L., 3,811,782.
Perronnet, Jacques: *See*—
Bertin, Daniel; Perronnet, Jacques, and Teche, Andre, 3,811,863.
Perroud, Paul: *See*—
Bertrand, Gerard; Perroud, Paul; and Sylvestre-Baron, Martial, 3,812,026.
Perry, Elmer L. Liquid dispensing device. 3,811,604, Cl. 222-429.000.
Persicke, Gunter, to Christiani and Nielsen Limited. Fluid operated jacks. 3,811,653, Cl. 254-29.00a.
Person, Irving T., to Nelmor Co. Inc. Parts separators. 3,811,568, Cl. 209-99.000.
Personnaz, Leon Felix: *See*—
Soliman, Georges; and Personnaz, Leon Felix, 3,812,460.
Peschl, Ervin; Zmatlik, Josef; Sedlecky, Jaromir; and Kolar, Vladimir, to Statni vyzkumny ustav textilni. Two part knitting needle. 3,811,299, Cl. 66-120.000.
Pestka, John August: *See*—
Lindeman, Richard Jay; and Pestka, John August, 3,811,154.
Peters, Henning, to Uhde, Friedrich, GmbH. Process for performing gas-phase reactions under pressure. 3,812,090, Cl. 260-94.90r.
Petersen, Philip R. Guide means for two for one twisting device. 3,811,259, Cl. 57-58.830.
Petrella, Ronald V.: *See*—
Schmidt, Donald L.; Daniels, Arthur L.; and Petrella, Ronald V., 3,812,244.
Petrik, Albert V. Method and apparatus for cleaning. 3,811,227, Cl. 51-16.000.
Petro-Tex Chemical Corporation: *See*—
Besozzi, Alfio J.; Cooley, Stone D.; and Potts, Fred E., III, 3,812,158.
Petrolite Corporation: *See*—
Jarvis, Howell R.; and Cole, Ernest A., Jr., 3,812,027.
Petrovich, John P.; and Tyssee, Donald A., to Monsanto Company. Conversion of acrolein dimer to cyclopentanone. 3,812,190, Cl. 260-586.00a.
Peyser, Harry A.: *See*—
Frankenberg, Henry E.; and Peyser, Harry A., 3,811,597.
Pfeiffer, Heinrich; Kolb, Karl Heinz; Harwart, Alois; and Schulze, Paul E., to Schering Aktiengesellschaft. β-(2,4,6-Triiodo-3-acetamidinophenyl)-propionic acids. 3,812,151, Cl. 260-326.470.
Pfizer Inc.: *See*—
Cronin, Timothy H.; and Hess, Hans-Jurgen E., 3,812,127.
Philco-Ford Corporation: *See*—
Fassell, Wayne M., 3,811,900.
Flynn, James P., 3,811,293.
Phillipps, Patrick G.: *See*—
Van Horn, Joseph M.; Epstein, Paul; and Phillipps, Patrick G., 3,811,428.
Phillips, Peter: *See*—
Gartner, Klaus W.; and Phillips, Peter, 3,811,618.
Phillips Petroleum Company: *See*—
Clay, Harris A., 3,812,030.
Eddy, William R., 3,811,551.
Morgan, Johnathan D.; and Ramsey, Roy A., 3,812,057.
Nasser, Benny E., Jr., 3,812,058.
Newton, Richard C., 3,811,263.
Phimister, Thomas H.: *See*—
Gordon, Douglas M.; and Phimister, Thomas H., 3,811,365.
Photo-Motion Corporation: *See*—
Eaves, Robert B., 3,811,213.
Piccolo, Luigi; Calcagno, Benedetto; and Ghirga, Marcello, to Societa Italiana Resine S.I.R., S.p.A. Process for the manufacture of titanium dioxide pigments. 3,811,908, Cl. 106-300.000.
Piccolo, Luigi; Ghirga, Marcello; and Calcagno, Benedetto, to Societa Italiana Resine S.I.R. S.p.A. Process for preparing aluminum trichloride. 3,812,241, Cl. 423-495.000.
Pierburg, A., Auto- und Luftfahrt-Geratebau KG: *See*—
Frohberg, Gunther, 3,811,803.
Pierson, Joseph E.: *See*—
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
Pietroni, Piero, to Technofil S.p.A. Drawing-pulley group for a wire-drawing machine for thin metal wires. 3,811,312, Cl. 72-278.000.
Pines, Seemon H.: *See*—
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, 3,812,187.
Pink, Frank A., to Ford Motor Company. Venting of electroform reflex inserts by laser drill. 3,811,647, Cl. 249-160.000.
Pink, Frank A., to Ford Motor Company. Electrical heating bands for a feeding system. 3,812,323, Cl. 219-535.000.
Pintard, Frederick Bruce, to Johns-Manville Corporation. Corner adaptors for expansion joints. 3,811,714, Cl. 285-229.000.
Pipe Specialties, Inc.: *See*—
Dula, Alfred A.; and Wehring, Elwood, 3,811,710.
Piquerez, Ervin, S.A.: *See*—
Piquerez, Pierre Michel, 3,811,401.

Piquerez, Pierre Michel, to Piquerez, Ervin, S.A. Sealed evacuated and pressurized watch cases. 3,811,401, Cl. 116-70.000.

Pissiotas, Georg: *See*—
Martin, Henry; and Pissiotas, Georg, 3,812,260.

Pitney-Bowes, Inc.: *See*—
Lupkas, Raymond R.; and Grimaldi, Dominick L., 3,811,407.
Montillier, Jean-Pierre, 3,811,879.
Tramposch, Herbert, 3,812,328.

Pitzele, Barnett S.: *See*—
Baran, John S.; and Pitzele, Barnett S., 3,812,097.

Pitzler, Mary Ann. Sensorial counting board. 3,811,205, Cl. 35-32.000.

Pizzo, Gustano A. Anti hijacking system for aircraft. 3,811,643, Cl. 244-137.00p.

Plastic Container Corporation: *See*—
Hall, Samuel, Jr., 3,811,590.

Plastic Molders Supply Co., Inc.: *See*—
Bradbury, William B.; and Rothschmitt, Anton J., 3,811,627.

Plastics, Inc.: *See*—
Bateman, Robert F., 3,811,566.
Eckdahl, Thomas H.; and Bateman, Robert F., 3,811,595.
Schilling, Paul K.; and Eckdahl, Thomas H., 3,811,560.

Platt, Richard O., to Dresser Industries, Inc. Weighed charge system for a brick press. 3,811,808, Cl. 425-167.000.

Platter, Sandford: *See*—
Wesson, Richard A.; and Platter, Sandford, 3,811,829.

Plempel, Manfred: *See*—
Meiser, Werner; Buchel, Karl Heinz; and Plempel, Manfred, 3,812,142.

Pneumatiques Caoutchouc Manufacture et Plastiques Kleber-Colombes: *See*—
Ballu, Louis, 3,811,285.

Podlas, Thomas J., to Hercules Incorporated. Control of polymer degradation rate. 3,811,902, Cl. 106-169.000.

Pohl, Dieter, to Siemens Aktiengesellschaft. Electrical insulator having additional protective insulating portion. 3,812,284, Cl. 174-188.000.

Polaroid Corporation: *See*—
Bader, Henry; and Chiang, Yunn H., 3,812,115.
Bader, Henry; Feingold, Michael; and Jahngen, Edwin G., Jr., 3,812,191.
Cook, Gerald H., 3,812,515.
Simon, Myron S., 3,811,881.

Polk, Edgwin R., to SKF Kugellagerfabriken GmbH. Three-dimensional composite tiles for use as wall coverings. 3,811,996, Cl. 161-44.000.

Polymer Corporation Limited: *See*—
Clark, Roy; and Westfield, Donald, 3,811,922.

Polysar Limited-Polysar Limitee: *See*—
Smith, Albert Ernest; and Ingram, James Charles, 3,812,224.

Ponghis, Nicholas Gerassimo; and Poos, Arthur Gerard, to Centre National de Recherches Metallurgiques. Process for the reduction of iron ores. 3,811,869, Cl. 75-42.000.

Pont, Dominique; Lafont, Andre; and Voisin, Alain, to Societe d'Etudes et de Developpement des Aeroglisseurs Marins Terrestres et Amphibies S.E.D.A.M. Air-cushion vehicles. 3,811,527, Cl. 180-121.000.

Poos, Arthur Gerard: *See*—
Ponghis, Nicholas Gerassimo; and Poos, Arthur Gerard, 3,811,869.

Pormale, Milda Yanovna: *See*—
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.

Porrmann, Herbert: *See*—
Hammer, Klaus-Dieter; Porrmann, Herbert; and Klenk, Ludwig, 3,811,923.

Porter, David Charles, to Integrated Photomatrix Limited. Pulse charge to voltage converter. 3,812,386, Cl. 307-261.000.

Porter, John A. Low pressure paint spray apparatus for conveyor carried articles. 3,811,409, Cl. 188-314.000.

Possati, Mario. Measurement instrument with device for indicating the limits of tolerance. 3,811,404, Cl. 116-129.00r.

Postma, Lambertus: *See*—
Jannssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendirk; Postma, Lambertus; and Vondeling, Jacob Klass, 3,811,893.

Potts, Fred E., III: *See*—
Besozzi, Alfio J.; Cooley, Stone D.; and Potts, Fred E., III, 3,812,158.

Potts, Larry D.: *See*—
Boston, Ray W., Jr.; and Potts, Larry D., 3,811,370.

Poupitch, Ougljesa Jules, to Illinois Tool Works, Inc. Container carrier. 3,811,561, Cl. 206-161.000.

Povilaitus, Frank R.: *See*—
Andersen, Poul H.; Povilaitus, Frank R.; and Himes, Robert S., 3,812,312.

Powell, John Dillard, to Continental Homes, Incorporated. Prefabricated multi-story structure. 3,811,235, Cl. 52-69.000.

Powelson, Lilliam E.: *See*—
Moore, Romayne T.; and Powelson, Lilliam E., 3,811,197.

PPG Industries Inc.: *See*—
Ernsberger, Fred M.; and Nier, Thomas J., 3,811,858.
Ernsberger, Fred M., 3,811,859.
McConnell, William C., 3,812,254.

Nier, Thomas J., 3,811,860.
Stack, Roy E., 3,812,086.
Swaney, Larry R., 3,812,239.

Prag, Rudolf; and Dierker, Joachim, to Siemens Aktiengesellschaft. Process and apparatus for visualizing gamma ray images. 3,812,361, Cl. 250-370.000.

Prather, Alfred G. B. Collapsible propeller for man-powered glider aircraft. 3,811,642, Cl. 244-16.000.

Prave, Paul: *See*—
Buschmann, Lothar; Prave, Paul; and Sukatsch, Dieter, 3,812,012.

Precision Metalsmiths, Inc.: *See*—
Daskivich, Michael, 3,811,903.

Precision Processes (Textiles) Limited: *See*—
Gallup, Raymond Charles; and Riley, Richard Edward, 3,811,835.

Preisig, Rolafid, to Bobst, J., & Fils, S.A. Apparatus for handling a flow of boxes. 3,811,549, Cl. 198-21.000.

Press, Irving D.; Rink, Helm A.; and Menzel, John K., to Resistoflex Corporation. Constrictable tube valve with plural wall. 3,811,649, Cl. 251-8.000.

Preusser, Joe R. Vehicle brake. 3,811,535, Cl. 188-29.000.

Previte, Robert W.; and Chin, David, to Grace, W. R., & Co. Method of adding small amounts of solid particulate admixtures to hydraulic cement compositions. 3,812,076, Cl. 260-37.0al.

Price, Paul B.: *See*—
Fleischer, Robert L.; and Price, Paul B., 3,811,999.

Priebe, Frank D., to Cities Service Oil Company. Well drilling method. 3,811,509, Cl. 166-293.000.

Primary Childrens Hospital: *See*—
Clark, Justin S., 3,812,482.

Pritchard, J. F., and Company: *See*—
Landrum, Leslie H.; and Huppe, Robert L., 3,812,243.

Procter & Gamble Company, The: *See*—
Connor, Daniel S.; and Krummel, Harry Karl, 3,812,044.

Procter, James C. Humidifying apparatus. 3,811,661, Cl. 261-26.000.

Prost, Roger, to Lucien International. Determination of ornithine-carbamyl-transferase. 3,812,015, Cl. 195-103.50r.

Protective Plastics Limited: *See*—
Fiddes, Derek Edward, 3,811,236.

Prudnikov, Evgeny Leonidovich: *See*—
Frenkel, Shiman Tevelievich; Skripko, Gely Fomich; Golub, Georg Froimovich; Prudnikov, Evgeny Leonidovich; and Ganelin, Naum Borisovich, 3,811,520.

Pryor, Michael J.: *See*—
Caule, Elmer J.; Sperry, Philip R.; Pryor, Michael J.; and Ford, James A., 3,811,874.

Pullman Incorporated: *See*—
Vornberger, George F., 3,811,729.

Pulskamp, Gerald Steven, to Crown Controls Corporation. Multi-function controller. 3,811,336, Cl. 74-471.0xy.

Purchase, F. Jack, to Antolelic Industries, Ltd. Display having a photoconductor gas discharge control. 3,812,486, Cl. 340-324.00m.

Purnell, Herbert L. Portable collapsible darkroom. 3,811,767, Cl. 355-27.000.

Putterman, Harry: *See*—
Witteles, Abraham A.; and Putterman, Harry, 3,812,479.

Quednau, Peter: *See*—
Katsimbas, Themistoklis; Dalibor, Horst; and Quednau, Peter, 3,812,067.

Quillevere, Herve Alain: *See*—
Caruel, Jacques Emile Jules; Quillevere, Herve Alain; Castellant, Jean-Pierre Jules Emile; and Lacroix, Armand Jean-Baptiste, 3,811,276.

Radin, Bernard G., to Ford Motor Company. Overtemperature protection system for exhaust gas conversion device. 3,812,401, Cl. 317-40.00r.

Radscheit, Kurt: *See*—
Stache, Ulrich; Radscheit, Kurt; Firtsch, Werner; and Haede, Werner, 3,812,106.

Rahn Paul, to Meyer, Roth & Pastor Machinenfabrik GmbH. Apparatus for forming chain-links. 3,811,268, Cl. 59-27.000.

Raimo, Anthony J.: *See*—
Gugliotta, George; and Raimo, Anthony J., 3,812,349.

Rakovsky, Vladimir Mikhailovich: *See*—
Zabolotsky, Grigory Mikhailovich; Rakovsky, Vladimir Mikhailovich; Shuster, Sergei Alexandrovich; and Boldyrev, Mikhail Vsevolodovich, 3,811,166.

Rakowsky, Edward L.: *See*—
Marchese, Vincent P.; and Rakowsky, Edward L., 3,811,359.

Ralston, Robert E.; and Ko, Yung Ling, to Mallory, P. R., & Co., Inc. High discharge rate mercury cell. 3,811,955, Cl. 136-107.000.

Ramaswamy, Vellayan, to Bell Telephone Laboratories, Incorporated. Method of making epitaxial film optical devices. 3,811,912, Cl. 117-33.300.

Ramsey, Robert E.: *See*—
Wagers, William D., Jr.; Vandenberg, Willard J.; Bollman, Robert L.; Ramsey, Robert E.; Swisher, Daniel G.; and Taylor, John E., Jr., 3,811,552.

Ramsey, Roy A.: *See*—
Morgan, Johnathan D.; and Ramsey, Roy A., 3,812,057.

Ramuz, Henri: *See*—
Edenhofer, Albrecht; Ramuz, Henri; and Spiegelberg, Hans, 3,812,129.

Ranatza, Samuel; and Linn, John C. Derailment actuated air brake control for trains. 3,812,344, Cl. 246-171.000.

Randell, Donald Richard; Miles, Peter; and Virgin, Allan Geoffrey, to Ciba-Geigy AG. Preparation of 3,3',5,5'-tetra-isopropyl-4,4'-hydroxydiphenyl. 3,812,193, Cl. 260-620.000.

Randell, Forrest Thomson, to Weir Pumps Limited. Rotodynamic fluid machines. 3,811,789, Cl. 415-1.000.

Ransomes Sims & Jefferies Limited: *See*—
Aldred, Edward John, 3,811,524.

Rapp, Willard Emanuel, to Western Electric Company, Incorporated. Tube radius measuring method and device. 3,811,193, Cl. 33-178.00r.

Rau, Gerald A.: *See*—
Sauey, Lawrence K.; Mason, Leroy W.; and Rau, Gerald A., 3,811,216.

Rauch, Francis Clyde; and Arzoumanidis, Gregory Gerasimos, to American Cyanamid Company. Catalytic production of aniline and other amines from carboxylic acids and ammonia. 3,812,137, Cl. 260-296.00r.

Rauterkus, Karl Josef: *See*—
Kuhlkamp, Alfred; Rauterkus, Karl Josef; Schaefer, Horst; and Seip, Detlev, 3,812,072.

RCA Corporation: *See*—
Avins, Jack, 3,812,289.
Carlson, David Emil; Hang, Warren Kenneth; and Stockdale, George Fairbank, 3,811,855.
Flory, Robert Earl, 3,812,528.
Grae, Bernard Aron; and Andrew, Dallas Roy, 3,812,537.
Hawrylo, Frank Zygmunt; and Pankove, Jacques Isaac, 3,811,963.
Marsh, James Courtland, Jr., 3,812,397.
Marx, Richard Everet, 3,812,437.
Morrell, Albert Maxwell; and Van Hekken, Frans, 3,811,754.
Scheinberg, Norman Richard, 3,812,383.
Skorup, Gordon Edward, 3,812,384.
Smith, Bradford Knox, 3,811,926.

Reactor Centrum Nederland: *See*—
Noothout, Arend Jaman; Kanij, Johannes Bastiaan Willem; and Votocek, Otakar, 3,812,049.

Reading, George R.: *See*—
Moorehead, Harvey Robert; and Reading, George R., 3,811,440.

Readx Inc.: *See*—
Christensen, Wynn L., 3,811,192.

Ream, Donald E., Jr.; and Brown, Gregory A., to United States of America, Navy. Azimuth readout system. 3,811,648, Cl. 7-9-73.

Recordati SA Chemical and Pharceutical Company: *See*—
Bonola, Giuseppe; and Sianesi, Enrico, 3,812,156.

Redemske, Richard K. Plastic modular furniture. 3,811,728, Cl. 297-440.000.

Reed, Robert G.: *See*—
Benson, Robert W.; Chapman, James Ronald; Reed, Robert G.; and Smith, Hoyt L., 3,811,669.

Reel Vortex, Inc.: *See*—
Ferguson, Hugo S., 3,811,255.

Rees, Alfred, to Lucas, Joseph, (Electrical) Limited. Terminal connector assembly for automotive distributor contact breaker. 3,812,305, Cl. 200-284.000.

Regelson, William, to Hercules Incorporated. Anti-herpes virus treatment. 3,812,248, Cl. 424-78.000.

Regie Nationale des Usines Renault: *See*—
Castarede, Armand, 3,811,333.

Reichel, Kurt: *See*—
Gospodar, Reinhard; Reichel, Kurt; Vogelsang, Gustav; and Thauer, Peter, 3,811,416.

Reichhold-Albert-Chemie Aktiengesellschaft: *See*—
Katsimbas, Themistoklis; Dalibor, Horst; and Quednau, Peter, 3,812,067.

Reighard, Alan B.: *See*—
Baker, Robert G.; and Reighard, Alan B., 3,811,405.

Reighard, Alan B.; and Tamny, Simon Z., to Nordson Corporation. Modular solenoid-operated dispenser. 3,811,601, Cl. 222-146.0he.

Reinberg, Ipatiya Marcewna: *See*—
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.

Reinert, Donald G., to ESB Incorporated. Sealant for galvanic batteries and cells. 3,811,956, Cl. 136-133.000.

Reinhardt, Robert M.: *See*—
Cashen, Norton A.; Kullman, Russell M. H.; and Reinhardt, Robert M., 3,811,210.

Reliance Electric Company: *See*—
Wolf, Erich L.; and Flynn, William T., 3,811,522.

Rempala, Chester S., to Dick, A. B., Company. Means for sensing moving web material. 3,812,375, Cl. 250-570.000.

Remper, John A.: *See*—
Russell, Allen S.; Jarrett, Noel; Bruno, Marshall J.; and Remper, John A., 3,811,916.

Renirie, Fredericus Hendricus Ignatius: *See*—
Aten, Albert Christiaan; Van Santen, Gerrit; and Renirie, Fredericus Hendricus Ignatius, 3,812,346.

Rennolds, Philip Jackson, to Du Pont de Nemours, E. I., and Company. Phosphorus-modified ferromagnetic chromium dioxide. 3,811,942, Cl. 117-235.000.

Reno, William H.; and Westinghouse Air Brake Company. Hose connector having means for operating electrical contacts. 3,812,444, Cl. 339-15.000.

Research Corporation: *See*—
Dugan, Mary Ann, 3,812,245.

Resistoflex Corporation: *See*—
Press, Irving D.; Rink, Helm A.; and Menzel, John K., 3,811,649.

Reuter, Floyd W., to Massey-Ferguson Inc. Knife edge grinder for rotary reel type cutter head. 3,811,232, Cl. 51-249.000.

Reuvers, John F.: *See*—
Crosser, David Keith; Mell, Leonard E.; and Reuvers, John F., 3,812,532.

Rexnord Inc.: *See*—
Butzow, Neil William, 3,811,383.

Reynolds Metals Company: *See*—
Craig, H. Lee, Jr.; and Coates, Harold J., 3,812,021.
Hartz, Gerald, 3,812,270.
Rogers, Charles M.; and Schardein, Daniel J., Jr., 3,812,022.
Schardein, Daniel J., Jr.; Rogers, Charles M.; and Craig, H. Lee, Jr., 3,812,023.

Rhone-Poulenc S.A.: *See*—
Giraudon, Raymond, 3,812,173.
Guillaume, Andre; and Schneider, Charles, 3,811,981.

Rhone-Poulenc Textile: *See*—
Ohayon, Gabriel, 3,811,260.

Rice, Leonard M., to Geschickter Fund for Medical Research. Silicon substituted azaspiranes. 3,812,113, Cl. 260-240.00r.

Rich, Barry S., to Ultronic Systems Corporation. Line processing apparatus for a data processing printout system. 3,812,466, Cl. 340-172.500.

Richards, John G., to Wagner Electric Corporation. Alternator rectifier. 3,812,390, Cl. 310-68.00d.

Ricks, Earl C., to United States of America, Army. Rocket hold back and tube closure. 3,811,360, Cl. 89-1.807.

Ricoh Co., Ltd.: *See*—
Ariyama, Kenzo; Muramatsu, Shigeru; and Namiki, Ryoichi, 3,811,821.
Ohta, Wasaburo; Kasuya, Kazuhiko; Fujimoto, Sakae; and Yamauchi, Masayuki, 3,811,828.
Suzuki, Takami; and Matsuhisa, Koh, 3,811,546.

Riedel, Wolfgang, to Bosch, Robert, Photokino GmbH. Cartridge-loaded motion picture projector. 3,811,758, Cl. 352-72.000.

Rieder, Alois: *See*—
Engelsmann, Dieter; Wagensonner, Eduard; Rieder, Alois; and Von Fischern, Bernhard, 3,812,503.

Riemath, William F.: *See*—
Culver, Gordon G.; and Riemath, William F., 3,811,426.

Riggs, Darius O., to Owens-Illinois, Inc. Phase compensated multiple moving head inspection apparatus. 3,811,553, Cl. 198-33.0ab.

Rightmire, Robert A.: *See*—
Metcalfe, Joseph E., III; Rightmire, Robert A.; and Marse, Allan V., 3,811,947.

Riley, Richard Edward: *See*—
Gallup, Raymond Charles; and Riley, Richard Edward, 3,811,835.

Ringley, Michael B., to Westvaco Corporation. Method of high yield semichemical pulp production. 3,811,995, Cl. 162-19.000.

Rink, Helm A.: *See*—
Press, Irving D.; Rink, Helm A.; and Menzel, John K., 3,811,649.

Rittner, Siegbert: *See*—
Kleiner, Hans-Jerg; and Rittner, Siegbert, 3,812,222.

Rizzo, Russell S. Clam opener. 3,811,153, Cl. 17-76.000.

Roberts, Dolly A. Animal water-closet. 3,811,410, Cl. 119-1.000.

Robertson, Alastair Agnew: *See*—
Grew, Edward Leon; and Robertson, Alastair Agnew, 3,812,132.

Robertson, Arthur B.: *See*—
Stone, Herman; Robertson, Arthur B.; and Tetenbaum, Marvin T., 3,812,066.

Robertson, Donald E.: *See*—
Wehrmeister, Herbert L.; and Robertson, Donald E., 3,812,155.

Robertson, Glynn C. Protective guard for the ingition switch of a motor vehicle. 3,811,303, Cl. 70-237.000.

Robin, Michael; and Schulte, Sheldon R., to Ashland Oil, Inc. Phosphate esters of hindered phenols. 3,812,220, Cl. 260-953.000.

Robinson, Murry Clinton, to Spring Chemicals Limited. Process for treating magnesium-base waste sulfite liquor. 3,812,235, Cl. 423-158.000.

Robinson, Thomas K., Jr., to Xerox Corporation. Developing apparatus. 3,811,766, Cl. 355-3.000.

Robinson, William P.: *See*—
Trbovich, Nicholas D.; Robinson, William P.; and Trunzo, Eugene R., 3,811,674.

Rocher, Michel L. E.: *See*—
Mc Burnie, Stuart G.; Jorgensen, William A. W.; and Rocher, Michel L. E., 3,811,719.

Rockwell International Corporation: *See*—
Cowell, Thomas E., 3,811,320.
Johnson, James D.; and Maytum, Alan T., 3,812,391.
Morse, Charles P., 3,811,358.
Schwarz, Robert, 3,811,473.
Treuthart, Robert L., 3,811,748.

Rockwell International Corporation, mesne: *See*—
Cummings, Alan F.; and Freeman, Gene G., 3,811,633.

Roderhoff, Bernhard, to Henkel & Cie GmbH. Process for mixed solvent priming and cementing of pressure pipes of polyvinyl chloride. 3,811,980, Cl. 156-308.000.

Rodgers, Aubrey; and Widner, Rayburn K., to United States of America, Army. Pulse duration modulation pickoff. 3,811,328, Cl. 74-5.60b.

Rogers, Charles M.: *See—*
Schardein, Daniel J., Jr.; Rogers, Charles M.; and Craig, H. Lee, Jr., 3,812,023.

Rogers, Charles M.; and Schardein, Daniel J., Jr., to Reynolds Metals Company. Pigmented siliceous coatings for aluminous metals. 3,812,022, Cl. 204-58.000.

Rogers, Joe C.; and Woolley, Brown J. Well pumping method and apparatus. 3,811,510, Cl. 166-302.000.

Rogers, John L. Apparatus for installing inserts in doors. 3,811,666, Cl. 269-9.000.

Rohm & Haas Company: *See—*
Barrett, James H., 3,812,061.
Clovis, James S.; and Sullivan, Francis R., 3,812,219.
Dunkelberger, David L., 3,812,205.
Kelley, Louis E., 3,812,070.

Rohm GmbH: *See—*
Esser, Franz; Hanstein, Friedrich; Hosch, Ludwig; and Mueller, Dieter, 3,812,208.

Roller-Werke Franke & Heidecke: *See—*
Mielke, Bodo, 3,812,501.

Romanowski, Edward A.: *See—*
Creutz, Hans-Gerhard; Romanowski, Edward A.; and Symons, Philip C., 3,811,946.

Romine, Hugh E., to Continental Oil Company. Preparation of synthetic hydrocarbon lubrication. 3,812,036, Cl. 252-59.000.

Ronson Societe Anonyme: *See—*
Toiseux, Pierre, 3,811,819.

Rosales, Joseph G., to Ackley, Donald M. Redundant bearing. 3,811,742, Cl. 308-183.000.

Rosenbaum, Georges: *See—*
Vanlerberghe, Guy; and Rosenbaum, Georges, 3,812,246.

Rosenfield, Richard Gordon: *See—*
Bauer, Robert; Rosenfield, Richard Gordon; and Rupe, Chauncey Orvis, 3,811,840.

Ross, Albert L.: *See—*
Mare, Peter D.; and Ross, Albert L., 3,811,986.

Ross, James A., Jr.: *See—*
Murtha, John C.; and Ross, James A., Jr., 3,812,470.

Rotary Profile Anstalt: *See—*
Marcovitch, Jacob, 3,811,308.

Roth, Larry L.; and Liston, Joseph. Rotary engine with interengaging rotating members and reversing valve. 3,811,804, Cl. 418-32.000.

Rother, Lucille S.: *See—*
Rother, William L., 3,811,389.

Rother, William L.; deceased (by Rother, Lucille S.; administrator). Grain drill. 3,811,389, Cl. 111-91.000.

Rothschmitt, Anton J.: *See—*
Bradbury, William B.; and Rothschmitt, Anton J., 3,811,627.

Rougeot, Henri, to Thomson-CSF. Solid state sequential switching device. 3,812,369, Cl. 250-553.000.

Rousseau, Hubert Cecyl Albert; and Brette, Yves-Jean Francois, to Societe Industrielle Honeywell Bull (Societe Anonyme). Ventilation device for magnet disk unit. 3,812,534, Cl. 360-98.000.

Roussel-UCLAF: *See—*
Bertin, Daniel; Perronnet, Jacques; and Teche, Andre, 3,811,863.

Rowland Development Corporation: *See—*
Rowland, William P., 3,811,983.

Rowland, William P., to Rowland Development Corporation. Method for producing retroreflective sheeting. 3,811,983, Cl. 156-245.000.

Rube, Helmut; and Krumbein, Fritz, to Bosch, Robert, Photokino GmbH. Operating mechanism for motion picture projectors. 3,811,760, Cl. 352-157.000.

Rubis, Casimer Joseph: *See—*
Johnson, Roy D.; and Rubis, Casimer Joseph, 3,812,411.

Rud, Svetlana Ivanovna: *See—*
Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich; Kozlovsky, Viktor Stepanovich; Oblasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich; and Rud, Svetlana Ivanovna, 3,811,852.

Rudmann, Jerald J.: *See—*
Squillace, Anthony S.; Martin, Albert E.; and Rudmann, Jerald J., 3,811,974.

Rueckl, Roger L.: *See—*
Chao, Hung-Chi; Judd, Robert R.; Rueckl, Roger L.; and Russell, Charles K., 3,811,878.

Ruegg, Max, to Hess & Cie Metallwarenfabrik. Air outlet for ventilation equipment. 3,811,369, Cl. 98-40.00d.

Rumbold, Bernhard Carl; and Cartwright, John Edward, to Foseco International, Ltd. Heat-insulating antipiping compositions. 3,811,898, Cl. 106-38.028.

Rumpel, Harvey R., to Universal Oil Products Company. Seat belt anchor mechanism for adjustable seat. 3,811,727, Cl. 297-385.000.

Rumpf, Jurg: *See—*
Hoegerle, Karl; Muller, Jean-Claude; Vogel, Christian; and Rumpf, Jurg, 3,812,168.

Rumpold, Karl O.: *See—*
Higatsberger, Michael J.; Rumpold, Karl O.; and Viehbock, Franz P., 3,812,364.

Rupe, Chauncey Orvis: *See—*
Bauer, Robert; Rosenfield, Richard Gordon; and Rupe, Chauncey Orvis, 3,811,840.

Ruschke, Lawrence J., Jr.: *See—*
Wagner, Everett F.; Sidlo, Joseph J.; and Ruschke, Lawrence J., Jr., 3,812,307.

Rusco Industries, Inc.: *See—*
Kramer, David C., 3,811,977.

Russell, Alan F.: *See—*
Moffatt, John G.; and Russell, Alan F., 3,812,098.

Russell, Allen S.; Jarrett, Noel; Bruno, Marshall J.; and Remper, John A., to Aluminum Company of America. Method for carbon impregnation of alumina. 3,811,916, Cl. 117-46.0cb.

Russell, Charles K.: *See—*
Chao, Hung-Chi; Judd, Robert R.; Rueckl, Roger L.; and Russell, Charles K., 3,811,878.

Russell, Richard H.: *See—*
Crawford, James E.; and Russell, Richard H., 3,811,921.

Ruszczyk, James F.; and Secrist, Duane R., to International Business Machines Corporation. Method for molding and air bearing magnetic head with a glass slider body. 3,811,856, Cl. 65-48.000.

Ryan, Arthur Sensor, to Weyer Haeuser Company. Cushioned absorbent pad. 3,812,001, Cl. 161-114.000.

Ryan, William J., Sr.; Schirmer, Edward F.; Thoma, Nandor G.; Tolley, James H.; and Wilder, Donald L., to International Business Machines Corporation. Object handling fixture, system, and process. 3,811,182, Cl. 29-574.000.

Ryu, Dewey D. Y.: *See—*
Lee, Bong Kuk; Ryu, Dewey D. Y.; Miraglia, Gennaro John; Basch, Harold I.; and Mukherjee, Barid B., 3,812,110.

S.A. Texaco Belgium N.V.: *See—*
Dulog, Lothar G.; and Dewaele, Sylvain A. R., 3,812,033.

Sacerdoti, Giancarlo; Catitti, Aldo; and Di Marino, Ciampino, to Comitati Nazionale Per l'Energia Nucleare (CNEN). Self-centering rotary magnetic suspension device. 3,811,740, Cl. 308-10.000.

Safety Vehicles Development AB: *See—*
Forssman, Jan Robert Fleming, 3,811,531.

Sagami Chemical Research Center: *See—*
Saito, Tomoo; Morikawa, Naotake; and Watanabe, Kazuo, 3,811,838.

Saint-Gobain Industries: *See—*
Gimenez, German Artigas, 3,811,861.
Vermeerbergen, Leon Roger; and Flamand, Guy Antoine, 3,811,588.

Saito, Minoru: *See—*
Handa, Takashi; and Saito, Minoru, 3,811,992.

Saito, Takashi; and Kubo, Shuniti, to Canon Kabushiki Kaisha. Method of transferring images produced by liquid development. 3,811,914, Cl. 117-37.0le.

Saito, Tomoo; Morikawa, Naotake; and Watanabe, Kazuo, to Sagami Chemical Research Center. Method and apparatus for measuring radioactivity of organic substance. 3,811,838, Cl. 23-230.0pc.

Sakaguchi, Namoru: *See—*
Katagiri, Keizo; Sakaguchi, Namoru; and Kamata, Tokumaro, 3,812,005.

Sakakibara, Naoji, to Aisin Seiki Kabushiki Kaisha. Vehicle speed limiting device. 3,811,418, Cl. 123-103.00r.

Sakamoto, Michio; and Tanaka, Masao, to Nippon Automation Co., Ltd. Reed switch mechanism making use of heat-sensitive ferrite. 3,812,441, Cl. 335-208.000.

Saladrigas, Jorge S. Game played on stilts with nonround ball. 3,811,677, Cl. 273-118.00r.

Salmon, Robert W.; and Herstein, Barry S., to Buddy L Corporation. Modular toy vehicle. 3,811,218, Cl. 46-17.000.

Salo, Martin: *See—*
Gallagher, John F.; and Salo, Martin, 3,811,924.

Salukvadze, Viktor Samsonovich. Rotary cutting tool. 3,811,161, Cl. 29-81.00h.

Salvucci, Joseph L., Jr.; and Yiannos, Peter N., to Scott Paper Company. Soft, Absorbent, fibrous, sheet material formed by avoiding mechanical compression of the elastomer containing fiber furnish until the sheet is at least 80% dry. 3,812,000, Cl. 162-11.000.

Samcoe Holding Corporation: *See—*
Cecere, Andrew P., 3,811,159.

Samsonov, Ivan Sergeevich: *See—*
Birger, Abram Isaakovich; Fiskin, Alexandr Mikhailovich; Samsonov, Ivan Sergeevich; Savushkin, Anatoly Alexandrovich; Zemtsov, Nikolai Nikolaevich; and Borisevich, Vitaly Arkadievich, 3,811,812.

Samuelson, Carl E.: *See—*
Larnerd, John D.; McGarigle, Donald M.; and Samuelson, Carl E., 3,811,186.

Samura, Hiroyoshi, to Citizen Watch Company Limited. Calendar timepiece. 3,811,266, Cl. 58-58.000.

Sanderson, Gary Warner; and Coggon, Philip, to Lipton, Thomas J., Inc. Green tea conversion using tannase and natural tea enzymes. 3,812,266, Cl. 426-52.000.

Sandoz Ltd.: *See—*
Hofer, Kurt; and Voykowitsch, Anton, 3,812,152.

Sankyo Company Limited: *See—*
Iwai, Issei; Ohki, Eiji; Oida, Sadao; Takagi, Hiromu; and Ohashi, Yoshihiko, 3,812,134.

Sann, Bernhard, to Gewerkschaft Eisenhutte Westfalia. Longwall cutter driven by equally spaced motors. 3,811,731, Cl. 299-34.000.

Sano, Kenji: *See—*

Miyata, Etsutaro; Kamuro, Setsufumi; and Sano, Kenji, 3,812,285.

Santangelo, Joseph G.; and Dorchak, Thomas P., to Kennecott Copper Corporation. Desulfurized char with phosphoric acid. 3,812,017, Cl. 201-17.000.

Sanyo Electric Co., Ltd.: *See—*
Niwa, Shinichi, 3,812,039.

Sargent and Company Division of Walter Kidde & Co.: *See—*
Floyd, Alfred E.; and Erickson, Lars E., 3,811,717.

Sarkes Tarzian, Inc.: *See—*
Tkaccnko, Nikola B., 3,812,286.

Sarnoff, Stanley J., to Survival Technology, Inc. Cartridge syringe. 3,811,441, Cl. 128-218.0da.

Sastri, Aiyaswami S., to Gillette Company, The. Process for producing an improved cutting tool. 3,811,189, Cl. 30-346.530.

Sato, Hironobu: *See—*
Yamanaka, Izumi; Sato, Hironobu; and Takeuchi, Yoshihiro, 3,811,615.

Sato, Hiroshi; Nishio, Daijiro; and Takahashi, Takeshi, to Fuji Photo Film Co., Ltd. Process for the preparation of pyrazolone derivatives. 3,812,145, Cl. 260-310.00a.

Sato, Hisatake; and Hayashi, Hiedo, to Nippon Oil Company, Limited. Synthetic rubber composition. 3,812,216, Cl. 260-887.000.

Sato, Kiyoomi; and Ishidera, Takashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Clutch disc with friction and resilient dampers. 3,811,545, Cl. 192-106.100.

Sato, Shuichi; and Yamaguchi, Tadanori, to Sony Corporation. Continuously variable threshold transistor. 3,812,517, Cl. 357-23.000.

Sato, Takayoshi, to Kabushikikaisha Copal. Exposure control circuit for IIL camera. 3,812,502, Cl. 354-51.000.

Sauey, Lawrence K.; Mason, Leroy W.; and Rau, Gerald A., to Flambeau Products Corporation. Adjustable fishing rod case. 3,811,216, Cl. 43-26.000.

Savushkin, Anatoly Alexandrovich: *See—*
Birger, Abram Isaakovich; Fiskin, Alexandr Mikhailovich; Samsonov, Ivan Sergeevich; Savushkin, Anatoly Alexandrovich; Zemtsov, Nikolai Nikolaevich; and Borisevich, Vitaly Arkadievich, 3,811,812.

Sawyer, John M.: *See—*
Holding, Thomas; Schisler, Robert C.; and Sawyer, John M., 3,811,570.

Sayles, David C., to United States of America, Army. Solid propellant with non-metallic burning rate catalysts. 3,811,964, Cl. 149-19.100.

Sayles, David C., to United States of America, Army. Propellants containing combination burning rate synergist and curing agent of epoxyaliphatic carborane. 3,811,965, Cl. 149-19.200.

Sayles, David C., to United States of America, Army. Polymerization crosslinking agent for polybutadiene propellant prepolymers. 3,811,968, Cl. 149-19.900.

Saylor, William H., Jr., to Bethlehem Steel Corporation. Movable descaler spray header. 3,811,305, Cl. 72-39.000.

Scammon, Lawrence W., Jr.; Grant, Clarence L.; and Wilks, Phillip H., to Humphreys Corporation. Processing of silicate ores and product thereof. 3,811,907, Cl. 106-299.000.

Schaefer, Donald D.: *See—*
Moody, Harold W., Jr.; and Schaefer, Donald D., 3,811,805.

Schaefer, Horst: *See—*
Kuhlkamp, Alfred; Rauterkus, Karl Josef; Schaefer, Horst; and Seip, Detlev, 3,812,072.

Schaefer, John W. Fluid control device. 3,811,470, Cl. 137-540.000.

Schaefer, Louis F.: *See—*
Macovski, Albert; and Schaefer, Louis F., 3,812,527.

Schafer, Heinrich; and Nieder-Vahrenholz, Hans Georg, to Bayer Aktiengesellschaft. Process for the production of alkali-chromate. 3,812,234, Cl. 423-61.000.

Schankler, Martin M. Prefabricated swimming pool construction. 3,811,137, Cl. 4-172.190.

Schardein, Daniel J., Jr.: *See—*
Rogers, Charles M.; and Schardein, Daniel J., Jr., 3,812,022.

Schardein, Daniel J., Jr.; Rogers, Charles M.; and Craig, H. Lee, Jr., to Reynolds Metals Company. Anodic production of pigmented siliceous coatings for aluminous metals. 3,812,023, Cl. 204-58.000.

Schatt Industries, Inc.: *See—*
Tucker, Raymond Z.; and Benson, Jack O., 3,811,706.

Schaub, Gerhard; and Schramm, Karl, to Gebr. Buhler Nachfolger GmbH. Circuit for regulating the speed of a direct current motor. 3,812,410, Cl. 318-328.000.

Scheier, Donald J.; and Bonuchi, James A., to Johnson, Gordon, Company. Divider mechanism for article conveyors. 3,811,555, Cl. 198-177.000.

Scheinberg, Norman Richard, to RCA Corporation. High speed signal following circuit. 3,812,383, Cl. 307-228.000.

Schempp, Eberhard G.; and Pearce, Jai K., to Pennsylvania Engineering Corporation. Steel production method and apparatus. 3,812,275, Cl. 13-10.000.

Schenck, Carl, Maschinenfabrik GmbH: *See—*
Hack, Heinrich, 3,811,327.

Schenk, Peter, to Dzus Fastener Co., Inc. Tamper-proof fastener. 3,811,157, Cl. 24-221.00r.

Schering Aktiengesellschaft: *See—*
Berndt, Hans-Detlef; Steinbeck, Hermann; and Wiechert, Rudolf, 3,812,165.
Pfeiffer, Heinrich; Kolb, Karl Heinz; Harwart, Alois; and Schulze, Paul E., 3,812,151.
Wiechert, Rudolf; and Steinbeck, Hermann, 3,812,166.

Schering Corporation: *See—*
Morrison, David J., 3,811,483.

Scherpenborg, Arnold H. Horse fly collar. 3,811,413, Cl. 119-106.000.

Schexnayder, Lawrence F., to Caterpillar Tractor Co. Hydraulic control circuit for a reversible hydraulic motor. 3,811,282, Cl. 60-421.000.

Schibbye, Laurtiz Benedictus, to Svenska Rotor Maskiner Aktiebolag. Method of operating a refrigeration plant and a plant for performing the method. 3,811,291, Cl. 62-84.000.

Schick Incorporated: *See—*
Brenneman, J. Edward; and Waters, Robert S., 3,811,188.

Schild, A., S.A.: *See—*
Zaugg, Roland; and Fluck, Josef, 3,811,267.

Schilling, Paul K.; and Eckdahl, Thomas H., to Plastics, Inc. Closable dinner service. 3,811,560, Cl. 206-4.000.

Schindler, Walter: *See—*
Zust, Armin; and Schindler, Walter, 3,812,126.

Schirmer, Edward F.: *See—*
Ryan, William J., Sr.; Schirmer, Edward F.; Thoma, Nandor G.; Tolley, James H.; and Wilder, Donald L., 3,811,182.

Schisler, Robert C.: *See—*
Holding, Thomas; Schisler, Robert C.; and Sawyer, John M., 3,811,570.

Schlicht, Raymond C.: *See—*
McCoy, Frederic C.; and Schlicht, Raymond C., 3,812,031.

Schliebs, Reinhard: *See—*
Braden, Rudolf; Hendricks, Udo; Oertel, Gunter; and Schliebs, Reinhard, 3,812,221.

Schlomer, Josef; and Hof, Georg, to Wurttembergische Metallwerke. Method for manufacturing porous metal fiber felts. 3,811,976, Cl. 156-62.800.

Schlumberger, N., & Cie: *See—*
Herubel, Jean Frederic, 3,811,152.

Schlumberger Technology Corporation: *See—*
Crawford, Gerald J. B., 3,811,529.
Urbanosky, Harold J., 3,811,321.

Schmid & Wezel: *See—*
Wezel, Hans; and Zeller, Manfred, 3,811,513.

Schmidt, Charles J.: *See—*
Cyrway, Edward N., Jr.; and Schmidt, Charles J., 3,812,276.

Schmidt, Donald L.; Daniels, Arthur L.; and Petrella, Ronald V., to Dow Chemical Company, The. Preparation of aluminum hydride. 3,812,244, Cl. 423-645.000.

Schmidt, Ernst Georg Ferdinand Heinrich, to Jacobs, Joh., & Company. Method for the mechanical preparation of individual cups of filtered coffee. 3,812,273, Cl. 426-433.000.

Schmidt, Helmut: *See—*
Schmidt, Helmut, 3,811,459.

Schmidt, Helmut, to Schmidt, Helmut and Fietz, Erwin. Pressure indicating valve. 3,811,459, Cl. 137-227.000.

Schmidt, Joseph J., to Chesapeake and Ohio Railway Company, The and Baltimore and Ohio Railroad Company, The. Means for reading and interpreting color-coded identification labels. 3,812,325, Cl. 235-61.11e.

Schmidt, William G.; Gabbard, Ova G.; Husted, John M.; Maillet, Wilfrid G.; and Haeberle, Heinz H., to Communications Satellite Corporation. TDMA satellite communications system with improved acquisition. 3,812,430, Cl. 325-4.000.

Schmidtchen, Juergen: *See—*
Glaser, Rudolf; Schmidtchen, Juergen; and Bauer, Peter, 3,812,207.

Schmitt, Ernst: *See—*
Boehmke, Gunther; and Schmitt, Ernst, 3,812,107.

Schmitt, Nickolas: *See—*
Barton, Sterling C.; and Schmitt, Nickolas, 3,812,392.

Schneider, Charles: *See—*
Guillaume, Andre; and Schneider, Charles, 3,811,981.

Schneider, Fredric H. Apparatus for simultaneously fabricating plurality of wall frames. 3,811,167, Cl. 29-200.00p.

Schneiderman, Daniel I.: *See—*
Bowman, Lloyd D.; Karhade, Manohar G.; and Schneiderman, Daniel I., 3,812,330.

Schoenholz, Daniel: *See—*
Corey, Harold; Bakal, Abraham; Konigsbacher, Kurt; and Schoenholz, Daniel, 3,812,268.

Schoer, Heinz; and Schultze, Werner, to Vereinigte Aluminium-Werke Aktiengesellschaft. Process for brazing workpieces of aluminium containing material. 3,811,177, Cl. 29-494.000.

Schoerner, Roger J.; and Chia, Enrique C., to Southwire Company. Aluminum alloy electrical conductor. 3,811,846, Cl. 29-193.000.

Schorr, Manfred; Durchkeimer, Walter; Behrendt, Lothar; and Duwel, Dieter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Phenylene-bis-dithiocarbamic acid esters. 3,812,131, Cl. 260-283.00s.

Schortmann, Walter E.; and Derose, Michael A., to Texon Inc. Replacement for leather and method for making same. 3,812,006, Cl. 162-146.000.

Schramm, Karl: *See—*
Schaub, Gerhard; and Schramm, Karl, 3,812,410.

Schreiner, Horst: *See—*
Hassler, Heinrich; and Schreiner, Horst, 3,811,939.

Schroeder, Charles E., to Coilcraft, Inc. Stapled coil construction. 3,812,443, Cl. 336-192.000.

Schuler, Ralph J.: *See—*
Weichhand, Robert J.; Schuler, Ralph J.; and Dieter, Julian A., 3,811,330.

Schulte, Sheldon R.: *See—*
Robin, Michael; and Schulte, Sheldon R., 3,812,220.
Schultze, Lawrence E.: *See—*
Bauer, Donald J.; Lindstrom, Roald W.; and Schultze, Lawrence E., 3,812,232.
Schultze, Werner: *See—*
Schoer, Heinz; and Schultze, Werner, 3,811,177.
Schulz, Jay R., to Dow Corning Corporation. Silicone elastomers with paintable surface. 3,812,164, Cl. 260-375.00b.
Schulze, Paul E.: *See—*
Pfeiffer, Heinrich; Kolb, Karl Heinz; Harwart, Alois; and Schulze, Paul E., 3,812,151.
Schut, Hendrik P., to Boeing Company, The. Electromagnetic high energy impact apparatus. 3,811,313, Cl. 72-430.000.
Schwarz, Karl, to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft. Storage tank installation. 3,811,598, Cl. 220-88.00r.
Schwarz, Robert, to Rockwell International Corporation. Fluidic pressure regulator. 3,811,473, Cl. 137-810.000.
Schwemmer, Martin; Bors, Hans; and Goetz, Albert, to Triatex International AG. fur Textile Forschung Entwicklung. Method and apparatus for finishing cellulose-containing textile materials and textile materials thus produced. 3,811,834, Cl. 8-116.00r.
Schwieter, Ulrich: *See—*
Chodnekar, Madhukar S.; Thommen, Hans; and Schwieter, Ulrich, 3,812,262.
Scope Incorporated: *See—*
Brodes, Donald L.; and Hitchcock, Myron H., 3,812,291.
Scott, Allan W., to Varian Associates. Dual mode TWT for low power CW and high power pulsed operation. 3,812,395, Cl. 315-3.600.
Scott, John A.: *See—*
Hammond, Philip D.; and Scott, John A., 3,812,169.
Scott, John J. Process for the recovery of tantalum and niobium and other metals from tin slag. 3,811,867, Cl. 75-24.000.
Scott Paper Company: *See—*
Salvucci, Joseph L., Jr.; and Yiannos, Peter N., 3,812,000.
Scott, William P.: *See—*
Krenowicz, Robert A.; and Scott, William P., 3,812,035.
Scuderi, Rudolph: *See—*
Ostapiak, Roman; and Scuderi, Rudolph, 3,812,435.
Seaberg, David H., to Case, J. I., Company. Hydraulic leveling circuit for implement. 3,811,587, Cl. 214-763.000.
Seaco Computer-Display Incorporated: *See—*
Heldenbrand, Stanley W.; Johnson, David L.; and Mote, Neil H., 3,811,769.
Searle, G. D., & Co.: *See—*
Baran, John S.; and Pitzele, Barnett S., 3,812,097.
Sebek, Oldrich K.: *See—*
Argoudelis, Alexander D.; Coats, John H.; and Sebek, Oldrich K., 3,812,096.
Secord, Dean Brian: *See—*
Dittrich, Robert George; Secord, Dean Brian; and Thelemaque, Louis Emanuel, 3,812,298.
Secrist, Duane R.: *See—*
Ruszczyk, James F.; and Secrist, Duane R., 3,811,856.
Sedgewick, Richard Duane. Process of winding cores. 3,811,629, Cl. 242-4.00a.
Sedlecky, Jaromir: *See—*
Peschl, Ervin; Zmatlik, Josef; Sedlecky, Jaromir; and Kolar, Vladimir, 3,811,299.
Seelig, Frederick A., to Bendix Corporation, The. Flexural pivot with diaphragm means. 3,811,665, Cl. 267-160.000.
Seely, Robert W.; and Batson, William A., to Singer, Company, The. Collet for a power tool. 3,811,361, Cl. 90-12.00d.
Segonzac, Jean-Michel; and Lucas, Jean-Marie, to La Calhene and Piercan S.A. Cuff for a glove, bag or the like, for manipulation inside sealed enclosures. 3,811,132, Cl. 2-270.000.
Seid, Bernard: *See—*
Barrett, Hillard E.; Clark, Donald B.; and Seid, Bernard, 3,811,713.
Seip, Detlev: *See—*
Kuhlkamp, Alfred; Rauterkus, Karl Josef; Schaefer, Horst; and Seip, Detlev, 3,812,072.
Seismograph Service Corporation: *See—*
Crossland, Edward J.; Blossom, James H.; and Krasin, Lester Q., 3,812,462.
Sekihara, Takeshi: *See—*
Ito, Ikoh; Sekihara, Takeshi; Emura, Tomoyuki; and Ueda, Takeshi, 3,812,073.
Semersky, Frank E., to Owens-Illinois, Inc. Stereospecific process for the preparation of L-3,4-dihydroxy-phenylalanine (L-dopa) and analogs thereof. 3,812,009, Cl. 195-29.000.
Semi, Inc., mesne: *See—*
Wesson, Richard A.; and Platter, Sandford, 3,811,829.
Semple, Charles A., to Engineering Concrete Placer, Inc. Slurry pump cleanout mechanism. 3,811,802, Cl. 417-454.000.
Sensinger, Warner E., Jr.: *See—*
Buse, Frederick W.; and Sensinger, Warner E., Jr., 3,811,801.
Sertich, Anthony T. Air-vibrator dental scaler. 3,811,190, Cl. 32-56.000.
Servo Corporation of America: *See—*
Gallagher, Cornelius A.; and Glazar, Arthur J., 3,812,343.
Servotronics, Inc.: *See—*
Trbovich, Nicholas D.; Robinson, William P.; and Trunzo, Eugene R. (said Robinson and said Trunzo assors to), 3,811,674.
Severini, Febo: *See—*
Natta, Giulio; Beati, Enrico; Severini, Febo; and Toffano, Silvio, 3,812,204.
Shanker, Irvin Paul: *See—*
Johnson, Robert William; and Shanker, Irvin Paul, 3,811,759.
Sharp Kabushiki Kaisha: *See—*
Miyata, Etsutaro; Kamuro, Setsufumi; and Sano, Kenji, 3,812,285.
Sharp, Richard S.: *See—*
Wollum, James E.; Birchmeier, Hans P.; and Sharp, Richard S., 3,812,468.
Shaw, Kenneth W. Stretcher. 3,811,139, Cl. 5-82.000.
Shell Oil Company: *See—*
Skoroszewski, Wladyslaw H., 3,812,228.
Weller, Charles E., 3,812,457.
Westra, Simon, 3,811,142.
Shen, Lawrence Yun Lung: *See—*
Dunkleberger, La Rue Norman; and Shen, Lawrence Yun Lung, 3,811,794.
Shen, Tsung-Ying; and Jones, Howard, to Merck & Co., Inc. Substituted indenyl glucoronide esters. 3,812,109, Cl. 260-240.00r.
Shen, Tsung-Ying; and Jones, Howard, to Merck & Co., Inc. 1-Methyl sulfinylbenzylidene-1,3,4,5-tetrahydro-5-oxo-benz-(c,d)-indene-3-carboxylic acid and esters. 3,812,180, Cl. 260-515.00a.
Shepherd, Robert Gordon: *See—*
Albright, Jay Donald; and Shepherd, Robert Gordon, 3,812,141.
Sheppard, Chester Stephen: *See—*
MacLeay, Ronald Edward; Lange, Harold Carl; and Sheppard, Chester Stephen, 3,812,094.
Sheppard, Chester Stephen; MacLeay, Ronald Edward; and Bafford, Richard Anthony, to Pennwalt Corporation. Compounds having peroxy and aliphatic azo groups and methods using these as initiators. 3,812,095, Cl. 260-192.000.
Sheppard, Gilbert Leslie, to Strachan & Henshaw Limited. Wagon tipplers. 3,811,580, Cl. 214-55.000.
Sherrard-Smith, Kenneth Irwin, to Imperial Chemical Industries, Limited. Calender rolls. 3,811,165, Cl. 29-132.000.
Shibaoka, Haruo; and Matsushita, Sachio, to Fuji Photo Film Co., Ltd. Composition for processing silver halide photographic light-sensitive elements. 3,811,888, Cl. 96-66.00r.
Shields, C. Nelson, Jr.; trustee: *See—*
Bassett, Max, 3,811,289.
Shiina, Naonori: *See—*
Hosoda, Kirokuro; and Shiina, Naonori, 3,812,225.
Shill, Karl. Blood pump. 3,811,800, Cl. 417-317.000.
Shimizu, Munetaka; and Takayama, Masao, to Kabushiki Kaisha Koparu and Electronic shutter for photographic cameras. 3,812,512, Cl. 354-258.000.
Shinetsu Chemical Company: *See—*
Koyanagi, Shiniche; Kitamura, Hajima; and Maruyama, Akiyoshi, 3,812,215.
Shinkawa, Toshiyuki: *See—*
Muraishi, Masakazu; Hamada, Noriaki; Shinkawa, Toshiyuki; and Arai, Tomiji, 3,811,726.
Shionogi & Co., Ltd.: *See—*
Tanaka, Hozumi; Ikawa, Kenji; and Takami, Fumitaka, 3,812,124.
Shirai, Akira: *See—*
Yonezawa, Teruhiko; and Shirai, Akira, 3,811,894.
Shirley, Joseph Floyd; Caropreso, Frank Edward; and Fraser, George Lamar, to FMC Corporation. Flotation recovery of molybdenite. 3,811,569, Cl. 209-167.000.
Shook, Theodore A.: *See—*
Barkan, Philip; Kelley, Fred W., Jr.; and Shook, Theodore A., 3,812,404.
Short, Oliver A.; and Weaver, Richard V., to Du Pont de Nemours, E. I., and Company. Gold powder. 3,811,906, Cl. 106-290.000.
Shufelt, Robert C.: *See—*
Grey, Edward H.; and Shufelt, Robert C., 3,812,200.
Shufflebarger, Earl D.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,811,651.
Shumaker, John F.; and Morehouse, James O., to Case, J. I., Company. Backhoe boom lock. 3,811,582, Cl. 214-138.000.
Shupe, Russell D.: *See—*
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,504.
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,505.
Flournoy, Kenoth H.; and Shupe, Russell D., 3,811,507.
Shurgan, Joel: *See—*
Koo, Ronald C.; and Shurgan, Joel, 3,812,393.
Shuster, Sergei Alexandrovich: *See—*
Zabolotsky, Grigory Mikhailovich; Rakovsky, Vladimir Mikhailovich; Shuster, Sergei Alexandrovich; and Boldyrev, Mikhail Vsevolodovich, 3,811,166.
Shusters, Yanis: *See—*
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.
Sianesi, Enrico: *See—*
Bonola, Giuseppe; and Sianesi, Enrico, 3,812,156.
Sidlo, Joseph J.: *See—*

Wagner, Everett F.; Sidlo, Joseph J.; and Ruschke, Lawrence J., Jr., 3,812,307.
Siegel, Pierre Louis; and Delorme, Raymond Louis, to Societe Honeywell Bull (Societe Anonyme). Device for adjusting the position of flexible strip provided with lateral perforations. 3,811,609, Cl. 226-52.000.
Siemens A.G.: *See—*
Kresse, Heinz, 3,811,427.
Siemens Aktiengesellschaft: *See—*
Deckert, Andreas, 3,812,280.
Diel, Burkhart; Gregor, Kurt; and Huber, Walther, 3,811,187.
Hassler, Heinrich; and Schreiner, Horst, 3,811,939.
Lutz, Roman, 3,812,290.
Pohl, Dieter, 3,812,284.
Prag, Rudolf; and Dierker, Joachim, 3,812,361.
Sigma Systems, Inc.: *See—*
Cunningham, Russell E.; and Light, Gordon S., 3,812,347.
Silverberg, Carl G.: *See—*
Defg, Emil W.; Silverberg, Carl G.; and Martel, Leslie B., 3,811,857.
Silvetti, Anthony N. Method of treating wounds with a medicinal dressing. 3,812,252, Cl. 424-180.000.
Simard, Joseph G. C.: *See—*
Goodnow, Warren H.; Cauvin, Sidney L., Jr.; and Simard, Joseph G. C., 3,812,024.
Simko, David M.: *See—*
Gallagher, Bernard J.; Shufflebarger, Earl D.; Simko, David M.; Nedvich, Richard J.; Boylan, John R.; and Danko, Oliver L., 3,811,651.
Simmons, Clarence C. Frictional exercising apparatus. 3,811,672, Cl. 272-79.00r.
Simon, Myron S., to Polaroid Corporation. Photographic processes and products employing naphthol sulfonamidonaphthalides as optical filter agents. 3,811,881, Cl. 96-3.000.
Simovits, Stephen S., Jr.; and Dumas, Christ J., to American Plasticraft Company. Relay socket. 3,812,450, Cl. 339-128.000.
Sinclair, Richard A., 10% to Cox, James F. Electric lamp or fuse socket. 3,812,446, Cl. 339-41.000.
Singer Comapny, The: *See—*
Bilinski, Donald J.; Galowin, Lawrence S.; and Napolitano, Michael, 3,811,493.
Singer Company, The: *See—*
Marchese, Vincent P.; and Rakowsky, Edward L., 3,811,359.
Seely, Robert W.; and Batson, William A., 3,811,361.
Witteles, Abraham A.; and Putterman, Harry, 3,812,479.
Singer Company, The, mesne: *See—*
Bilinski, Donald J.; and Weisbord, Leon, 3,811,172.
Singhal, Subhash C.: *See—*
Weinstein, Martin; Singhal, Subhash C.; and Ellis, John L., 3,811,961.
Siragusa, George A.: *See—*
Marshall, Albert H.; and Siragusa, George A., 3,811,204.
Sirles, Robert A. Mud clip for a horseshoe. 3,811,512, Cl. 168-34.000.
Sittmann, Brigitte, to Vereinigte Baubeschlag Fabriken Gretsch & Co., GmbH. Ski safety binding element with adjustable release force. 3,811,696, Cl. 280-11.35t.
Siwersson, Olle Lennart; and Tell, Karl Gunnar, to AB St. Powercell, mesne. Method and apparatus for supplying entirely substantially entirely consumable metallic material to a magnetic electrode oxygen or metal air cell. 3,811,952, Cl. 136-86.00a.
Sjostrom, Carl H.: *See—*
Bridges, Thomas F.; Lalangas, Petros; and Sjostrom, Carl H., 3,811,593.
SKF Industrial Trading and Development Company NV: *See—*
Nilsson, Sven Walter, 3,811,784.
SKF Kugellagerfabriken GmbH: *See—*
Polk, Edgwin R., 3,811,996.
Skinner, Charles A., to Baxter Laboratories, Inc. Electric surface type heating element and insulator combination. 3,812,321, Cl. 219-451.000.
Skoroszewski, Wladyslaw H., to Shell Oil Company. Injection molding of foamable thermoplastic polymers using a retractable hot runner. 3,812,228, Cl. 264-54.000.
Skorup, Gordon Edward, to RCA Corporation. set-reset flip-flop. 3,812,384, Cl. 307-238.000.
Skripko, Gely Fomich: *See—*
Frenkel, Shiman Tevelievich; Skripko, Gely Fomich; Golub, Georg Froimovich; Prudnikov, Evgeny Leonidovich; and Ganelin, Naum Borisovich, 3,811,520.
Skutelis, Antons Petrowich: *See—*
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.
Slavik, William H.: *See—*
Ivas, Thomas W.; and Slavik, William H., 3,812,524.
Sletzinger, Meyer: *See—*
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzinger, Meyer, 3,812,187.
Slocum, Chester D., Jr. Electrostatic for deionizing air and other gases. 3,812,399, Cl. 317-2.00f.
Smidth, F. L., & Co.: *See—*
Theil, Sven E., 3,811,824.
Smilg, Benjamin, to Globe Safety Products, Inc. Fluid operated alarm system. 3,811,400, Cl. 116-70.000.
Smith, Albert Ernest; and Ingram, James Charles, to Polysar Limited-Polysar Limitee. Process for the production of porous polymeric materials. 3,812,224, Cl. 264-28.000.
Smith, Basil G., to Smith, Basil, Seals Limited. Machanical seal for rotary shaft. 3,811,688, Cl. 277-39.000.
Smith, Basil, Seals Limited: *See—*
Smith, Basil G., 3,811,688.
Smith, Bradford Knox, to RCA Corporation. Method for coating only the convex major surface of an apertured mask for a cathode-ray tube. 3,811,926, Cl. 117-101.000.
Smith, Drexel Kermit: *See—*
Dempsey, James Joseph; and Smith, Drexel Kermit, 3,811,979.
Smith, Floyd O., to Esco Corporation. Shackle for kiln chain. 3,811,270, Cl. 59-86.000.
Smith, Henry G. Apparatus for measuring a work material for cutting to desired lengths. 3,811,196, Cl. 33-185.00r.
Smith, Hoyt L.: *See—*
Benson, Robert W.; Chapman, James Ronald; Reed, Robert G.; and Smith, Hoyt L., 3,811,669.
Smith, James Lanson: *See—*
Kish, Donald Eugene; and Smith, James Lanson, 3,812,480.
Smith, Kline & French Laboratories: *See—*
Dickinson, Ben W. O., III; Dickinson, Robert W.; and Miller, Cecil R. (said Miller, Cecil R.; assors. to), 3,811,424.
Smith, Macfarlan, Limited: *See—*
Grew, Edward Leon; and Robertson, Alastair Agnew, 3,812,132.
Smith, Samuel. Gun case. 3,811,562, Cl. 206-317.000.
Smithkline Corporation: *See—*
Baile, Clifton A.; McLaughlin, Carol Lynn; and Webb, Robert Lee, 3,812,255.
Snape, Edwin, to International Nickel Company, Inc., The. Corrosion resistant high strength alloy. 3,811,872, Cl. 75-122.000.
Snell, Foster D., Inc.: *See—*
Corey, Harold; Bakal, Abraham; Konigsbacher, Kurt; and Schoenholz, Daniel, 3,812,268.
Snyder, Paul W., Jr., to Mobil Oil Corporation. Device for injecting easily coked fluids into a high temperature vessel. 3,812,029, Cl. 208-113.000.
Soares, Edward W., Jr., to Gulf & Western Precision Engineering Company. Method of forming workpieces by abrading. 3,811,234, Cl. 51-323.000.
Societa Italiana Resine S.I.R., S.p.A.: *See—*
Piccolo, Luigi; Calcagno, Benedetto; and Ghirga, Marcello, 3,811,908.
Piccolo, Luigi; Ghirga, Marcello; and Calcagno, Benedetto, 3,812,241.
Societa Italiana Resine S.p.A.: *See—*
Barilli, Filippo; Cozza, Giorgio; and Bareggi, Vittorio, 3,812,242.
Societe Anonyme D.B.A.: *See—*
Carre, Jean-Jacques, 3,811,738.
Le Marchand, Alain, 3,811,472.
Societe Anonyme dite: L'Oreal: *See—*
Vanlerberghe, Guy; and Rosenbaum, Georges, 3,812,246.
Societe Anonyme pour tour Appareillages Mecaniques: *See—*
Capdevielle, Pierre; and Kermarrec, Francois, 3,811,460.
Societe Anonyme: Compagnie Electro-Mecanique: *See—*
06/21/74; and Sterlini, Jacques, 3,811,663.
Societe Civile Soltex: *See—*
d'Albignac, Jean Marie Louis Jules; and Gamaury, Jean-Francois, 3,811,836.
Societe Civile Textile dite: Socitex: *See—*
Batsch, Guy, 3,811,258.
Societe d'Assistance Technique pour Produits Nestle S.A.: *See—*
Bouldoires, Jean-Pierre, 3,811,199.
Societe d'Etudes de Poly-techniques Sepotec: *See—*
Galy, Georges, 3,812,326.
Societe d'Etudes et de Developpement des Aeroglisseurs Marins Terrestres et Amphibies S.E.D.A.M.: *See—*
Pont, Dominique; Lafont, Andre; and Voisin, Alain, 3,811,527.
Societe Honeywell Bull (Societe Anonyme): *See—*
Siegel, Pierre Louis; and Delorme, Raymond Louis, 3,811,609.
Societe Industrielle Honeywell Bull (Societe Anonyme): *See—*
Rousseau, Hubert Cecyl Albert; and Brette, Yves-Jean Francois, 3,812,534.
Soliman, Georges; and Personnaz, Leon Felix, 3,812,460.
Venker, Hilrich Jan Matthijs, 3,812,495.
Societe Nationale d'Etude & de Construction de Moteurs d'Aviation (snecma): *See—*
Lescop, Pierre; Michel, Pierre; and Vigneau, Joel Olivier, 3,811,919.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Caruel, Jacques Emile Jules; Quillevere, Herve Alain; Castellant, Jean-Pierre Jules Emile; and Lacroix, Armand Jean-Baptiste, 3,811,276.
Soichet, Samuel. Intrauterine device and injection machanism. 3,811,435, Cl. 128-130.000.
Sokol, Vincent G. Disposable dilution system. 3,811,326, Cl. 73-425.40p.
Solartron Electronic Group Limited, The: *See—*
Parmenter, George Shearer, 3,812,439.

Soliman, Georges; and Personnaz, Leon Felix, to Societe Industrielle Honeywell Bull (Societe Anonyme). Read-head for an optical character-recognition system. 3,812,460, Cl. 340-146.3ma.
Sondheimer, Allen J., to United States of America, Navy. Encapsulated torpedo mine weapon system. 3,811,379, Cl. 102-13.000.
Sony Corporation: *See—*
Narahara, Hisaaki, 3,812,523.
Sato, Shuichi; and Yamaguchi, Tadanori, 3,812,517.
Sorensen, Donald E. Lock for sliding doors. 3,811,302, Cl. 70-100.000.
Sosjurko, Vladimir Georgievich: *See—*
Vydrin, Vladimir Nikolaevich; Ageev, Leonid Matveevich; and Sosjurko, Vladimir Georgievich, 3,811,307.
Southwire Company: *See—*
Schoerner, Roger J.; and Chia, Enrique C., 3,811,846.
Ward, George C., 3,811,492.
Southworth, Richard Alvin, to International Business Machines Corporation. Synchronized static mosfet latch. 3,812,388, Cl. 307-291.000.
Sowell, John B., mesne: *See—*
Enderlein, Hans Dieter Friedrich Konrad, 3,811,825.
Enderlein, Hans Dieter Friedrich Konrad, 3,811,826.
Spayd, Richard W.: *See—*
Babbitt, John M.; Spayd, Richard W.; and Irani, Nayyir F., 3,811,897.
Spectrospin AG: *See—*
Tschopp, Werner Heinz, 3,812,418.
Speer, Rolland Orin. Process and apparatus for separation of mineral ore from gangue material. 3,811,623, Cl. 241-1.000.
Speirs, Kenneth K.: *See—*
Weinstein, Martin; Speirs, Kenneth K.; and Baer, Robert B., 3,811,959.
Sperry, Philip R.: *See—*
Caule, Elmer J.; Sperry, Philip R.; Pryor, Michael J.; and Ford, James A., 3,811,874.
Sperry Rand Corporation: *See—*
Cronson, Harry M.; and Mitchell, Peter G., 3,812,423.
Finnin, George R., 3,812,471.
Grey, Donald M.; Butler, Lee D.; Welker, Jerry W.; and Crane, Jack W., 3,811,584.
Lahti, Archie E.; and McBresth, Donald G., 3,812,463.
Spiegelberg, Hans: *See—*
Edenhofer, Albrecht; Ramuz, Henri; and Spiegelberg, Hans, 3,812,129.
Spietschka, Ernst: *See—*
Landler, Josef; and Spietschka, Ernst, 3,812,130.
Spinks, Ralph William, to Girling Limited. Vehicle suspension units. 3,811,664, Cl. 267-66.000.
Sporlan Valve Company: *See—*
Hoffman, John E., 3,811,837.
Sprague Electric Company: *See—*
Maher, Galeb H., 3,811,937.
Sprain, Edward F. Combustion engine apparatus having compossion cylinders and power cylinders. 3,811,271, Cl. 60-39.600.
Spring Chemicals Limited: *See—*
Robinson, Murry Clinton, 3,812,235.
Sprouse, Danny H.; and Sprouse, Muriel K. Game with magnetic extraction of counters. 3,811,681, Cl. 273-139.000.
Sprouse, Muriel K.: *See—*
Sprouse, Danny H.; and Sprouse, Muriel K., 3,811,681.
Square D Company: *See—*
Cook, David Langman, 3,812,440.
Kiessling, Rudolf H., 3,812,453.
Squibb, E. R., & Sons, Inc.: *See—*
Bodanszky, Miklos; Ondetti, Miguel A.; Von Saltza, Malcolm H.; Narayanan, Venkatachlal L.; and Levine, Seymour D., 3,812,092.
Breuer, Hermann, 3,812,100.
Krapcho, John, 3,812,114.
Lee, Bong Kuk; Ryu, Dewey D. Y.; Miraglia, Gennaro John; Basch, Harold I.; and Mukherjee, Barid B., 3,812,110.
Ondetti, Miguel A., 3,812,091.
Squillace, Anthony S.; Martin, Albert E.; and Rudmann, Jerald J., to North American Rockwell Corporation. Silicon nitride-silicon oxide etchant. 3,811,974, Cl. 156-8.000.
Stache, Ulrich; Radscheit, Kurt; Firtsch, Werner; and Haede, Werner, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. 3Beta-hydroxy-5alpha-cardenolides and -bufadienolides and process for their manufacture. 3,812,106, Cl. 260-239.50.
Stack, Roy E., to PPG Industries, Inc. Process for polymerizing vinyl chloride. 3,812,086, Cl. 260-87.100.
Stafford, Lawrence R. Rope grab assembly. 3,811,155, Cl. 24-126.00r.
Stalter, Neil J., to Du Pont de Nemours, E. I., and Company. Stabilized hydrogen peroxide compositions containing ammonium ions, and process for bleaching therewith. 3,811,833, Cl. 8-111.000.
Stamenkovic, Hrista. Means for fatigue proofing a solid rotary shaft. 3,811,295, Cl. 64-1.00v.
Standard Hydraulics Service, Inc.: *See—*
Woods, James F.; and Kerns, Gary Paul, 3,811,571.
Standard Oil Company: *See—*
Wennerberg, Arnold N.; and Frazier, Alvin W., 3,812,028.
Standard Oil Company, The: *See—*
Adams, Harry A.; Kunchal, Kumar; and Callahan, James L., 3,812,236.
Metcalfe, Joseph E., III; Rightmire, Robert A.; and Marse, Allan V., 3,811,947.
Stanley, G. M., & Co., Inc.: *See—*
Goldman, Stanley M., 3,811,521.
Stanley, John H.: *See—*
Taylor, Challen E.; and Stanley, John H., 3,811,659.
Starer, Ira; Montgomery, Carroll Sherman; and O'Bara, Edward John, to American Cyanamid Company. Novel process for preparing 6-halo-3-methylphenols. 3,812,194, Cl. 260-623.00r.
Statni vyzkumny ustav textilni: *See—*
Peschl, Ervin; Zmatlik, Josef; Sedlecky, Jaromir; and Kolar, Vladimir, 3,811,299.
Stauffer Chemical Company: *See—*
Gaughan, Edmund J., 3,812,117.
Teach, Eugene G., 3,812,160.
Stedman, James K., to United Aircraft Corporation. Venturi tube regulator for a fuel cell. 3,811,951, Cl. 136-86.00b.
Stedtnitz, Wolfgang, to Bosch, Robert, GmbH. Non-contacting electrical rotary position and rotation transducer. 3,812,481, Cl. 340-196.000.
Steele, Bernard Robert, to United Kingdom Atomic Energy Authority. Production of porous ceramic nuclear fuel employing dextrin as a volatile pore-former. 3,812,050, Cl. 252-301.10r.
Stefani, Joseph P., to General Electric Company. Be-cu contact for nema outlet. 3,812,445, Cl. 339-32.00r.
Stefek, Oldrich; Triska, Vojtech; and Bednar, Ladislav, to Nova Hut Klementa Gottwalda narodni podnik. Apparatus for turning pipes between rolling passes. 3,811,310, Cl. 72-252.000.
Steinbeck, Hermann: *See—*
Berndt, Hans-Detlef; Steinbeck, Hermann; and Wiechert, Rudolf, 3,812,165.
Wiechert, Rudolf; and Steinbeck, Hermann, 3,812,166.
Stepniczko, Heintich E.: *See—*
Dipietro, Joseph; and Stepniczko, Heintich E., 3,811,839.
Sterlini, Jacques: *See—*
06/21/74; and Sterlini, Jacques, 3,811,663.
Sternbach, Leo Henryk: *See—*
Metlesics, Werner; and Sternbach, Leo Henryk, 3,812,103.
Metlesics, Werner; and Sternbach, Leo Henryk, 3,812,143.
Stewart, Edward F., to International Telephone and Telegraph Corporation. Differential loop current detector. 3,812,303, Cl. 179-175.30r.
Stewart, James R., to GTE Lenkurt Incorporated. Slidable door fastener for weatherproof housing. 3,811,225, Cl. 49-463.000.
Stewart, Merlin D. Musical instrument support. 3,811,357, Cl. 84-327.000.
Stibbs, Donald; Thompson, Raymond; and Young, Oswald William John, to United States Borax & Chemical Corporation. Inhibiting grain-growth in ceramic materials. 3,811,899, Cl. 106-43.000.
Stielau, Robert W.: *See—*
Douglas, Frank C.; Gregory, Thomas K.; and Stielau, Robert W., 3,811,940.
Stock Equipment Company: *See—*
Lasky, Ronald J., 3,812,429.
Stockdale, George Fairbank: *See—*
Carlson, David Emil; Hang, Warren Kenneth; and Stockdale, George Fairbank, 3,811,855.
Stoddard, William H., Jr.: *See—*
Niedrach, Leonard W.; and Stoddard, William H., Jr., 3,811,184.
Stoeberl, Hermut. Boat hull and deck assembly. 3,811,141, Cl. 9-6.000.
Stoff, Werner, to Ge-Na-Geschenke Gebr. Nagel KG. Thermally actuated mobile. 3,811,990, Cl. 161-12.000.
Stolle Corporation, The: *See—*
Close, Frederick J., 3,811,393.
Stone, Albert E., to Honeywell Inc. Ultrasonic strain transducing system. 3,812,345, Cl. 246-249.000.
Stone, Herman; Robertson, Arthur B.; and Tetenbaum, Marvin T., to Allied Chemical Corporation. Smoke suppressants for copolymers of ethylene and chlorotrifluoroethylene. 3,812,066, Cl. 260-23.0xa.
Stone, Wayne B., Jr.; and Beaumont, Alan, to Indexette Tapers, Inc. Transversely banded film for making edge marked magnetic tape. 3,812,538, Cl. 360-134.000.
Stookey, Stanley D.: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
Stoy, Artur, to Ceskoslovenska akademic ved. Method of manufacturing hydrogels. 3,812,071, Cl. 260-29.6ta.
Strabag Beu-A.G.: *See—*
Feiner, Alfred, 3,811,286.
Strachan & Henshaw Limited: *See—*
Sheppard, Gilbert Leslie, 3,811,580.
Street, Frederick G. Cube forming disc puzzle. 3,811,683, Cl. 273-157.00r.
Strickler, Charles J.; and Hammond, Aubrey J., to United States of America, Navy, mesne. Highly loaded cast polyurethane propellants containing aluminum. 3,811,967, Cl. 149-19.400.
Stuart, Douglas, to Carron Hydraulics Limited. Fluid power transmission and control system for fluid motors for driving the front wheels of a vehicle. 3,811,525, Cl. 180-44.00m.
Studinka, Josef: *See—*
Gabler, Rudolf; and Studinka, Josef, 3,812,192.
Stumpf, Frederick: *See—*

Wagensonner, Edward; Borowski, Jurt; and Stumpf, Frederick, 3,812,504
Sturm, Hans-Dieter: *See—*
Honold, Ernst; Huhner, Werner; and Sturm, Hans-Dieter, 3,811,687.
Sturm, Hermann, to Bach & Co. Contact spring for plug connectors. 3,812,452, Cl. 339-258.00r.
Sugahara, Eisuke, to Nippon Piston Ring Co., Ltd. Piston ring having peripheral groove. 3,811,691, Cl. 277-224.000.
Suggitt, Robert M.; and Crone, John M., Jr., to Texaco Inc. Method for disproportionating hydrocarbons. 3,812,197, Cl. 260-672.00t.
Sugita, Sadao: *See—*
Ishihara, Masao; Wada, Tsuneo; Yamaguchi, Hisashi, and Sugita, Sadao, 3,811,887.
Sukatsch, Dieter: *See—*
Buschmann, Lothar; Prave, Paul; and Sukatsch, Dieter, 3,812,012.
Sullivan, Francis R.: *See—*
Clovis, James S.; and Sullivan, Francis R., 3,812,219.
Sulzer Brothers Ltd.: *See—*
Vogeli, Ernsy, 3,811,279.
Sumitomo Chemical Company, Limited: *See—*
Ito, Ikoh; Sekihara, Takeshi; Emura, Tomoyuki, and Ueda, Takeshi, 3,812,073.
Sumitomo Chemical Company, Ltd.: *See—*
Ishizumi, Kikuo; Mori, Kazuo; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,102.
Kimura, Michio; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,112.
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,135.
Tsuchiya, Hiroshi, 3,812,223.
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,118.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi, and Yamamoto, Hisao, 3,812,257.
Sun Oil Company of Pennsylvania: *See—*
Grey, Edward H.; and Shufelt, Robert C., 3,812,200.
Sun Research and Development Company: *See—*
Hedge, John A., 3,812,198.
Hollstein, Elmer J.; and Butte, Walter A., Jr., 3,812,148.
Hollstein, Elmer J., 3,812,149.
Neikam, William C.; and James, Robert L., 3,812,171
Sunbeam Corporation: *See—*
Vieceli, Joseph L.; and Williams, James T., 3,811,208.
Sundermann, Erich; and Viedt, Johanna, said Sundermann assor to Dolle, Waldemar. Apparatus for manufacturing of bodies of bulking clay. 3,811,815, Cl. 425-446.000.
Surette, Philip A.: *See—*
Trussell, Donald H.; and Surette, Philip A., 3,811,284.
Survival Technology, Inc.: *See—*
Sarnoff, Stanley J., 3,811,441.
Suter, Hans; Zutter, Hans; and Muller, Hans Rudolf, to Eprova Aktiengesellschaft. Water-soluble, nonionic iodomethanesulfonamide derivatives opaque to X-rays. 3,812,186, Cl. 260-556.00a.
Suzuki, Takami; and Matsuhisa, Koh, to Ricoh Co., Ltd. Mechanical printer. 3,811,546, Cl. 197-18.000.
Svenska Rotor Maskiner Aktiebolag: *See—*
Schibbye, Lauritz Benedictus, 3,811,291.
Swancy, Larry R., to PPG Industries, Inc. Preparation of submicron titanium carbide. 3,812,239, Cl. 423-440.000.
Swartzman, Bernard A. Demonstration typewriter keyboard wall chart 3,812,277, Cl. 35-6.000.
Swenson, George H., to Hersey Products Inc. Liquid meter. 3,811,323, Cl. 73-231.00r.
Swenson, William J., to Offshore Company, The. Method and apparatus for monitoring return mud flow. 3,811,322, Cl. 73-155.000.
Swidler, Ronald: *See—*
Gamarra, Jose P.; Swidler, Ronald; and Wilson, Katherine W., 3,811,131.
Swift, Frank C.; deceased (by Swift, Viola; executrix), to Swift, Viola. Valve stem height gauge. 3,811,194, Cl. 33-181.0at.
Swift, Viola: *See—*
Swift, Frank C., 3,811,194.
Swinehart, Bruce A.: *See—*
Bartholomew, Roger F.; Campbell, Donald E.; Dates, Harold F.; Lewek, Stanley S.; Marusak, Francis J.; Pierson, Joseph E.; Stookey, Stanley D.; and Swinehart, Bruce A., 3,811,853.
Swisher, Daniel G.: *See—*
Wagers, William D., Jr.; Vandenberg, Willard J.; Bollman, Robert L.; Ramsey, Robert E.; Swisher, Daniel G.; and Taylor, John E., Jr., 3,811,552.
Switches, Incorporated: *See—*
Wolf, Walter A.; Corn, Prentice R.; and Gebhardt, Wallace A., 3,812,313.
Swoager, Jon R., to Automation Equipment, Inc. Multi-purpose vehicle for use underground. 3,811,290, Cl. 61-63.000.
Sylvestre-Baron, Martial: *See—*
Bertrand, Gerard; Perroud, Paul; and Sylvestre-Baron, Martial, 3,812,026.
Symons, Philip C.: *See—*
Creutz, Hans-Gerhard; Romanowski, Edward A.; and Symons, Philip C., 3,811,946.
Syntex (U.S.A.) Inc.: *See—*
Moffatt, John G.; and Russell, Alan F., 3,812,098.
Szabo, Louis R.; and Lazarus, Martin, to United States of America, Army. Novel ICI corrected phototransducer for measuring light output of photoflash items. 3,812,350, Cl. 250-226.000.
Taccone, Russell William, to Combustion Engineering, Inc. Briquetting press. 3,811,813, Cl. 425-252.000.
Taguchi, Seiichi: *See—*
Tamai, Yasuo; Taguchi, Seiichi, Yamada, Kiyoshi; and Yamamoto, Nobuo, 3,812,037.
Takada, Koji: *See—*
Takeyama, Hidchiko; and Takada, Koji, 3,812,376.
Takagi, Hiromu: *See—*
Iwai, Issei; Ohki, Eiji; Oida, Sadao; Takagi, Hiromu; and Ohashi, Yoshihiko, 3,812,134.
Takahashi, Keiichi, to Tokan Kogyo Company Limited. Method for continuously making a hollow board article of thermoplastic resin. 3,812,230, Cl. 264-89.000.
Takahashi, Takeshi: *See—*
Sato, Hiroshi; Nishio, Daijiro; and Takahashi, Takeshi, 3,812,145.
Takami, Fumitaka: *See—*
Tanaka, Hozumi; Ikawa, Kenji; and Takami, Fumitaka, 3,812,124.
Takano, Tadayoshi; Kariyone, Kazuo, Kurita, Masaru; Yazawa, Hisatoyo, Nakamura, Hitoshi; and Hasegawa, Mitsunori, to Fujisawa Pharmaceutical Co., Ltd. 7-Acylated 3-substituted cephalosporin compounds. 3,812,116, Cl. 260-243.00c.
Takayama, Masao: *See—*
Shimizu, Munetaka; and Takayama, Masao, 3,812,512.
Takeda Chemical Industries, Ltd.: *See—*
Masuda, Katsutada, and Imashiro, Yoshio, 3,812,128.
Mima, Hiroyuki; and Matsuzaki, Toichiro, 3,812,251
Tomita, Akio; Karitani, Tadakazu; and Ohtsuki, Takashi, 3,811,567.
Takeuchi, Shizuka: *See—*
Murase, Yasuo; and Takeuchi, Shizuka, 3,811,471
Takeuchi, Yoshihiro: *See—*
Yamanaka, Izumi; Sato, Hironohu, and Takeuchi, Yoshihiro, 3,811,615.
Takeyama, Hidchiko; and Takada, Koji, to Industrial Science & Technology, Agency of. Device for controlling dimensional accuracy during machining of a cylindrical workpiece. 3,812,376, Cl. 250-572.000.
Takimoto, Yasuyuki; and Yoshikawa, Toshikazu, to Nippon Paint Co., Ltd. Plastic matrix and resin composition used for preparing same 3,812,078, Cl. 260-42.290.
Takman, Bertil H.: *See—*
Adams, Herbert J. F.; Kronberg, George H.; and Takman, Bertil H., 3,812,147.
Talko, Francis: *See—*
Archer, David H.; Brecher, Lee E., Morris, Joe P.; Talko, Francis, and Taylor, Herbert L., 3,811,936.
Tamai, Yasuo; Taguchi, Seiichi; Yamada, Kiyoshi; and Yamamoto, Nobuo, to Xerox Corporation. Liquid developer composition. 3,812,037, Cl. 252-62.100.
Tamny, Simon Z.: *See—*
Reighard, Alan B., and Tamny, Simon Z., 3,811,601
Tamura, Masaharu: *See—*
Kobayashi, Kengo; Hattori, Seiichi, and Tamura, Masaharu, 3,811,345.
Tamura, Setsuo: *See—*
Inaba, Shin-Ichi, Okimoto, Ken-Ichi, Tamura, Setsuo; and Uenaka, Toshiyuki, 3,811,868.
Tan, Sing Liong, to U.S. Philips Corporation. Low light level television camera. 3,812,526, Cl. 358-42.000.
Tanaka, Hozumi; Ikawa, Kenji; and Takami, Fumitaka, to Shionogi & Co., Ltd. Method for preparing thiamine salts. 3,812,124, Cl. 260-256.600.
Tanaka, Kano: *See—*
Inoue, Mutsuhiro, and Tanaka, Kano, 3,812,327.
Tanaka, Masao: *See—*
Sakamoto, Michio; and Tanaka, Masao, 3,812,441
Tancredi, Andrew J. Reinforcing band strip. 3,811,565, Cl. 206-478.000.
Tarkenton, Ernest L., to Harsco Corporation. Multiple concrete to plastic pipe adapter. 3,811,711, Cl. 285-110.000.
Tarman, Paul B.: *See—*
Massey, Lester G.; Tarman, Paul B.; and Huebler, Jack, 3,812,048.
Tarnavsky, Abram Lvovich, and Goloveev, Nail Khabibrakhmanovich Method for the manufacture of cored wire. 3,811,178, Cl. 29-517.000.
Tashiro, Kijuro; Yokoyama, Masuzo; and Kitazume, Shoji, to Mitsubishi Petrochemical Company Limited. Production of olefin polymers. 3,812,089, Cl. 260-93.700.
Tate, Raymond F. Multi-purpose picture frame. 3,811,214, Cl. 40-152.000.
Tatsuno, Hiyoshi. Semi-automatic type register apparatus for use at a gasoline service station. 3,812,329, Cl. 235-92.0fl.
Tatterson, Benjamin F., to Koppers Company, Inc. Pollution control system. 3,811,572, Cl. 210-152.000.

Tatzel, Hermann; and Beck, Gilbert, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of foam plastics from high molecular weight olefin polymers. 3,812,062, Cl. 260-2.50e.

Taya, Shunroku: *See*—
Mitani, Eisuke; Tsuyama, Hitoshi; Itoh, Michiyasu; and Taya, Shunroku, 3,812,356.

Taylor, Challen E.; and Stanley, John H., to Goodyear Tire & Rubber Company, The. Arched strainer plate for plastic and like material. 3,811,659, Cl. 259-193.000.

Taylor, Herbert L.: *See*—
Archer, David H.; Brecher, Lee E.; Morris, Joe P.; Talko, Francis; and Taylor, Herbert L., 3,811,936.

Taylor, Jack Rogers; and Du Bell, Thomas Lloyd, to General Electric Company. Fuel injection apparatus. 3,811,278, Cl. 60-39.74r.

Taylor, John E., Jr.: *See*—
Wagers, William D., Jr.; Vandenberg, Willard J.; Bollman, Robert L.; Ramsey, Robert E.; Swisher, Daniel G.; and Taylor, John E., Jr., 3,811,552.

Taylor, Paul Franklin. Process for class IV B metals ore reduction. 3,811,871, Cl. 75-84.000.

Taylor, William, to Ebco Manufacturing Company. Cooler and faucet-equipped beverage containers. 3,811,294, Cl. 62-390.000.

Teac Corporation: *See*—
Yoichi, Tsuchiya, 3,812,529.

Teach, Eugene G., to Stauffer Chemical Company. Bis-meta-phenylene ureas. 3,812,160, Cl. 260-347.300.

Teche, Andre: *See*—
Bertin, Daniel; Perronnet, Jacques; and Teche, Andre, 3,811,863.

Technar, Incorporated: *See*—
Bell, Lon E.; and Gruber, William B., 3,812,308.

Technicon Instruments Corporation: *See*—
Diebler, Herman G.; Gyori, Steven Andrew; and McCandless, William J. C., 3,811,842.
Kassel, Aaron, 3,811,841.

Technofil S.p.A.: *See*—
Pietroni, Piero, 3,811,312.

Telco (Group Management) Limited: *See*—
Telco, Paul, 3,811,373.

Telco, Paul, to Telco (Group Management) Limited. Beverage making device. 3,811,373, Cl. 99-295.000.

Telesco Brophey, Limited: *See*—
Thur, Klaus, 3,811,455.

Tell, Karl Gunnar: *See*—
Siwersson, Olle Lennart; and Tell, Karl Gunnar, 3,811,952.

Tenneco Chemicals, Inc.: *See*—
Minieri, Pasquale P., 3,812,065.

Tension Structures Co.: *See*—
Huddle, Carl F., 3,811,454.

Tesainer, Silvano: *See*—
Wilkinson, Michael C., Blais, Leo; Martin, Wilhelm N.; and Tesainer, Silvano, 3,811,987.

Tessera, Giancarlo: *See*—
Collina, Giancarlo L.; and Tessera, Giancarlo, 3,812,464.

Tetenbaum, Marvin T.: *See*—
Stone, Herman; Robertson, Arthur B.; and Tetenbaum, Marvin T., 3,812,066.

Texaco Inc.: *See*—
Burnett, David B.; Alston, Robert B.; and Lim, Frank H., 3,811,501.
Burnett, David B., 3,811,502.
Burnett, David B., and Lim, Frank H., 3,811,503.
Carlin, Joseph T., 3,811,506.
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L.; and Shupe, Russell D., 3,811,504.
Flournoy, Kenoth H.; Cardenas, Ricardo L.; Haferkamp, Gilbert L., and Shupe, Russell D., 3,811,505.
Flournoy, Kenoth H.; and Shupe, Russell D., 3,811,507.
McCoy, Frederic C.; and Schlicht, Raymond C., 3,812,031.
Suggitt, Robert M., and Crone, John M., Jr., 3,812,197.

Texas Instruments Incorporated: *See*—
Cragon, Harvey G., 3,812,476.
Garth, Emory C., 3,812,402.

Texon Inc.: *See*—
Schortmann, Walter E., and Derose, Michael A., 3,812,006.

Thauer, Peter: *See*—
Gospodar, Reinhard; Reichel, Kurt; Vogelsang, Gustav; and Thauer, Peter, 3,811,416.

Thawley, Clive S., to Uniroyal Limited. Buoyant liquid-conveying hose. 3,811,477, Cl. 138-103.000.

Theil, Sven E., to Smidth, F. L., & Co. Cooler tubes for rotary kiln. 3,811,824, Cl. 432-80.000.

Theissen, Robert J., to Mobil Oil Corporation. 2-Nitro-5-(halophenoxy)benzoyl chlorides. 3,812,184, Cl. 260-544.00m.

Thelemaque, Louis Emanuel: *See*—
Dittrich, Robert George; Secord, Dean Brian; and Thelemaque, Louis Emanuel, 3,812,298.

Theriot, Joseph G. Well test burner. 3,811,820, Cl. 431-354.000.

Thies, Peter Willibrord, to Kali-Chemie Aktiengesellschaft. Dioxatricyclodecanes. 3,812,154, Cl. 260-340.300.

Tholander, Lars Helge; and Thostrup, Harry, to Elektriska Svetsningsaktiebolaget. Welding guns. 3,811,611, Cl. 226-178.000.

Thoma, Nandor G.: *See*—
Ryan, William J., Sr.; Schirmer, Edward F.; Thoma, Nandor G.; Tolley, James H.; and Wilder, Donald L., 3,811,182.

Thomas & Betts Corporation: *See*—
Haitmanek, Louis F., 3,812,448.

Thommen, Hans: *See*—
Chodnekar, Madhukar S.; Thommen, Hans; and Schwieter, Ulrich, 3,812,262.

Thompson, Arnold M. Pneumatic cleaning, disinfecting and oiling device for a tube-type dental handpiece. 3,811,408, Cl. 188-73.000.

Thompson, Christopher J. C.: *See*—
Meier, Rudolf H.; Day, Richard P.; and Thompson, Christopher J. C., 3,812,359.

Thompson, Howard G.; and Kay, John A., Jr., to Massey-Ferguson Inc. Folding wing lock. 3,811,516, Cl. 172-311.000.

Thompson, Raymond: *See*—
Stibbs, Donald; Thompson, Raymond; and Young, Oswald William John, 3,811,899.

Thomson-CSF: *See*—
Rougeot, Henri, 3,812,369.

Thornton, Ronald W.: *See*—
Thornton, Theodore Wayne; and Thornton, Ronald W., 3,811,589.

Thornton, Theodore Wayne; and Thornton, Ronald W. Child-resistant container assembly and components thereof. 3,811,589, Cl. 215-9.000.

Thostrup, Harry: *See*—
Tholander, Lars Helge; and Thostrup, Harry, 3,811,611.

Throckmorton, Thomas Marvin; and Crawford, Charles M., III, to Metropolitan Watersaving Co., Inc. Water saving attachments for toilet gravity flush tanks. 3,811,134, Cl. 4-18.000.

Throner, Guy C., Jr.: *See*—
Fichter, Arthur A., Jr.; Danks, Ronald D.; Larsen, Farrell G.; and Throner, Guy C., Jr., 3,811,381.

Thun, Leonard; and Grebow, Leon David, to AcRite Industries, Inc. Bifold door system. 3,811,489, Cl. 160-118.000.

Thur, Klaus, to Telesco Brophey, Limited. Telescopic umbrella stick. 3,811,455, Cl. 135-46.00t.

Tikijian, George Haig: *See*—
Linn, Thomas Daniel; Klauser, John George, Jordan, Alexander, and Tikijian, George Haig, 3,812,474.

Timken Company, The: *See*—
Wren, Frederick James, 3,811,743.
Wren, Frederick James; Instone, Eric Frank; Hunt, John Oliver Alfred; and Wright, Alan John, 3,811,744.

Tink, Robert MacMillan; and Baker, Bob Jim, to National Cash Register Company, The. Digital communication system. 3,812,292, Cl. 179-2.0dp.

Tinney, John R.: *See*—
Marchant, John C.; and Tinney, John R., 3,811,885.

Tipaine, Wiya Aleksandrowna: *See*—
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.

Tischer, Ragnar P.: *See*—
Minck, Robert W., and Tischer, Ragnar P., 3,811,943.

Tkacenko, Nikola B., to Sarkes Tarzian, Inc. Rotary special effects generator. 3,812,286, Cl. 178-6.800.

Toffano, Silvio: *See*—
Natta, Giulio; Beati, Enrico; Severini, Febo; and Toffano, Silvio, 3,812,204.

Toiseux, Pierre, to Ronson Societe Anonyme. Modular gas lighter with electronic ignition. 3,811,819, Cl. 431-255.000.

Tokan Kogyo Company Limited: *See*—
Takahashi, Keiichi, 3,812,230.

Tokyo Shibaura Electric Co., Ltd.: *See*—
Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, 3,812,519.

Toland, William G.: *See*—
Lapporte, Seymour J.; and Toland, William G., 3,812,176.

Tolley, James H.: *See*—
Ryan, William J., Sr.; Schirmer, Edward F.; Thoma, Nandor G.; Tolley, James H.; and Wilder, Donald L., 3,811,182.

Tomisawa, Norio; Amano, Takehisa; Uchiyama, Yasuji; and Okumura, Takatoshi, to Nippon Gakki Seizo Kabushiki Kaisha. Semiconductor storage device. 3,812,478, Cl. 340-173.00r.

Tomita, Akio; Karitani, Tadakazu; and Ohtsuki, Takashi, to Takeda Chemical Industries, Ltd. Apparatus for inspection of ampoules. 3,811,567, Cl. 209-73.000.

Tomlinson, Roy, to Connollys (Blackley) Ltd. Apparatus for impregnating and coating stranded bodies. 3,811,406, Cl. 118-6.000.

Torgow, Abraham M. Projector, field, and targets. 3,811,675, Cl. 273-101.000.

Toshiba Machine Co., Ltd.: *See*—
Nagashima, Kazuo; and Ono, Tadahiro, 3,811,228.

Townsend, Charles E., Jr. Headwear construction. 3,811,130, Cl. 2-177.000.

Toyoda Automatic Loom Works, Ltd.: *See*—
Murase, Yasuo; and Takeuchi, Shizuka, 3,811,471.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Nakamura, Akira; Arai, Hiroshi; and Ohta, Jun, 3,811,739.
Sato, Kiyoomi; and Ishidera, Takashi, 3,811,545.

Tramposch, Herbert, to Pitney-Bowes, Inc. Credit card. 3,812,328, Cl. 235-61.12n.

Trane Company, The: *See*—

Mikulina, Thomas W.; Lievens, Ronald J., and Brockman, George T., 3,811,790.

Trbovich, Nicholas D.; Robinson, William P.; and Trunzo, Eugene R., said Robinson and said Trunzo assors to Servotronics, Inc. Simulated basketball game. 3,811,674, Cl. 273-85.00e.

Tredway, Wynn B., Sr. Golf swing training glove including light projecting device. 3,811,684, Cl. 273-183.00b.

Trenkler, Gerhard, to Licentia Potent-Verwaltungs-GmbH. 3,812,428, Cl. 324-127.000.

Treuthart, Robert L., to Rockwell International Corporation. Optical scanner. 3,811,748, Cl. 350-7.000.

Tri-Way Industries, Inc.: *See*—
Del Missier, Richard J., 3,811,138.

Triatex International AG. fur Textile Forschung Entwicklung: *See*—
Schwemmer, Martin; Bors, Hans; and Goetz, Albert, 3,811,834.

Triska, Vojtech: *See*—
Stefek, Oldrich; Triska, Vojtech; and Bednar, Ladislav, 3,811,310.

Troster, Helmut: *See*—
Merkle, Kurt; Fuchs, Otto; Troster, Helmut; and Noetzel, Siegfried, 3,812,051.

Trunzo, Eugene R.: *See*—
Trbovich, Nicholas D.; Robinson, William P.; and Trunzo, Eugene R., 3,811,674.

Trussell, Donald H.: *See*—
Trussell, Donald H.; and Surette, Philip A. (said Surette assor. to said), 3,811,284.

Trussell, Donald H.; and Surette, Philip A., said Surette assor. to said Trussell, Donald H. Control system. 3,811,284, Cl. 60-533.000.

Truth Incorporated: *See*—
Bates, Wayne C., 3,811,718.

TRW Inc.: *See*—
Bhuta, Pravin G.; Johnson, Robert L., Aprahamian, Robert; and Jacoby, Jerold L., 3,812,454.
Brenneke, Arthur M., 3,811,692.
Brook, Robert E., 3,812,496.
Jones, Robert J., 3,812,082.
Jones, Robert J.; and Burns, Eugene A., 3,812,083.
Lubowitz, Hyman R., 3,812,159.

Tryhorn, Donald Wilfred, to Armstrong, W. G., Sir, Whitworth & Company (Engineers) Limited. Rotary compressing, displacing or expanding machine. 3,811,807, Cl. 418-227.000.

Tschopp, Werner Heinz, to Spectrospin AG. Device for the excitation of spin resonances by means of an RF signal having a prescribed amplitude function. 3,812,418, Cl. 324-.50r.

Tsuboka, Eiichi. *See*—
Yoshino, Hirokazu; Yamaguchi, Tetsuo; and Tsuboka, Eiichi, 3,812,488.

Tsuchiya, Hiroshi, to Sumitomo Chemical Company, Ltd. Process for producing thio- or dithio-phosphoric acid salts. 3,812,223, Cl. 260-987.000.

Tsuji, Nobuo. *See*—
Okutsu, Toshimitsu; Tsuji, Nobuo; Ohi, Reiichi; and Kondo, Tokiharu, 3,812,079

Tsujimoto, Kayoshi: *See*—
Hayashi, Toshio; Yoshizaki, Akira; and Tsujimoto, Kayoshi, 3,812,499.

Tsuyama, Hitoshi: *See*—
Mitani, Eisuke, Tsuyama, Hitoshi; Itoh, Michiyasu; and Taya, Shunroku, 3,812,356

Tsuyama, Naoto. *See*—
Okada, Shigetaka; and Tsuyama, Naoto, 3,812,011.

Tucker, Raymond Z., and Benson, Jack O., to Schatt Industries, Inc. Trailer hitch. 3,811,706, Cl. 280-407.000.

Tucker, Stuart G., to International Business Machines Corporation. Storage system with conflict-free multiple simultaneous access. 3,812,473, Cl. 340-172.500.

Tuhro, Richard H., to Computer Identics Corporation. Specular reflection suppression apparatus. 3,812,374, Cl. 250-568.000.

Tull Aviation Corporation: *See*—
Coulter, J. Roland, 3,812,427.

Tull, Roger J.: *See*—
Weinstock, Leonard M.; Tull, Roger J.; and Mulvey, Dennis M., 3,812,182.

Turkovich, Frank D., to Chrysler Corporation. Safety belt protector. 3,811,703, Cl. 280-150.0sb.

Turnbull, Charles H., to Chesbrough-Pond's Inc. Container for forced expiration exercises. 3,811,671, Cl. 272-57.00f.

Twigg, Peter Lindsay: *See*—
Parry, Philip James; and Twigg, Peter Lindsay, 3,811,960.

Tykachinsky, Isai Davidovich: *See*—
Bondarev, Konstantin Timofeevich; Pavlushkin, Nikolai Mikheevich; Tykachinsky, Isai Davidovich; Kozlovsky, Viktor Stepanovich; Oblasti, Dolgoprudny Moskovskoi; Krylov, Valentin Feoktistovich; and Rud, Svetlana Ivanovna, 3,811,852.

Tykva, Richard, to Ceskoslovenska akademie ved. Method and arrangement for determination of planar distribution of low-energy beta nucleides and other radionucleides for tracer experiments in biological, biochemical and chemical experimental systems. 3,812360, Cl. 250-370.000.

Tyssee, Donald A.: *See*—
Petrovich, John P.; and Tyssee, Donald A., 3,812,190.

UA Engineering Limited: *See*—
Usborne, Andrew Charles, 3,811,397.

Uchiyama, Masao; and Kaneko, Norio, to Mitsubishi Petrochemical Company, Limited. Catalytic steam dealkylation. 3,812,196, Cl. 260-672.000.

Uchiyama, Yasuji: *See*—
Tomisawa, Norio; Amano, Takehisa; Uchiyama, Yasuji; and Okumura, Takatoshi, 3,812,478.

Ueda, Hirozo: *See*—
Ohta, Noboru; Oishi, Yasushi; and Ueda, Hirozo, 3,811,890.

Ueda, Takeshi: *See*—
Ito, Ikoh; Sekihara, Takeshi; Emura, Tomoyuki; and Ueda, Takeshi, 3,812,073.

Uenaka, Toshiyuki: *See*—
Inaba, Shin-Ichi; Okimoto, Ken-Ichi; Tamura, Setsuo, and Uenaka, Toshiyuki, 3,811,868.

Uffner, Melville W.; and Holland, Dewey G., to Air Products and Chemicals, Inc. Oil and grease resistant paper products and process for treating cellulosic materials. 3,811,933, Cl. 117-155.0ua.

Uhde, Friedrich, GmbH: *See*—
Peters, Henning, 3,812,090.

Ultronic Systems Corporation: *See*—
Rich, Barry S., 3,812,466.

Umemura, Sumio: *See*—
Happel, John; and Umemura, Sumio, 3,812,175.

Unger, Burton Abram: *See*—
Lesh, Nathan George; O'Day, Peter Joseph; and Unger, Burton Abram, 3,811,973.

Unimac Company, Inc.: *See*—
Barton, Henry W.; and Cloud, Robert, 3,811,300.

Union Carbide Corportion: *See*—
Linn, Thomas Daniel; Klauser, John George, Jordan, Alexander, and Tikijian, George Haig, 3,812,474.

Union Sils van de Loo & Co.: *See*—
Konzorr, Hubert, 3,811,339.

Unipas, Inc.: *See*—
Lathers, Paul Anthony, 3,811,394.

Uniroyal, Inc.: *See*—
Bolesky, Richard C., 3,811,721.
Clarkson, Robert J., 3,811,262.
Faress, Sidney M., 3,811,164.

Uniroyal Limited: *See*—
Thawley, Clive S., 3,811,477.

United Aircraft Corporation: *See*—
Amelio, Armand F., 3,811,254
Bacon, James F., 3,811,901.
Calderon, Henry A., 3,811,274.
Douglas, Frank C.; Gregory, Thomas K., and Stuelau, Robert W., 3,811,940.
Galasso, Francis S.; and Jacob, Bernarr A., 3,811,920.
Kuehl, Donald K.; Fanti, Roy; and Galasso, Salvatore F., 3,811,930.
Markawski, Stanley J., 3,811,277.
Martin, Anthony N., 3,811,273.
Stedman, James K., 3,811,951.

United Corporation: *See*—
Elliott, James B., 3,812,505.

United Fabricating Company, Inc., mesne: *See*—
Bettinger, James H., 3,811,237.

United Kingdom Atomic Energy Authority: *See*—
Henney, John William; and Jones, James William Samuel, 3,811,928.
Steele, Bernard Robert, 3,812,050.

United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defence in Her Britannic Majesty's Government of the: *See*—
Banks, Ronald Eric; and Haszeldine, Robert Neville, 3,812,206.

United States Borax & Chemical Corporation: *See*—
Stibbs, Donald; Thompson, Raymond; and Young, Oswald William John, 3,811,899.

United States of America
: *See*—
Olson, Donald R., 3,811,422.
Agriculture: *See*—
Cashen, Norton A.; Kullman, Russell M. H., and Reinhardt, Robert M., 3,811,210.
Weaver, Merle L.; Hautala, Earl; and Nonaka, Masahide, 3,812,274.
Army: *See*—
Bald, James F., Jr., 3,811,948.
Drzewiecki, Tadeusz M., 3,811,476.
Flogaus, William S.; Graves, Howard T.; Orlando, Harold J.; and Van Der Laske, Dennis P., 3,812,357.
Funke, Maurice F.; and Bald, James F., Jr., 3,812,368.
Graves, Howard T., 3,812,483.
Honeycutt, Thomas E.; Otto, William F.; and Cason, Charles M., III, 3,811,774.
Howell, James E.; Hudson, Wayne T.; and Krzyzewski, Henry A., 3,812,494.
Kaunzinger, Helmuth M.; and Buser, Rudolf G., 3,812,419.
Ricks, Earl C., 3,811,360.
Rodgers, Aubrey; and Widner, Rayburn K., 3,811,328.
Sayles, David C., 3,811,964.
Sayles, David C., 3,811,965.
Sayles, David C., 3,811,968.
Szabo, Louis R.; and Lazarus, Martin, 3,812,350.

Wharton, Walter W.; and Connaughton, Joseph W., 3,811,280.
Woods, Robert L., 3,811,475.
Woodward, Kenneth E., 3,811,362.

Army, mesne. *See*—
Barrett, Hillard E.; Clark, Donald B.; and Seid, Bernard, 3,811,713.
Hill, William E.; and Beason, Lew R., 3,811,966.

Army, The: *See*—
Baaso, George L., 3,811,708.

Atomic Energy Commission: *See*—
Culver, Gordon G.; and Riemath, William F., 3,811,426.
Hadeishi, Tetsuo, 3,811,778.
Walter, Edward G., 3,812,354.

Interior: *See*—
Bauer, Donald J.; Lindstrom, Roald W.; and Schultze, Lawrence E., 3,812,232.

National Aeronautics and Space administration; Administrator; with respect to an invention of:
Kim, Chung; Gorelick, Donald; and Chen, Wayne, Arterial pulse wave pressure transducer. 3,811,429, Cl. 128-2.05e.
Kraushaar, William L. Coaxial anode wire for gas radiation counters. 3,812,358, Cl. 250-385.000.

National Aeronautics and Space Administration, mesne: *See*—
Macovski, Albert; and Schaefer, Louis F., 3,812,527.

Navy: *See*—
Afendykiw, Marko; Boyle, John M.; and Hendrix, Charles E., 3,812,493.
Howe, David G.; and Meussner, Russell A., 3,811,185.
Johnson, Roy D.; and Rubis, Casimer Joseph, 3,812,411.
Leinkram, Charles Z.; and Oaks, William D., 3,811,181
Marshall, Albert H.; and Siragusa, George A., 3,811,204.
Ream, Donald E., Jr.; and Brown, Gregory A., 3,811,648.
Sondheimer, Allen J., 3,811,379.
White, Frederick W., 3,811,329.

Navy, mesne: *See*—
Lane, Richard N.; and Horton, Claude W., 3,812,456.
Strickler, Charles J.; and Hammond, Aubrey J., 3,811,967.

United States Steel Corporation. *See*—
Chao, Hung-Chi; Judd, Robert R.; Rueckl, Roger L.; and Russell, Charles K., 3,811,878.

Universal Oil Products Company: *See*—
Gaydasch, Alexander, 3,812,034.
Rumpel, Harvey R., 3,811,727.

University of California, The Regents of the: *See*—
MacKenzie, John D., 3,811,851.

Upjohn Company, The: *See*—
Argoudelis, Alexander D.; and Coats, John H., 3,812,014.
Argoudelis, Alexander D.; Coats, John H.; and Sebek, Oldrich K., 3,812,096.
Bundy, Gordon L., 3,812,172.
Bundy, Gordon L., 3,812,179.
Collins, Robert J., 3,812,259.
Hester, Jackson B., Jr., 3,812,140.

Urbanosky, Harold J., to Schlumberger Technology Corporation. Methods and apparatus for testing earth formations. 3,811,321, Cl. 73-155.000.

U.S. Elevator Manufacturing Corporation: *See*—
Hunsberger, Arnold, 3,811,335.

U.S. Industries, Inc.: *See*—
Bruns, Eilert F., 3,811,638.

U.S. Philips Corporation: *See*—
Asselman, George Albert Apolonia; and Dirne, Adrianus Petrus, 3,811,496.
Celling, Wolter Geppienus, 3,811,183.
De Bont, Paulus Maria; and Van Liefland, Willem, 3,812,317.
Henri, Dominique, 3,812,406.
Jacobs, Bernardus Antonius; and Kramer, Pieter, 3,811,779.
Jannssen, Casper Johannes Gerardus Ferdinand; Jonker, Hendirk; Postma, Lambertus; and Vondeling, Jacob Klass, 3,811,893.
Meijer, Roelf Jan; Neelan, Gregorius Theodorus Maria; and Vree, Jules Herman, 3,811,497.
Nouel, Jean-Paul, 3,812,264.
Tan, Sing Lfong, 3,812,526.
Van Lierop, Joseph Gijsbertus, 3,811,975.

U.S. Philips Corporation, mesne: *See*—
Aten, Albert Christiaan; Van Santen, Gerrit; and Renirie, Fredericus Hendricus Ignatius, 3,812,346.

Usborne, Andrew Charles, to UA Engineering Limited. Propulsion devices. 3,811,397, Cl. 115-14.000.

Ushihara, Masaharu: *See*—
Nagahiro, Michinori; Yabu, Toshiomi; Hosono, Hiroo; and Ushihara, Masaharu, 3,811,640.

Valle, Howard C., to Ametek, Inc. Connecting device. 3,811,786, Cl. 403-300.000.

Van Alphen, Adrianus Joannes Maria: *See*—
Lommers, Anthonius Johannes Josephus Cornelis; and Van Alphen, Adrianus Joannes Maria, 3,812,434.

Van Der Laske, Dennis P.: *See*—
Flogaus, William S.; Graves, Howard T.; Orlando, Harold J.; and Van Der Laske, Dennis P., 3,812,357.

Van der Lely, Cornelis. Implements. 3,811,581, Cl. 214-131.00a.

van der Linde, Willem B.; and Weslager, Clinton A., to Du Pont de Nemours, E. I., and Company. Package for dispensing an ice-removing composition. 3,812,043, Cl. 252-70.000.

Van Gilder, Burrows Corson; and Moyer, Elmo Emerson, to ELTHRA Corporation. Ferroresonant battery charger circuit. 3,812,415, Cl. 320-31.000.

Van Hekken, Frans: *See*—
Morrell, Albert Maxwell; and Van Hekken, Frans, 3,811,754.

Van Horn, Joseph M.; Epstein, Paul; and Phillipps, Patrick G., to Brattle Instrument Corporation. Biological signals monitor. 3,811,428, Cl. 128-2.06f.

Van Liefland, Willem: *See*—
De Bont, Paulus Maria; and Van Liefland, Willem, 3,812,317.

Van Lierop, Joseph Gijsbertus, to U.S. Philips Corporation. Method of manufacturing a semiconductor device and device manufaetured by the method. 3,811,975, Cl. 156-13.000.

Van Santen, Gerrit: *See*—
Aten, Albert Christiaan; Van Santen, Gerrit; and Renirie, Fredericus Hendricus Ignatius, 3,812,346.

Vancini, Carlo A.: *See*—
Arnold, Orlan M.; and Vancini, Carlo A., 3,811,249.

Vandenberg, Willard J.: *See*—
Wagers, William D., Jr.; Vandenberg, Willard J.; Bollman, Robert L.; Ramsey, Robert E.; Swisher, Daniel G.; and Taylor, John E., Jr., 3,811,552.

Vander Mey, John E., to Allied Chemical Corporation. Electrolyte and method for electroplating an indium-copper alloy and printed circuits so plated. 3,812,020, Cl. 204-24.000.

Vandervelden, Jan Josef Maria: *See*—
Earle, Paul Lewis; Musz, Andrew; and Vandervelden, Jan Josef Maria, 3,811,814.

Vanlerberghe, Guy; and Rosenbaum, Georges, to Societe Anonyme dite: L'Oreal. Cosmetic skin coloring compositions containing aminated α-dialdehydes. 3,812,246, Cl. 424-59.000.

Varian Associates: *See*—
Arnold, James T., 3,811,319.
Scott, Allan W., 3,812,395.

Varta A.G.: *See*—
Jung, Margarete, 3,811,949.

Vasas, Roger E.: *See*—
Avampato, Dominic C.; Dibella, Robert N.; and Vasas, Roger E., 3,811,950.

VEB Elektromat: *See*—
Werner, Guenther, 3,811,169.

Velo-Bind, Inc.: *See*—
Abildgaard, William H.; Groswith, Charles T. III; Deman, Heiko T.; and Buan, Danilo P., 3,811,146.

Velto Industries, Ltd.: *See*—
Mc Burnie, Stuart G.; Jorgensen, William A. W.; and Rocher, Michel L. E., 3,811,719.

Venker, Hilrich Jan Matthijs, to Societe Industrielle Honeywell Bull (Societe Anonyme). Mosaic printer. 3,812,495, Cl. 346-101.000.

Vepa AG: *See*—
Fleissner, Heinz, 3,811,988.

Verdier, Denise, to Colgate-Palmolive Company. Clear liquid detergent package. 3,812,042, Cl. 252-90.000.

Vereinigte Aluminium-Werke Aktiengesellschaft: *See*—
Schoer, Heinz; and Schultze, Werner, 3,811,177.

Vereinigte Baubeschlag Fabriken Gretsch & Co., GmbH: *See*—
Sittmann, Brigitte, 3,811,696.

Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft: *See*—
Schwarz, Karl, 3,811,598.

Vermeerbergen, Leon Roger; and Flamand, Guy Antoine, to Saint-Gobain Industries. Bottle. 3,811,588, Cl. 215-1.00c.

Vermont Research Corporation, mesne: *See*—
Kimura, Noboru; and Junkert, Kenneth G., 3,812,533.

Vicceli, Joseph L.; and Williams, James T., to Sunbeam Corporation. Electric steaming and pressing appliance. 3,811,208, Cl. 38-77.800.

Viedt, Johanna: *See*—
Sundermann, Erich; and Viedt, Johanna, 3,811,815.

Viehbock, Franz P.: *See*—
Higatsberger, Michael J.; Rumpold, Karl O.; and Viehbock, Franz P., 3,812,364.

Vierow, William F.: *See*—
Liang, Charles C.; McDonald, Bruce; and Vierow, William F., 3,811,944.

Vigneau, Joel Olivier: *See*—
Lescop, Pierre; Michel, Pierre; and Vigneau, Joel Olivier. 3,811,919.

Villiers, Norton, Limited: *See*—
Hooper, Bernard, 3,811,528.

Villiger, Felix; and Gerber, Albert, 50% to Arova Schaffhausen AG and Losinger AG. Multi-layer fabric. 3,811,480, Cl. 139-384.000.

Virgin, Allan Geoffrey: *See*—
Randell, Donald Richard; Miles, Peter; and Virgin, Allan Geoffrey, 3,812,193.

VJG, Inc.: *See*—
Henry, Vincent, 3,811,882.

Voegeli, Henry Carl. Cable television housing with lockably joined cover and base. 3,812,279, Cl. 174-38.000.

Vogel, Christian: *See*—
Hoegerle, Karl; Muller, Jean-Claude; Vogel, Christian; and Rumpf, Jurg, 3,812,168.

Vogel, George E.: *See*—
Dennis, William E.; and Vogel, George E., 3,812,081.

Vogel, Ralph A.: *See*—

Edwards, Kenneth F.; and Vogel, Ralph A., 3,811,610.

Vogel, Wilhelm, to Bosch, Robert, G.m.b.H. Ignition system for an internal combustion engine. 3,811,420, Cl. 123-148.00e.

Vogeli, Ernsy, to Sulzer Brothers Ltd. Shut-off valve for working medium circuit. 3,811,279, Cl. 60-660.000.

Vogelsang, Gustav: *See*—
Gospodar, Reinhard; Reichel, Kurt; Vogelsang, Gustav; and Thauer, Peter, 3,811,416.

Voisin, Alain: *See*—
Pont, Dominique; Lafont, Andre; and Voisin, Alain, 3,811,527.

Volkswagenwerk Aktiengesellschaft: *See*—
Gospodar, Reinhard; Reichel, Kurt; Vogelsang, Gustav; and Thauer, Peter, 3,811,416.

Von Fischern, Bernhard: *See*—
Engelsmann, Dieter; Wagensonner, Eduard; Rieder, Alois; and Von Fischern, Bernhard, 3,812,503.

Von Saltza, Malcolm H.: *See*—
Bodanszky, Miklos; Ondetti, Miguel A.; Von Saltza, Malcolm H.; Narayanan, Venkatachlal L.; and Levine, Seymour D., 3,812,092.

Vondeling, Jacob Klass: *See*—
Jannssen, Casper Johannes Gerardus Ferdinand, Jonker, Hendirk; Postma, Lambertus; and Vondeling, Jacob Klass, 3,811,893.

Vornberger, George F., to Pullman Incorporated. Dump trailer having automatic tail gate lock. 3,811,729, Cl. 298-23.00m.

Vosper, Ralph Richard, to Coen Company. Direct-fired heating and combustion chamber. 3,811,827, Cl. 432-221.000.

Votocek, Otakar. *See*—
Noothout, Arend Jaman; Kanij, Johannes Bastiaan Willem; and Votocek, Otakar, 3,812,049.

Voykowitsch, Anton: *See*—
Hofer, Kurt; and Voykowitsch, Anton, 3,812,152.

Vrancken, Marcel Nicolas, to Agfa-Gevaert N.V. Thermographic copying. 3,811,773, Cl. 355-132.000.

Vree, Jules Herman. *See*—
Meijer, Roelf Jan; Neelan, Gregorius Theodorus Maria; and Vree, Jules Herman, 3,811,497.

Vydrin, Vladimir Nikolaevich, Ageev, Leonid Matveevich, and Sosjurko, Vladimir Georgievich. Method of rolling metal sheet articles. 3,811,307, Cl. 72-205.000.

Wada, Tsuneo. *See*—
Ishihara, Masao, Wada, Tsuneo; Yamaguchi, Hisashi, and Sugita, Sadao, 3,811,887.

Wade, R. M., & Co.. *See*—
Cornelius, Gail L., 3,811,617.

Wagensonner, Eduard: *See*—
Engelsmann, Dieter, Wagensonner, Eduard, Rieder, Alois, and Von Fischern, Bernhard, 3,812,503.

Wagensonner, Edward, Borowski, Jurt, and Stumpf, Frederick, to AGFA-Gevaert Aktiengesellschaft. Indicator arrangement for a photographic camera. 3,812,504, Cl. 354-60.000

Wagers, William D., Jr., Vandenberg, Willard J., Bollman, Robert L.; Ramsey, Robert E., Swisher, Daniel G., and Taylor, John E., Jr., to Lilly, Eli, and Company. Capsule inspection apparatus and method. 3,811,552, Cl. 198-33.0aa.

Wagner Electric Corporation. *See*—
Richards, John G., 3,812,390.

Wagner, Everett F.; Sidlo, Joseph J.; and Ruschke, Lawrence J., Jr., to Bell & Howell Company. Retractable cord assembly with electric switch integrally associated with rotatable reel housing member. 3,812,307, Cl. 200-52.00r.

Wagner, Gustav, Maschinenfabrik. *See*—
Kaiser, Gerhard; and Faiss, Gerhard, 3,811,556.

Walbridge, Derek John: *See*—
Burdett, Marion; and Walbridge, Derek John, 3,812,075.

Walhelm, Ragnar Ilmari Olof: *See*—
Back, Karl Johan; and Walhelm, Ragnar Ilmari Olof, 3,811,482.

Walker, Gordon Northrop, to Ciba-Geigy Corporation. Dibenzocycloheptenes. 3,812,119, Cl. 260-247.000.

Walkowa, Idea Wladimirowna: *See*—
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis, Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich, and Olina, Inese Petrowna, 3,812,099.

Walsh, Charles J.; and Barnhart, Morris W., to Edax International, Inc. Television display system. 3,812,288, Cl. 178-6.800.

Walter, Edward G., to United States of America, Atomic Energy Commission. Thermoluminescent detector for mass spectrometer. 3,812,354, Cl. 250-281.000.

Walther, William D.; and De Regnaucourt, Robert A., to Dayton Steel Foundry Company, The. Rim and wheel assembly. 3,811,732, Cl. 301-11.00r.

Ward, George C., to Southwire Company. Casting machine with combined presser-band guide wheel. 3,811,492, Cl. 164-278.000.

Warren, Lyle D.; and Brewster, Robert W. Automatic sawmill. 3,811,487, Cl. 144-312.000.

Warshawsky, Jay, to Fuller Company. Apparatus for cooling pulverulent material. 3,811,823, Cl. 432-80.000.

Wasson, Burton K.; and Williams, Haydn W. R., to Frosst, Charles E., & Co. 3,3-Disubstituted-benzodioxepins. 3,812,150, Cl. 260-326.150.

Wasson, Burton Kendall, to Frosst, Charles E., & Co. 3-Diazinyl-4-(3-secondary amino-2-hydroxypropoxy)-1,2,5-thiadiazoles. 3,812,125, Cl. 260-268.00h.

Watabe, Kaname. Apparatus for finishing photo-sensitive resin boards into relief printing plates. 3,812,514, Cl. 354-317.000.

Watanabe, Katsumi. Casette-type toy phonograph. 3,811,686, Cl. 274-9.00c.

Watanabe, Kazuo. *See*—
Saito, Tomoo; Morikawa, Naotake; and Watanabe, Kazuo, 3,811,838.

Watanabe, Masaharu: *See*—
Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, 3,812,519.

Watermann, Willy: *See*—
Wehner, Karl-Heinz; Bell, Gunter, and Watermann, Willy, 3,811,288.

Waters, Robert S.: *See*—
Brenneman, J. Edward; and Waters, Robert S., 3,811,188.

Watkins, Bernard. Fish hook releasing device. 3,811,217, Cl. 43-44.820.

Watkins-Johnson Company: *See*—
Gralenski, Nicholas M., 3,812,366.

Waymire, John: *See*—
Penn, Paul E.; and Waymire, John, 3,812,408.

Weaver, Merle L., Hautala, Earl, and Nonaka, Masahide, to United States of America, Agriculture. Process for preparing shaped potato products containing solely freshly cooked and mashed potato tissue. 3,812,274, Cl. 426-438.000.

Weaver, Richard V.: *See*—
Short, Oliver A.; and Weaver, Richard V., 3,811,906.

Webb, Robert Lee: *See*—
Baile, Clifton A.; McLaughlin, Carol Lynn; and Webb, Robert Lee, 3,812,255.

Weber, Alice. Oral hygiene appliance. 3,811,447, Cl. 128-304.000.

Weber, Helmut; Aumuller, Walter, Muth, Karl; and Weyer, Rudi, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Benzenesulfonyl ureas. 3,812,185, Cl. 260-553.0da.

Weber, Helmut E.: *See*—
Coleman, Richard R., Jr.; and Weber, Helmut E., 3,811,796.

Weder, Hans Georg. Dialysis apparatus. 3,811,573, Cl. 210-321.000

Weedon, Gene Clyde, to Allied Chemical Corporation. Polyesters with improved dyeability. 3,812,178, Cl. 260-512.00r

Weeks, Albert Arthur, to British Hovercraft Corporation, Limited. Method for moving and lifting a ship section. 3,811,583, Cl. 214-152.000.

Weeks, John R., Jr.: *See*—
Drouhard, Alfred J., Jr., and Weeks, John R., Jr., 3,811,135.

Wehner, Karl-Heinz; Bell, Gunter, and Watermann, Willy, to Klockner-Werke AG. Traveling face support with an attached extensible shield. 3,811,288, Cl. 61-45.00d.

Wehring, Elwood. *See*—
Dula, Alfred A.; and Wehring, Elwood, 3,811,710.

Wehrmeister, Herbert L., to Commercial Solvents Corporation. Imidazoline tranquilizing agents. 3,812,111, Cl. 260-240.00d

Wehrmeister, Herbert L.; and Robertson, Donald E., to Commercial Solvents Corporation. Production of dideoxyzearalane. 3,812,155, Cl. 260-343.20f.

Weichhand, Robert J.; Schuler, Ralph J.; and Dieter, Julian A., to Jones, R. A., & Company, Incorporated. Packaging machine having reciprocating transport conveyor. 3,811,330, Cl. 74-53.000.

Weigele, Manfred: *See*—
Leimgruber, Willy; and Weigele, Manfred, 3,812,181.

Weinstein, Martin; Speirs, Kenneth K.; and Baer, Robert B., to Chromalloy American Corporation. Corrosion resistant coating system. 3,811,959, Cl. 148-6.15r.

Weinstein, Martin; Singhal, Subhash C., and Ellis, John L., to Chromalloy American Corporation. Boridized steel-bonded carbides. 3,811,961, Cl. 148-34.000.

Weinstock, Leonard M.; Tull, Roger J., and Mulvey, Dennis M., to Frosst, Charles E., & Co. S-Bis-(2-lower alkyl amino hydroxymethylethoxy)-methanes. 3,812,182, Cl. 260-584.00r.

Weir Pumps Limited: *See*—
Randell, Forrest Thomson, 3,811,789.

Weisbord, Leon: *See*—
Bilinski, Donald J.; and Weisbord, Leon, 3,811,172.

Weiss, Erwin M.: *See*—
Brander, Richard; and Weiss, Erwin M., 3,812,300.

Welker, Jerry W.: *See*—
Grey, Donald M.; Butler, Lee D.; Welker, Jerry W.; and Crane, Jack W., 3,811,584.

Weller, Charles E., to Shell Oil Company. Seismic exploration method. 3,812,457, Cl. 340-15.5td.

Wellings, Raymond Joseph: *See*—
Wise, John Arthur; Wellings, Raymond Joseph; and Williams, Eric, 3,811,281.

Wells, James E. Convertible ash tray-bank. 3,811,452, Cl. 131-170.00a.

Welzein, Norman F.: *See*—
Keenan, Daniel J.; and Welzein, Norman F., 3,811,417.

Wennerberg, Arnold N.; and Frazier, Alvin W., to Standard Oil Company. Hydrotreatment of fossil fuels. 3,812,028, Cl. 208-112.000.

Werner, Guenther, to VEB Elektromat. Arrangement for inserting prefabricated coils of wire into the slot of electrical machines. 3,811,169, Cl. 29-205.00d.

Werner, Lincoln Harvey, to Ciba-Geigy Corporation. 5-Arylsulfamylanthranilic acids. 3,812,104, Cl. 260-239.600.
Wernlund, Roger F.; Carroll, David L.; Kilpatrick, Wallace D.; and Cohen, Martin J., to Franklin Gno Corporation. Apparatus and methods for measuring ion mass as a function of mobility. 3,812,355, Cl. 250-283.900.
Wertz, C. Kenneth. Film display apparatus. 3,811,762, Cl. 353-26.000.
Weslager, Clinton A.: *See*—
van der Linde, Willem B.; and Weslager, Clinton A., 3,812,043.
Wessel, Per Christian; and Eldby, Per, to Kvaerner Brug A/S. Folding cover system for hatches. 3,811,396, Cl. 114-201.00r.
Wesson, Richard A.; and Platter, Sandford, to Semi, Inc., mesne and Jarratt, Robert L., Trustee, in bankruptcy for Semiconductor Electronic Memories, Inc. Isothermal boat container. 3,811,829, Cl. 432-253.000.
Westcott, Edwin Russell: *See*—
Herz, Arthur Herman; and Westcott, Edwin Russell, 3,811,896.
Western Electric Company, Incorporated: *See*—
Rapp, Willard Emanuel, 3,811,193.
Western Geophysical Company of America: *See*—
Johnston, Otis A., 3,811,530.
Westfield, Donald: *See*—
Clark, Roy; and Westfield, Donald, 3,811,922.
Westinghouse Air Brake Company: *See*—
Reno, William H.; and Westinghouse Air Brake Company, 3,812,444.
Westinghouse Electric Corporation: *See*—
Archer, David H.; Brecher, Lee E.; Morris, Joe P.; Talko, Francis; and Taylor, Herbert L., 3,811,936.
Miller, Robert C.; and Carr, Walter J., Jr., 3,812,484.
Murtha, John C.; and Ross, James A., Jr., 3,812,470.
Weston, Norma Ann, to American Cyanamid Company. Fluorescent composition containing a coumarone-indene resin. 3,812,052, Cl. 252-301.20r.
Westphalen, Leonard F. Multifocal adapter for cameras. 3,812,509, Cl. 354-195.000.
Westra, Simon, to Shell Oil Company. Universal spacer connector for verticle mooring buoy hoses. 3,811,142, Cl. 9-8.00p.
Westvaco Corporation: *See*—
Ringley, Michael B., 3,811,995.
Weyer Haeuser Company: *See*—
Ryan, Arthur Sensor, 3,812,001.
Weyer, Rudi: *See*—
Weber, Helmut; Aumuller, Walter; Muth, Karl; and Weyer, Rudi, 3,812,185.
Wezel, Hans; and Zeller, Manfred, to Schmid & Wezel. Portable pneumatic power tool. 3,811,513, Cl. 173-12.000.
Wharton, Walter W.; and Connaughton, Joseph W., to United States of America, Army. Process of using storable propellant fuels in supersonic combustion ramjets. 3,811,280, Cl. 60-207.000.
Wheeler, Foster, Corporation. *See*—
Dunmyer, Joseph C., Jr.; and Godino, Rino L., 3,811,844.
White, Frederick W., to United States of America, Navy. Stabilized platform. 3,811,329, Cl. 74-5.410.
White, Harold R.: *See*—
Doncer, Alex J.; and White, Harold R., 3,811,324.
Whitehall Electronics Corporation: *See*—
Pearson, Raymond H., 3,812,455.
Whitman, Nelson, to General Electric Company. Acoustic flame detectors for steam generators. 3,811,816, Cl. 431-75.000.
Whitney, W. G., Corporation: *See*—
Whitney, William G.; and Muesing, Lawrence, 3,811,136.
Whitney, William G.; and Muesing, Lawrence, to Whitney, W. G., Corporation. Sanitary urine collector. 3,811,136, Cl. 4-110.000.
Whittaker, Mack P.; and Grindstaff, Lloyd I., to Great Lakes Carbon Corporation. Production of highly ordered graphite particles. 3,812,240, Cl. 423-448.000.
Widdifield, Garth E. Method and apparatus for mounting hair. 3,811,425, Cl. 128-1.000.
Widner, Rayburn K.: *See*—
Rodgers, Aubrey; and Widner, Rayburn K., 3,811,328.
Wiechert, Rudolf: *See*—
Berndt, Hans-Detlef; Steinbeck, Hermann; and Wiechert, Rudolf, 3,812,165.
Wiechert, Rudolf; and Steinbeck, Hermann, to Schering Aktiengesellschaft. Dichloro-substituted estradiene. 3,812,166, Cl. 260-397.400.
Wieder, Harold, to International Business Machines Corporation. Method for superresolution in an optical memory. 3,812,477, Cl. 340-173.0lm.
Wilcox, Milton E., to Motorola, Inc. Monolithic horizontal processing circuit with selectable duty cycle. 3,812,387, Cl. 307-265.000.
Wilder, Donald L.: *See*—
Ryan, William J., Sr.; Schirmer, Edward F.; Thoma, Nandor G.; Tolley, James H.; and Wilder, Donald L., 3,811,182.
Wilding, Edwin L., to Griffin & Company. Method of processing tobacco in a blend-bulk silo. 3,811,585, Cl. 214-152.000.
Wilhelmsen, Paul C.: *See*—
Neale, Robert E.; Wilhelmsen, Paul C.; and Winterhalter, David R., 3,811,682.
Wilkes Pool Corporation: *See*—
Barrera, Salvatore E., 3,811,712.
Wilkinson, Michael C.; Blais, Leo; Martin, Wilhelm N.; and Tesainer, Silvano, to Consolidated Paper (Bahamas) Limited. Apparatus for bonding thermoplastic materials and products thereof. 3,811,987, Cl. 156-497.000.
Wilkinson Sword Limited: *See*—
Brown, Henry E., 3,811,439.
Wilks, Phillip H.: *See*—
Scammon, Lawrence W., Jr.; Grant, Clarence L.; and Wilks, Phillip H., 3,811,907.
Willey, Ronald R.: *See*—
MacNeill, John H.; and Willey, Ronald R., 3,812,459.
Williams, Eric: *See*—
Wise, John Arthur; Wellings, Raymond Joseph; and Williams, Eric, 3,811,281.
Williams, Haydn W. R.: *See*—
Wasson, Burton K.; and Williams, Haydn W. R., 3,812,150.
Williams, James T.: *See*—
Vieceli, Joseph L.; and Williams, James T., 3,811,208.
Williams, Laurence Lyman; and Coscia, Anthony Thomas, to American Cyanamid Company. Glyoxalated 2-vinyl-1-cycloamideneprepionamide polymers. 3,812,084, Cl. 260-67.00r.
Wilson, Katherine W.: *See*—
Gamarra, Jose P., Swidler, Ronald; and Wilson, Katherine W., 3,811,131.
Wilson, Richard C., to Aluminum Company of America. Ball bat construction. 3,811,596, Cl. 220-24.00a.
Wilt, John E. Wild fowl decoy device. 3,811,221, Cl. 46-180.000.
Winiarz, Olgiero S.: *See*—
McInerney, Charles E.; and Winiarz, Olgiero S., 3,811,741.
Winterhalter, David R.: *See*—
Neale, Robert E.; Wilhelmsen, Paul C.; and Winterhalter, David R., 3,811,682.
Wintershall Aktiengesellschaft: *See*—
Lohmuller, Ulrich, 3,812,163.
Wirtz, John S., and Nellis, David C., to Itek Corporation. System for detecting a change in light intensity. 3,812,372, Cl. 250-561.000.
Wise, John Arthur; Wellings, Raymond Joseph; and Williams, Eric, to Lucas Aerospace Limited. Hydraulic engine starting systems. 3,811,281, Cl. 60-413.000.
Witteles, Abraham A.; and Putterman, Harry, to Singer, Company, The. Read-only-memory with rediation set theshold voltage. 3,812,479, Cl. 340-173.0ls.
Wolf, Erich L.; and Flynn, William T., to Reliance Electric Company. Machine for weighing, printing and punching workpieces. 3,811,522, Cl. 177-13.000.
Wolf, Gerhard Dieter; Blankenstein, Gunter; and Nischk, Gunther, to Bayer Aktiengesellschaft. Aromatic polyamide compositions containing aromatic sulfonimide having an affinity for basic dyes. 3,812,085, Cl. 260-78.00r.
Wolf, Walter A., Corn, Prentice R.; and Gebhardt, Wallace A., to Switches, Incorporated. Tread type switch for use in passenger seats or the like. 3,812,313, Cl. 200-86.00r.
Wollum, James E.; Birchmeier, Hans P.; and Sharp, Richard S., to Burroughs Corporation. Multiprocessing system having means for dynamic redesignation of unit functions. 3,812,468, Cl. 340-172.500.
Wood, Chester W., to Dover Corporation. Automatic shut-off nozzle responsive to more than one condition in a tank being filled. 3,811,486, Cl. 141-208.000.
Woodcock, Louis E. Multiple purpose latch mechanism. 3,811,301, Cl. 70-12.000.
Wooden, John A., to Brookside Corporation. Method of forming centrifugal blower wheel. 3,811,978, Cl. 156-160.000.
Woodling, Gerald L.: *See*—
Johnson, Ernest D.; Kirschner, Gerald D.; Kondrajian, Edward; and Woodling, Gerald L., 3,811,385.
Woodmansee, Donald E., to General Electric Company. Refractory bodies as fixed bed coal gasification diluents. 3,811,849, Cl. 48-202.000.
Woods, James F.; and Kerns, Gary Paul, to Standard Hydraulics Service, Inc. Pump filters. 3,811,571, Cl. 210-136.000.
Woods, Robert L., to United States of America, Army. Flueric gas-to-liquid interface amplifier. 3,811,475, Cl. 137-840.000.
Woodward, Ernest F. Cargo carring vehicle. 3,811,724, Cl. 296-36.000.
Woodward, Gary F., to Ford Motor Company. Transmission mounted speed sensor with odometer switch. 3,812,331, Cl. 235-95.00r.
Woodward, Gary F., to Ford Motor Company. Electric odometer drive. 3,812,332, Cl. 235-95.00r.
Woodward, Kenneth E., to United States of America, Army. Moving splitter fluidic device. 3,811,362, Cl. 91-232.000.
Woolley, Brown J.: *See*—
Rogers, Joe C.; and Woolley, Brown J., 3,811,510.
Wren, Frederick James, to Timken Company, The. Roller bearing lubrication. 3,811,743, Cl. 308-187.000.
Wren, Frederick James; Instone, Eric Frank; Hunt, John Oliver Alfred; and Wright, Alan John, to Timken Company, The. Rolling bearings. 3,811,744, Cl. 308-235.000.
Wright, Alan John: *See*—
Wren, Frederick James; Instone, Eric Frank; Hunt, John Oliver Alfred; and Wright, Alan John, 3,811,744.
Wright, Arthur J.: *See*—
Farber, Sheldon; and Wright, Arthur J., 3,812,146.
Lin, Chao-Han; and Wright, Arthur J., 3,812,157.
Wright, Charles J.: *See*—
Darlak, Robert S.; and Wright, Charles J., 3,811,891.

Wright, Howard J., to Cook Paint and Varnish Company. Reaction product of acrylamide polymers and polyphenolic precursor. 3,812,202, Cl. 260-834.000.
Wright, John S. Transparency display device. 3,811,212, Cl. 40-106.100.
Wright, Robert Lee, to Monsanto Company. Solutions of resol condensates of unsaturate-resorcinol polymers. 3,812,068, Cl. 260-29.300.
Wurttiembergische Metallwerke: *See*—
Schlomer, Josef; and Hof, Georg, 3,811,976.
Wyckoff, Charles W., to Applied Photo Sciences, Inc., mesne. Color photography. 3,812,507, Cl. 254-104.000.
Wyler, Mark, to Lee, Raymond, Organization, Inc., The. Miter box of variable width. 3,811,356, Cl. 83-762.000.
Xerox Corporation: *See*—
Forest, Edward, 3,811,764.
Inoue, Noriyuki, 3,811,670.
Robinson, Thomas K., Jr., 3,811,766.
Tamai, Yasuo; Taguchi, Seiichi; Yamada, Kiyoshi; and Yamamoto, Nobuo, 3,812,037.
Yabu, Toshiomi: *See*—
Nagahiro, Michinori; Yabu, Toshiomi; Hosono, Hiroo; and Ushihara, Masaharu, 3,811,640.
Yakubek, Louis P., and Obenshain, George R., to Owens-Illinois, Inc. Glass heat treat machinery. 3,811,862, Cl. 65-280.000.
Yamada, Kiyoshi: *See*—
Tamai, Yasuo, Taguchi, Seiichi; Yamada, Kiyoshi; and Yamamoto, Nobuo, 3,812,037.
Yamaguchi, Hisashi: *See*—
Ishihara, Masao, Wada, Tsuneo, Yamaguchi, Hisashi; and Sugita, Sadao, 3,811,887.
Yamaguchi, Tadanori: *See*—
Sato, Shuichi, and Yamaguchi, Tadanori, 3,812,517.
Yamaguchi, Tetsuo: *See*—
Yoshino, Hirokazu; Yamaguchi, Tetsuo; and Tsuboka, Eiichi, 3,812,488.
Yamamoto, Hisao: *See*—
Ishizumi, Kikuo; Mori, Kazuo; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,102.
Kimura, Michio; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,112.
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,135.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Inaba, Shigeho; and Yamamoto, Hisao, 3,812,118.
Yamamoto, Michihiro, Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho; Nakatani, Hiroshi; and Yamamoto, Hisao, 3,812,257.
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, Novel process for preparing 1-substituted-benzodiazepine derivatives. 3,812,101, Cl. 260-239.30d.
Yamamoto, Michihiro: *See*—
Yamamoto, Hisao; Inaba, Shigeho; Hirohashi, Toshiyuki; Yamamoto, Michihiro; Ishizumi, Kikuo; Akatsu, Mitsuhiro; Maruyama, Isamu; Kume, Yoshiharu; Mori, Kazuo; and Izumi, Takahiro, 3,812,101.
Yamamoto, Michihiro, Morooka, Shigeaki; Koshiba, Masao; Inaba, Shigeho, and Yamamoto, Hisao, to Sumitomo Chemical Company, Ltd. 2(1H)-Quinazolinones by reaction of 2-carbamoylindoles with halogen. 3,812,118, Cl. 260-247.100.
Yamamoto, Michihiro; Morooka, Shigeaki; Koshiba, Masao; Aono, Shunji; Aisaka, Akira; Inaba, Shigeho, Nakatani, Hiroshi; and Yamamoto, Hisao, to Sumitomo Chemical Company, Ltd. Uricosuric agent. 3,812,257, Cl. 424-251.000.
Yamamoto, Nobuo. *See*—
Endou, Koutarou; Yoneyama, Masakazu; Yamamoto, Nobuo; Ojihara, Motohiro; and Nakajima, Yosuke, 3,811,889.
Tamai, Yasuo; Taguchi, Seiichi; Yamada, Kiyoshi; and Yamamoto, Nobuo, 3,812,037.
Yamanaka, Izumi; Sato, Hironobu; and Takeuchi, Yoshihiro, to National Cash Register Company, The. Recording device control system. 3,811,615, Cl. 235-58.00p.
Yamanaka, Senya. Life buoy. 3,811,144, Cl. 9-311.000.
Yamauchi, Masayuki: *See*—
Ohta, Wasaburo; Kasuya, Kazuhiko; Fujimoto, Sakae; and Yamauchi, Masayuki, 3,811,828.
Yancey, John W., to Caterpiller Tractor Company. Enclosed gear drive machanism for excavators. 3,811,577, Cl. 212-69.000.
Yang, Kang: *See*—
Johnson, Morris A.; and Yang, Kang, 3,812,211.
Yankowskis, Stanislaws Kazimirowich: *See*—
Kashkina, Nadezhda Alexandrovna; Pormale, Milda Yanovna; Kalninch, Arvid Yanovich; Shusters, Yanis; Dambite, Guna Robertowna; Reinberg, Ipatiya Marcewna; Walkowa, Idea Wladimirowna; Tipaine, Wiya Aleksandrowna; Skutelis, Antons Petrowich; Yankowskis, Stanilaws Kazimirowich; and Olina, Inese Petrowna, 3,812,099.
Yazaki, Mutsunobu: *See*—
Matsubs, Mutsuhide; Ogiso, Mitsutoshi; and Yazaki, Mutsunobu, 3,812,508.
Yazawa, Hisatoyo: *See*—
Takano, Tadayoshi; Kariyone, Kazuo; Kurita, Masaru; Yazawa, Hisatoyo; Nakamura, Hitoshi; and Hasegawa, Mitsunori, 3,812,116.
Yiannos, Peter N.: *See*—
Salvucci, Joseph L., Jr.; and Yiannos, Peter N., 3,812,000.
Yoichi, Tsuchiya, to Teac Corporation. System for discriminating classification of a magnetic recording medium. 3,812,529, Cl. 360-25.000.
Yokoyama, Masuzo: *See*—
Tashiro, Kijuro; Yokoyama, Masuzo; and Kitazume, Shoji, 3,812,089.
Yoneyama, Masakazu: *See*—
Endou, Koutarou; Yoneyama, Masakazu; Yamamoto, Nobuo; Ojihara, Motohiro; and Nakajima, Yosuke, 3,811,889.
Yonezawa, Teruhiko; and Shirai, Akira, to Fuji Photo Film Co., Ltd. Photosensitive aluminum plate and process for preparing the same. 3,811,894, Cl. 96-86.00r.
Yonezawa, Toshio: *See*—
Nakamura, Masakatsu; Yonezawa, Toshio; Kato, Taketoshi; Watanabe, Masaharu; and Akatsuka, Minoru, 3,812,519.
Yoshikawa, Junihiko, to Kabushiki Kaisha Yoshikawa Seisakusho. Apparatus for attaching a center pull type brake to a bicycle. 3,811,541, Cl. 188-206.00r.
Yoshikawa, Toshikazu: *See*—
Takimoto, Yasuyuki; and Yoshikawa, Toshikazu, 3,812,078.
Yoshimura. Takayuki. Method of manufacturing the body of a neck-in can and an apparatus used therefor. 3,811,306, Cl. 72-126.000.
Yoshino, Hirokazu; Yamaguchi, Tetsuo; and Tsuboka, Eiichi, to Matsushita Electric Industrial Co., Ltd. Television receiver for displaying a computing process. 3,812,488, Cl. 340-324.0ad.
Yoshizaki, Akira: *See*—
Hayashi, Toshio; Yoshizaki, Akira; and Tsujimoto, Kayoshi, 3,812,499.
Yoshizumi, Shuzo; and Matsumoto, Yoshimitsu, to Matsushita Electric Industrial Co., Ltd. Apparatus for welding, fusing or heating workpiece utilizing energy of a light beam. 3,812,318, Cl. 219-85.000.
Young, Oswald William John: *See*—
Stibbs, Donald; Thompson, Raymond; and Young, Oswald William John, 3,811,899.
Yuan, Edward L., to Du Pont de Nemours, E. I., and Company. Smoke and flame resistant laminate articles. 3,811,997, Cl. 161-68.000.
Zabolotsky, Grigory Mikhailovich; Rakovsky, Vladimir Mikhailovich; Shuster, Sergei Alexandrovich; and Boldyrev, Mikhail Vsevolodovich. Method of making split metal packing rings. 3,811,166, Cl. 29-156.600.
Zahn, Wolfgang; and Huber, Hans-Peter, to Agfa-Gevaert Aktiengesellschaft. Method and apparatus for encoding and treating strips of photographic print. 3,811,768, Cl. 355-29.000.
Zarges Leichtbau GmbH, Firma: *See*—
Kuemmerlin, Walter, 3,811,151.
Zaugg, Roland; and Fluck, Josef, to Schild, A., S.A. Watch movement automatic rewinding assembly with rotating mass. 3,811,267, Cl. 58-82.00a.
Zeller, Manfred: *See*—
Wezel, Hans; and Zeller, Manfred, 3,811,513.
Zellweger, Ltd., Uster Factories for Apparatus and machines: *See*—
Felix, Ernst, 3,811,261.
Zemtsov, Nikolai Nikolaevich: *See*—
Birger, Abram Isaakovich; Fiskin, Alexandr Mikhailovich; Samsonov, Ivan Sergeevich; Savushkin, Anatoly Alexandrovich; Zemtsov, Nikolai Nikolaevich; and Borisevich, Vitaly Arkadievich, 3,811,812.
Zenith Radio Corporation: *See*—
Kaplan, Sam H., 3,812,394.
Ziegler, William M., to American Cyanamid Company. Purification of 7-chlorotetracycline. 3,812,188, Cl. 260-559.0at.
Zimmer, Peter: *See*—
Bohm, Walter, 3,811,378.
Zimmermann, Adolf, Maschinenbau: *See*—
Lesk, Adolf; Baumann, Rudolf; and Link, Otmar, 3,811,248.
Zimmermann, Frank: *See*—
Kraft, Helmut; Zimmermann, Frank; and Hofmann, Hans-Peter, 3,812,258.
Zimmermann, Horst: *See*—
Hartmann, Rudolf; and Zimmermann, Horst, 3,811,283.
Zmatlik, Josef: *See*—
Peschl, Ervin; Zmatlik, Josef; Sedlecky, Jaromir; and Kolar, Vladimir, 3,811,299.
Zobel, Siegfried: *See*—
Hackenbert, Hubert; and Zobel, Siegfried, 3,812,511.
Zographos, Georg; and Frey, Christoph, to Ciba-Geigy AG. Photoelectrophoretic imaging process employing naphthofuranediones. 3,811,883, Cl. 96-1.300.
Zola, John C. Novel coating compositions and their preparation. 3,811,904, Cl. 106-193.00j.
Zust, Armin; and Schindler, Walter; deceased (by Gysin, Leonhard; executor), to Ciba-Geigy Corporation. [1-[4-[3-(p-Fluorobenzoyl)-propyl]-1 piperazinyl]-alkyl-]-3 alkyl-2-imidazolidinones. 3,812,126, Cl. 260-268.00h.
Zutter, Hans: *See*—
Suter, Hans; Zutter, Hans; and Muller, Hans Rudolf, 3,812,186.
06/21/74; and Sterlini, Jacques, to Societe Anonyme: Compagnie Electro-Mecanique. Intimate gas-liquid contact method and apparatus. 3,811,663, Cl. 261-151.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Allmanna Svenska Elektriska Aktiebolaget: *See*—
Lundstrom, Hans T., and Allmanna. Re. 28,018.
Clark Equipment Co.: *See*—
Dence, Donald S. Re. 28,017.
Dence, Donald S., to Clark Equipment Co. Hydraulic shifting mechanism for a mechanical transmission. Re. 28,017, 5–21–74, Cl. 74—477.
Dow Chemical Co., The: *See*—
Knierlem, Herman, Jr. Re. 28,014.
General Electric Co.: *See*—
Vermilyea, David A., Ochar, and Vedder. Re. 28,015.
Huddle, Carl F., to Tension Structures Co. Damping means for portable structures. Re. 28,012, 5–21–74, Cl. 135—1.
Kabushiki Kaisha Rioch: *See*—
Koizumi, Yutaka. Re. 28,016.
Knierlem, Herman, Jr., to The Dow Chemical Corp. Method for dry cleaning. Re. 28,014, 5–21–74, Cl. 8—142.
Koizumi, Yutaka, to Kabushiki Kaisha Rioch. Optical scanner and slit exposure device for reproduction apparatus. Re. 28,016, 5–21–74, Cl. 355—65.
Lundstrom, Hans T., by Allmanna Svenska Elektriska Aktiebolaget, a Corp., of Sweden, assignee. Vertical tube furnace. Re. 28,018, 5–21–74, Cl. 13—20.
McLarty, Gordon. Safety switch and circuit for oil-burning furnace. Re. 28,013, 5–21–74, Cl. 431—22.
Ochar, Donald R.: *See*—
Vermilyea, David A., Ochar, and Vedder. Re. 28,015.
Tension Structures Co.: *See*—
Huddle, Carl F. Re. 28,012.
Vedder, Willem: *See*—
Vermilyea, David A., Ochar, and Vedder. Re. 28,015.
Vermilyea, David A., D. R. Ochar, and W. Vedder, to General Electric Co. Aluminum electrode electrolytic capacitor construction. Re. 28,015, 5–21–74, Cl. 29—570.

LIST OF PLANT PATENTEES

Butters, Keith D., to Yoder Brothers, Inc. Chrysanthemum plant. 3,553, 5–21–74, Cl. 78.
Cully, Earl. Bald cypress. 3,551, 5–21–74, Cl. 50.
Duffett, William E.: *See*—
Jessel, Walter H., Jr., and Duffett. 3,552.
Harcharik, Thomas G.: *See*—
Mazzanti, Peter F., and Harcharik. 3,554.
Jackson & Perkins Co.: *See*—
Warriner, William A. 3,555.
Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,552, 5–21–74, Cl. 75.
Mazzanti, Peter F.: *See*—
Mazzanti, Peter F., and Harcharik. 3,554.
Mazzanti, Peter F., and T. G. Harcharik; said Harcharik assor. to said Mazzanti. Carnation plant. 3,554, 5–21–74, Cl. 70.
Warriner, William A., to Jackson & Perkins Co. Rose plant. 3,555, 5–21–74, Cl. 22.
Yoder Brothers, Inc.: *See*—
Jessel, Walter H., Jr., and Duffett. 3,552.
Butters, Keith D. 3,553.

LIST OF DESIGN PATENTEES

Boano, Gianpaolo, to Fiat Societe per Azioni. Automobile. 231,672, 5–21–74, Cl. D12—91.
Brooks, Joe W., D. C. Waters, and P. J. Clener. Display cabinet. 231,668, 5–21–74, Cl. D6—167.
Clener, Paul J.: *See*—
Brooks, Joe W., Waters, and Clener. 231,668.
Fee, Robert W., to Lawndale Industries, Inc. Lavatory. 231,675, 5–21–74, Cl. D23—58.
Fiat Societe per Azioni: *See*—
Boano, Gianpaolo. 231,672.
Genaro, Donald M., and C. A. Iten, to Philip Morris Inc. Razor blade dispenser. 231,670, 5–21–74, Cl. D9—224.
Heavy Light Mfg. Corp.: *See*—
Keller, John A. 231,679.
Keller, John A. 231,680.
House, Lawrence E., II., to Litton Medical Products, Inc. Dental control unit. 231,676, 5–21–74, Cl. D24—1.
Intercollection Development S.A.: *See*—
Tuttle, Paul. 231,667.
Iten, Clemens A.: *See*—
Genaro, Donald M., and Iten. 231,670.
Jimenez, Ivan, and I. Rubin. Mounting for a rifle telescopic sight. 231,674, 5–21–74, Cl. D22—7.
K-Tel International, Inc.: *See*—
Krause, Arthur A. 231,669.
Keller, John A., to Heavy Light Mfg. Corp. Lighting fixture. 231,679, 5–21–74, Cl. D48—4.
Keller, John A., to Heavy Light Mfg. Corp. Outdoor lighting fixture. 231,680, 5–21–74, Cl. D48—31.
Krause, Arthur A., to K-Tel International, Inc. Dish rack. 231,669, 5–21–74, Cl. D7—188.
Lawndale Industries, Inc.: *See*—
Fee, Robert W. 231,675.
Litton Medical Products, Inc.: *See*—
House, Lawrence E., II. 231,676.
Matsushita Electric Industrial Co., Ltd.: *See*—
Takahashi, Hanji, and Takeoka. 231,681.
Miller, Robert E. Combined tabletop, aquarium and cover therefor or similar article. 231,677, 5–21–74, Cl. D30—8.
Nanpei, Masahiro, to Sumitomo- Rubber Industries, Ltd. Tire. 231,673, 5–21–74, Cl. D12—141.
Pacitti, Thomas G. Belt buckle. 231,666, 5–21–74, Cl. D2—431.
Philip Morris Inc.: *See*—
Genaro, Donald M., and Iten. 231,670.
Rineman, Harold J.: *See*—
Young, S., Albert. 231,671.
Rubin, Irving: *See*—
Jimenez, Ivan, and Rubin. 231,674.
Sacks, Emmy L. Sport ball bag. 231,682, 5–21–74, Cl. D87—1.
Sumitomo- Rubber Industries, Ltd.: *See*—
Nanpei, Masahiro. 231,673.
Takahashi, Hanji, and R. Takeoka, to Matsushita Electric Industrial Co., Ltd. Record player. 231,681, 5–21–74, Cl. D56—4.
Takeoka, Ryoichi: *See*—
Takahashi, Hanji, and Takeoka. 231,681.
Trotter, Edward E. Treadmill. 231,678, 5–21–74, Cl. D34—5.
Tuttle, Paul, to Intercollection Development S.A. Chair. 231,667, 5–21–74, Cl. D6—31.
Waters, Delma C.: *See*—
Brooks, Joe W., Waters, and Clener. 231,668.
Young, S., Albert, ⅓ to each Rineman, Harold J., Rineman, and Richard Lynn. Folding motorized vehicle. 231,671, 5–21–74, Cl. D12—1.

CLASSIFICATION OF PATENTS

ISSUED MAY 21, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2
177 3,811,130
243 3,811,131
270 3,811,132

CLASS 3
36 3,811,133

CLASS 4
18 3,811,134
76 3,811,135
110 3,811,136
172.19 3,811,137

CLASS 5
9 3,811,138
82 3,811,139
327R 3,811,140

CLASS 8
10.1 3,811,830
11 3,811,831
94.26 3,811,832
111 3,811,833
116R 3,811,834
128A 3,811,835
142 Re.28,014
173 3,811,836

CLASS 9
6 3,811,141
8P 3,811,142
310R 3,811,143
311 3,811,144

CLASS 10
123P 3,811,145

CLASS 11
1R 3,811,146

CLASS 13
10 3,812,275
20 Re.28,018
25 3,812,276

CLASS 14
1 3,811,147

CLASS 15
3.14 3,811,148

CLASS 16
130 3,811,149
137 3,811,150
144 3,811,151

CLASS 17
1R 3,811,152
76 3,811,153

CLASS 23
230HC 3,811,837
230PC 3,811,838
253PC 3,811,839
253TP 3,811,840
253R 3,811,841
259 3,811,842
270.5 3,811,843
3,811,844
288F 3,811,845

CLASS 24
73P 3,811,154
115G 3,811,155
201C 3,811,156
221R 3,811,157
239 3,811,158

CLASS 26
55R 3,811,159

CLASS 29
76A 3,811,160
81H 3,811,161
96 3,811,162
103A 3,811,163
128 3,811,164
132 3,811,165
156.6 3,811,166
193 3,811,846
200P 3,811,167
203H 3,811,168
205D 3,811,169
208D 3,811,171
429 3,811,170
445 3,811,172
453 3,811,174
460 3,811,173
464 3,811,175
469 3,811,176
494 3,811,177
517 3,811,178
568 3,811,179
570 Re.28,015
572 3,811,180
3,811,181
574 3,811,182
588 3,811,183
592 3,811,184
599 3,811,185
626 3,811,186
630R 3,811,187

CLASS 30
34R 3,811,188
346.53 3,811,189

CLASS 32
56 3,811,190

CLASS 33
137L 3,811,191
170 3,811,192
178R 3,811,193
181AT 3,811,194
185R 3,811,196
265 3,811,195
374 3,811,197

CLASS 34
9.5 3,811,200
24 3,811,198
54 3,811,201
92 3,811,199
133 3,811,202

CLASS 35
6 3,812,277
22R 3,811,203
25 3,811,204
32 3,811,205
35H 3,811,206

CLASS 36
2.5AL 3,811,207

CLASS 38
77.8 3,811,208
102.6 3,811,209
144 3,811,210

CLASS 40
2.2 3,811,211
106.1 3,811,212
106.53 3,811,213
152 3,811,214

CLASS 43
18R 3,811,215
26 3,811,216
44.82 3,811,217

CLASS 44
62 3,811,848
63 3,811,847

CLASS 46
17 3,811,218
25 3,811,219
135R 3,811,220
180 3,811,221

CLASS 48
202 3,811,849

CLASS 49
9 3,811,222
127 3,811,223
168 3,811,224
463 3,811,225

CLASS 51
16 3,811,227
49 3,811,228
80R 3,811,226
125 3,811,229
127 3,811,230
163 3,811,231
249 3,811,232
269 3,811,233
323 3,811,234

CLASS 52
69 3,811,235
102 3,811,236
126 3,811,237
204 3,811,238
406 3,811,239
560 3,811,240
760 3,811,241

CLASS 53
24 3,811,242
30 3,811,243
116 3,811,244
124A 3,811,245

CLASS 55
71 3,811,246
84 3,811,249
178 3,811,247
228 3,811,252
270 3,811,253
272 3,811,248
274 3,811,250
276 3,811,251
306 3,811,254

CLASS 56
13.3 3,811,255

CLASS 57
1R 3,811,256
9 3,811,257
34HS 3,811,258
58.83 3,811,259
77.3 3,811,260
81 3,811,261
140BY 3,811,262
140R 3,811,263
159 3,811,264

CLASS 58
24R 3,811,265
58 3,811,266
82A 3,811,267

CLASS 59
27 3,811,268
77 3,811,269
86 3,811,270

CLASS 60
39.15 3,811,273
39.32 3,811,274
39.34 3,811,275
39.6 3,811,271
39.65 3,811,276
3,811,277
39.74R 3,811,278
207 3,811,280
413 3,811,281
421 3,811,282
484 3,811,283
518 3,811,272
533 3,811,284
660 3,811,279

CLASS 61
1F 3,811,285
31 3,811,286
38 3,811,287
45D 3,811,288
46 3,811,289
63 3,811,290

CLASS 62
84 3,811,291
183 3,811,292
280 3,811,293
390 3,811,294

CLASS 64
1V 3,811,295

CLASS 65
1 3,811,850
22 3,811,851
3,811,852
23 3,811,853
27 3,811,854
30 3,811,855
48 3,811,856
65R 3,811,857
135 3,811,858
3,811,859
3,811,860
179 3,811,861
280 3,811,862

CLASS 66
8 3,811,296
50R 3,811,297
86 3,811,298
120 3,811,299

CLASS 68
12R 3,811,300

CLASS 70
12 3,811,301
100 3,811,302
237 3,811,303

CLASS 71
92 3,811,863
124 3,811,864

CLASS 72
17 3,811,304
39 3,811,305
126 3,811,306
205 3,811,307
210 3,811,308
235 3,811,309
252 3,811,310
278 3,811,311
3,811,312
430 3,811,313

CLASS 73
6 3,811,314
3,811,315
11 3,811,316
23 3,811,319
40 3,811,317
61R 3,811,318
67.8S 3,811,320
155 3,811,321
3,811,322
231R 3,811,323
421B 3,811,324
425.4P 3,811,326
425.4R 3,811,325
465 3,811,327

CLASS 74
5.41 3,811,329
5.6B 3,811,328
53 3,811,330
230.17A 3,811,331
242.11S 3,811,332
242.15R 3,811,333
251R 3,811,334
409 3,811,335
471XY 3,811,336
477 Re.28,017
492 3,811,337
527 3,811,338
594.4 3,811,339
611 3,811,340
711 3,811,341
750R 3,811,342
759 3,811,343

CLASS 75
3 3,811,865
5 3,811,866
24 3,811,867
42 3,811,868
3,811,869
52 3,811,870
84 3,811,871
122 3,811,872
123K 3,811,873
124 3,811,874
3,811,875
173R 3,811,876
208R 3,811,877
211 3,811,878

CLASS 81
90E 3,811,344

CLASS 82
2B 3,811,345
25 3,811,346

CLASS 83
1 3,811,347
13 3,811,348
14 3,811,349
39 3,811,350
49 3,811,351
54 3,811,352
71 3,811,353
320 3,811,354
520 3,811,355
762 3,811,356

CLASS 84
1.25 3,812,278
327 3,811,357

CLASS 86
20R 3,811,358

CLASS 89
1.87 3,811,360
1.813 3,811,359

CLASS 90
12D 3,811,361

CLASS 91
232 3,811,362
412 3,811,363
422 3,811,364

CLASS 92
63 3,811,365
130 3,811,366
165 3,811,367

CLASS 93
55 3,811,368

CLASS 96
1.3 3,811,883
1.4 3,811,880
1.5 3,811,879
3 3,811,881
13 3,811,882
27R 3,811,884
3,811,885
33 3,811,886
50R 3,811,887
66R 3,811,888
67 3,811,889
74 3,811,890
3,811,891
3,811,892
79 3,811,893
86R 3,811,894
88 3,811,895
100 3,811,896
114 3,811,897

CLASS 98
40D 3,811,369
94 3,811,370
115 3,811,371

CLASS 99
277.1 3,811,372
295 3,811,373
341 3,811,374
425 3,811,375
427 3,811,376

CLASS 101
93C 3,811,377
120 3,811,378

CLASS 102
13 3,811,379
49.7 3,811,380
66 3,811,381

CLASS 104
7R 3,811,382
130 3,811,383
147 3,811,384
167 3,811,385

CLASS 106
38.28 3,811,898
43 3,811,899
50 3,811,901
55 3,811,900
169 3,811,902
187 3,811,903
193J 3,811,904
288B 3,811,905
290 3,811,906
299 3,811,907
300 3,811,908

CLASS 110
182.5 3,811,386

CLASS 111
1 3,811,387
7.1 3,811,388
91 3,811,389

CLASS 112
27 3,811,390
147 3,811,391
168 3,811,392

CLASS 113
120R 3,811,393

CLASS 114
144R 3,811,394
3,811,395
201R 3,811,396

CLASS 115
14 3,811,397
16 3,811,398
39 3,811,399

CLASS 116
70 3,811,400
3,811,401
114.5 3,811,402
125 3,811,403
129R 3,811,404

CLASS 117
8.5 3,811,909
17 3,811,910
33 3,811,911
33.3 3,811,912
34 3,811,913
37LE 3,811,914
45 3,811,915
46CB 3,811,916
47H 3,811,918
47R 3,811,917
62 3,811,919
69 3,811,920
72 3,811,921
76P 3,811,924
76T 3,811,922
3,811,923
93.4R 3,811,925
101 3,811,926
106R 3,811,927
106 3,811,928
107.2R 3,811,929
3,811,930
132B 3,811,931
138.5 3,811,932
155UA 3,811,933
212 3,811,934
215 3,811,935
217 3,811,936
3,811,937
224 3,811,938
227 3,811,939
228 3,811,940
234 3,811,941
235 3,811,942

CLASS 118
2 3,811,405
6 3,811,406
32 3,811,407
73 3,811,408
314 3,811,409

CLASS 119
1 3,811,410
4 3,811,411
53 3,811,412
106 3,811,413

CLASS 122
250R 3,811,414
478 3,811,415

CLASS 123
52M 3,811,416
73A 3,811,417
103R 3,811,418
119R 3,811,419
148E 3,811,420

CLASS 124
1 3,811,421

CLASS 126
263 3,811,422

CLASS 128
1R 3,811,423
3,811,424
1 3,811,425
1.2 3,811,426
2.05D 3,811,427
2.05E 3,811,429
2.05M 3,811,439
2.06F 3,811,428
33 3,811,430

64 3,811,431
66 3,811,432
84C 3,811,433
89R 3,811,434
130 3,811,435
140 3,811,436
152 3,811,437
156 3,811,438
214.4 3,811,440
218DA 3,811,441
218R 3,811,442
235 3,811,443
260 3,811,444
285 3,811,445
303 3,811,446
304 3,811,447
343 3,811,449
349B 3,811,448
349R 3,811,450

CLASS 131

10R 3,811,451
170A 3,811,452

CLASS 132

53 3,811,453

CLASS 135

1R Re.28,012
3,811,454
46T 3,811,455

CLASS 136

6FS 3,811,943
6LF 3,811,947
6R 3,811,944
10 3,811,945
30 3,811,946
83T 3,811,948
86A 3,811,952
86B 3,811,951
86D 3,811,949
86E 3,811,950
89 3,811,953
3,811,954
107 3,811,955
133 3,811,956
146 3,811,957
233 3,811,958

CLASS 137

39 3,811,456
73 3,811,457
106 3,811,458
227 3,811,459
255 3,811,460
318 3,811,461
344 3,811,462
362 3,811,463
414 3,811,464
487.5 3,811,465
493 3,811,466
494 3,811,467
512.15 3,811,468
525.1 3,811,469
540 3,811,470
596.13 3,811,471
625.68 3,811,472
810 3,811,473
833 3,811,474
840 3,811,475
842 3,811,476

CLASS 138

103 3,811,477
154 3,811,478

CLASS 139

124A 3,811,479
384R 3,811,480

CLASS 140

93.2 3,811,481
93.4 3,811,482

CLASS 141

1 3,811,483
7 3,811,484
59 3,811,485
208 3,811,486

CLASS 144

312 3,811,487

CLASS 148

6.15R 3,811,959
11.5F 3,811,960
34 3,811,961
103 3,811,962
172 3,811,963

CLASS 149

19.1 3,811,964
19.2 3,811,965
3,811,966
19.4 3,811,967
19.9 3,811,968
20 3,811,969
36 3,811,970
92 3,811,971
109 3,811,972

CLASS 152

209R 3,811,488

CLASS 156

3 3,811,973
8 3,811,974
13 3,811,975
62.8 3,811,976
108 3,811,977
160 3,811,978
181 3,811,979
245 3,811,983
251 3,811,984
277 3,811,985
308 3,811,980
332 3,811,981
382 3,811,982
494 3,811,986
497 3,811,987
498 3,811,988

CLASS 160

118 3,811,489

CLASS 161

5 3,811,989
12 3,811,990
24 3,811,991
44 3,811,996
68 3,811,997
100 3,811,998
109 3,811,999
114 3,812,001
119 3,812,002
156 3,812,003
173 3,812,004
247 3,812,005
267 3,811,992

CLASS 162

18 3,811,993
19 3,811,994
3,811,995
111 3,812,000
146 3,812,006
343 3,812,007

CLASS 164

49 3,811,490
87 3,811,491
278 3,811,492

CLASS 165

32 3,811,493
65 3,811,494
85 3,811,495
105 3,811,496
157 3,811,497
161 3,811,498

CLASS 166

67 3,811,499
154 3,811,500
252 3,811,501
3,811,502
3,811,503
273 3,811,504
274 3,811,505
3,811,506
3,811,507
288 3,811,508
293 3,811,509
302 3,811,510

CLASS 168

34 3,811,512

CLASS 169

28 3,811,511

CLASS 172

311 3,811,516

CLASS 173

12 3,811,513
65 3,811,514
93 3,811,515
93.7 3,811,517

CLASS 174

38 3,812,279
52S 3,812,280
53 3,812,281
68C 3,812,282
105R 3,812,283
188 3,812,284

CLASS 175

60 3,811,518
73 3,811,519
398 3,811,520

CLASS 176

30 3,812,008

CLASS 177

1 3,811,521
13 3,811,522
180 3,811,523

CLASS 178

5.8 3,812,285
6.8 3,812,286
3,812,287
3,812,288
7.3R 3,812,289
23A 3,812,290

CLASS 179

1GQ 3,812,295
1SA 3,812,291
2DP 3,812,292
7R 3,812,293
15AQ 3,812,294
18AH 3,812,299
18EA 3,812,298
18ES 3,812,297
18B 3,812,296
107R 3,812,300
146R 3,812,301
175.2R 3,812,302
175.3R 3,812,303

CLASS 180

6.2 3,811,524
33A 3,811,528
44M 3,811,525
82R 3,811,526
121 3,811,527

CLASS 181

.5ED 3,811,529
.5VM 3,811,530
50 3,811,531
156 3,811,532

CLASS 182

28 3,811,533
48 3,811,534

CLASS 188

29 3,811,535
32 3,811,536
79.5GE 3,811,538
79.5P 3,811,537
106A 3,811,539
196D 3,811,540
206R 3,811,541
259 3,811,542

CLASS 190

43 3,811,543

CLASS 191

66 3,812,304

CLASS 192

89B 3,811,544
106.1 3,811,545

CLASS 195

29 3,812,009
31F 3,812,010
31R 3,812,011
33 3,812,012
66R 3,812,013
80R 3,812,014
103.5R 3,812,015
139 3,812,016

CLASS 197

18 3,811,546
165 3,811,547

CLASS 198

19 3,811,548
21 3,811,549
131 3,811,554
177 3,811,555
204 3,811,556
230 3,811,557
253 3,811,552
272 3,811,550
283 3,811,553
288 3,811,551

CLASS 200

39R 3,812,306
48A 3,812,309
51R 3,812,310
52R 3,812,307
61.42 3,812,311
61.45R 3,812,308
61.53 3,812,312
86R 3,812,313
144B 3,812,314
284 3,812,305

CLASS 201

17 3,812,017

CLASS 202

230 3,812,018

CLASS 204

15 3,812,019
24 3,812,020
58 3,812,021
3,812,022
3,812,023
3,812,024
3,812,025
3,812,026
3,812,027

CLASS 206

4 3,811,558
3,811,559
3,811,560
161 3,811,561
317 3,811,562
459 3,811,563
469 3,811,564
478 3,811,565
509 3,811,566

CLASS 208

112 3,812,028
113 3,812,029
340 3,812,030

CLASS 209

73 3,811,567
99 3,811,568
167 3,811,569
399 3,811,570

CLASS 210

30 3,812,031
52 3,812,032
136 3,811,571
152 3,811,572
321 3,811,573

CLASS 211

13 3,811,574
148 3,811,575

CLASS 212

35R 3,811,576
69 3,811,577

CLASS 214

7 3,811,578
38D 3,811,579
55 3,811,580
131A 3,811,581
138 3,811,582
152 3,811,583
3,811,584
3,811,585
305 3,811,586
763 3,811,587

CLASS 215

1C 3,811,588
9 3,811,589
3,811,590
12R 3,811,591
307 3,811,592

CLASS 219

10.55 3,812,315
3,812,316
69P 3,812,317
85 3,812,318
121EB 3,812,319
213 3,812,320
451 3,812,321
532 3,812,322
535 3,812,323
553 3,812,324

CLASS 220

9LG 3,811,593
20 3,811,594
23.4 3,811,595
24A 3,811,596
60R 3,811,597
88R 3,811,598

CLASS 221

265 3,811,599

CLASS 222

70 3,811,600
146HE 3,811,601
178 3,811,602
420 3,811,603
429 3,811,604
472 3,811,605
570 3,811,606

CLASS 223

74 3,811,607
106 3,811,608

CLASS 226

52 3,811,609
171 3,811,610
178 3,811,611
195 3,811,612

CLASS 229

54C 3,811,613

CLASS 233

18 3,811,614

CLASS 235

58P 3,811,615
61.11E 3,812,325
3,812,326
3,812,327
61.12N 3,812,328
92CC 3,812,330
92FL 3,812,329
95R 3,812,331
3,812,332
150.2 3,812,333
151 3,812,334
151.3 3,812,335
153AC 3,812,337
153AM 3,812,336
197 3,812,338

CLASS 238

150 3,811,616

CLASS 239

189 3,811,617
312 3,811,618
428.5 3,811,619
499 3,811,620
520 3,811,621
526 3,811,622

CLASS 240

1.3 3,812,339
2FD 3,812,340
9R 3,812,341
46.01 3,812,342

CLASS 241

1 3,811,623
176 3,811,624
214 3,811,626
281 3,811,627

CLASS 242

4A 3,811,629
7.11 3,811,630
18R 3,811,631
26.1 3,811,628
46.4 3,811,632
54A 3,811,633
55 3,811,634
68.3 3,811,635
75.43 3,811,637
78.6 3,811,638
129.5 3,811,636
129.8 3,811,639
181 3,811,625
191 3,811,640

CLASS 244

1SA 3,811,641
16 3,811,642
137P 3,811,643

CLASS 246

169A 3,812,343
171 3,812,344
249 3,812,345

CLASS 248

56 3,811,644

CLASS 249

68 3,811,645
144 3,811,646
160 3,811,647

CLASS 250

211R 3,812,346
223R 3,812,349
226 3,812,350
231SE 3,812,351
237G 3,812,352
258 3,812,353
281 3,812,354
283 3,812,355
296 3,812,356
332 3,812,357
347 3,812,359
370 3,812,360
3,812,361
3,812,362
385 3,812,358
388 3,812,363
395 3,812,364
396 3,812,365
421 3,812,366
427 3,812,367
432 3,812,368
527 3,812,370
553 3,812,369
557 3,812,371
561 3,812,348
3,812,372
562 3,812,373
568 3,812,347
3,812,374
570 3,812,375
572 3,812,376
578 3,811,648

CLASS 251

8 3,811,649
144 3,811,650
331 3,812,398
335B 3,811,651

CLASS 252

46.7 3,812,033
57 3,812,034
59 3,812,035
3,812,036
62.1 3,812,037
62.2 3,812,038
3,812,039
3,812,040
68 3,812,043
70 3,812,041
89 3,812,044
3,812,042
90 3,812,045
99 3,812,046
106 3,812,047
182 3,812,048
186 3,812,050
301.1R 3,812,049
301.1S 3,812,051
301.2R 3,812,052
3,812,053
3,812,054
313 3,812,055
316 3,812,056
416 3,812,057
458 3,812,058
522 3,812,059
555 3,812,060

CLASS 254

29A 3,811,652
3,811,653
131 3,811,654
161 3,811,655
184 3,811,656
187 3,811,657

CLASS 259

191 3,811,658
193 3,811,659

CLASS 260

2.1E 3,812,061
2.5E 3,812,062
9 3,812,063
18EP 3,812,064
22R 3,812,065
23XA 3,812,066
28.5R 3,812,067
29.2M 3,812,069
29.3 3,812,068
29.4UA 3,812,070
29.6RW 3,812,072
29.6TA 3,812,071
30.4R 3,812,073
31.8M 3,812,074
33.6UA 3,812,075
37AL 3,812,076
37SB 3,812,164
40R 3,812,077
42.29 3,812,078
45.75R 3,812,080
45.8A 3,812,079
46.5R 3,812,081
49 3,812,082
63UY 3,812,083
67R 3,812,084
78R 3,812,085
79.5C 3,812,087
87.1 3,812,086
93.5R 3,812,088
93.7 3,812,089
94.9R 3,812,090
112.5 3,812,091
3,812,092
146R 3,812,093
152 3,812,094
192 3,812,095
210R 3,812,096
3,812,097
211.5R 3,812,098
213 3,812,099
239.1 3,812,100
239.3D 3,812,101
3,812,102
3,812,103
239.55C 3,812,105
239.57 3,812,106
239.6 3,812,104
240D 3,812,111
240G 3,812,107
3,812,110
240J 3,812,112
240R 3,812,109
3,812,113
240.9 3,812,108
243C 3,812,116
243R 3,812,114
3,812,117
247 3,812,119
247.1 3,812,118
249.6 3,812,122
249.8 3,812,120
251A 3,812,121
256.6 3,812,124
268BQ 3,812,127
268PH 3,812,129
268H 3,812,125
3,812,126
268N 3,812,128
281 3,812,130
283S 3,812,131
285 3,812,132
288 3,812,123
289R 3,812,133
293.54 3,812,134
293.55 3,812,135
294.9 3,812,136
296R 3,812,137
304 3,812,138
305 3,812,139
308R 3,812,140
309 3,812,141
3,812,142
309.6 3,812,143
309.7 3,812,144
310A 3,812,145
326.14R 3,812,146

326.15 3,812,150
326.3 3,812,147
326.47 3,812,151
326.5FN 3,812,148
3,812,149
329.3 3,812,152
335 3,812,153
340.3 3,812,154
343.2F 3,812,155
343.2R 3,812,115
345.2 3,812,156
3,812,157
346.1R 3,812,158
346.3 3,812,159
347.3 3,812,160
347.7 3,812,161
347.9 3,812,163
349 3,812,162
397.4 3,812,165
3,812,166
429R 3,812,167
453PC 3,812,169
453R 3,812,168
3,812,209
465C 3,812,171
465D 3,812,170
468D 3,812,172
471C 3,812,173
479C 3,812,174
486AC 3,812,175
494 3,812,176
501.21 3,812,177
512R 3,812,178
514D 3,812,179
515A 3,812,180
520 3,812,181
544M 3,812,184
544Y 3,812,183
553DA 3,812,185
556A 3,812,186
557B 3,812,187
559AT 3,812,188
564R 3,812,189
584R 3,812,182
586A 3,812,190
590 3,812,191
608 3,812,192
620 3,812,193
623R 3,812,194
638R 3,812,210
658R 3,812,211
663 3,812,212
665R 3,812,195
3,812,213
672R 3,812,196
672T 3,812,197
674N 3,812,198
676R 3,812,199
677A 3,812,200
824R 3,812,201
830TW 3,812,214
834 3,812,202
845 3,812,203
878R 3,812,204
3,812,215
885 3,812,205
887 3,812,216
890 3,812,206
897A 3,812,207
899 3,812,208
924 3,812,217
926 3,812,218
936 3,812,219
953 3,812,220
968 3,812,221
970 3,812,222
987 3,812,223

CLASS 261

18B 3,811,660
26 3,811,661
91 3,811,662
151 3,811,663

CLASS 264

6 3,812,226
28 3,812,224
54 3,812,225
3,812,227
3,812,228
60 3,812,229
89 3,812,230
290T 3,812,231

CLASS 267

66 3,811,664
160 3,811,665

CLASS 269

9 3,811,666
23 3,811,667
258 3,811,668

CLASS 270

31 3,811,669

CLASS 271

80 3,811,670

CLASS 272

57F 3,811,671
79R 3,811,672

CLASS 273

9 3,811,673
85E 3,811,674
101 3,811,675
110 3,811,676
118R 3,811,677
126R 3,811,678
131BB 3,811,679
136G 3,811,680
139 3,811,681
155 3,811,682
157R 3,811,683
183B 3,811,684

CLASS 274

9C 3,811,686

CLASS 277

28 3,811,687
39 3,811,688
166 3,811,689
193 3,811,690
224 3,811,691
231 3,811,692

CLASS 279

18 3,811,693
83 3,811,694

CLASS 280

1.192 3,811,695
11.35T 3,811,696
43.18 3,811,697
106R 3,811,698
111 3,811,699
124R 3,811,700
150SB 3,811,702
3,811,703
150B 3,811,701
216 3,811,704
279 3,811,705
407 3,811,706
423R 3,811,707
433 3,811,708

CLASS 285

39 3,811,709
55 3,811,710
110 3,811,711
132 3,811,712
226 3,811,713
229 3,811,714

CLASS 290

4 3,812,377
38 3,812,378
50 3,812,379

CLASS 292

92 3,811,717
241 3,811,718
254 3,811,719

CLASS 294

83R 3,811,720

CLASS 296

23R 3,811,722
26 3,811,723
28R 3,811,721
36 3,811,724
66 3,811,725

CLASS 297

341 3,811,726
385 3,811,727
440 3,811,728

CLASS 298

23M 3,811,729

CLASS 299

8 3,811,730
34 3,811,731

CLASS 301

11R 3,811,732
12R 3,811,733
13SM 3,811,734
13R 3,811,735
3,811,736
63PW 3,811,737

CLASS 303

21BE 3,811,739
22R 3,811,738

CLASS 307

11 3,812,380
133 3,812,382
228 3,812,383
238 3,812,384
243 3,812,385
261 3,812,386
265 3,812,387
291 3,812,388

CLASS 308

10 3,811,740
122 3,811,741
183 3,811,742
187 3,811,743
235 3,811,744

CLASS 310

50 3,812,389
68D 3,812,390
168 3,812,391
259 3,812,392

CLASS 312

13 3,811,745
228 3,811,746
308 3,811,747

CLASS 313

344 3,812,393
467 3,812,394

CLASS 315

3.6 3,812,395
10 3,812,396
31TV 3,812,397

CLASS 317

2F 3,812,399
18D 3,812,400
40R 3,812,401
100 3,812,402
101D 3,812,381
134 3,812,403
234R 3,812,404
235AB 3,812,405
235N 3,812,406
258 3,812,407

CLASS 318

282 3,812,408
310 3,812,409
328 3,812,410
376 3,812,411
577 3,812,412
696 3,812,413
3,812,414

CLASS 320

31 3,812,415

CLASS 321

45R 3,812,416

CLASS 322

55 3,812,417

CLASS 324

.5R 3,812,418
32 3,812,419
52 3,812,420
58.5A 3,812,423
58.5B 3,812,421
3,812,422
61R 3,812,424
71CP 3,812,425
73R 3,812,426
79D 3,812,427
127 3,812,428
166 3,812,429

CLASS 325

4 3,812,430

CLASS 328

137 3,812,431
138 3,812,432
155 3,812,433

CLASS 330

19 3,812,434

CLASS 331

112 3,812,435

CLASS 333

18 3,812,436
81A 3,812,437
97R 3,812,438

CLASS 335

151 3,812,439
167 3,812,440
208 3,812,441

CLASS 336

83 3,812,442
192 3,812,443

CLASS 339

15 3,812,444
32R 3,812,445
41 3,812,446
59R 3,812,447
97C 3,812,448
98 3,812,449
128 3,812,450
155R 3,812,451
258R 3,812,452
266R 3,812,453

CLASS 340

3R 3,812,454
7R 3,812,455
8R 3,812,456
15.5TD 3,812,457
58 3,812,458
46.3MA 3,812,460
146.3F 3,812,459
149A 3,812,461
163 3,812,462
172.5 3,812,463
3,812,464
3,812,465
3,812,466
3,812,467
3,812,468
3,812,469
3,812,470
3,812,471
3,812,472
3,812,473
3,812,474
173LM 3,812,477
173LS 3,812,479
173RC 3,812,476
173R 3,812,478
174TF 3,812,480
196 3,812,481
237R 3,812,482
258C 3,812,484
258R 3,812,483
324AD 3,812,487
3,812,488
3,812,491
324A 3,812,485
324M 3,812,486
324R 3,812,489
3,812,490
409 3,812,492

CLASS 343

12R 3,812,493
852 3,812,494

CLASS 346

101 3,812,495
108 3,812,496

CLASS 350

7 3,811,748
55 3,811,749
117 3,811,750
160LC 3,811,751
164 3,811,752
175NG 3,811,753
189 3,811,754
289 3,811,755

CLASS 351

17 3,811,756
90 3,811,757

CLASS 352

72 3,811,758
79 3,811,759
157 3,811,760
166 3,811,761

CLASS 353

26 3,811,762
77 3,811,763

CLASS 354

28 3,812,497
29 3,812,498
31 3,812,499
32 3,812,500
44 3,812,501
51 3,812,502
60 3,812,503
3,812,504
62 3,812,505
80 3,812,506
104 3,812,507
106 3,812,508
195 3,812,509
235 3,812,510
258 3,812,511
3,812,512
263 3,812,513
317 3,812,514
319 3,812,515

CLASS 355

3P 3,811,764
3R 3,811,765
3 3,811,766
27 3,811,767
29 3,811,768
45 3,811,769
65 Re.28,016
67 3,811,770
100 3,811,771
111 3,811,772
132 3,811,773

CLASS 356

5 3,811,774
35 3,811,775
51 3,811,776
73 3,811,777
85 3,811,778
172 3,811,779
180 3,811,780
188 3,811,781
201 3,811,782

CLASS 357

16 3,812,516
23 3,812,517
30 3,812,518
38 3,812,519
41 3,812,520
48 3,812,521

CLASS 358

1 3,812,522
4 3,812,523
28 3,812,524
38 3,812,525
42 3,812,526
47 3,812,527
49 3,812,528

CLASS 360

5 3,812,530
25 3,812,529
26 3,812,531
72 3,812,532
77 3,812,533
92 3,811,685
98 3,812,534
103 3,812,535
122 3,812,536
132 3,812,537
134 3,812,538

CLASS 401

9 3,811,783

CLASS 403

2 3,811,784
93 3,811,715
204 3,811,716
255 3,811,785
300 3,811,786

CLASS 404

84 3,811,787

CLASS 408

72 3,811,788

CLASS 415

1 3,811,789
145 3,811,790

CLASS 416

129 3,811,791

CLASS 417

28 3,811,792
40 3,811,793
49 3,811,794
53 3,811,795
64 3,811,796
199A 3,811,797
221 3,811,799
269 3,811,798
317 3,811,800
454 3,811,801
3,811,802
458 3,811,803

CLASS 418

32 3,811,804
88 3,811,805
100 3,811,806
227 3,811,807

CLASS 423

21 3,812,232
3,812,233
61 3,812,234
158 3,812,235
237 3,812,236
266 3,812,237
283 3,812,238
440 3,812,239
448 3,812,240
495 3,812,241
530 3,812,242
574 3,812,243
645 3,812,244

CLASS 424

1 3,812,245
3,812,264
59 3,812,246
62 3,812,247
78 3,812,248
121 3,812,249
148 3,812,250
3,812,251
180 3,812,252
200 3,812,253
226 3,812,254
244 3,812,255
250 3,812,256
251 3,812,257
267 3,812,258
269 3,812,259
273 3,812,260
278 3,812,261
282 3,812,262
3,812,263
322 3,812,265

CLASS 425

167 3,811,808
173 3,811,809
185 3,811,810
192 3,811,811
217 3,811,812
252 3,811,813
385 3,811,814
446 3,811,815

CLASS 426

52 3,812,266
104 3,812,267
146 3,812,268
227 3,812,269
231 3,812,270
312 3,812,271
380 3,812,272
433 3,812,273
438 3,812,274

CLASS 431

22 Re.28,013
75 3,811,816
126 3,811,817
168 3,811,818
255 3,811,819
354 3,811,820

CLASS 432

8 3,811,821
13 3,811,822
80 3,811,823
3,811,824
122 3,811,825
200 3,811,826
221 3,811,827
227 3,811,828
253 3,811,829

Classification of Designs

D2—	431	231,666	D7—	188	231,669		91	231,672	D23—	58	231,675	D34—	5K	231,678	D56—	4R	231,681
D6—	31	231,667	D9—	224	231,670		141	231,673	D24—	1B	231,676	D48—	4B	231,679	D87—	1	231,682
	167	231,668	D12—	1	231,671	D22—	7	231,674	D30—	8	231,677		31	231,680			

Classification of Plants

P. —	22	3,555	P. —	50	3,551	P. —	70	3,554	P. —	75	3,552	P. —	78	3,553

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama..... 1
Alaska..... 2
American Samoa..... 3
Arizona..... 4
Arkansas..... 5
California..... 6
Canal Zone..... 7
Colorado..... 8
Connecticut..... 9
Delaware..... 10
District of Columbia..... 11
Florida..... 12
Georgia..... 13
Guam..... 14
Hawaii..... 15
Idaho..... 16
Illinois..... 17
Indiana..... 18
Iowa..... 19
Kansas..... 20
Kentucky..... 21
Louisiana..... 22
Maine..... 23
Maryland..... 24
Massachusetts..... 25
Michigan..... 26
Minnesota..... 27
Mississippi..... 28
Missouri..... 29
Montana..... 30
Nebraska..... 31
Nevada..... 32
New Hampshire..... 33
New Jersey..... 34
New Mexico..... 35
New York..... 36
North Carolina..... 37
North Dakota..... 38
Ohio..... 39
Oklahoma..... 40
Oregon..... 41
Pennsylvania..... 42
Puerto Rico..... 43
Rhode Island..... 44
South Carolina..... 45
South Dakota..... 46
Tennessee..... 47
Texas..... 48
Utah..... 49
Vermont..... 50
Virginia..... 51
Virgin Islands..... 52
Washington..... 53
West Virginia..... 54
Wisconsin..... 55
Wyoming..... 56
U.S. Air Force..... 57
U.S. Army..... 58
U.S. Navy..... 59

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

Patents

	3,811,433		3,811,462		3,812,176		3,811,874			3,812,459		3,811,659
1	3,811,280		3,811,466		3,812,209		3,811,879		13	3,811,164		3,811,699
	3,811,328		3,811,467		3,812,238		3,811,901			3,811,492		3,811,728
	3,811,360		3,811,473		3,812,265		3,811,920			3,811,578		3,811,787
	3,811,449		3,811,499		3,812,274		3,811,930			3,811,666		3,811,817
	3,811,774		3,811,522		3,812,286		3,811,940			3,811,745		3,811,880
	3,811,964		3,811,526		3,812,292		3,811,950			3,811,846		3,811,958
	3,811,965		3,811,554		3,812,308		3,811,951			3,812,254		3,812,002
	3,811,966		3,811,558		3,812,311		3,811,953			3,812,309		3,812,006
	3,811,968		3,811,561		3,812,324		3,811,983		16	3,811,678		3,812,028
	3,812,494		3,811,584		3,812,330		3,812,080		17	3,811,136		3,812,034
4	3,811,139		3,811,591		3,812,354		3,812,084			3,811,140		3,812,097
	3,811,224		3,811,596		3,812,359		3,812,127			3,811,147		3,812,252
	3,811,271		3,811,618		3,812,366		3,812,137			3,811,154		3,812,281
	3,811,301		3,811,623		3,812,395		3,812,169			3,811,171		3,812,288
	3,811,518		3,811,625		3,812,403		3,812,295			3,811,179		3,812,293
	3,811,569		3,811,633		3,812,421		3,812,328			3,811,203		3,812,299
	3,811,574		3,811,648		3,812,451		3,812,349			3,811,208		3,812,300
	3,811,606		3,811,654		3,812,454		3,812,367			3,811,220		3,812,302
	3,811,690		3,811,672		3,812,468		3,812,389			3,811,243		3,812,307
	3,811,771		3,811,679		3,812,469	10	3,811,833			3,811,269		3,812,337
	3,811,829		3,811,681		3,812,477		3,811,848			3,811,282		3,812,351
	3,812,272		3,811,685		3,812,496		3,811,902			3,811,302		3,812,362
	3,812,387		3,811,722		3,812,505		3,811,906			3,811,303		3,812,375
	3,812,405		3,811,741		3,812,509		3,811,942			3,811,311		3,812,382
	3,812,521		3,811,742		3,812,527		3,812,040			3,811,317		3,812,394
6	3,811,130		3,811,748		3,812,532		3,812,123			3,811,324		3,812,398
	3,811,131		3,811,751		3,812,533		3,812,148			3,811,342		3,812,443
	3,811,133		3,811,765		3,812,535		3,812,149			3,811,344		3,812,450
	3,811,143		3,811,778	8	3,811,206		3,812,198			3,811,363		3,812,513
	3,811,146		3,811,780		3,811,641		3,812,261			3,811,367		3,812,524
	3,811,163		3,811,798		3,812,298	11	3,811,134			3,811,371		3,812,525
	3,811,167		3,811,800		3,812,429		3,812,167			3,811,375	18	3,811,293
	3,811,180		3,811,804		3,812,531		3,812,270			3,811,376		3,811,332
	3,811,192		3,811,827	9	3,811,168		3,812,347			3,811,387		3,811,398
	3,811,214		3,811,851		3,811,249	12	3,811,148			3,811,408		3,811,412
	3,811,225		3,811,856		3,811,273		3,811,204			3,811,434		3,811,425
	3,811,253		3,811,900		3,811,274		3,811,215			3,811,461		3,811,436
	3,811,295		3,811,904		3,811,277		3,811,226			3,811,463		3,811,532
	3,811,319		3,811,967		3,811,329		3,811,246			3,811,470		3,811,552
	3,811,320		3,811,974		3,811,334		3,811,247			3,811,523		3,811,661
	3,811,325		3,811,977		3,811,355		3,811,410			3,811,542		3,811,692
	3,811,335		3,812,024		3,811,407		3,811,627			3,811,548		3,811,700
	3,811,358		3,812,082		3,811,442		3,811,655			3,811,577		3,811,706
	3,811,381		3,812,083		3,811,529		3,812,021			3,811,592		3,811,721
	3,811,413		3,812,098		3,811,671		3,812,279			3,811,597		3,811,762
	3,811,423		3,812,117		3,811,717		3,812,306			3,811,599		3,811,840
	3,811,424		3,812,159		3,811,782		3,812,310			3,811,605		3,811,978
	3,811,443		3,812,160		3,811,805		3,812,335			3,811,608		3,812,038
	3,811,444		3,812,162		3,811,830		3,812,355			3,811,612		3,812,047
	3,811,447		3,812,174		3,811,857		3,812,399			3,811,639		3,812,111

3,812,155 3,811,196 3,811,747 3,811,675 3,812,009 3,812,339
3,812,313 3,811,197 3,811,794 3,811,680 3,812,044 3,812,404
3,812,381 3,811,232 3,811,814 3,811,682 3,812,048 3,812,415
3,812,397 3,811,252 3,811,842 3,811,705 3,812,056 3,812,417
3,812,408 3,811,337 3,811,843 3,811,764 3,812,068 3,812,444
3,812,458 3,811,340 3,811,844 3,811,766 3,812,074 3,812,471
3,812,537 3,811,341 3,811,847 3,811,767 3,812,139 3,812,484
19 : 3,811,582 3,811,364 3,811,912 3,811,783 3,812,157 44 : 3,811,394
3,811,587 3,811,417 3,811,915 3,811,841 3,812,220 3,811,979
3,811,707 3,811,421 3,811,925 3,811,849 3,812,236 3,812,217
3,811,755 3,811,429 3,811,948 3,811,853 3,812,239 3,812,445
3,811,998 3,811,454 3,811,963 3,811,872 3,812,446 45 : 3,811,262
3,812,333 3,811,456 3,811,986 3,811,873 3,812,467 3,811,263
20 : 3,811,300 3,811,516 3,811,996 3,811,882 40 : 3,811,389 3,811,361
3,812,278 3,811,553 3,812,007 3,811,885 3,811,414 3,811,628
21 : 3,811,330 3,811,563 3,812,020 3,811,891 3,811,500 3,811,984
3,811,370 3,811,622 3,812,029 3,811,895 3,811,536 3,811,995
3,811,585 3,811,638 3,812,041 3,811,896 3,811,559 3,812,478
3,811,600 3,811,647 3,812,043 3,811,897 3,811,602 46 : 3,811,388
3,811,746 3,811,650 3,812,045 3,811,917 3,811,792 3,811,695
3,812,316 3,811,694 3,812,046 3,811,924 3,812,030 47 : 3,811,669
22 : 3,811,210 3,811,698 3,812,052 3,811,955 3,812,035 3,811,756
3,811,241 3,811,703 3,812,066 3,811,962 3,812,036 3,811,871
3,811,318 3,811,704 3,812,091 3,811,999 3,812,058 3,811,927
3,811,562 3,811,708 3,812,092 3,812,004 3,812,211 3,812,093
3,811,668 3,811,725 3,812,103 3,812,013 3,812,340 3,812,233
3,811,770 3,811,752 3,812,104 3,812,031 3,812,462 3,812,240
3,811,820 3,811,788 3,812,109 3,812,065 41 : 3,811,153 48 : 3,811,149
3,812,195 3,811,839 3,812,110 3,812,069 3,811,270 3,811,194
3,812,213 3,811,870 3,812,114 3,812,077 3,811,352 3,811,265
3,812,229 3,811,910 3,812,119 3,812,094 3,811,353 3,811,289
3,812,237 3,811,921 3,812,120 3,812,095 3,811,409 3,811,321
3,812,271 3,811,943 3,812,143 3,812,141 3,811,426 3,811,322
3,812,344 3,811,946 3,812,153 3,812,175 3,811,487 3,811,349
3,812,420 3,811,972 3,812,180 3,812,197 3,811,604 3,811,501
23 : 3,812,032 3,812,014 3,812,181 3,812,199 3,811,617 3,811,502
3,812,385 3,812,081 3,812,182 3,812,214 3,811,646 3,811,503
24 : 3,811,181 3,812,096 3,812,184 3,812,218 3,811,656 3,811,504
3,811,185 3,812,140 3,812,187 3,812,249 3,811,657 3,811,505
3,811,237 3,812,164 3,812,188 3,812,256 3,811,723 3,811,506
3,811,379 3,812,172 3,812,194 3,812,266 42 : 3,811,150 3,811,507
3,811,431 3,812,179 3,812,253 3,812,277 3,811,174 3,811,508
3,811,441 3,812,201 3,812,263 3,812,283 3,811,176 3,811,509
3,811,474 3,812,202 3,812,268 3,812,334 3,811,188 3,811,510
3,811,475 3,812,244 3,812,287 3,812,336 3,811,213 3,811,530
3,811,476 3,812,259 3,812,289 3,812,343 3,811,221 3,811,535
3,811,603 3,812,301 3,812,294 3,812,370 3,811,227 3,811,614
3,811,642 3,812,312 3,812,322 3,812,372 3,811,229 3,811,709
3,811,781 3,812,323 3,812,350 3,812,377 3,811,240 3,811,710
3,811,954 3,812,331 3,812,383 3,812,378 3,811,290 3,811,711
3,812,008 3,812,332 3,812,384 3,812,392 3,811,305 3,811,769
3,812,113 3,812,391 3,812,390 3,812,396 3,811,365 3,811,802
3,812,321 3,812,401 3,812,393 3,812,414 3,811,380 3,811,957
3,812,325 3,812,447 3,812,400 3,812,427 3,811,422 3,811,959
3,812,368 3,812,490 3,812,419 3,812,433 3,811,491 3,811,961
3,812,380 3,812,493 3,812,425 3,812,437 3,811,564 3,812,027
3,812,411 27 : 3,811,292 3,812,432 3,812,438 3,811,572 3,812,057
3,812,430 3,811,377 3,812,435 3,812,473 3,811,621 3,812,158
3,812,442 3,811,560 3,812,448 3,812,479 3,811,676 3,812,210
3,812,470 3,811,566 3,812,461 3,812,498 3,811,683 3,812,212
3,812,538 3,811,594 3,812,466 3,812,500 3,811,684 3,812,315
25 : 3,811,158 3,811,595 3,812,474 3,812,506 3,811,712 3,812,342
3,811,189 3,811,718 3,812,480 3,812,518 3,811,724 3,812,353
3,811,222 3,811,886 3,812,516 3,812,520 3,811,754 3,812,388
3,811,234 3,812,267 3,812,528 37 : 3,811,259 3,811,759 3,812,402
3,811,275 3,812,320 35 : 3,811,250 3,811,264 3,811,775 3,812,455
3,811,284 3,812,345 36 : Re.28,015 3,811,607 3,811,777 3,812,456
3,811,314 3,812,413 3,811,155 3,811,850 3,811,786 3,812,457
3,811,323 3,812,449 3,811,156 3,812,303 3,811,791 3,812,476
3,811,374 3,812,463 3,811,157 39 : 3,811,135 3,811,796 49 : 3,811,402
3,811,428 29 : Re.28,014 3,811,159 3,811,191 3,811,801 3,811,440
3,811,437 3,811,446 3,811,160 3,811,233 3,811,808 3,811,485
3,811,438 3,811,519 3,811,184 3,811,238 3,811,813 3,811,579
3,811,517 3,811,551 3,811,186 3,811,251 3,811,823 3,811,589
3,811,568 3,811,555 3,811,190 3,811,278 3,811,854 3,811,616
3,811,586 3,811,837 3,811,201 3,811,294 3,811,855 3,811,971
3,811,632 3,811,987 3,811,218 3,811,336 3,811,858 3,812,472
3,811,730 3,812,121 3,811,254 3,811,350 3,811,859 3,812,482
3,811,749 3,812,183 3,811,255 3,811,366 3,811,860 50 : 3,811,182
3,811,776 3,812,190 3,811,257 3,811,384 3,811,875 51 : 3,811,209
3,811,816 3,812,243 3,811,304 3,811,385 3,811,878 3,811,235
3,811,822 31 : 3,811,512 3,811,316 3,811,393 3,811,916 3,811,348
3,811,835 32 : 3,812,232 3,811,326 3,811,400 3,811,926 3,811,362
3,811,881 33 : 3,811,629 3,811,356 3,811,405 3,811,933 3,811,451
3,811,935 3,811,644 3,811,391 3,811,457 3,811,936 3,811,970
3,811,937 3,811,907 3,811,411 3,811,486 3,811,956 3,812,022
3,811,941 3,812,189 3,811,435 3,811,488 3,811,973 3,812,023
3,811,944 34 : 3,811,137 3,811,448 3,811,498 3,811,991 3,812,178
3,812,076 3,811,172 3,811,452 3,811,534 3,811,997 3,812,248
3,812,115 3,811,193 3,811,453 3,811,570 3,812,000 3,812,291
3,812,147 3,811,211 3,811,483 3,811,601 3,812,017 3,812,357
3,812,191 3,811,217 3,811,489 3,811,610 3,812,018 3,812,409
3,812,314 3,811,242 3,811,521 3,811,645 3,812,061 3,812,483
3,812,352 3,811,244 3,811,547 3,811,651 3,812,064 53 : 3,811,138
3,812,371 3,811,357 3,811,565 3,811,729 3,812,070 3,811,205
3,812,374 3,811,359 3,811,590 3,811,732 3,812,086 3,811,313
3,812,379 3,811,445 3,811,593 3,811,733 3,812,136 3,811,576
3,812,423 3,811,464 3,811,613 3,811,734 3,812,171 3,811,720
3,812,424 3,811,465 3,811,619 3,811,735 3,812,177 3,811,795
3,812,507 3,811,468 3,811,634 3,811,736 3,812,200 3,812,001
3,812,515 3,811,493 3,811,635 3,811,806 3,812,205 3,812,055
26 : Re.28,012 3,811,575 3,811,636 3,811,862 3,812,219 54 : 3,811,571
Re.28,013 3,811,649 3,811,643 3,811,903 3,812,245 55 : 3,811,212
Re.28,017 3,811,660 3,811,665 3,811,918 3,812,255 3,811,216
3,811,170 3,811,713 3,811,673 3,811,947 3,812,275 3,811,338
3,811,195 3,811,714 3,811,674 3,812,003 3,812,276 3,811,383

3,811,550 3,811,626 3,811,689 3,811,790 3,812,453 57 : 3,812,358
3,811,557 3,811,637 3,811,727 3,812,146 3,812,465

Design Patents

6 : 231,667 12 : 231,668 25 : 231,678 231,674 231,682 231,679
231,669 17 : 231,675 26 : 231,671 34 : 231,670 42 : 231,666 231,680
231,677 24 : 231,676

Plant Patents

6 : 3,554 17 . 3,551 3,555 39 : 3,552

U. S. GOVERNMENT PRINTING OFFICE : O - 1974

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary

PATENT OFFICE
C. Marshall Dann, Commissioner

U.S.
DEPARTMENT
OF COMMERCE
Publication

Vol. 922 Number 4

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

PATENTS

May 28, 1974



U.S.
DEPARTMENT
OF COMMERCE

Patent
Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 28, 1974 Volume 922 Number 4

CONTENTS

	Page
Patent and Trademark Notices	
Practice Re Markush-Type Claims	1016
Trademark Registration Treaty	1016
Patent Suits	1018
Patent Notices	
Certificates of Correction for the Week of May 28, 1974	1020
Disclaimers	1020
National Technical Information Service	1020
Condition of Patent Applications	1023
Reissue Patents Granted (28,019)	1024
Plant Patents Granted (3,556)	1026
Patents Granted	
General and Mechanical (3,812,539)	1027
Chemical (3,813,218)	1203
Electrical (3,813,468)	1252
Design Patents Granted (231,683)	1311
Index of Patentees	PI 1
Indices of Applicants of Plants and Designs	PI 35
Classification of	
Patents (Including Reissues)	PI 37
Designs and Plants	PI 39
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 40
Designs and Plants	PI 41

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $211.00 per annum, foreign mailing $52.75 additional; single copies $4.10 each.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly, subscription $60.25 per annum, foreign mailing $15.10 additional; single copies $1.25 each.

CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

PATENT OFFICE NOTICES

Practice Re Markush-Type Claims

This notice deals with Markush-type claims which include a plurality of alternatively usable substances or members. In most cases this recitation by enumeration is used because there is no appropriate or true generic language.

Where an application claims two or more independent and distinct inventions, the Commissioner, under the provisions of 35 U.S.C. 121, may require the application to be restricted to one of the inventions.

A Markush-type claim is directed to "independent and distinct inventions," if two or more of its members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the claim obvious under 35 U.S.C. 103 with respect to the other member(s).

If the claim is of that nature, the examiner is authorized to reject it as an improper Markush claim and for misjoinder under 35 U.S.C. 121 and to require the applicant to restrict the application to a single invention. In making such a requirement, the examiner will (1) clearly delineate the members or groups of members believed to constitute improperly joined inventions, and (2) state reasons fully explaining why they are independent and distinct. Applicant's response to such a requirement should be an election of a single adequately disclosed and supported invention, with or without restriction of the claim(s) to that invention. Of course, the response must not introduce new matter into the application. See 35 U.S.C. 132 and *In re Weisstead*, 59 CCPA 1105, 463 F. 2d 1110, 174 USPQ 449 (1972). A refusal to elect a single invention will be treated as a non-responsive reply.

If the members of the Markush group are sufficiently few in number or so closely related that a search and examination of the entire claim can be made without serious burden, the examiner is encouraged to examine it on the merits, even though it is directed to independent and distinct inventions. In such a case, the examiner will not follow the procedure outlined in the preceding paragraph and will not require restriction.

Where the examiner has rejected the claim and required restriction and the applicant has responded without restricting the claim(s) to a single invention, the examiner shall, if the position is adhered to, again reject the claim and any other Markush claims not restricted to the elected invention. No further examination of these claims is required unless and until such rejection has been overcome. However, if the search of the single elected invention develops prior art which would render both the elected invention and the improper Markush claim(s) unpatentable, such prior art may be applied in rejections of both without a complete search of the subject matter of the improper Markush claim(s). Otherwise, only true generic claims and those restricted to the elected invention will be examined in the usual manner.

Review of the rejection will be by appeal to the Board of Appeals under 35 U.S.C. 134.

C. MARSHALL DANN,
Commissioner of Patents.

May 1, 1974.

Trademark Registration Treaty

Trademark Act of 1946

The text of the Trademark Registration Treaty (TRT), signed on June 12, 1973, was reproduced in the OFFICIAL GAZETTE of July 24, 1973 and three post-conference documents were published in the OFFICIAL GAZETTE of March 12, 1974. The questions of United States ratification and of the legislation which would be necessary for its implementation in the United States are now under study in the Patent Office. Interested persons and organizations have been requested to submit their views on these questions to the Patent Office prior to September 1, 1974.

Reproduced below is an outline of the changes in the Trademark Act of 1946 which might be required, or desirable, if the TRT is ratified and implemented. This outline is intended as a guideline to possible legislation designed to implement the requirements of the Treaty and to provide equivalent benefits to national applicants.

In regard to a few of the provisions, alternatives have been indicated. Where this is done, the order of their presentation herein does not necessarily indicate any order of preference.

This material, as well as that previously published, is made available in order to assist interested persons in their own studies of the question of ratification by the United States and implementing legislation rather than constituting a position of the Patent Office on these questions.

C. MARSHALL DANN,
Commissioner of Patents.

Apr. 29, 1974.

OUTLINE

Introduction

This paper is an outline of possible changes in the Trademark Act of 1946 (60 Stat. 427; 15 U.S.C. 1051 et seq.), as amended, which may be required or desirable if the Trademark Registration Treaty, signed by the United States and thirteen other countries as of December 31, 1973, is ratified and implemented.

The subject is dealt with in two parts. Part I outlines changes in the domestic trademark statute which would be applicable in the case of national applications to register marks in the United States Patent Office. Part II concerns additional provisions which would be necessary in order to assimilate the proposed Treaty to this national law.

For convenience, reference is made, following some of the sections, to the article of the Treaty which requires or gives rise to the change under consideration.

PART I—CHANGES IN THE TRADEMARK ACT OF 1946, AS AMENDED

A. *Requirements for Registration on the Principal Register*

1. As an alternative to actual use, a trademark, service mark, certification or collective mark, can be registered by a person based on a declared intention to use the mark in commerce. [Article 19(3), (4)]. Special use requirements are applicable to registrations secured on this basis, (See B below).
2. As an alternative to signing by the applicant, an application may be signed by a duly appointed representative. (Article 26). Present qualifications for representation before the Patent Office (attorney admitted to practice in a State or District of Columbia) continue to apply, however.
3. Verified statement of the claim to ownership is no longer required (Article 5).

B. *Special Requirements for Intent Applicants/Registrants*

1. (*a*) Applicant/registrant must commence use of the mark in commerce within three years of filing date and must declare such commencement of use during the fourth year, including the same details, etc., use dates, label specimens, etc.) as those declared by a use applicant at time of filing. [Article 19(3)].
   (*b*) Time period for filing the declaration may be shortened (three months from date of notice) on petition of interested person if the mark is involved in any proceeding under the Act on or after date of expiration of the three year use moratorium.
   Alternative: Shorter period for filing the declaration (e.g., 3½ years) and delete (*b*) above.
2. Consequence of failure to file an acceptable declaration within the prescribed time limit is cancellation of the registration or, if still pending, refusal of the application. Consequence of compliance as to part only of the goods and/or services is limitation of the registration or application to those goods and/or services. [Article 19(3)].
3. Time period for commencement of use may be extended beyond three years only upon showing of special circumstances which justify non-use.
4. Where later intent application(s) for same mark is (are) filed by the same or a related person prior to four (*Alternative*: five) years from the filing date of the earliest one, the period for commencement of use (three years) is counted from the filing date of earliest application. This provision means that a person cannot abuse the intent to use provisions by filing successive intent applications at or close to the expiration of successive three year periods, securing a new three year moratorium on use requirements with each new case. [Article 19(3)].

C. *Related Company Provision*

A minor change provides that intended use as well as use may inure to benefit of a related company. Thus, for example, an intent application by a parent company would be valid if the evidence supporting the intent concerned adoption of the mark by and related activities of a controlled subsidiary.

D. *Registration on the Principal Register*

1. If a registration based on an intent application is issued before the declaration of use is filed, the certificate of registration indicates this fact in lieu of the dates of use.
2. *Date of registration* is the same date as the filing date, which is defined as the date on which all basic elements of an application are received by the Patent Office. (See Trademark Rule 2.21.) Certificate also indicates the *date of issue*, defined as the date of the OFFICIAL GAZETTE in which notice of the issuance of the registration is published. [Article 11(2)].
3. A certificate of registration is prima facie evidence of the validity of the registration, the right of the registrant to exclude any other person from securing or maintaining a confusingly similar registration, and the exclusive right to use only for those goods or services in respect of which the mark is declared in the certificate of registration, or in a subsequently filed declaration of use, to be in use in commerce.

E. *Duration of Registration, Sixth Year Affidavit and Renewal*

1. Term of registration and of renewal is changed from twenty years to ten years, counted from the *date of registration*. [Article 17].
2. Sixth year affidavit of use remains applicable to all registrations, with its due date counted from *date of issue* of the registration (Change only in terminology).
   Alternative: Same, except that due date is counted from *date of registration*.
3. Sixth year affidavit must show use *in commerce*.
4. A renewal application need not be verified. (Article 17).
5. A late renewal application may be filed within six months (rather than three) after the date of expiration of the term. (Article 17).

F. *Assignment*

An application or registration based on intent is not assignable prior to filing the declaration of use. Exception: successor to the entire business of the original applicant.

Alternative: Assignments of registered or applied for marks without good will are valid.

G. *Examination Procedure and Oppositions*

1. Time for response to office actions is reduced from six months to three months. Purpose is to expedite completion of ex parte examination in maximum number of cases prior to cut-off. (See 3 below).
2. No mark may be refused ex parte for a reason *not* communicated to applicant prior to fifteen months from the filing date. This limitation is not applicable to a refusal determined by a decision of the TTAB or a court. [Article 12(2)].
3. Cut-off at twelve months from filing date for publication of the mark for opposition, whether or not the ex parte examination, including any appeal therefrom, has been completed. If an opposition is filed against a still pending case, full opposition proceedings are deferred until completion of the ex parte examination. If the opposed mark is eventually determined to be registrable, then full opposition proceedings are commenced, unless the opposer withdraws. [Article 12(2)].
   Alternative: Publish all marks promptly after filing and receive oppositions concurrently with the ex parte examination, deferring full opposition proceedings (as above), however, until completion of the ex parte examination.
4. Oppositions need not be verified and may be filed by a duly authorized attorney.
5. Time to oppose may not be extended to a date later than fifteen months, counted from the filing date. [Article 12(2)].

H. *Cancellation of Registrations*

1. A petition to cancel need not be verified and may be filed by a duly authorized attorney.
2. The time period for cancellation based on unrestricted grounds (i.e., 5 years) is counted from the *date of issue* of the registration (Change only in terminology).

I. *Incontestability*

The time period for incontestability is counted from the *date of issue* of the registration (Change only in terminology).

J. *Appeals*

Minor change provides for an appeal from a refusal to accept a declaration of use.

K. *Constructive Notice*

Constructive notice is applicable from *date of issue* of registration (Change only in terminology).

Alternative: Constructive notice applicable as of the date of first publication.

L. *The Supplemental Register*

1. Special Requirement of one year's use prior to filing date is deleted, making Supplemental Register registrations subject to the same use requirements, i.e., use or intention to use, as registrations on the Principal Register. [Article 19(3)].
2. Petition to cancel a Supplemental Register registration need not be verified and can be filed by a duly authorized attorney.
3. Non-use is a ground for cancellation only after expiration of three years from the filing date. [Article 19(3)].

M. *Infringement Remedies, Evidence and Priority*

1. Owner of a registration based on an intent application may not start any action for infringement until the declaration of use has been filed and accepted. Any remedies for infringement of registered marks based on intent are applicable only to period after commencement of continuing use. [Article 19(3)].
2. A certificate of registration is prima facie evidence of exclusive right to use only for those goods or services in respect of which the mark is declared in the certificate of registration, or in a subsequently filed declaration of use, to be in use in commerce. (Consistent wtih M 1 above).
3. In an action based on an incontestable registration, defense based on innocent adoption and continuous use (i.e., section 33(b)(5)) is subject to the condition that the defendant must be innocent of knowledge not only of prior use of the registrant, but, where applicable, of registration based upon a previously filed declaration of intention to use.
4. For the purpose of determining priority of rights in *any* proceeding under the Act, an application or registration based on intent to use is accorded the same effect *as if* the applicant or registrant had commenced use of the mark in commerce on the filing date. Except where priority is accorded in a Patent Office proceeding, or in an appeal therefrom, prior to three years from the filing date, a condition to the according of priority on this basis is filing and acceptance of the declaration of use. [Article 19(3)].

N. *International Convention Provisions*

1. The waiver of use requirements for an application based on registration of the mark in a country with which we have a treaty relationship is deleted. Since all applicants have the alternative of securing a registration based on an intention to use the mark in commerce, the waiver of use requirements is no longer necessary and such applications are subject to all requirements of the Act. Similarly, the first sentence of section 44(c) is deleted, being unnecessary in view of the general limitation on

PATENT OFFICE NOTICES

Practice Re Markush-Type Claims

This notice deals with Markush-type claims which include a plurality of alternatively usable substances or members. In most cases this recitation by enumeration is used because there is no appropriate or true generic language.

Where an application claims two or more independent and distinct inventions, the Commissioner, under the provisions of 35 U.S.C. 121, may require the application to be restricted to one of the inventions.

A Markush-type claim is directed to "independent and distinct inventions," if two or more of its members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the claim obvious under 35 U.S.C. 103 with respect to the other member(s).

If the claim is of that nature, the examiner is authorized to reject it as an improper Markush claim and for misjoinder under 35 U.S.C. 121 and to require the applicant to restrict the application to a single invention. In making such a requirement, the examiner will (1) clearly delineate the members or groups of members believed to constitute improperly joined inventions, and (2) state reasons fully explaining why they are independent and distinct. Applicant's response to such a requirement should be an election of a single adequately disclosed and supported invention, with or without restriction of the claim(s) to that invention. Of course, the response must not introduce new matter into the application. See 35 U.S.C. 132 and *In re Welstead*, 59 CCPA 1105, 463 F. 2d 1110, 174 USPQ 449 (1972). A refusal to elect a single invention will be treated as a non-responsive reply.

If the members of the Markush group are sufficiently few in number or so closely related that a search and examination of the entire claim can be made without serious burden, the examiner is encouraged to examine it on the merits, even though it is directed to independent and distinct inventions. In such a case, the examiner will not follow the procedure outlined in the preceding paragraph and will not require restriction.

Where the examiner has rejected the claim and required restriction and the applicant has responded without restricting the claim(s) to a single invention, the examiner shall, if the position is adhered to, again reject the claim and any other Markush claims not restricted to the elected invention. No further examination of these claims is required unless and until such rejection has been overcome. However, if the search of the single elected invention develops prior art which would render both the elected invention and the improper Markush claim(s) unpatentable, such prior art may be applied in rejections of both without a complete search of the subject matter of the improper Markush claim(s). Otherwise, only true generic claims and those restricted to the elected invention will be examined in the usual manner.

Review of the rejection will be by appeal to the Board of Appeals under 35 U.S.C. 134.

C. MARSHALL DANN,
Commissioner of Patents.

May 1, 1974.

Trademark Registration Treaty

Trademark Act of 1946

The text of the Trademark Registration Treaty (TRT), signed on June 12, 1973, was reproduced in the OFFICIAL GAZETTE of JULY 24, 1973 and three post-conference documents were published in the OFFICIAL GAZETTE of March 12, 1974. The questions of United States ratification and of the legislation which would be necessary for its implementation in the United States are now under study in the Patent Office. Interested persons and organizations have been requested to submit their views on these questions to the Patent Office prior to September 1, 1974.

Reproduced below is an outline of the changes in the Trademark Act of 1946 which might be required, or desirable, if the TRT is ratified and implemented. This outline is intended as a guideline to possible legislation designed to implement the requirements of the Treaty and to provide equivalent benefits to national applicants.

In regard to a few of the provisions, alternatives have been indicated. Where this is done, the order of their presentation herein does not necessarily indicate any order of preference.

This material, as well as that previously published, is made available in order to assist interested persons in their own studies of the question of ratification by the United States and implementing legislation rather than constituting a position of the Patent Office on these questions.

C. MARSHALL DANN,
Commissioner of Patents.

Apr. 29, 1974.

OUTLINE

Introduction

This paper is an outline of possible changes in the Trademark Act of 1946 (60 Stat. 427; 15 U.S.C. 1051 et seq.), as amended, which may be required or desirable if the Trademark Registration Treaty, signed by the United States and thirteen other countries as of December 31, 1973, is ratified and implemented.

The subject is dealt with in two parts. Part I outlines changes in the domestic trademark statute which would be applicable in the case of national applications to register marks in the United States Patent Office. Part II concerns additional provisions which would be necessary in order to assimilate the proposed Treaty to this national law.

For convenience, reference is made, following some of the sections, to the article of the Treaty which requires or gives rise to the change under consideration.

PART I—CHANGES IN THE TRADEMARK ACT OF 1946, AS AMENDED

A. *Requirements for Registration on the Principal Register*

1. As an alternative to actual use, a trademark, service mark, certification or collective mark, can be registered by a person based on a declared intention to use the mark in commerce. [Article 19(3), (4)]. Special use requirements are applicable to registrations secured on this basis. (See B below).
2. As an alternative to signing by the applicant, an application may be signed by a duly appointed representative. (Article 26). Present qualifications for representation before the Patent Office (attorney admitted to practice in a State or District of Columbia) continue to apply, however.
3. Verified statement of the claim to ownership is no longer required (Article 5).

B. *Special Requirements for Intent Applicants/Registrants*

1. (*a*) Applicant/registrant must commence use of the mark in commerce within three years of filing date and must declare such commencement of use during the fourth year, including the same details, etc., use dates, label specimens, etc.) as those declared by a use applicant at time of filing. [Article 19(3)].
   (*b*) Time period for filing the declaration may be shortened (three months from date of notice) on petition of interested person if the mark is involved in any proceeding under the Act on or after date of expiration of the three year use moratorium.
   Alternative: Shorter period for filing the declaration (e.g., 3½ years) and delete (*b*) above.
2. Consequence of failure to file an acceptable declaration within the prescribed time limit is cancellation of the registration or, if still pending, refusal of the application. Consequence of compliance as to part only of the goods and/or services is limitation of the registration or application to those goods and/or services. [Article 19(3)].
3. Time period for commencement of use may be extended beyond three years only upon showing of special circumstances which justify non-use.
4. Where later intent application(s) for same mark is (are) filed by the same or a related person prior to four (*Alternative*: five) years from the filing date of the earliest one, the period for commencement of use (three years) is counted from the filing date of earliest application. This provision means that a person cannot abuse the intent to use provisions by filing successive intent applications at or close to the expiration of successive three year periods, securing a new three year moratorium on use requirements with each new case. [Article 19(3)].

C. *Related Company Provision*

A minor change provides that intended use as well as use may inure to benefit of a related company. Thus, for example, an intent application by a parent company would be valid if the evidence supporting the intent concerned adoption of the mark by and related activities of a controlled subsidiary.

D. *Registration on the Principal Register*

1. If a registration based on an intent application is issued before the declaration of use is filed, the certificate of registration indicates this fact in lieu of the dates of use.
2. *Date of registration* is the same date as the filing date, which is defined as the date on which all basic elements of an application are received by the Patent Office. (See Trademark Rule 2.21.) Certificate also indicates the *date of issue*, defined as the date of the OFFICIAL GAZETTE in which notice of the issuance of the registration is published. [Article 11(2)].
3. A certificate of registration is prima facie evidence of the validity of the registration, the right of the registrant to exclude any other person from securing or maintaining a confusingly similar registration, and the exclusive right to use only for those goods or services in respect of which the mark is declared in the certificate of registration, or in a subsequently filed declaration of use, to be in use in commerce.

E. *Duration of Registration, Sixth Year Affidavit and Renewal*

1. Term of registration and of renewal is changed from twenty years to ten years, counted from the *date of registration*. [Article 17].
2. Sixth year affidavit of use remains applicable to all registrations, with its due date counted from *date of issue* of the registration (Change only in terminology).
   Alternative: Same, except that due date is counted from *date of registration*.
3. Sixth year affidavit must show use *in commerce*.
4. A renewal application need not be verified. (Article 17).
5. A late renewal application may be filed within six months (rather than three) after the date of expiration of the term. (Article 17).

F. *Assignment*

An application or registration based on intent is not assignable prior to filing the declaration of use. Exception: successor to the entire business of the original applicant.

Alternative: Assignments of registered or applied for marks without good will are valid.

G. *Examination Procedure and Oppositions*

1. Time for response to office actions is reduced from six months to three months. Purpose is to expedite completion of ex parte examination in maximum number of cases prior to cut-off. (See 3 below).
2. No mark may be refused ex parte for a reason *not* communicated to applicant prior to fifteen months from the filing date. This limitation is not applicable to a refusal determined by a decision of the TTAB or a court. [Article 12(2)].
3. Cut-off at twelve months from filing date for publication of the mark for opposition, whether or not the ex parte examination, including any appeal therefrom, has been completed. If an opposition is filed against a still pending case, full opposition proceedings are deferred until completion of the ex parte examination. If the opposed mark is eventually determined to be registrable, then full opposition proceedings are commenced, unless the opposer withdraws. [Article 12(2)].
   Alternative: Publish all marks promptly after filing and receive oppositions concurrently with the ex parte examination, deferring full opposition proceedings (as above), however, until completion of the ex parte examination.
4. Oppositions need not be verified and may be filed by a duly authorized attorney.
5. Time to oppose may not be extended to a date later than fifteen months, counted from the filing date. [Article 12(2)].

H. *Cancellation of Registrations*

1. A petition to cancel need not be verified and may be filed by a duly authorized attorney.
2. The time period for cancellation based on unrestricted grounds (i.e., 5 years) is counted from the *date of issue* of the registration (Change only in terminology).

I. *Incontestability*

The time period for incontestability is counted from the *date of issue* of the registration (Change only in terminology).

J. *Appeals*

Minor change provides for an appeal from a refusal to accept a declaration of use.

K. *Constructive Notice*

Constructive notice is applicable from *date of issue* of registration (Change only in terminology).

Alternative: Constructive notice applicable as of the date of first publication.

L. *The Supplemental Register*

1. Special Requirement of one year's use prior to filing date is deleted, making Supplemental Register registrations subject to the same use requirements, i.e., use or intention to use, as registrations on the Principal Register. [Article 19(3)].
2. Petition to cancel a Supplemental Register registration need not be verified and can be filed by a duly authorized attorney.
3. Non-use is a ground for cancellation only after expiration of three years from the filing date. [Article 19(3)].

M. *Infringement Remedies, Evidence and Priority*

1. Owner of a registration based on an intent application may not start any action for infringement until the declaration of use has been filed and accepted. Any remedies for infringement of registered marks based on intent are applicable only to period after commencement of continuing use. [Article 19(3)].
2. A certificate of registration is prima facie evidence of exclusive right to use only for those goods or services in respect of which the mark is declared in the certificate of registration, or in a subsequently filed declaration of use, to be in use in commerce. (Consistent wtih M 1 above).
3. In an action based on an incontestable registration, defense based on innocent adoption and continuous use (i.e., section 33(b)(5)) is subject to the condition that the defendant must be innocent of knowledge not only of prior use of the registrant, but, where applicable, of registration based upon a previously filed declaration of intention to use.
4. For the purpose of determining priority of rights in *any* proceeding under the Act, an application or registration based on intent to use is accorded the same effect *as if* the applicant or registrant had commenced use of the mark in commerce on the filing date. Except where priority is accorded in a Patent Office proceeding, or in an appeal therefrom, prior to three years from the filing date, a condition to the according of priority on this basis is filing and acceptance of the declaration of use. [Article 19(3)].

N. *International Convention Provisions*

1. The waiver of use requirements for an application based on registration of the mark in a country with which we have a treaty relationship is deleted. Since all applicants have the alternative of securing a registration based on an intention to use the mark in commerce, the waiver of use requirements is no longer necessary and such applications are subject to all requirements of the Act. Similarly, the first sentence of section 44(e) is deleted, being unnecessary in view of the general limitation on

actions for infringement based on unused marks. (See M 1).

2. A minor change in section 44(d)(4) provides that a registration based on intent is not subject to the limitation of this subparagraph if the declaration of use has been accepted prior to issuance of the registration.

O. *Definitions*

1. The words "or intended to be used" are inserted in several of the definitions to take into account the new basis for registration.
2. Filing date, date of issue and date of registration are defined. (See D 2). Careful definition of "filing date" is important since it is the basis for determining the priority of intent applications. (See M 4).
3. The definition of abandonment is modified to the extent that non-use for two consecutive years is prima facie abandonment only if the two year period terminates on a date later than the date of expiration of three year use moratorium. Also, failure to commence use within the prescribed period, coupled with absence of any intention to commence use, constitutes abandonment. [Article 19(3)].

PART II—IMPLEMENTATION OF TRADEMARK REGISTRATION TREATY

A. *Definitions*

For purposes of the Act, an international application, international registration or later designation under the Trademark Registration Treaty (TRT) is defined to include only one which designates the United States; contains a declaration of intention to use the mark in commerce with or in the United States (or is accompanied by a declaration of actual use of the mark in such commerce); and is published and communicated to the Patent Office as required by the TRT. [Articles 10, 11, 19(4)].

B. *Effect in the United States of Proceedings Under the Treaty*

1. International applications, international registrations and later designations as defined above (See A), and the recordings related thereto, are accorded all of the effects, and their applicants or owners are entitled to all of the benefits, in the United States provided by the TRT, subject to all of the requirements of the TRT and, except as listed below, of the Trademark Act.
2. Exceptions to full application of the Trademark Act are:
   (*a*) The fee referred to in section 1 is waived. (*Note:* A fee equivalent to the U.S. application fee is paid to the International Bureau and the amounts of the fees collected on behalf of the United States are paid to the U.S. in lump sums.) [Article 19(1)].
   (*b*) The requirement to designate an agent for service in the application [i.e., present section 1(d)] is waived, provided that such person must be designated on or prior to date on which the owner replies to any communication by the examiner or otherwise institutes or defends any proceeding under the Act. Until such person has been designated, notices or process may be served upon the Commissioner. Consequence of failure to designate such person on or prior to the first to occur of the above events is cancellation of any effect of the international registration in the United States. [Article 19(7)].
   (*c*) A certificate of registration issued by the Patent Office based on an international registration shall also indicate the number and date of the international registration to which it relates.
   (*d*) The *filing date* under the Act of an international registration is the international registration date. The *date of issue* is the date on which registration effect in the United States of an international registration comes into existence pursuant to a notice to this effect published in the OFFICIAL GAZETTE, as in the case of publication of issuance of a national registration. [Article 11(1)(2)].
   (*e*) The recording of a change in ownership, or in the name of the owner, of an international registration shall not be accorded any effect as the recording of an assignment unless, within three months from the date of publication of such recording under the TRT, instruments of assignment conforming to the requirements of the Trademark Act are recorded in the Patent Office. [Article 14(4)].
   (*f*) Renewal of the effect of an international registration in the United States by the International Bureau is not subject to the requirements of section 9, provided that the registrant shall file in the Patent Office, prior to the expiration of six months counted from the starting date of the term of renewal, a declaration as to use of the mark in commerce. Consequences of failure to file an acceptable use declaration are the same as in the case of failure to file or filing of an unacceptable fourth year declaration of use (See Part I, B 2).

   Note: The renewal fee is collected and distributed in the same way as the filing fee. (See (*a*) above.) [Article 17, 19(1), 19(3)].

C. *Authority of the Commissioner*

The Commissioner is authorized to accord and deny effects, communicate notifications, make attestations, decide petitions, determine the amount of and receive payments of fees, and perform all other acts as provided by the TRT, subject to the requirements thereof.

D. *Notifications*

The Commissioner is required to effect all required notifications promptly. Where the time limitation of the TRT is stated in terms of the date of receipt, the notification shall be transmitted to the International Bureau no later than 14 days from the due date via Registered Air Mail.

* * * * * *

Final Note: The above outline does not include final provisions concerning the effective date of certain changes. Generally, changes that might have an effect on existing rights would be effective only as to applications filed on or after the effective date of the amended Act.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,879,120, Howe and Burr, LONG TWO PART FOLDING TABLE; **2,974,555,** C. W. Andersen, ELECTRONIC PIANO, **filed** July 30, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1949, *Musitronic Inc.* v. *The Wurlitzer Co.*

2,944,917, A. Cahne, METHOD OF COATING A METAL BASE WITH POLYTETRAFLUOROETHYLENE; **3,008,601,** same, POLYTETRAFLUOROETHYLENE COATED COOKING UTENSILS, **filed** July 31, 1973, D.C. Md. (Baltimore), Doc. 73-769-HM, *T-Fal Corporation* v. *Tefal, S.A.*

2,974,555. (See 2,879,120.)

3,008,601. (See 2,944,917.)

3,073,536, J. N. Quinn, PORTABLE CRUSHING PLANT; **3,409,235,** same, **filed** Nov. 17, 1972, D.C., E.D. Wis. (Milwaukee), Doc. 72-C-634, *John N. Quinn and Johnson Welding & Equipment Co.* v. *Lippmann, Inc. and Edmund Lippmann and Gladys Lippmann, doing business as Gilco Co.*

3,117,332, H. Goldman, BUTTON ASSEMBLY FOR PILOT'S HELMET; **3,137,017,** Pfleger and Ramer, ADJUSTABLE DOCKBOARD; **3,203,002,** G. McGuire, ADJUSTABLE DOCKBOARD WITH COUNTERBALANCING EXTENSION LIP; **Re. 25,249,** G. P. Kelley, ADJUSTABLE DOCKBOARD, **filed** Dec. 5, 1969, D.C., E.D. Wis. (Milwaukee), Doc. 69-C-590, *Kelley Company, Inc.* v. *Rite-Hite Corp.* Judgment, ordered, plaintiff owner of said patents, Patent Re. 25,249, claims 1, 11 and 13 thereof valid, Patent 3,117,332, claims 1, 2, 7 and 9 thereof valid, Patent 3,137,017, claim 1 thereof valid, Patent 3,203,002, claims, 1, 16, 17 and 20 thereof valid, defendant has infringed said claims, a writ of injunction issue to defendant enjoining and restraining them from infringing said patents and claims thereof, June 27, 1973.

3,136,248, J. R. Anderson, PROCESS AND APPARATUS FOR TEMPORARILY INDICATING CORRECTIONS IN TEXT OF PRINTED MATTER, **filed** Sept. 12, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c1565, *La Salle Street Press, Inc.* v. *McCormick and Henderson, Inc.*

3,137,017. (See 3,117,332.)

3,151,503, Keller and Keller, TRANSMISSION SYSTEM; **3,231,117,** Melroe and Keller, TRACTOR VEHICLE AND DRIVE THEREFOR; **D. 195,254,** Keller, Keller and Melrose, SELF-PROPELLED LOADER, **filed** July 24, 1973, D.C., S.D. N. Dak. (Fargo), Doc. C-4839, *Louis J. Keller and Cyril N. Keller* v. *Clark Equipment Company and Clark Equipment, A.G.*

3,203,002. (See 3,117,332.)

3,231,117. (See 3,151,503.)

3,238,876, R. C. Allen, METHOD FOR THROUGH-BULKHEAD SHOCK INITIATION, **filed** Aug. 10, 1973, Ct. of Claims (District of Columbia), Doc. 254-73, *Teledyne McCormick Selph* v. *The United States.*

3,277,594, Rogers, Taylor and Broggie, ANIMATING APPARATUS, **filed** Aug. 7, 1973, D.C. C.D. Calif. (Los Angeles), Doc. 73-1832-LTL, *Walt Disney Productions* v. *Six Flags Over Mid-America, Inc.*

3,316,574, R. L. Pare, ROAD EXPANSION JOINT; **Re. 26,733,** J. A. Welch, ELASTOMERIC EXPANSION JOINT, **filed** Nov. 9, 1972, D.C., W.D.N.Y. (Buffalo), Doc. C-1972-592, *Watson-Bowman Associates, Inc.* v. *The General Tire & Rubber Company.* Stipulation and order of dismissal filed July 24, 1973.

3,322,515, Dittrich and Shepard, FLAME SPRAYING EXOTHERMICALLY REACTING INTERMETALLIC COMPOUND FORMING COMPOSITES, **filed** Jan. 17, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c126, *Metco Inc.* v. *Metallizing Co. of America.* Pursuant to memorandum opinion, defendant's motion for change of venue granted and action transferred to U.S. District Court for the Southern District of New York, Sept. 5, 1972.

3,384,240, Martin J. Berardi, ACTIVATED CHARCOAL FILTER ASSEMBLY HAVING BACKWASH MEANS; **3,459,305,** same, FILTERING APPARATUS, **filed** June 25, 1973, D.C. Fla. (Miami), Doc. 73-1092-C-JE, *Martin J. Berardi* v. *Arroyal Industries, Inc., John A. Dacy and James J. McCarthy.*

3,409,235. (See 3,073,536.)

3,459,305. (See 3,384,240.)

3,484,905, R. Eberhardt, BUNDLE TIE, **filed** July 30, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c1877, *All States Plastic Mfg. Co. Inc.* v. *Weckesser Co. Inc.* Judgment order: Ordered claims 1 to 8 of patent invalid, claims 1 to 8 of patent not infringed, complaint dismissed with prejudice, defendant's counterclaim is sustained as to the invalidity and non-infringement of claims 1 to 8, inclusive, July 31, 1973.

3,527,194, Vadas and Desrochers, GAS-POWERED PISTOL; **Re. 27,568,** same, **filed** Apr. 6, 1973, D.C., M.D. Fla. (Tampa), Doc. 73-183-C T.K., *The Coleman Company, Inc.* v. *Bangor Punta Operations, Inc.*

3,536,141, R. W. Woelfel, OVER CENTER TOGGLE MOUNTING OF PLOW; **3,561,541,** same, TRACTOR AND IMPLEMENT HYDRAULIC CONTROL SYSTEM, **filed** Aug. 10, 1973, D.C., E.D. Wis. (Milwaukee), Doc. 73-C-430, *Roger W. Woelfel* v. *Allis-Chalmers Mfg. Co.*

3,542,214, J. Helms, STACKING AND TRANSMISSION DEVICE FOR PACKAGES, **filed** Aug. 24, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-2022-AAH, *Harry Feick Co., Inc.* v. *Entron Controls, Inc. and W. E. Starr and Company.*

3,561,541. (See 3,536,141.)

3,567,057, W. J. Landen, BOTTLE SAFETY CLOSURE; **Re. 27,673,** same, **filed** Aug. 13, 1973, D.C. Del. (Wilmington), Doc. 4703, *Anchor Hocking Corporation* v. *The Eyelet Specialty Company.*

3,627,973, E. E. Smith, SUCCESSIVE AUTOMATIC DEPOSITION OF CONTIGUOUS WELD BEADS UPON NONPLANAR SURFACES, **filed** Nov. 3, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-2629-LTL, *D. & W. Rankin Manufacturing Company* v. *Teledyne, Inc.* Filed stipulation of dismissal with prejudice of complaint and first counterclaim, and order thereon, July 30, 1973.

3,649,039, Gertsch and Gertsch, LONGITUDINALLY ADJUSTABLE HEEL LOCKING DEVICE ON A SKI-BINDING, **filed** Mar. 22, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c735, *Gertsch AG* v. *Safety Systems Inc.* Stipulation order, cause dismissed with prejudice, Dec. 1, 1972.

3,654,854, Cook and McCartney, REFUSE PACKER, **filed** Aug. 6, 1973, D.C. Iowa (Cedar Rapids), Doc. 73-C-35-CR, *Uhrden, Inc.* v. *Mid Equipment, Inc.*

3,666,854, A. M. Eisentraut, TEST FOR THYROID HORMONE, **filed** Aug. 3, 1973, D.C., S.D. Tex. (Houston), Doc. CA 73-H-1090, *Nuclear-Medical Laboratories, Inc.* v. *United Medical Laboratories, Inc.*

3,671,006, I. L. Berkowitz, REFRIGERATOR WALL PANELS WITH PANELS FASTENERS AND APPARATUS FOR MAKING SAID PANELS, **filed** July 23, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-1688-R, *Kason Hardware Corporation* v. *Consolidated Tooling Inc., Roy F. Smith and Lois Smith.*

3,696,995, W. Kasner, CALCULATOR; **3,706,875,** same, **filed** Aug. 15, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-1912-AAH, *Bandwagon, Inc.* v. *Diamond International Corporation and William Kasner.*

3,706,875. (See 3,696,995.)

Re. 25,249. (See 3,117,332.)

Re. 25,570, J. H. Lemelson, EXTRUSION APPARATUS, **filed** Aug. 13, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2074, *Discovery rights, Inc.* v. *American Can Company.*

Re. 26,733. (See 3,316,574.)

Re. 27,568. (See 3,527,194.)

Re. 27,673. (See 3,567,057.)

D. 226,977, W. H. Oliver, SOFA OR SIMILAR ARTICLE; **D. 227,834,** same **filed** Aug. 16, 1973, D.C., W.D. Wash. (Seattle), Doc. 497-73C2, *William H. Oliver* v. *Ronald Morse et al.*

D. 195,254. (See 3,151,503.)

D. 227,834. (See D. 226,997.)

Certificates of Correction for the Week of May 28, 1974

Re. 27,649	3,752,098	3,767,639	3,778,177
Re. 27,704	3,752,741	3,767,682	3,778,335
Re. 27,728	3,752,862	3,767,762	3,778,483
D. 228,226	3,752,967	3,767,806	3,778,545
3,467,840	3,753,634	3,767,978	3,778,815
3,549,611	3,753,721	3,768,091	3,778,890
3,582,162	3,754,259	3,768,309	3,779,224
3,625,260	3,755,047	3,768,526	3,779,818
3,671,512	3,756,849	3,768,547	3,779,922
3,689,381	3,756,971	3,768,646	3,780,007
3,693,588	3,757,286	3,769,239	3,780,053
3,699,657	3,758,580	3,769,454	3,780,233
3,703,958	3,759,200	3,769,494	3,780,327
3,704,400	3,759,470	3,769,602	3,780,543
3,709,819	3,760,006	3,769,759	3,781,231
3,711,872	3,760,406	3,769,796	3,781,490
3,714,201	3,760,638	3,770,132	3,782,340
3,720,198	3,760,694	3,770,893	3,782,363
3,727,670	3,762,741	3,771,730	3,783,072
3,730,900	3,762,942	3,772,123	3,783,255
3,732,544	3,763,325	3,772,673	3,783,400
3,732,832	3,763,473	3,772,687	3,783,611
3,738,298	3,764,000	3,772,748	3,783,628
3,738,738	3,764,083	3,772,936	3,784,726
3,738,932	3,764,311	3,774,101	3,785,315
3,739,532	3,765,094	3,774,199	3,785,373
3,742,070	3,765,728	3,774,676	3,787,333
3,742,939	3,766,049	3,774,684	3,787,957
3,746,474	3,766,184	3,774,808	3,788,028
3,746,617	3,766,292	3,774,212	3,788,670
3,747,306	3,766,666	3,775,242	3,788,702
3,748,112	3,766,853	3,775,386	3,788,963
3,749,672	3,766,985	3,775,679	3,790,573
3,749,823	3,766,999	3,775,705	3,791,325
3,750,021	3,767,324	3,776,053	3,792,553
3,751,067	3,767,501	3,776,577	3,792,614
3,751,549	3,767,564	3,777,793	
3,752,043	3,767,638	3,778,114	

Disclaimers

3,796,783.—*James E. Grecver*, De Witt, N.Y. METHOD OF PRODUCING A PLASTIC BOND BETWEEN FIRST AND SECOND TUBULAR TUBE MEMBERS. Patent dated Mar. 12, 1974. Disclaimer filed Nov. 8, 1973, by the assignee, *Carrier Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to June 18, 1989.

3,786,460.—*Pierre Kaltenbach*, New York, N.Y. LIGHT DETECTION MONITORING DEVICE. Patent dated Jan. 15, 1974. Disclaimer filed June 26, 1973, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to July 31, 1990.

3,794,556.—*Donald G. Young*, Glendale, Ky. PRIMER COMPOSITION FOR ADHERING SILICONE ELASTOMER TO SUBSTRATES. Patent dated Feb. 26, 1974. Disclaimer filed July 25, 1973, by the assignee, *Dow Corning Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to July 18, 1991.

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of Patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent application 276,211. Glass Polymer Composites. Filed July 28, 1972. PC $4/MF $1.45.

DEPARTMENT OF THE AIR FORCE
AF/JACP, Washington, D.C. 20314

Patent application 273,004. Method of Fabricating Hollow Balls for Use in Rolling Contact Bearing Applications. Filed July 18, 1972. PC $4/MF $1.45.

Patent application 273,005. Pressure Control System for G-suit. Filed July 18, 1972. PC $4/MF $1.45.

Patent application 276,338. Teflon-Lined Bearing Improvement. Filed July 31, 1972. PC $4/MF $1.45.

Patent application 288,212. Vertical Rate Reference Computer for Control of a VTOL or STOL Aircraft at a Constant Flight Path Angle. Filed Sept. 11, 1972. PC $4.75/MF $1.45.

Patent application 293,692. Method for Modifying Polyhydroxy Ethers. Filed Sept. 29, 1972. PC $4/MF $1.45.

Patent application 295,787. Benzofuroisoquinoline Polymers and Method for Synthesizing Same. Filed Oct. 6, 1972. PC $4/MF $1.45.

U.S. DEPARTMENT OF AGRICULTURE
Chief Research Agreements and Patent Mgmt. Branch,
Federal Building, General Services Division,
Agricultural Research Service,
Hyattsville, Md. 20782

Patent application 272,824. Fire and Wrinkle Resistant Organic Textiles Through Treatment With a Methylol Phosphine and an Aziridinyl Phosphorus Compound. Filed July 18, 1972. PC $4/MF $1.45.

Patent application 274,949. A Dehydration Process to Impart Wrinkle Resistance to Cellulose-Containing Fibrous Materials. Filed July 25, 1972. PC $4/MF $1.45.

Patent application 275,012. Improved Method of Purifying Concentrated Color Extracts From Citrus Peels. Filed July 25, 1972. PC $4/MF $1.45.

Patent application 279,919. Preparation of Crosslinked Polyethylenimine and Impregnation of Cellulosic Material With in Situ Crosslink-Polymerized Ethylenimine. Filed Aug. 11, 1972. PC $4/MF $1.45.

Patent application 288,802. N-Ethyl-N-3-Ethoxypropyl-Oleamides. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 288,806. Method of Increasing Covering Power of Knitted Cotton Fabric. Filed Sept. 13, 1972. PC $4/MF $1.45.

Patent application 288,807. The Preparation of Dibasic Dimeric Resin Acids. Filed Sept. 12, 1972. PC $4/MF $1.45.

Patent application 288,814. N,N-Di-n-Butyl-2-(Oleoyloxy) Propionamide. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 298,167. Recurable Crosslinked Cellulose Fabrics From Methylol Reagents and Polycarboxylic Acids. Filed Oct. 16, 1972. PC $4.75/MF $1.45.

Patent application 306,774. Production of Phosphorus and Nitrogen Containing Compounds and Polymers and Flameproofing Organic Textiles. Filed Nov. 15, 1972. PC $4/MF $1.45.

Patent application 324,136. Flameproofing of Cotton Cellulose With Hexamethyl Phosphorous Triamide. Filed Mar. 16, 1973. PC $4/MF $1.45.

Patent application 335,860. Phosphonated N,N-Disubstituted Fatty Amides. Filed Feb. 26, 1973. PC $4/MF $1.45.

Patent application 337,792. Polymerized Rosin Product and Process for the Production of Same. Filed Mar. 5, 1973. PC $4/MF $1.45.

Patent application 342,133. Modification of Cotton Textiles and Cotton/Polyester Textile Blends by Photo-Initiated Polymerization of Vinylic Monomers. Filed Mar. 16, 1973. PC $4/MF $1.45.

Patent application 348,558. Cotton-Oxime, Cotton-Semicarbazone and Cotton-Hydantoin-Textile Products of High Nitrogen Content. Filed Apr. 6, 1973. PC $4/MF $1.45.

Patent application 348,802. N-Substituted Fatty Acid Amide Lubricants. Filed Apr. 6, 1973. PC $4.25/MF $1.45.

Patent application 351,935. Introduction of a Temporary Stiffness Into Knitted Cotton for Stability During Patterning. Filed Apr. 17, 1973. PC $4/MF $1.45.

Patent application 365,894. A Process for Dyeing Crosslinked Cellulosic Fabrics With Disperse Dyestuffs. Filed June 1, 1973. PC $4.25/MF $1.45.

Patent application 365,895. Process for Producing Fire Resistant Organic Textile Materials. Filed June 1, 1973. PC $4/MF $1.45.

Patent application 365,896. Flame Retardant Organic Fibrous Materials. Filed June 1, 1973. PC $4/MF $1.45.

Patent application 374,584. 3,7-Dicyano-3,5,7-Triaza-1-Phosphabicyclo(3.3.1)Nonane and Derivatives. Filed June 28, 1973. PC $4/MF $1.45.

Patent application 374,585. Processes to Make Olive Drab to Greenish-Gold Mineral Dye Shades for Cellulosics. Filed June 28, 1973. PC $4/MF $1.45.

Patent application 386,922. Hammer Mill With Integral Subsampling Portion. Filed Aug. 9, 1973. PC $4/MF $1.45.

Patent application 391,188. Process for Producing Varicolored Fabrics via the Selective Dyeing of Cellulosic Fabrics With Different Dye Types. Filed Aug. 24, 1973. PC $4/MF $1.45.

Patent application 400,079. Epithioamides as Plasticizer-Stabilizers. Filed Sept. 24, 1973. PC $4/MF $1.45.

Patent 3,681,099. Glossy Finish Linseed Water Emulsion Paints and Nonagglomerated Pigment Composition for Said Paints. Filed Aug. 4, 1970. Patented Aug. 1, 1972. Not available NTIS.

Patent 3,691,158. Hexachlorocyclopentadiene Adducts of Unsaturated Amides of Azabicyclononane. Filed Dec. 16, 1971. Patented Sept. 12, 1972. Not available NTIS.

Patent 3,696,600. Apparatus for Producing Core Yarn. Filed Apr. 12, 1971. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,702,338. Hydroxy-Methylated Derivatives of Resin Acids, Their Use in Elastomeric Polyurethanes. Filed May 12, 1970. Patented Nov. 7, 1972. Not available NTIS.

Patent 3,702,359. Certain Microbial Insecticides and Methods of Preparation Thereof. Filed Oct. 30, 1970. Patented Nov. 7, 1972. Not available NTIS.

Patent 3,714,087. Powdered Resorcinol-Formaldehyde Treated Polysaccharide-Reinforced Elastomer Masterbatches, Compounds, and Resulting Vulcanized Rubbers. Filed Feb. 28, 1972. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,729,379. Hydroxy-Conjugated Fatty Acids. Filed Aug. 31, 1971. Patented Apr. 24, 1973. Not available NTIS.

Patent 3,730,829. Starch Xanthate Derivatives Used in Papermaking. Filed Oct. 18, 1971. Patented May 1, 1973. Not available NTIS.

Patent 3,732,073. N,N-Diethylaziridinium Chloride as a Coreactant Catalyst for Reactions of N-Methylol Reagents With Cellulose. Filed Mar. 28, 1972. Patented May 8, 1973. Not available NTIS.

Patent 3,733,275. N-Substituted Fatty Acid Amide Lubricants. Filed Dec. 21, 1971. Patented May 15, 1973. Not available NTIS.

Patent 3,737,426. Biodegradeable Surfactants From Starch-Derived Glycosides. Filed Sept. 25, 1970. Patented June 5, 1973. Not available NTIS.

Patent 3,763,060. Starch Xanthate-Polyamide-Polyamine Interpolymer Paper Strength Additives. Filed June 9, 1972. Patented Oct. 2, 1973. Not available NTIS.

U.S. DEPARTMENT OF TRANSPORTATION
Patent Counsel, 300 7th St. SW.,
Washington, D.C. 20590

Patent application 449,327. An Airborne Laser Remote Sensing System for the Detection and Identification of Oil Spills. Filed Mar. 8, 1974. PC $4/MF $1.45.

Patent application 451,448. WEDCOM. Filed Mar. 15, 1974. PC $4/MF $1.45.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
National Institutes of Health, Chief, Patent Branch,
Westwood Building, Bethesda, Md. 20014

Patent application 326,145. Dialyzer Cartridge. Filed Jan. 23, 1973. PC $3/MF $1.45.

Patent 3,728,256. Crossflow Capillary Dialyzer. Filed June 22, 1971. Patented Apr. 17, 1973. Not available NTIS.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent application 434,162. An optical Detection System. Filed Jan. 17, 1974. PC $4/MF $1.45.

Patent application 435,791. Method of Preparing Bipolar Membranes and the Production of Acids and Bases Therefrom. Filed Jan. 23, 1974. PC $4/MF $1.45.

Patent application 438,152. Method and Apparatus for Rapid Particle Size and Mass Analysis. Filed Jan. 29, 1974. PC $4/MF $1.45.

Patent application 446,833. Fluidized Bed in Reverse Osmosis Processes. Filed Feb. 28, 1974. PC $4/MF $1.45.

Patent 2,194,054. Apparatus for Concentrating Trace Impurities in High-Purity Helium. Filed Aug. 7, 1961. Patented July 13, 1965. Not available NTIS.

Patent 2,804,506. Dynamagnetic Pick-Up System. Filed Oct. 31, 1951. Patented Aug. 27, 1957. Not available NTIS.

Patent 2,813,823. Destructive Distillation of Hydrocarbonaceous Materials. Filed Sept. 19, 1956. Patented Nov. 19, 1957. Not available NTIS.

Patent 2,825,641. Method for Melting Refractory Metals for Casting Purposes. Filed Sept. 21, 1955. Patented Mar. 4, 1958. Not available NTIS.

Patent 2,860,101. Balanced Hydrogenation of Coal. Filed Apr. 20, 1953. Patented Nov. 11, 1958. Not available NTIS.

Patent 2,869,419. Orthophotoscope. Filed Aug. 28, 1956. Patented Jan. 20, 1959. Not available NTIS.

Patent 2,879,472. Dynamic Resistance Recorder. Filed Oct. 11, 1957. Patented Mar. 24, 1959. Not available NTIS.

Patent 2,890,111. Method of Manufacturing Titanium and Titanium Alloys. Filed Mar. 30, 1956. Patented June 9, 1959. Not available NTIS.

Patent 2,892,924. Electrode for Melting and Arc Welding Zirconium Metal. Filed Jan. 24, 1957. Patented June 30, 1959. Not available NTIS.

Patent 2,901,402. Process for Destructive Distillation of Hydrocarbonaceous Materials. Filed July 19, 1957. Patented Aug. 25, 1959. Not available NTIS.

Patent 2,934,443. Impact Resistant Ceramic Dielectric and Method of Making Same. Filed Oct. 10, 1957. Patented Apr. 26, 1960. Not available NTIS.

Patent 3,002,091. Method of Tracing the Flow of Liquids by Use of Post Radioactivation of Tracer Substances. Filed Nov. 3, 1958. Patented Sept. 26, 1961. Not available NTIS.

Patent 3,012,668. Electrostatic Separator Carrier Electrode. Filed Dec. 8, 1959. Patented Dec. 12, 1961. Not available NTIS.

Patent 3,223,319. Multiple Electrode Detector. Filed Nov. 18, 1964. Patented Dec. 14, 1965. Not available NTIS.

Patent 3,236,682. Process for Preparation of Caustic-Resistant Containers for High-Temperature Use. Filed Dec. 28, 1962. Patented Feb. 22, 1966. Not available NTIS.

Patent 3,238,098. Method of Controlling Sea Lamprey. Filed Jan. 27, 1964. Patented Mar. 1, 1966. Not available NTIS.

Patent 3,244,612. Demineralization Electrodes and Fabrication Techniques Therefor. Filed Nov. 29, 1961. Patented Apr. 5, 1966. Not available NTIS.

Patent 3,254,202. Automatic Swing Curve Calculator and Plotter Used to Indicate Transient Stability of Power Generators. Filed Nov. 2, 1962. Patented May 31, 1966. Not available NTIS.

Patent 3,257,992. Coal Burning Water Tube Steam Generator Construction Embodying Integral Primary Coal Slagging Type Furnace and Secondary Furnace. Filed May 28, 1964. Patented June 28, 1966. Not available NTIS.

Patent 3,259,762. Electrostatic Induction Power Supply. Filed Apr. 16, 1963. Patented July 5, 1966. Not available NTIS.

Patent 3,260,658. Process for the Recovery of Rhenium. Filed Oct. 31, 1962. Patented July 12, 1966. Not available NTIS.

Patent 3,264,937. Binder and Surface Coating Made From Coal and Asphalt. Filed Jan. 18, 1963. Patented Aug. 9, 1966. Not available NTIS.

Patent 3,273,993. Process of Reduction Roasting of Iron Ore With Metallic Iron. Filed Jan. 30, 1964. Patented Sept. 20, 1966. Not available NTIS.

Patent 3,273,995. Recovery of Zinc From Zinc Die-Cast Scrap. Filed May 22, 1964. Patented Sept. 20, 1966. Not available NTIS.

Patent 3,794,574. Device for Cathodically Protecting Metal Conduit System. Filed Apr. 27, 1972. Patented Feb. 26, 1974. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP–2, Washington, D.C. 20546

Patent 3,752,556. Real Time Moving Scene Holographic Camera System. Patented Aug. 14, 1973. Not available NTIS.

Patent 3,784,499. Nonflammable Coating Compositions. Patented Jan. 8, 1974. Not available NTIS.

[FR Doc. 74–10511 ; Filed 5–7–74 ; 8 : 45 am]

DEPARTMENT OF THE AIR FORCE
AF/JACP, Washington, D.C. 20314

Patent application 271,335. Cover Support Assembly. Filed July 13, 1972. PC $4/MF $1.45.

Patent application 278,853. Method of and Apparatus for Forming Grooves and Coolant Channels in and for Rocket Engine Composite Channel-Type Coolant Wall Having a Complex Surface. Filed Aug. 8, 1972. PC $4/MF $1.45.

Patent application 279,416. Breathing Mask Assembly. Filed Aug. 10, 1972. PC $4/MF $1.45.

Patent application 284,552. Preparation of Ultrahigh Purity Anhydrous Alkali Metal Halide Powders. Filed Aug. 29, 1972. PC $4/MF $1.45.

Patent application 287,188. Unbonded Flexure Seal Design. Filed May 7, 1972. PC $4/MF $1.45.

Patent application 288,818. Releasable Connector Subassembly. Filed Sept. 13, 1972. PC $4/MF $1.45.

Patent application 289,694. Temperature Cycling Device. Filed Sept. 15, 1972. PC $4/MF $1.45.

Patent application 289,695. Method of Connecting a Metal Conduit to a Plastic Conduit. Filed Sept. 15, 1972. PC $4/MF $1.45.

Patent application 292,368. Thermally Stable Phenylated Heterocyclic Aromatic Polymers and Method of Synthesis. Filed Sept. 26, 1972. PC $4/MF $1.45.

Patent application 297,123. Process for Preparing Carrot Juice. Filed Oct. 12, 1972. PC $4/MF $1.45.

U.S. DEPARTMENT OF AGRICULTURE
Chief, Research Agreements and Patent Mgmt. Branch
Federal Building, General Services Division,
Agricultural Research Service,
Hyattsville, Md. 20782

Patent application 348,840. Method for Improving the Shelf Life of Roasted Peanuts. Filed Apr. 6, 1973. PC $4/MF $1.45.

Patent application 374,731. Whey Solids as a Stabilizer for Agricultural Foams. Filed June 28, 1973. PC $4/MF $1.45.

Patent application 288,812. N-Cyclohexyl-N-2-Acetoxyethyl-Oleamide. Filed Sept. 13, 1972. PC $5/MF $1.45.

Patent application 328,199. Shrinkage-Control Treatment for Knitted Fabrics. Filed Jan. 31, 1973. PC $4/MF $1.45.

Patent application 337,791. Use of Epoxides in the Preparation of Higher Fatty Acid Anhydrides. Filed Mar. 5, 1973. PC $4/MF $1.45.

Patent application 360,281. Azeotropic Solvents for Permanent Press Treatments of Cotton and Cotton Blend Fabrics. Filed May 14, 1973. PC $4/MF $1.45.

Patent application 365,897. Process for Preparing Frosted and Multicolored Cottou Pile Fabrics. Filed June 1, 1973. PC $4/MF $1.45.

Patent application 391,189. A Monophosphorus Analog of Hexamethylenetetramine and Derivatives. Filed Aug. 24, 1973. PC $4/MF $1.45.

Patent 3,674,880. Methods for Preparing Valuable Keto and Hydroxy Cyclic Compounds. Filed Jan. 3, 1968. Patented July 4, 1972. Not available NTIS.

Patent 3,709,005. Vapor-Phase Reaction Apparatus for Treating Cellulosic Textile Materials and Garments. Filed Jan. 26, 1971. Patented Jan. 9, 1973. Not available NTIS.

Patent 3,729,461. Synthesis of Glycosyl Glycerides. Filed Dec. 23, 1970. Patented Apr. 24, 1973. Not available NTIS.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
National Institutes of Health, Chief, Patent Branch,
Westwood Building, Bethesda, Md. 20014

Patent application 381,234. Thumbtack Microelectrode and Method of Making Same. Filed July 20, 1973. PC $4/MF $1.45.

Patent 3,746,683. Thromboresistant Articles Made From Polyurethanes Containing a Polypropylene Glycol-Ethylene Oxide Block Copolymer. Filed Dec. 24, 1970. Patented July 17, 1973. Not available NTIS.

Patent 3,785,832. Dental Primer Varnish. Filed Oct. 13, 1971. Patented Jan. 15, 1974. Not available NTIS.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts. NW.,
Washington, D.C. 20240

Patent 2,789,888. Apparatus for Performing the Fischer-Tropsch Reaction. Filed Mar. 3, 1953. Patented Apr. 23, 1957. Not available NTIS.

Patent 2,829,061. Machinable Ceramic Bonded Material and Method for Producing Same. Filed Sept. 24, 1952. Patented Apr. 1, 1958. Not available NTIS.

Patent 2,947,688. Process and Apparatus for the Demineralization of Saline Water. Filed Jan. 10, 1957. Patented Aug. 2, 1960. Not available NTIS.

Patent 2,996,439. Rotary Still. Filed Dec. 16, 1958. Patented Aug. 15, 1961. Not available NTIS.

Patent 3,002,002. Reduction of the Thiophene Nucleus. Filed Apr. 2, 1957. Patented Sept. 26, 1961. Not available NTIS.

Patent 3,010,208. Method for Determining the Authenticity of Ancient Artifacts Made of Obsidian. Filed May 6, 1960. Patented Nov. 28, 1961. Not available NTIS.

Patent 3,116,450. Tracer Liquid Release Tube Having Franibige Elements at Opposite Ends of the Tube. Filed Aug. 25, 1961. Patented Dec. 31, 1963. Not available NTIS.

Patent 3,117,586. Automatic Controller. Filed June 30, 1961. Patented Jan. 14, 1964. Not available NTIS.

Patent 3,137,648. Pretreatment of Minerals for Electrostatic Separation. Filed Jan. 24, 1962. Patented June 16, 1964. Not available NTIS.

Patent 3,150,923. Process for Removing Sulfur Dioxide From Gases. Filed Jan. 18, 1962. Patented Sept. 29, 1964. Not available NTIS.

Patent 3,154,381. Progressive Melting and Crystallization of Synthetic Mica. Filed Apr. 20, 1959. Patented Oct. 27, 1964. Not available NTIS.

Patent 3,184,302. Process, Removal of Oxygen and Aluminum From Metals Prepared by Aluminothermic and Similar Processes. Filed Jan. 24, 1963. Patented May 18, 1965. Not available NTIS.

Patent 3,184,789. Apparatus for Large-Scale Application of Monomolecular Layers to Water Surfaces Using Melted Material. Filed Apr. 7, 1964. Patented May 25, 1965. Not available NTIS.

Patent 3,228,750. Process for Separating Rare-Earth Elements by Ion Exchange. Filed June 7, 1962. Patented Jan. 11, 1966. Not available NTIS.

Patent 3,250,701. Stabilization of Desalination Membranes. Filed Sept. 15, 1965. Patented May 10, 1966. Not available NTIS.

Patent 3,262,865. Chemical Treatment and Distillation of Sea Water. Filed July 15, 1963. Patented July 26, 1966. Not available NTIS.

Patent 3,271,246. Method of Controlling Sea Lamprey. Filed Jan. 6, 1964. Patented Sept. 6, 1966. Not available NTIS.

Patent 3,271,326. Flame Spraying of Catalytically Active Pulverized Metal Oxides on Supports. Filed July 22, 1963. Patented Sept. 6, 1966. Not available NTIS.

Patent 3,278,028. Flotation of Mica. Filed Oct. 31, 1963. Patented Oct. 11, 1966. Not available NTIS.

Patent 3,282,678. Smelting Reduced Iron Ore Pellets in the Blast Furnace. Filed Jan. 16, 1964. Patented Nov. 1, 1966. Not available NTIS.

Patent 3,292,780. Process for Improved Flotation Treatment of Iron Ores by Selective Flocculation. Filed May 4, 1964. Patented Dec. 20, 1966. Not available NTIS.

Patent 3,293,829. Top Closure for High Temperature Electrostatic Precipitator. Filed Aug. 27, 1963. Patented Dec. 27, 1966. Not available NTIS.

Patent 3,341,256. Process for Conveying Mineral Solids Through Conduits. Filed May 24, 1963. Patented Sept. 12, 1967. Not available NTIS.

Patent 3,369,168. Frequency Conversion System Utilizing Modulation. Filed Aug. 5, 1966. Patented Feb. 13, 1968. Not available NTIS.

Patent 3,465,235. Control of Rotating Exciters for Power System Damping. Filed Oct. 16, 1967. Patented Sept. 2, 1969. Not available NTIS.

Patent 3,552,754. Tube Plate Seal. Filed Sept. 15, 1969. Patented Jan. 5, 1971. Not available NTIS.

Patent 3,788,465. Device and Process for Magneto-Gravimetric Particles Separation Using Non-Vertical Separation Process. Filed Apr. 20, 1972. Patented Jan. 29, 1974. Not available NTIS.

[FR Doc. 74-10512; Filed 5-7-74; 8:45 am]

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MAY 11, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	5-07-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	2-12-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	4-24-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	6-01-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	3-01-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	10-03-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	1-11-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	7-02-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	2-14-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	5-09-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director. Industrial Arts; Household, Personal and Fine Arts.	5-15-72
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	9-10-73
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	5-07-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—Director (Vacant). Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	5-09-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	8-06-73
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—Director (Vacant). Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	4-09-73

Expiration of patents: The patents within the range of numbers indicated below expire during May 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,790,971 to 2,794,185, inclusive
Plant Patents..... Numbers 1,598 to 1,605, inclusive

REISSUES

MAY 28, 1974

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,019

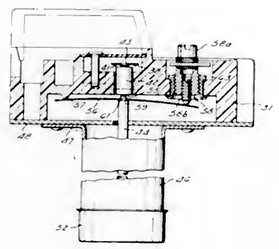
ADJUSTABLE THERMOSTAT

Donald J. Schmitt, Mansfield, Ohio, assignor to Therm-O-Disc, Incorporated, Mansfield, Ohio

Original No. 3,573,700, dated Apr. 6, 1971, Ser. No. 779,680, Nov. 29, 1968. Application for reissue June 26, 1972, Ser. No. 266,446

Int. Cl. H01h *37/18, 37/24, 37/54*

U.S. Cl. 337—347 **37 Claims**



Bimetal free disc thermostats are disclosed which provide means for modifying the operating temperature of the disc and means for modifying the operating temperature differential of the disc. The operating temperature of the thermostat is adjusted by applying an adjustable biasing force to the snap disc urging it toward one position of stability. Adjustment of the force changes the temperature of operation without materially altering the displacement characteristics of the disc or the operating differential. The stability of the disc calibration is also improved by the biasing force which dampens the snap action. Operating temperature differential is adjusted by a biasing force applied to the disc only when the switch contacts are open. This latter force causes the disc to operate along one curve when the switch is closed and a displaced curve when the switch is open, thereby adjustably reducing operating temperature differential of the disc. A switch operator is arranged so that the kinetic energy of a mass in motion is available to break any contact welds. Further conventional disc structures may be arranged to operate at higher temperatures with relatively small operating temperature differentials by applying properly selected biasing forces to such conventional discs.

28,020

KILN DRYING PROCESS

Dallas S. Dedrick, Longview, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Original No. 3,404,464, dated Oct. 8, 1968, Ser. No. 602,502, Dec. 19, 1966. Application for reissue Sept. 2, 1970, Ser. No. 69,117

Int. Cl. F26b *3/00*

U.S. Cl. 34—30 **27 Claims**

A process for drying wood wherein heat energy is supplied to a load of wood in a confined zone by means of heated air whose temperature is constantly increased with respect to time. Additionally the process preferably utilizes circulating air to dry the wood, the air circulated in one direction across the wood under conditions of laminar flow.

28,021

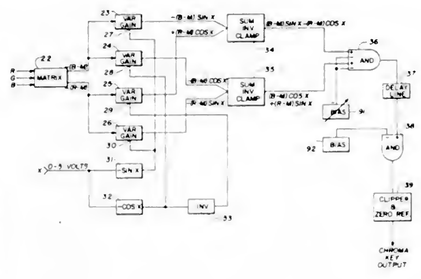
CHROMA KEY CIRCUIT

Peter Boxman, Clifton, and Frederik Johannes van Roessel, Mahwah, N.J., assignors to Philips Broadcast Equipment Corporation, Montvale, N.J.

Original No. 3,678,182, dated July 18, 1972, Ser. No. 123,690, Mar. 12, 1971. Application for reissue Sept. 13, 1972, Ser. No. 288,567

Int. Cl. H04n *9/02*

U.S. Cl. 178—5.4 R **12 Claims**



A circuit for generating an output pulse upon the occurrence of a selected color in color television signals features a matrix to form two chrominance difference signals. Four variable gain amplifiers multiply the difference signals by the sine and cosine of a control voltage which is a course color control. Two circuits each comprising a summer, inverter, and clamp circuit each add the outputs of two of the multiplied signals. An AND gate combines the output of the summer circuits and also is coupled to a variable bias supply, which is a fine color control. A delay line, a second AND gate, and a clipper and zero reference then shape the output pulse.

28,022

COMBINED FLOOR POLISHER AND SUCTION CLEANER

George L. Lamont, Hurlstone Park, New South Wales, Australia, assignor to Contract Cleaning Co. Pty. Limited, Leichhardt, New South Wales, Australia

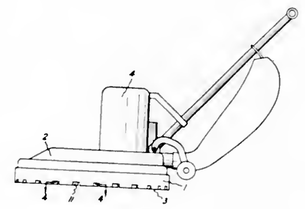
Original No. 3,531,819, dated Oct. 6, 1970, Ser. No. 700,065, Jan. 24, 1968. Application for reissue Sept. 21, 1972, Ser. No. 290,810

Int. Cl. A47l *5/10*

U.S. Cl. 15—385 **14 Claims**

A combined floor polisher and suction cleaner comprising, in combination, a housing with a rotary brush

therein and a suction means within the housing adjacent the brush. A flexible floor contacting skirt depends from



the entire periphery of the housing and has therein a plurality of openings through which large pieces of liter may be drawn.

28,023

ROTARY DOUCHE FOR TREATING BREASTS

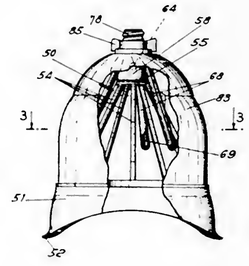
Jacques Marcel Courtin, 35 Rue Tronchet, 75008 Paris, France

Original No. 3,667,455, dated June 6, 1972, Ser. No. 29,607, Apr. 17, 1970. Application for reissue Sept. 15, 1972, Ser. No. 289,217

Claims priority, application France, July 29, 1969, 6925877

Int. Cl. A61h *9/00*

U.S. Cl. 128—66 **3 Claims**



A rotary douche for treating breasts which is used with a water supply and which comprises three major component parts: a bell-shaped body, a stator and a rotor which are easily assembled and disassembled in order to facilitate the removal of deposits from the water supply such as calcium. The stator includes an extending lip for sealingly engaging the chest of the user. The stator is adapted to support the rotor for rotation thereon and includes a tubular portion extending through a portion of the bell-shaped body remote from the open end and adapted to be connected to a water supply. Ports are provided in the tubular member for conducting the water to the rotor. The rotor includes fingers having orifices at their tips so that the rotor is driven by reaction.

28,024

PROCESS FOR THE STERILIZATION OF SOLID SURFACES

Alexander Knetemann, deceased, late of Voorburg, Netherlands, by Marie Knetemann, nee Groeneveld, Voorburg, Hubertus Leonardus Maria Lelieveld, Vlaardingen, Renee van Rhee, Maassluis, and Gerald Tuvnenburg Muys, Rotterdam, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Original No. 3,576,594, dated Apr. 27, 1971, Ser. No. 747,078, July 24, 1968. Application for reissue Apr. 23, 1973, Ser. No. 353,917

Claims priority, application Great Britain, July 31, 1967, 35,123/67

Int. Cl. A61l *13/00*

U.S. Cl. 21—57 **5 Claims**

The sterilisation of solid surfaces, such as the interior of food containers, is achieved by hydrogen chloride gas at temperatures below 40° C. in a manner such that there is no residual hydrochloric acid on the sterilised surface, control of the interrelated factors of temperature, duration of contact, and water-vapor, hydrogen chloride content being employed.

28,025

AUTOMATIC CONTROL DEVICE FOR ELECTRONIC FLASH

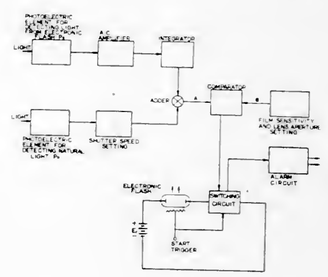
Tomoji Murata, 2306 Kanaoka-chou, Sakai, Osaka, Japan, and Sadao Yamaoka, 33–2 Nakanogawa-chou, Toyokawa, Aichi, Japan

Original No. 3,591,829, dated July 6, 1971, Ser. No. 722,287, Apr. 18, 1968. Application for reissue Apr. 11, 1972, Ser. No. 243,095

Claims priority, application Japan, Apr. 20, 1967, 42/25,351; June 27, 1967, 42/41,126; Aug. 7, 1967, 42/50,649; Aug. 21, 1967, 42/53,637

Int. Cl. H01j *39/12;* **H05b** *41/36*

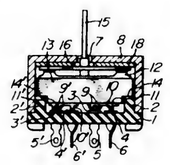
U.S. Cl. 315—151 **19 Claims**



A device for automatic control of the quantity of light from an electronic flash, by comparing the brightness of a photographic object with the quantity of light required for particular photographing conditions including the degree of lens aperture selected and the sensitivity of the film used. The brightness of the photographic object is measured as the sum of the natural light brightness and the brightness due to electronic flash, and as soon as the sum brightness thus measured reaches the required quantity of light, a stop signal is given. Thereby, the electronic flash is controlled, and at the same time signal is given for the sufficient brightness of the photographic object.

28,026
SLIDING-TYPE VARIABLE RESISTOR
Shunzo Oka, Hirakata, Japan, assignor to Matsushita Electric Industrial Company, Ltd., Osaka, Japan
Original No. 3,639,880, dated Feb. 1, 1972, Ser. No. 73,012, Sept. 17, 1970. Application for reissue Oct. 3, 1972, Ser. No. 294,506
Claims priority, application Japan, Sept. 27, 1969, 44/92,322, 44/92,323; June 5, 1970, 45/55,883; June 12, 1970, 45/58,704
Int. Cl. H01c *9/02*
U.S. Cl. 338—183 **7 Claims**

A sliding-type variable resistor comprising a baseplate with resistance elements and conductive elements disposed on the upper side thereof; a sliding block with contactors disposed on the lower side thereof and with a plate spring and an operating means provided on the upper side thereof, the contactors being maintained in contact with the resistance elements and the conductive elements; a housing which covers the baseplate in such a manner as to contain therein the sliding block; an operating means having a thumb fitting attached to the sliding block and being projected through the slot on the upper side of the housing; and a friction plate disposed on the upper surface of the sliding block and pressed against the ceiling



of the housing by means of the plate spring, a gaseous grease layer being interposed between the ceiling of the ceiling of the housing and the friction plate so that a smooth sliding operation may be assured.

PLANT PATENTS

GRANTED MAY 28, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,556
APPLE TREE
Arlie M. Ward, Wenatchee, Wash., assignor to Van Well Nursery, Inc., Wenatchee, Wash.
Filed Dec. 26, 1972, Ser. No. 318,101
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—35 **1 Claim**

A delicious apple tree with fruit that colors earlier and darker red than that of its parent, Brauns, Plant Pat. No. 1,411.

3,557
APPLE TREE
Russell N. Flanagan, Thurmont, Md., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.
Filed Jan. 8, 1973, Ser. No. 321,914
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—35 **1 Claim**

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a spur type tree habit and a fruit form generally resembling the "Red Delicious" variety (Plant Pat. No. 1,565), which has been widely distributed and sold by my assignee under the registered trademark "Starkrimson," early-coloring fruit, with the color initially developing in a striped pattern, but becoming a brighter and lighter over-all red color sooner than the fruit of "Starkrimson Red Delicious," usually by about September first and ahead of the variety known as "Topred Delicious" (Plant Pat. No. 1,916), and an ability of the fruit to color early and well before maturity even under adverse conditions.

3,558
APPLE TREE
Robert E. Holdren, Little Hocking, Ohio 45742
Filed Jan. 15, 1973, Ser. No. 323,805
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, hardy, upright, medium tall and dense habit of growth, with strong and well-crotched limbs, an early and regular fruit-bearing habit, with the fruit reaching full color and maturity about August first in Ohio (about three weeks earlier than the fruit of "Wealthy" which it generally resembles), a distinctive and attractive bright red and waxy fruit color with a greenish scarfskin, crisp, juicy, slightly tart fruit flesh which makes the fruit excellent for both eating and cooking, and a fruit firmness comparable to that of "Rome Beauty," with consequent good keeping, handling and shipping qualities.

3,559
ROSE PLANT
Herbert C. Swim and O. L. Weeks, Ontario, Calif., assignors to O. L. Weeks, doing business as Weeks Wholesale Rose Grower, Ontario, Calif.
Filed Feb. 12, 1973, Ser. No. 331,513
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—28 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of an unusually compact and vigorous habit of growth, with the plant being completely clothed with abundant and attractive foliage, a completely symmetrical appearance of the blooms and the absence of spikes or other outgrowth which disturbs the symmetry of the plant, unlike other floribundas which are usually less symmetrical, a uniform flower size when the flowers open, which compliments the symmetry and adds to the beauty of the plant and flowers, and a distinctive and attractive bright red flower color falling between a strong red and a vivid red color, which remains substantially the same color from the bud stage to the open flower stage.

3,560
APPLE TREE
Daniel A. Hanners, Hood River, Oreg., assignor to Stark Bro's Nurseries & Orchards Co., Louisiana, Mo.
Filed Mar. 8, 1973, Ser. No. 339,355
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—35 **1 Claim**

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by its resemblance in all respects except fruit color to the variety known as "Stark Jumbo," but differing from the latter by a bright solid red blush on almost all of the surface of each fruit, as compared with the typical yellowish green ground color having red stripes extending over only half of the fruit surface of the fruit of "Stark Jumbo."

PATENTS

GRANTED MAY 28, 1974

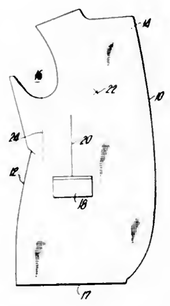
GENERAL AND MECHANICAL

3,812,539
SLEEPING GARMENT
John R. Muehlberg, and Harriet W. Muehlberg, both of 137 Parker Ave., Elkhart, Ind. 46514
Filed June 29, 1973, Ser. No. 375,057
Int. Cl. A41d *9/00*
U.S. Cl. 2—69.5 **9 Claims**



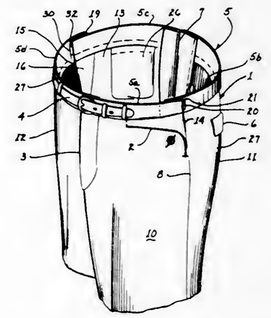
A sleeping garment of the nightgown type having a body with an open lower end and being sufficiently long to extend below the feet of the wearer, in which a hem is disposed around the bottom of the body with a channel therein for a drawstring for closing the bottom of the garment to enclose the feet of the wearer. A means is provided for holding the bottom of the garment above the feet when the wearer is standing and walking. The means may consist of a loop along the side of the garment for receiving the ends of the drawstring or may be a second drawstring adapted to pull the lower end of the garment upwardly when the first drawstring is untied.

3,812,540
FORM FITTING COAT CONSTRUCTION
Ralph R. Pagano, 118 87 St., Brooklyn, N.Y. 11209
Filed Sept. 11, 1972, Ser. No. 287,617
Int. Cl. A41d *1/02, 27/10*
U.S. Cl. 2—93 **7 Claims**



An improved form fitting coat construction is herein described having two front panels with interliners secured to the insides thereof and having sleeves of a unique construction. Each front panel is formed with a single dart extending generally vertically, midway between an apex point and an anatomical side line of the panel. The dart extends downwardly from a point, beneath the level of the armhole, to a side pocket formed in the front panel. Preferably the dart is formed by merely sewing the material, without slashing. The interliner includes a major layer of material having a rear edge which crosses over the single dart at the approximate midpoint thereof. Each sleeve is of a unitary, single piece construction and may include two elongated sections which terminate at a jacket-connecting end with a generally circular sleeve cap extending from the end of one section and a generally circular cutout being formed in the second section adjacent the sleeve cap.

3,812,541
EXPANDABLE WAISTBAND FOR TROUSERS
Phillip G. Stuart, 7920 W. Glendale Ave., Space No. 9, Phoenix, Ariz. 85303
Filed June 21, 1973, Ser. No. 372,396
Int. Cl. A41d *1/06*
U.S. Cl. 2—237 **10 Claims**

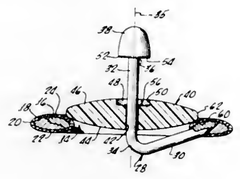


A pair of trousers being partially slit along each side seam and incorporating an expandable waistband is disclosed. Each of the front panels is secured to the corresponding rear panels of the pair of trousers by a pair of independent elastic straps. An overlapping flap extending forwardly from each rear panel, extends across the slit and overlaps the rear edge of the corresponding front panel. Each pair of elastic straps retains the rear panel and flap adjacent the corresponding front panel to prevent longitudinal separation therebetween and also provides support for both front and rear panels to maintain them laterally adjacent one another and the wearer.

3,812,542
CENTER POST HEART VALVE
Donald P. Shiley, 11022 Huntinghorn, Santa Ana, Calif. 92705
Filed Oct. 10, 1972, Ser. No. 296,289
Int. Cl. A61f *1/22*
U.S. Cl. 3—1 **10 Claims**

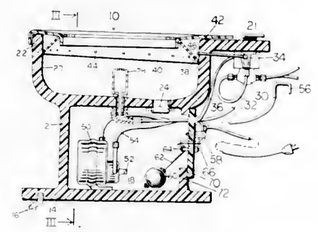
A prosthetic heart valve has a single center post to guide a movable disc seated on a circular valve ring, that defines an orifice and supports the post. The extremity of the opening movement of the disc is limited by a stop knob attached to the

center post. A central recess in the face of the disc engaging the stop hydraulically cushions the stopping of the disc. In



another arrangement, the disc is formed with an enlarged central chamber which provides a dampening action of the disc in combination with the post.

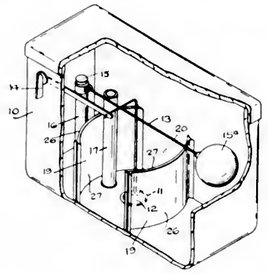
3,812,543
MOVABLE BIDET
Ralph G. Stinson, 1136 Warden St., Fort Worth, Tex. 76126
Filed Apr. 11, 1973, Ser. No. 350,147
Int. Cl. A47k *3/22, 11/08*
U.S. Cl. 4—7 **16 Claims**

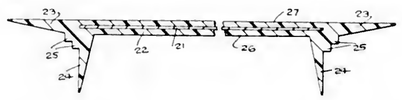


A self-supporting bidet movable on rollers or the like, and having flexible lines connecting it with a water supply; the bidet also has a reservoir for accumulating waste liquids therein, and a pump for evacuating the reservoir into a water closet or other sewer-connected fixture. Flexible tubing is provided to connect a mixing valve to hot and cold water supply lines, and also to connect the pump exhaust to existing plumbing fixtures. Preferably, an on-off valve for the water is independent of the mixing valve so that turning the water on and off will not inadvertently affect a desired temperature setting for the water supply. Means are also provided to selectively divert at least some of the supply water through a continuous cavity in the bidet's seat, for warming the seat. Apertures in the continuous cavity provide communication with the bowl to produce a type of rim rinse. One embodiment utilizes a stand made of light-weight material so that the bidet may be fairly easily moved about in a bathroom without the need for rollers or casters.

3,812,544
FLUSH TANK WATER SAVER
James A. Risley, 224 N. Harrison Ave., Beverly, N.J. 08010
Filed July 23, 1973, Ser. No. 382,687
Int. Cl. E03d *1/20, 1/22, 1/30*
U.S. Cl. 4—18 **11 Claims**

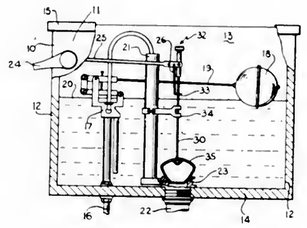
A water-saving system designed for installation in an existing water closet tank of a conventional toilet which employs a pair of weir-like baffle members disposed to either side of the flush valve of the tank to provide therein a water-tight well through which only the water contained in the well together with the water in the tank above the top level of the well is discharged into the toilet upon each flushing operation thereof. The tank water surrounding the well below the top level thereof, which is retained in the tank, constitutes the water saved, which saved water, after each flushing operation, is then supplemented with a fresh supply of only so much water above the top level of the well as is required for producing the hydrostatic head necessary for each flushing operation of the toilet.





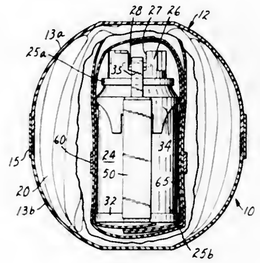
The baffle members which dam up a substantial volume of the water contained in the bottom portion of water tank are each provided with flexible gasket flanges extending along the bottom and opposite side edges thereof which serve to provide not only water-tight sealing engagement with the tank but also good frictional engagement therewith for securely holding the members in fixed positions.

3,812,545
ADJUSTABLE TOILET TANK FLUSH VALVE
John H. Lanahan, Whitesboro, N.Y., assignor to Dyna Logics, Inc., New Hartford, Conn.
Filed July 17, 1972, Ser. No. 272,363
Int. Cl. E03d *1/34, 5/02, 5/10*
U.S. Cl. 4—67 A **1 Claim**



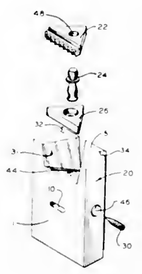
A flush valve has a hollow float valve open at the bottom and adapted to be lifted from its annular seat to discharge water from the tank. The lift mechanism includes a guided vertical tube secured to the float valve and carrying an adjustable air escape valve at its upper end, the tube connecting the interior of the float valve with the air escape valve.

3,812,546
SELF-INFLATABLE LIFE PRESERVER APPARATUS
John R. Witte, P.O. Box 293, Homer, Minn. 55942
Filed June 12, 1972, Ser. No. 261,650
Int. Cl. B63c *9/18*
U.S. Cl. 9—319 **7 Claims**



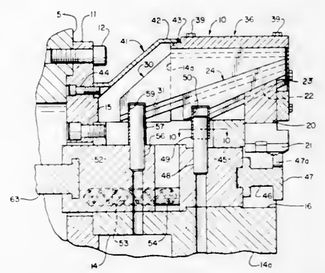
A self-inflatable life preserver including an inflatable annular tube which is stored in a deflated condition within a generally spherical shell suitable for throwing by hand over considerable distances. A pressurized fluid container is positioned within the inflatable tube and is actuated by a trigger mechanism biased toward a first position allowing the pressurized fluid to fill the annular tube; the trigger mechanism being normally held in a second position by a liquid deteriorable strap wrapped about the exterior of the tube. The spherical shell is provided with a number of holes for allowing a liquid (e.g. water) to pass into the shell upon the occurrence of which the strap deteriorates allowing the valve actuator to move to its first position inflating the deflated tube causing the spherical shell to split apart and separate from the inflated preserver.

3,812,547
TOOLHOLDER WITH INTERCHANGEABLE INSERTS FOR A TANGENT CHASER
James F. Reich, 1010 Pinewood Dr., Pine City, N.Y. 14871
Filed Feb. 23, 1973, Ser. No. 335,262
Int. Cl. B23g *1/00, 5/00*
U.S. Cl. 10—101 **1 Claim**



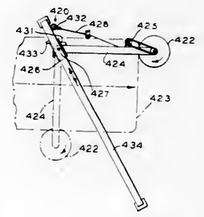
Interchangeable threading dies for an automatic self opening tangent threading die head to permit a greater range of thread pitches and diameters to be cut with a single die head. It consists of a toolholder having an effective inclined V-block mount for a complementary triangular thread cutting tool wherein the cutting forces are exerted in a direction to wedge the tool tightly against the aligning surfaces in the three freedoms of movement to compel accurate positioning of the cutting tool with respect to the holder independent of the clamping means.

3,812,548
TOOL HEAD WITH DIFFERENTIAL MOTION RECEDE MECHANISM
Fred Theuerkaue, Naples, Fla., assignor to The Pipe Machining Company, Wickliffe, Ohio
Filed Dec. 14, 1972, Ser. No. 315,113
Int. Cl. B23g *1/26, 5/04*
U.S. Cl. 10—120.5 R **5 Claims**



A rotary die head for threading pipe is moved axially toward and away from the end of a coaxial pipe during rotation of the head. Circumferentially spaced die carriers are mounted in the head for reciprocation radially thereof. During rotation and advance of the head, the carriers apply dies to the pipe, and a common drive element advancing the head is engaged and held by the end of the pipe so that the head is moved axially relative thereto during advance of the head. The drive element drives novel differential motion devices, arranged one for each carrier. Each differential motion device recedes its carrier, from a radial starting position during the advance. A common power driven collapse and reset mechanism is mounted in the head and is drivingly connected to the differential motion devices and is operated by the common drive element to (a) collapse the carriers radially for disengaging their dies from the pipe at the end of the advance of the head; (b) to maintain the carriers in collapsed position during retraction of the head, and (c), before the next advance of the head to starting position, to reset the carriers in the radial starting position for the next threading cut. Precision in recede is enhanced by the differential motion provided by the devices. All of the operating parts for effecting those operations are contained in a compact head which is relatively short axially and which can be used on a conventional rotary spindle machine in which the relative advance of the head is by acvancing the head toward a stationary pipe or advancing the pipe towrd the head.

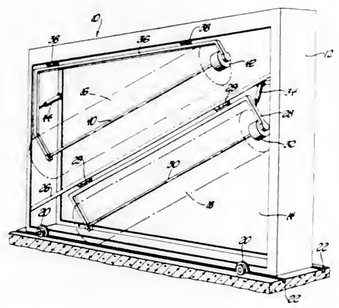
3,812,549
WRAPAROUND BRUSHING DEVICE
Daniel C. Hanna, 1133 River Dr., Portland, Oreg. 97227
Continuation of Ser. No. 218,409, Jan. 17, 1972. This application Aug. 10, 1972, Ser. No. 279,435
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 D **7 Claims**



A wraparound brushing device 20 (FIGS. **1–4**) has a linkage carrying a brush and urged toward a normal position by a

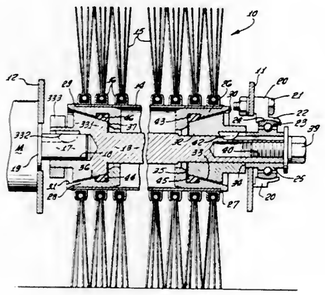
spring and a counterweight. A top brushing device **120** (FIGS. **5** and **6**) includes a pair of linkages at each side which fold as the brush rolls over the top of a car and then unfold to cause the brush to follow the rear surfaces of the car. Wraparound brushing devices **220** (FIG. **7**), **320** (FIG. **8**), **420** (FIG. **9**) and **520** (FIG. **10**) are moved around moving cars solely by the action of rotating brushes and constantly operative biasing means.

3,812,550
VEHICLE WASHING APPARATUS
David J. Bivens, Danville, Va., assignor to Bivens Winchester Corporation, Ann Arbor, Mich.
Filed Feb. 16, 1973, Ser. No. 333,441
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 E **10 Claims**



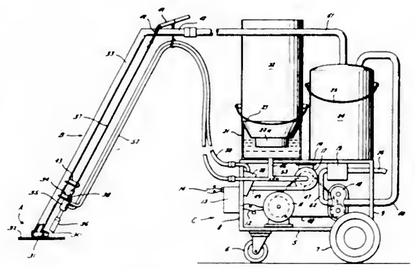
A side brush apparatus for washing tall vehicles including a longitudinally displaceable carriage and a pair of independently pivotal cylindrical brushes mounted on the carriage with the axes thereof in spaced, staggered, parallel relationship and inclined from the vertical at an angle of 45° to present a maximum swept washing area for an angled brush at minimum effective longitudinal length.

3,812,551
STREET SWEEPER BROOM DRIVE
Donald G. Mortensen, Upland, Calif., assignor to Wayne Manufacturing Company, Pamona, Calif.
Division of Ser. No. 183,984, Sept. 27, 1971, Pat. No. 3,726,109. This application Oct. 26, 1972, Ser. No. 301,184
Int. Cl. A46b *13/02*; **F16b** *7/02*
U.S. Cl. 15—179 **17 Claims**



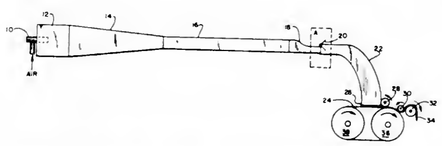
The invention provides a rotational power transmission for driving debris displacement means in street sweepers, the transmission including an innersection and an outer section carrying or connected to the debris displacement means, the sections having opposed conical surfaces one of which contains a deformed elastomeric ring engageable and capable of slippage on the opposing conical surface as the debris displacement means encounters abnormal resistances to its normal movement.

3,812,552
CLEANING APPARATUS FOR CARPETS AND THE LIKE
William G. Blackmon, Fort Worth, Tex., assignor to Steamatic, Inc., Fort Wayne, Tex.
Filed Sept. 14, 1972, Ser. No. 289,157
Int. Cl. A47l *5/00*
U.S. Cl. 15—321 **5 Claims**



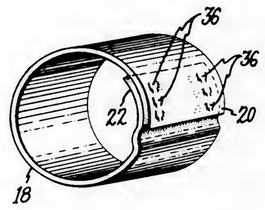
Carpet or upholstery cleaning apparatus uiltizing hot cleaning fluid, for instance, water with or without additives, has its heating device located remotely from the suction nozzle so as to simplify the construction thereof and reduce its bulk. In order to insure a constant supply of hot cleaning fluid adjacent the nozzle unit, a bypass line is provided which constantly returns the fluid to the heating element when the fluid is not being impinged on the work. The heating device may be located on a remote carriage which also carries the dirt separating suction tank, a cleaning fluid reservoir, and the cleaning fluid and suction pumps, or it may be mounted directly on the handle of the nozzle unit.

3,812,553
REORIENTATION OF FIBERS IN A FLUID STREAM
Preston F. Marshall, and James J. Silvi, both of Walpole, Mass., assignors to The Kendall Company, Walpole, Mass.
Continuation-in-part of Ser. No. 196,709, Nov. 8, 1971, abandoned. This application Apr. 27, 1972, Ser. No. 248,106
Int. Cl. D01g *25/00*
U.S. Cl. 19—156.3 **4 Claims**



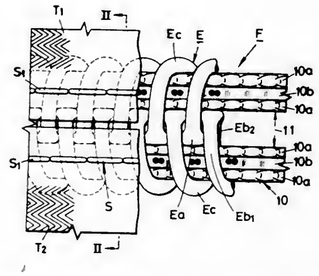
Fibers in a fluid stream, predominantly oriented in the stream direction, are reoriented by passing the stream into a curved enclosure which subjects the fibers to a centrifugal action which tends to realign the fibers in a direction normal to the fluid flow. By introducing artifical turbulence into the air stream, the orientation of the fibers may be varied from substantially random to substantially normal to the fluid flow. Associated means are provided for converting the fluid stream of fibers into a fibrous web with a controlled fiber orientation.

3,812,554
CRIMP LOCKED OUTER TURN FOR INDUCTION CORE
Willi Klappert, Hickory, N.C., assignor to General Electric Company, Pittsfield, Mass.
Filed Apr. 3, 1972, Ser. No. 240,466
Int. Cl. H01f *27/26*; **B65d** *63/02*
U.S. Cl. 24—20 EE **4 Claims**



The outer turn of a precut laminated induction core is provided with a crimp lock to enable such turn to be locked to form a stacking ring or sleeve such that the other cut turns may be reassembled and formed within such crimp locked outer turn without welding or banding of such outer turn.

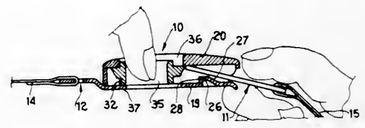
3,812,555
SLIDE FASTENER HAVING A FILLING CORE
Tadahiro Yoshida, Fujisawa, Japan, assignor to Yoshida Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 31, 1973, Ser. No. 393,560
Claims priority, application Japan, Sept. 1, 1972, 47-102237
Int. Cl. A44b *19/12*
U.S. Cl. 24—205.1 C **4 Claims**



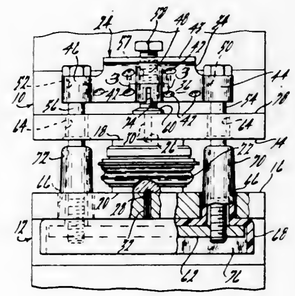
A slide fastener having a filling core adapted to stabilize the position of the fastener coupling elements when mounted on the stringer tapes of the fastener. The core is made from a fabric of a knitted structure having at least wales and an inter-wale groove defined therebetween, the arrangement being that stitchings securing the elements to the tapes run through the core along the inter-wale therein without causing the core to become deformed or displaced relative to the longitudinal axis of the fastener.

3,812,556
FASTENER
Arturo Colombo, Milan, Italy, assignor to Sitam Societa' Industriale Telai Automatici Milano S.r.l., Milan, Italy
Filed Oct. 10, 1972, Ser. No. 296,208
Int. Cl. A44b *11/25*
U.S. Cl. 24—230 AK **4 Claims**

A buckle for fastening safety belts, having two components each secured to a length of safety belt length and carrying teeth and holes respectively adapted to be mutually engaged and disengaged. One of the components is in the form of a casing wherein the other component can be inserted and engaged, such casing housing a locking element for the other component, adapted to be shifted into locking and releasing positions and that can be controlled through holes in the locking element and the casing-shaped component.



3,812,557
HOLDING CLAMP
Lawrence L. Meyer, Northville, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Feb. 5, 1973, Ser. No. 329,777
Int. Cl. A44b *21/00*; **G01l** *1/04*
U.S. Cl. 24—263 A **11 Claims**

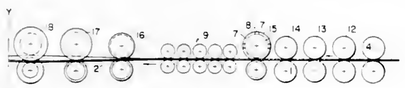


A holding clamp for clamping a thyristor between a pair of heat sinks. The clamp includes spaced clamping and base plates on opposite sides of the heat sinks. The plates are held together by a pair of spaced bolts secured to the base plate and in sliding engagement with the clamping plate. A center bolt is in threaded engagement with the clamping plate and aligned with and located between the spaced bolts. A pad is mounted for universal movement on one end of the center bolt and is engaged with a heat sink. A slot is located in the clamping plate and aligned with the axis of the center bolt. Upon rotation of the center bolt, the sides of the slot close an amount corresponding to the clamping force on the thyristor, thereby increasing the torque needed to turn the center bolt within the clamping plate.

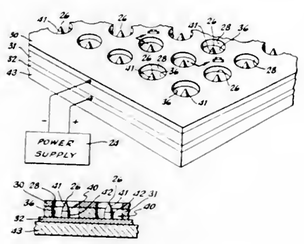
3,812,558
METHOD AND APPARATUS FOR MANUFACTURING EXPANDED STRUCTURAL MEMBERS AND ITS PRODUCTS
Hideyo Watanabe, No. 1-10-11 Higashi-gotanda, 1-chome, Shinagawa-ku, Tokyo, Japan
Filed Apr. 30, 1971, Ser. No. 139,077
Claims priority, application Japan, Apr. 30, 1970, 45-36413
Int. Cl. B21d *31/04*
U.S. Cl. 29—6.1 **10 Claims**

This invention relates to a method of manufacturing expanded structural members from metal strip through a roll forming process, a slitting process, a horizontally expanding process with small rollers by rolling, a V-shape expanding

process, a recovering process, a levelling process, a reshaping process and/or reinforcing process. All the processes comprising only rotary motion with cold working. The lattice part of the member is elongated and slackened by rolling with small rollers, at the same time, the part is naturally expanded horizontally. In the V-shape expanding process, the strip sheet or shape is guided by the edges of the respective V-shape rollers without using guide bars, while the lattice part is expanded between the respective rollers. The lattice part is, in turn, rolled by the respective V-shape rollers and expanded by gradually being bent into a V-shape by the V-shape rollers, and in the final reinforcing process, the lattice part is reinforced by dottedly convex rollers meshing with each other in bead form.

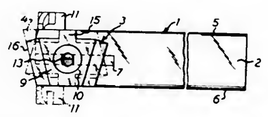


3,812,559
METHODS OF PRODUCING FIELD IONIZER AND FIELD EMISSION CATHODE STRUCTURES
Charles A. Spindt, Menlo Park, and Louis N. Heynick, Palo Alto, both of Calif., assignors to Stanford Research Institute, Menlo Park, Calif.
Division of Ser. No. 54,222, July 13, 1970, Pat. No. 3,665,241. This application Jan. 10, 1972, Ser. No. 216,539
Int. Cl. H01j *9/02*
U.S. Cl. 29—25.18 **7 Claims**



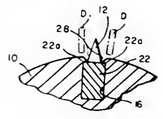
Field-forming devices primarily useful as field ionizers and field emission cathodes and having as a basic element an array of closely spaced cones with sharp points supported on a substrate (in the most usual case conductive or semiconductive) are disclosed. Preferably, the field-forming structure is completed by a screen-like structure, e.g. as fine mesh screen, insulatively supported above the points with the center of apertures in the screen substantially aligned with the longitudinal axis of corresponding cones. A novel method of forming such structures includes placing a screen with a mesh corresponding to the desired number and packing density of sharp conical points in close proximity to, or in contact with, the substrate and projecting material through the screen onto the substrate whereby sharp cones of the material are formed on the substrates.

3,812,560
TOOL HOLDER ASSEMBLY
Wlajko Mihic, and Stig Ove Back, both of Gavle, Sweden, assignors to Mircona AB, Gavle, Sweden
Continuation of Ser. No. 778,226, Nov. 22, 1968, abandoned. This application Feb. 27, 1973, Ser. No. 336,356
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 **5 Claims**



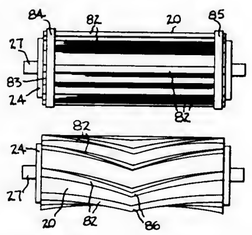
A tool holder comprises a body to which is attached a supporting plate for a cutting member. The supporting plate is attachable to the body in two different positions and supports cutting members in two corresponding different positions in which the cutting members are respectively at the upper side and the lower side of the body.

3,812,561
TEMPLE ROLL
William E. Lundgren, 540 W. Main St., Northboro, Mass. 01532
Filed Jan. 15, 1973, Ser. No. 323,524
Int. Cl. B21b *27/02*
U.S. Cl. 29—121 A **8 Claims**



A temple roll comprising a cylinder having a cylindrical surface in which there are a plurality of spaced parallel, longitudinally extending grooves, each groove containing an elongate toothed member rigidly fixed therein with the teeth projecting from the cylindrical surface and with the teeth in adjacent grooves offset half the distance between teeth. There are longitudinally extending depressions in the cylindrical surface of the cylinder at opposite sides of each toothed member.

3,812,562
METHOD OF APPLYING A ROLLER SLEEVE ON A CONVEYOR ROLLER
John R. Lovett, 23604 Lake Rd., Bay Village, Ohio 44140
Division of Ser. No. 110,462, Jan. 28, 1971, Pat. No. 3,705,455, which is a continuation-in-part of Ser. No. 43,349, June 4, 1970, abandoned. This application Sept. 27, 1972, Ser. No. 292,642
Int. Cl. B21h *1/14*; **B21k** *1/02*; **B23p** *11/02*
U.S. Cl. 29—148.4 D **1 Claim**

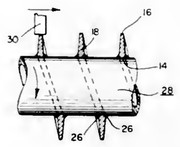


A resilient tubular sleeve of elastomeric material provided with a plurality of longitudinally-extending circumferentially-spaced cavities inwardly thereof to provide a replaceable surface for a conveyor roller. The cavities provide an intermittent series of compressible wall sections on the sleeve for engagement with and displacement by a conveyor belt in response to axial rotation of the roller to provide a self cleaning roller surface. The tubular sleeve has a smaller internal diameter, in its unstressed condition, than the diameter of the roller on which it is mounted. The tubular sleeve is mounted on the roller by expanding its internal diameter sufficiently to permit it to slide axially along the roller to the desired position and thereafter permitting it to contract upon the roller surface and resiliently grip it. Improved techniques, tools and devices for effecting the mounting of the tubular sleeve on the roller are disclosed, as well as the utilization of these techniques for deforming the sleeve to provide a self-aligning conveyor roller.

3,812,563
METHOD OF FORMING A COMPOSITE BEARING STRUCTURE
Milton W. Toaz, Bedford, Ohio, assignor to Gould Inc., Chicago, Ill.
Filed Nov. 29, 1972, Ser. No. 310,356
Int. Cl. B23p *11/00*; **B21d** *53/10*
U.S. Cl. 29—149.5 PM **19 Claims**

A method of forming a composite bearing structure including a metallic substrate having a bearing material adherently bonded thereto is provided which comprises the steps of treating the surface of a metallic substrate to remove undesirable substances therefrom, applying a layer of metallic bonding material to at least a part of the treated surface of the substrate, covering at least a part of the bonding material with a layer of bearing material, heating the so-formed article to a temperature sufficient to activate both the bonding material and the bearing material, and densifying both the bearing material and the bonding material while causing the metallic substrate to be reduced in thickness to thereby cause the bearing material to become bonded to the bonding layer which, in turn, is bonded to the metallic substrate.

3,812,564
METHOD OF MANUFACTURING A HELICAL CONVEYOR FOR A CENTRIFUGE
Leonard Shapiro, Upper Darby, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed July 26, 1972, Ser. No. 275,375
Int. Cl. B23p *15/00*
U.S. Cl. 29—156.8 R **7 Claims**



The inner periphery of a given helical coil is machined (while the coil is at zero pitch) to a dimension which will decrease to the diameter of a given shaft when the coil is stretched to a predetermined pitch, and then the machined coil is welded to the shaft at that pitch.

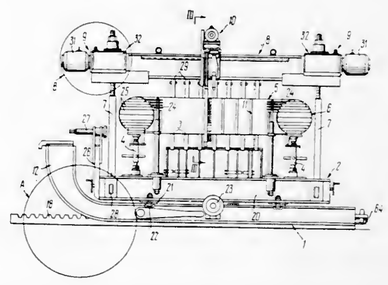
3,812,565
SINTERED FE—CR—C—[MO—V—NI] ALLOYS IMPREGNATED WITH PB OR RB-BASE ALLOYS
Hiroshi Seino, Yokohama; Shingichi Suzuno, Tokyo; Yoshiaki Takeya, Matsudo; Tsutomu Tobita, Matsudo, and Takeshi Fukaya, Matsudo, all of Japan, assignors to Nissan Motor Company, Ltd., Yokohama and Hitachi Powdered Metals Company, Matsudo, both of, Japan
Filed Dec. 19, 1972, Ser. No. 316,545
Claims priority, application Japan, Dec. 27, 1971, 46-105526
Int. Cl. B22f *3/26, 5/00*; **C22c** *1/08*
U.S. Cl. 29—182.1 **9 Claims**

A lead-filled sintered ferrous alloy containing carbon and chrome and preferably also molybdenum and vanadium is prepared in a powder metallurgy method and impregnated in its voids with lead. The alloy is characterized for its increased wear and heat resistant abilities and is accordingly advantageous when used as a material of a valve seat of an internal combustion engine using leadless fuel.

3,812,566
COMPOSITE NICKEL IRON ELECTROPLATE AND METHOD OF MAKING SAID ELECTROPLATE
Richard J. Clauss, Allen Park, Mich., assignor to Oxy Metal Finishing Corporation, Warren, Mich.
Continuation of Ser. No. 268,350, July 3, 1972, abandoned. This application July 27, 1973, Ser. No. 383,428
Int. Cl. B23p *3/00*; **C23b** *5/50*
U.S. Cl. 29—183.5 **10 Claims**

A composite nickel-iron electroplate comprised of two essential layers, the first layer comprised of an iron-nickel alloy wherein the iron is present in an amount ranging from about 20 percent to about 45 percent by weight iron and having a minimum thickness of about 0.1 mil; and a top layer comprised of a microdiscontinuous chromium electrodeposit.

3,812,567
STAND FOR ASSEMBLING AND PRESSING MAGNETIC CIRCUITS OF POWER TRANSFORMERS
Gennady Ivanovich Pshenichny, ulitsa Kremlevskaya, 27, kv. 8; Yakov Zinovievich Checheljuk, Dnepropetrovskoe shosse, 62, kv. 65, and Ivan Ivanovich Gryazev, Berezovy pereulok, 3, all of Zaporozhie, U.S.S.R.
Filed July 7, 1972, Ser. No. 269,582
Int. Cl. H05k *13/00*
U.S. Cl. 29—203 D **4 Claims**

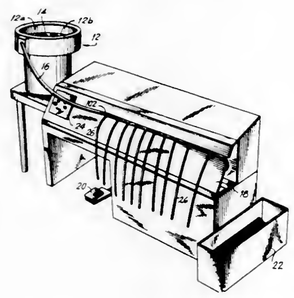


A stand comprises an assembly table mounted on a turnable base with said table having supports for cores and yokes of a magnetic circuit and provided with a winding device. The winding device is provided with a separable body embracing the elements of the magnetic circuit to be bandaged. The body accommodates a separable ring rotating about the elements of the magnetic circuit and carrying an axle for receiving a spool with a tape of bandaging material.

3,812,568
APPARATUS FOR THE APPLICATION OF SHRINK TUBING

Edward Nemeth, Fairlawn, and Joseph Gromek, East Paterson, both of N.J., assignors to VIP Machinery Inc., Paterson, N.J.

Filed Feb. 12, 1973, Ser. No. 331,822
Int. Cl. H01r 43/00
U.S. Cl. 29—203 D 7 Claims

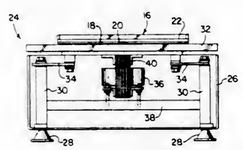


Apparatus for applying heat shrinkable tubing to wire assemblies and similar objects includes a feeding device for feeding individual sections of shrink tubing to a waiting position in front of an operator and a lateral conveyor having a pickup point adjacent the waiting position for carrying the tube covered assembly through a heating section wherein the tubing is shrunk around the end of the assembly to be encapsulated. The apparatus is designed to function with a wide range of wire sizes and tubing types.

3,812,569
METHOD AND APPARATUS FOR MOUNTING TERMINAL PINS

Kenneth L. Kufner, Hickory Hills; Thomas P. Pellegrino, and Frank P. Chmela, both of Downers Grove, all of Ill., assignors to Molex Incorporated, Downers Grove, Ill.

Filed Feb. 16, 1973, Ser. No. 333,360
Int. Cl. H05k 13/04
U.S. Cl. 29—203 B 12 Claims

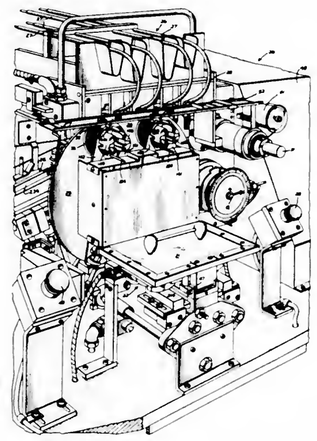


Terminal pins are mounted with a force fit into holes in a circuit board. The circuit board is placed over a backing plate having holes aligned with the circuit board holes and of large enough cross section freely to receive a terminal pin. A loading plate is placed over the circuit board and has holes each sized slidingly to receive a single terminal pin. A feeding plate having a thickness at least approximately equal to the terminal pin length is placed over the loading plate, and the feeding plate has holes of a diameter larger than about one-third of the terminal pin length. A number of terminal pins are placed on the upper surface of the feeding plate, and the feeding plate, loading plate, circuit board and backing plate are all vibrated. During the vibration a group of terminal pins are loaded into each feeding plate hole, and a single terminal pin is loaded into each loading plate hole. The feeding plate is removed from the loading plate and the excess pins are removed leaving a single terminal pin in each loading plate hole. The terminal pins are then pressed through the loading plate into the circuit board.

3,812,570
APPARATUS FOR HANDLING MAGNETIC CORES AND PERFORMING WINDING PROCEDURES

Lowell M. Mason, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Oct. 15, 1971, Ser. No. 189,616
Int. Cl. H02k 15/00
U.S. Cl. 29—205 D 7 Claims



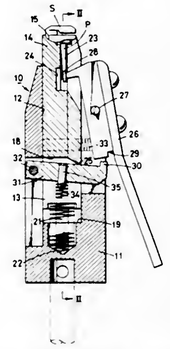
Method and apparatus for conveying one or more cores to a first conveying means, e.g., a carriage movable in shuttle-like fashion between dwell positions. Carriage includes means for supporting a core and moving same to and from transporting means such as a turntable or turret that includes core supporting means. First conveying means also can include a second carriage. Winding shoes may be selectively transferred between the carriages and turntable that moves them to a high speed winding station. Also disclosed are mechanisms and methods for automatically establishing winding leads and anchoring the same.

3,812,571
SLIDER HOLDER

Hisashi Dori, Uozu, Japan, assignor to Yoshida Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 22, 1973, Ser. No. 362,783
Claims priority, application Japan, May 24, 1972, 47-51913
Int. Cl. B23p 19/04
U.S. Cl. 29—207.5 SL 3 Claims

A slider holder for holding sliders for mounting on a fastener chain is provided with a spring-loaded lever means engageable with the slider, a spring-loaded locking means for normally holding the lever means in locked position and a spring-loaded slider mounting means for releasably mounting sliders thereon. The said three means are operatively associated such that the slider is firmly retained in place during

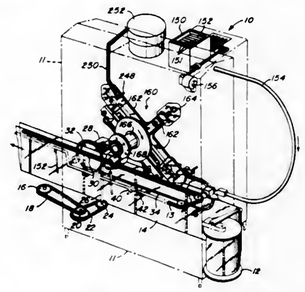


the threading therethrough of a fastener chain and released with utmost ease by disengaging the lever means from the locking means.

3,812,572
TUBE APPLICATOR

Roy J. Weikert, c/o General Films, Inc., Covington, Ohio 45318

Filed Feb. 14, 1973, Ser. No. 332,373
Int. Cl. B23p 19/04; B23q 7/10; B23p 17/00
U.S. Cl. 29—208 B 28 Claims



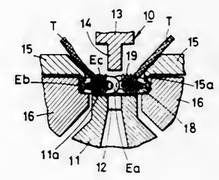
Method and apparatus for attaching a dispensing tube to the side wall of an open mouth bag. The bags are interconnected in web form and the tube applicator is positioned intermediate the unwind stand for the web of bags and filling and sealing equipment, so that as the web of bags are unwound a flexible dispensing tube may be attached to a side wall of each of the bags before they are fed into the filling and sealing apparatus downstream of the tube applicator.

3,812,573
METHOD AND APPARATUS FOR REMOVING INTERLOCKING ELEMENTS FROM SLIDE FASTENER CHAIN

Takeo Fukuroi, Uozu, Japan, assignor to Yoshida Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 24, 1972, Ser. No. 309,611
Claims priority, application Japan, Dec. 14, 1971, 46-101747
Int. Cl. B23p 19/00
U.S. Cl. 29—427 3 Claims

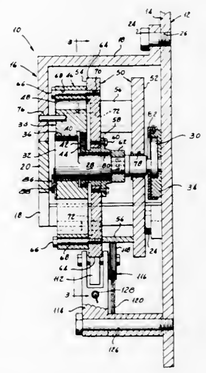
A method and apparatus for removing interlocking fastener elements from a slide fastener chain at predetermined intervals so as to provide alternate element-free and element-containing sections, the element-free or "space" sections being utilized for the assembling on the fastener chain of sliders and end stops. Gripping means are provided in the apparatus for gripping the base portions of interlocking element in each element row and retaining a length of elements in position for removal first of the coupling head portions of the elements. Thereafter, said gripping means are retracted sidewise or outwardly of the fastener chain, taking with them the remaining debris of elements off the chain.



3,812,574
APPARATUS FOR PROCESSING THE TROCHOIDAL HOUSING SURFACES OF ROTARY PISTON MECHANISMS

Charles Jones, Hillsdale, N.J., and Alexander H. Raye, Wellsville, N.Y., assignors to Curtiss-Wright Corporation, Wood-Ridge, N.J.

Filed Mar. 2, 1972, Ser. No. 231,119
Int. Cl. B23p 23/04
U.S. Cl. 29—560 11 Claims

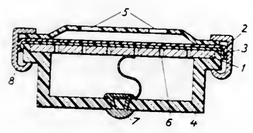


The apparatus has a frame and a shaft having eccentric portions journalled for rotation on the frame. A housing support element for a trochoidal housing member to be treated is mounted for rotation on said shaft to rotatively carry the housing member in a path about the shaft. A tool holder is fixedly secured to the frame to support a tool adjacent the trochoid surface of the housing member. A drive means is provided to rotate the housing member and shaft relative to the tool holder and tool in a constant perpendicular spaced relation to the trochoid surface and at a controlled velocity.

3,812,575
ELECTRET MICROPHONE

Jan-Olof Hedman, Tyreso, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Nov. 22, 1972, Ser. No. 308,832
Claims priority, application Sweden, Dec. 2, 1971, 15456/71
Int. Cl. H04r 31/00
U.S. Cl. 29—594 2 Claims

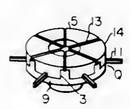


The invention relates to a procedure for manufacture of an electret microphone comprising a fixed electrode and a movable electrode, the movable electrode comprising a first plastic film which is metallized and a second plastic film which is electro-statically polarized. According to the invention, there are a first processing stage in which the first and second plastic films are metallized and polarized respectively and a second processing stage in which the metallized plastic film, the polarized plastic film and the fixed electrode are assembled together.

3,812,576
METHOD OF MAKING COMMUTATOR FOR REVOLVING ARMATURE

Terumoto Yamaguchi, Anjo, Japan, assignor to Nippondenso Co., Ltd., Kariya-shi Aichi-ken, Japan

Filed Oct. 11, 1972, Ser. No. 299,609
Claims priority, application Japan, Oct. 25, 1971, 46-84604
Int. Cl. H01r 43/00
U.S. Cl. 29—597 5 Claims



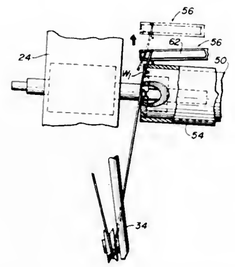
A method of making a commutator for a revolving armature which has a surface to be in contact with a brush is perpendicular to the shaft of the armature is improved. Recessed portions are formed on the internal surface of a cylindrical member having an open end with an outwardly extending flange and a bottom. The recessed portions are removed after insulating material is filled in the cylindrical member. The cylindrical member made of conductive material is divided into commutator segments by grooves which extend through holes formed by removing the recessed portions after filling the insulating material.

3,812,577
ARMATURE WINDING METHOD AND APPARATUS

Jerry L. Compton, and David R. Seitz, both of Dayton, Ohio, assignors to The Globe Tool and Engineering Company, Dayton, Ohio

Filed Mar. 13, 1973, Ser. No. 340,685
Int. Cl. H01r 43/00
U.S. Cl. 29—597 12 Claims

The lead wires of an armature wound by the fliers of a double flier armature winding machine are gripped by clamps engaging the wires between the commutator tangs and the fliers. The wires are severed against the commutator tangs by relative movement of the clamps and the armature. Both the start



and finish wires can be severed in this manner and a movable clamp construction is illustrated especially for severing the start wires.

3,812,578
METHOD OF PREPARING TWO WAVE GUIDES OF DIFFERING CROSS SECTION FOR INTERCONNECTION

Klaus Prinzhorn, Celle, Germany, assignor to Kabel -und Metallwerke Gutehoffnungschutte Aktiengesellschaft, Hanover, Germany

Filed Sept. 13, 1971, Ser. No. 179,955
Claims priority, application Germany, Sept. 22, 1970, 2046525
Int. Cl. H01p 11/00
U.S. Cl. 29—600 3 Claims

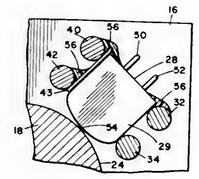


Two wave guides of different cross sections are prepared for interconnection by working the end of one of the two wave guides so that the end face proper thereof assumes the cross-sectional contour of the other one of the wave guides followed by a transition in axial direction between said same cross-sectional contour and the original one of the one wave guide.

3,812,579
METHOD OF MANUFACTURING MAGNETIC DRUM MEMORY APPARATUS

John B. Roes, San Diego, Calif., assignor to Metrolab, Inc., a Subsidiary of Cubic Corp., San Diego, Calif.

Filed Oct. 4, 1971, Ser. No. 186,238
Int. Cl. G11b 5/42
U.S. Cl. 29—603 4 Claims



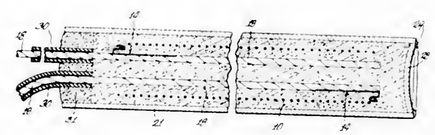
The memory apparatus incorporates a drum, mounted for rotation, and a series of hard mounted heads, spaced from the

drum magnetic recording medium surface. The mounting structure includes spaced parallel aligning bars, utilized to precisely align the magnetic heads prior to finally fixing them to the structure, and resilient plastic wedges utilized to maintain a bias against the aligning bars, to compensate for the stresses induced in the assembly process. The precise spacing from the magnetic medium is accomplished by placing a spacing film over the drum, which film is removed after final assembly, leaving the proper head-to-medium gap. The final configuration is maintained by the use of epoxy adhesive to secure the heads to the aligning bars and retaining bars. The frame structure and head utilize the same metal alloy to maintain the head-to-medium gap during temperature variations. The resulting apparatus may be utilized in a voice response system for producing computer ordered, human voice response, to various commands. In this application the drum is rotated at a rate of one revolution per second and the head gap, head-to-medium spacing, and medium thickness, controlled to produce a relatively flat response characteristics over the frequencies of importance and thereby enable the use of relatively simple amplifiers with linear response characteristics.

3,812,580
METHOD OF MAKING ELECTRIC HEATING ELEMENTS

Lester D. Drugmand, Pittsburgh, Pa., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Feb. 6, 1970, Ser. No. 9,158
Int. Cl. H01c 17/00
U.S. Cl. 29—611 1 Claim



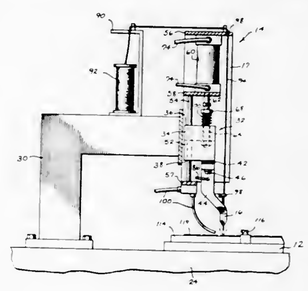
An electric heating element, formed by winding a resistor wire about a refractory core, disposing terminal portions of said wound wire within respective ones of a pair of openings extending longitudinally through the core, inserting flexible terminal conductors into respective core openings to electrically engage with respective terminal portions, inserting the core assembly within a tubular metal sheath with the terminal conductors extending outwardly of the sheath to form flexible leads for connection to a source of electrical energy, filling the sheath with granular refractory material and submitting the sheath to a side pressing force to compact the refractory material.

3,812,581
METHOD FOR FORMING ELECTRICAL JOINTS BETWEEN INTERMEDIÁTE PARTS OF AN ELONGATED CONDUCTOR AND SELECTED CONDUCTIVE ELEMENTS ON AN ELECTRICAL ASSEMBLY

Raymond B. Larson, and Frank W. Wogoman, both of South Bend, Ind., assignors to Wells Electronics, Inc., South Bend, Ind.

Division of Ser. No. 879,234, Nov. 24, 1969, Pat. No. 3,650,450. This application Nov. 3, 1971, Ser. No. 195,520
Int. Cl. H01r 43/00
U.S. Cl. 29—628 2 Claims

A method and means for forming electrical joints between intermediate parts of an elongated conductor and selected conductive elements on an electrical assembly. The electrical assembly is mounted upon a shiftable support means. A shiftable soldering assembly is positioned above the support means and carries an intermediate part of the elongated conductor. The soldering assembly and support means are shifted relative to each other to cause the intermediate conductor part to be held against a selected conductive element. The intermediate conductor part is then heated to cause the stripping or melting of the insulation, if any, from the conductor part and the melting of the solder on the conductive element in contact with the conductor part. The conductor part is then cooled to permit the melted solder to adheringly solidify to the conductor part.

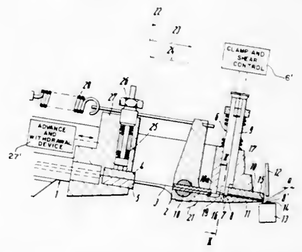


With the conductor part so anchored to the electrical assembly the soldering assembly and support means are shifted relative to each other to cause another intermediate part of the conductor to be held against another selected conductive element. This last mentioned intermediate conductor part is heated and cooled to cause its adherence to the contacting conductive element in the manner previously described for heating and cooling the first mentioned intermediate conductor part.

3,812,582
METHOD AND APPARATUS FOR THE PRODUCTION OF ELECTRICAL CONTACTS ON CONTACT CARRIERS

Hans-Rudolf Zollinger, Bergstr. 23, 8954 Geroldswil, Switzerland

Filed Nov. 13, 1972, Ser. No. 305,781
Claims priority, application Switzerland, Dec. 4, 1971, 17608/71
Int. Cl. H01r 9/00
U.S. Cl. 29—630 A 12 Claims



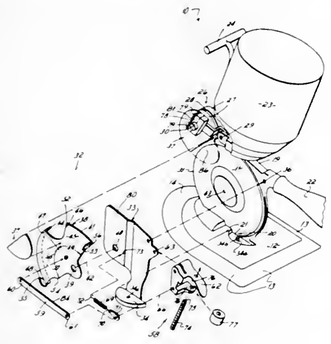
A cutting device for cutting a contact piece from a wire or ribbon-like contact material fed thereto by a first guide, after which an advancing and withdrawing device advances the remaining contact material to push the cut contact piece from the cutting device along a second guide in alignment with the first guide to a conductive connection means where the contact piece is conductively connected to a contact carrier. The remaining contact material is withdrawn, by the withdrawing device to bring the contact material into position for cutting the next contact piece, by a distance which is smaller by the length of the cut contact piece than the distance by which the cut contact piece is advanced to the position for conductive connection at the conductive connection means.

3,812,583
PERSONAL PROTECTIVE DEVICE
John Eugene Breglia, 812 E. Copper St., Tucson, Ariz. 85719
Continuation-in-part of Ser. No. 214,984, Jan. 3, 1972, abandoned. This application Oct. 19, 1972, Ser. No. 298,877
Int. Cl. B26f *1/24*
U.S. Cl. 30—164.9 **6 Claims**



A personal protective or defensive device comprising a pair of leg members of substantially equal length and pivotably connected to each other so as to be in close side by side relationship to each other in all positions relative to each other. The point of pivot is substantially equidistant from all ends of the legs. A spring is employed to urge the legs toward open position and suitable means, such as a pin, is used to limit the degree of opening and closing. The ends of the legs carry metal spikes which extend inward and also similar spikes are mounted on the hollowed inner edge of the legs (intermediate the ends thereof and the point of pivot mounting). The inner faces of the legs are preferably flat and may be moved to an overlapping position so that the spikes at the ends thereof face outwardly of the device.

3,812,584
SAFETY GUARD FOR A CLOTH CUTTING MACHINE
Joseph E. Peter, Cincinnati, Ohio, assignor to The Wolf Machine Company, Cincinnati, Ohio
Filed Sept. 20, 1972, Ser. No. 291,361
Int. Cl. B26b *25/00, 29/00*
U.S. Cl. 30—273 **6 Claims**

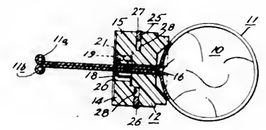


A novel safety guard for a cloth cutting machine of the vertically oriented, circular blade type. When in the closed position, the safety guard includes a fixed section that protects a portion of the blade's exposed periphery and a movable primary section that substantially protects the rest of the blade's exposed periphery. A trigger mechanism is fixed adjacent the machine handle, the trigger permitting an operator to move the primary section between closed and open positions as he grips the handle when using the cloth cutting machine. An adjustment is provided with the trigger mechanism to regulate the mouth opening of the primary section in relation to the height of the cloth stack to be cut. The trigger mechanism is spring loaded so that the primary section is continuously biased toward the closed position, thereby causing an operator to be consciously aware of opening the safety guard when readying the machine for cutting and causing the primary section to close automatically if the trigger is released.

The movable primary section of the safety guard defines a notch which, when the primary section is in the closed position, allows a blade sharpener device to engage the circular blade's periphery for sharpening the blade. An auxiliary section of the safety guard is fixed to the sharpener device, that auxiliary section overlying the notch in the primary section when the sharpener device is retracted and when the primary section is closed. The circular blade can be ground only when its periphery is completely protected because the notch is the primary section only registers with the sharpener device when that primary section is closed.

The entire safety guard is structured so that same can be removed from the cloth cutting machine as a single unit simply by unscrewing one thumb screw. This allows simple and easy change of the circular cutting blade when required.

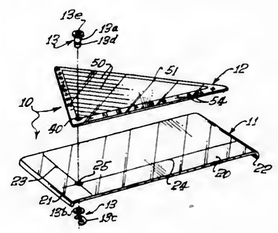
3,812,585
DENTAL MATRIX BAND AND CLAMP ASSEMBLY
John E. Balson, Devon Professional Bldg., Devon, Pa. 19333
Continuation-in-part of Ser. No. 123,235, March 11, 1971, abandoned. This application Feb. 18, 1972, Ser. No. 227,405
Int. Cl. A61c *5/12*
U.S. Cl. 32—63 **9 Claims**



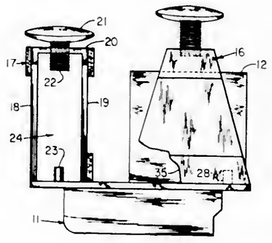
Disposable clamp is provided for use with a matrix band during the tooth-filling operation. The clamp has a narrow slot extending through it which slidably receives both ends of the matrix band with the ends of the band positioned in side-by-side relation. Catch means is mounted in the clamp adjacent the slot on the side of the clamp facing away from the tooth to permit the band to be displaced relative to the clamp in one direction but to prevent the band from slipping through the catch in the opposite direction for the purpose of maintaining the band snugly engaged around the tooth. Catch release means is provided to permit disengagement of the band from the catch so that the catch and clamp may be loosened or released from the band and the band thereafter removed from the tooth. In one form of the disclosure the catch release means comprises a member which normally urges the catch means into engagement with the band while in another form of the disclosure the catch release means comprises a removable member which normally urges the ends of the bands away from one another into engagement with the catch means.

3,812,586
CHROMATOGRAM READING INSTRUMENT
Hideji Itokawa, Tokyo, Japan, assignor to Funakoshi Pharmaceutical Co., Ltd., Tokyo, Japan
Filed Feb. 2, 1972, Ser. No. 222,766
Int. Cl. G06g *1/02*
U.S. Cl. 33—1 C **4 Claims**

An instrument for direct reading, without intermediate calculation, of interpretive indices of a chromatogram or the like. The instrument is comprised of an alignment table and a reading scale plate pivotally mounted on the alignment table. Both alignment table and reading scale plate are transparent, and are constructed to be placed directly over the subject chromatogram. Markings on the table provide for alignment with the chromatogram; the reading scale plate is movable to a prescribed position over the deposits on the chromatogram; the interpretive indices may then be read directly from a scale marked on the plate.



3,812,587
INDEXING MEANS FOR WALL PANEL OPENINGS
Johnny C. Elkins, and Gilbert A. Theriot, Box 4030, both of San Angelo, Tex., assignors to said Theriot, by said Elkins
Continuation-in-part of Ser. No. 100,080, Dec. 21, 1970, Pat. No. 3,672,064. This application June 22, 1972, Ser. No. 265,289
Int. Cl. G01b *3/02*
U.S. Cl. 33—138 **10 Claims**



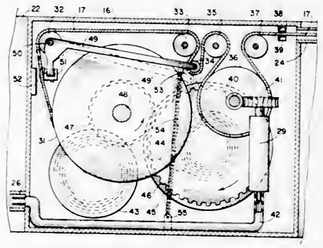
Indexing apparatus for accurately marking and positioning indicia to enable cutouts to be formed in a panel in order to accommodate fixtures and other objects associated with a building structure which must be received within the cutouts when the panel is attached to the structure.

A molded unitary assembly having means thereon for accommodating spaced apart normally disposed tape measuring apparatus so that the extensible tapes of the tape assemblies can be retracted into and extended from the tape cases. Means are included in the assembly which cooperates with the tape apparatus for locking the tape blade into any desired position. The tape assembly can be removed from the main housing for replacement or auxiliary use.

3,812,588
TAPE MEASURING UNIT AND LOCKING AND RELEASING DEVICE THEREFOR
Robert A. Bennett, Shelton, Conn., assignor to Waterbury Lock & Specialty Co., Milford, Conn.
Filed Apr. 5, 1973, Ser. No. 348,042
Int. Cl. G01b *3/10*
U.S. Cl. 33—138 **6 Claims**

A two-piece locking and releasing device incorporating a pivotable wedge for direct and positive tape locking and a finger-operable cam member cooperating with the wedge member, for use in tape measuring units having automatic take-up means, provides an inexpensive, positive extended tape lock acting directly on the extended tape itself. This two-piece locking and releasing device provides the desired positive tape lock in any tape extended position.

3,812,589
BOOM LENGTH INDICATOR
Harry Baldwin Schultheis, Woodland Hills, Calif., assignor to W. C. Dillon & Company, Inc., Van Nuys, Calif.
Filed May 25, 1972, Ser. No. 256,701
Int. Cl. G01b *3/12, 5/02*
U.S. Cl. 33—139 **2 Claims**

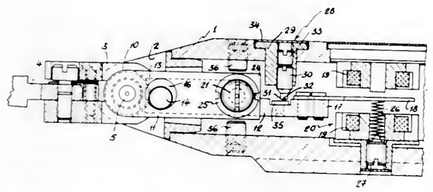


The length of a telescoping boom on a crane is indicated to the crane operator by a reel of cable mounted on a fixed portion of the boom with a free end of the cable secured to the far end of the boom so that extension of the boom will pull cable from the reel. A measuring pulley is rotated by cable withdrawn from the reel or retracting into the reel, this measuring pulley operating an electrical potentiometer to provide an electrical signal proportional to the length of cable withdrawn. This signal operates a meter calibrated in units of length in the cab of the crane so that the operator is at all times advised of the length of the boom.

3,812,590
ELECTRONIC SENSOR
Fritz Nigg, Lausanne, and Jean-Claude Risse, Prangins, both of Switzerland, assignors to Tesa S.A., Renens, Switzerland
Filed Apr. 9, 1973, Ser. No. 348,911
Claims priority, application Switzerland, May 18, 1972, 7373/72
Int. Cl. G01b *7/10*
U.S. Cl. 33—172 E **7 Claims**

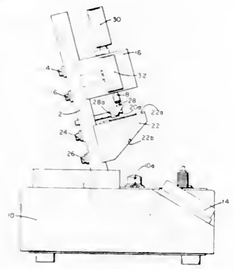
An electronic sensor with lever wherein a lever carrying a feeler is pivoted at the end of a casing, the movements of said feeler being transmitted to the movable element of an electronic transducer by means of a reversing mechanism having two levers whereof the first is fixed to the lever carrying the feeler and pivots about the same shaft as the latter, said

mechanism being able to move, counter the action of at least one elastic member, the movable element of the transducer in



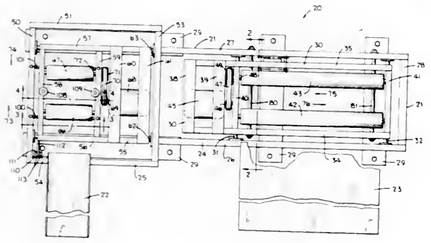
a same direction in response to any displacement of the lever carrying the measuring key effected from a rest position in the two pivotal directions of the lever carrying the feeler.

3,812,591
MULTIFUNCTION THREAD GAGE
Orean E. Michaud, Bristol, Conn., assignor to Colt Industries Operating Corp., West Hartford, Conn.
Filed May 8, 1972, Ser. No. 251,140
Int. Cl. G01b *5/16, 3/36*
U.S. Cl. 33—199 **20 Claims**



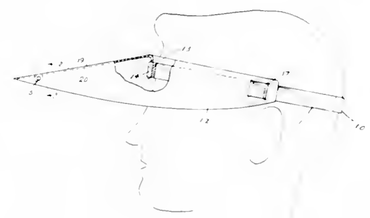
A thread gage for measuring the pitch diameter, ovality and drunkenness of a threaded part includes two reed mechanisms which are interconnected to a gage tip in engagement with the threaded part. The reed mechanisms operate simultaneously, but in an independent manner, to respectively sense horizontal and vertical displacements of the gage tip.

3,812,592
VEHICLE WHEEL ALIGNMENT CHECKING APPARATUS
Hans O. Haupt, 4509 N. Priscilla Ave., Indianapolis, Ind. 46226
Filed July 26, 1972, Ser. No. 275,341
Int. Cl. G01b *5/25*
U.S. Cl. 33—203.13 **7 Claims**



An apparatus for checking the alignment of the front wheels of a vehicle. A first and second platform are movably mounted to a frame with each platform receiving a front wheel of the vehicle. Each platform includes a pair of rollers, with one of the rollers of each platform being positively driven by an electric motor to rotate the vehicle wheel positioned on the platform. The first platform is movable in a lengthwise direction with respect to the vehicle whereas the second platform is movable in a lateral direction perpendicular to the lengthwise direction. An indicator is mounted to the frame and second platform to measure the amount of movement of the second platform to and from the first platform. One wheel of the vehicle is rotated by the rollers on the first platform and is pivoted until the wheel is aligned with respect to the first platform. The vehicle wheel on the first platform is then stopped, the steering wheel of the vehicle is fixed in place and the vehicle wheel on the second platform is rotated. The rollers of the platform may have a concave configuration or a constant diameter.

3,812,593
GOLF VISOR LEVEL DEVICE
John J. Wydro, 553 Bouquin Cir., Oil City, Pa. 16301
Filed Mar. 6, 1972, Ser. No. 231,814
Int. Cl. G01c *9/28*
U.S. Cl. 33—373 **2 Claims**

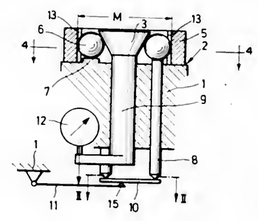


The specification discloses a golfer's green reader made up of an elastic head band, a visor attached to the head band and a spirit level attached to the front part of said visor on the lower side thereof, the level is disposed adjacent the front of the visor so that the user can view the level and thereby estimate the topography of the terrain of a golf green. The visor is sufficiently long that the spirit level is brought far enough from the user's eyes so that the eyes may focus on it.

3,812,594
GAUGE FOR SHIFTABLE SYNCHRONIZING SWIVEL JOINTS
Hans Lukasczyk, Wolfsburg, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany
Continuation-in-part of Ser. No. 837,154, June 27, 1969, abandoned. This application Sept. 21, 1971, Ser. No. 182,510
Int. Cl. G01b *5/00, 5/08*
U.S. Cl. 33—174 R **5 Claims**

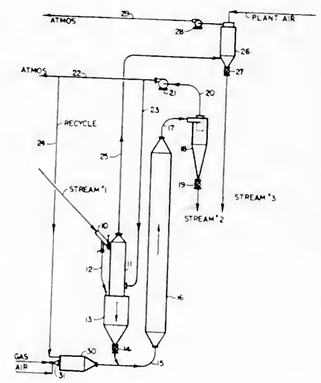
A device for the classification of shiftable synchronizing swivel joints having a housing in which a guide bolt with a

cone is axially shiftable in the housing and a plurality of ball shaped contact feelers are disposed in grooves in the joint ele-



ment and a dial gauge is connected to the device to measure the arithmetic mean of the dimensions of the grooves.

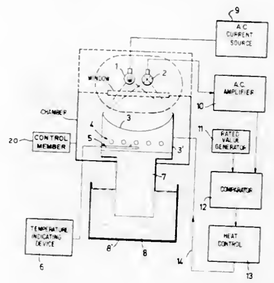
3,812,595
METHOD OF AND MEANS FOR FLASH DRYING NATURALLY OCCURRING OILSEEDS
Donald Spencer Engelhart, 10600 Drew St., Chicago, Ill., and Ned Henry Engelhart, 32 W. 60th St., Westmont, Ill.
Filed June 21, 1972, Ser. No. 264,984
Int. Cl. F26b *3/10*
U.S. Cl. 34—10 **6 Claims**



Oil and protein bearing naturally occurring seeds, beans, such as cottonseeds, rapeseeds, soybeans, high in moisture content and not suitable for storage, are subjected to a process which involves the reduction in the surface moisture and absorbed water content of the solids material to the desired moisture content at an accelerated drying rate, utilizing flash drying, which is suit-able, and safe, for storage and for future processing of the afore-mentioned Earth produced materials. The method and means involves specially designed equipment employing heated gases, at very minimal retention time, cocurrent contact gases-oilseeds, to effect the efficient vaporization and removal of the moisture to the desired level, dependent on the particular material. The process is conducted on a continuous basis, utilizing the naturally occurring material without denaturation of the protein content.

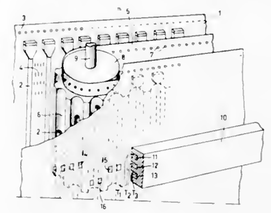
A consequential advantage and benefit of this drying process is the cleaning of the oil and protein bearing naturally occurring seeds, beans, as mentioned heretofore, prior to the drying method, to separate undesirable materials, such as stems, sticks, leaves, dirt, dust, dockage, from the whole seeds, beans, as received, in specially designed attendant equipment as an integral portion of the process.

3,812,596
CONTROL AND MONITORING OF PROCESSES IN DEPENDENCE ON THE VAPOR PRESSURE
Ingo Wilmanns, Bruhl, Germany, assignor to Leybold-Heraeus-Verwaltung GmbH, Cologne-Bayental, Germany
Filed Feb. 1, 1972, Ser. No. 222,638
Claims priority, application Germany, Feb. 1, 1971, 2104499
Int. Cl. F26b *21/10*
U.S. Cl. 34—51 **7 Claims**



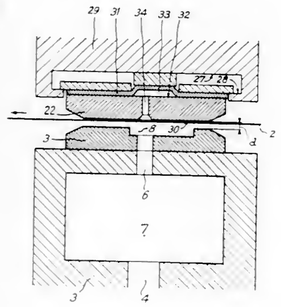
For controlling and monitoring processes in dependence on vapor pressure, the light reflection from a surface, set to a given temperature in the range of the beginning condensation of the vapor, is measured and then the change in the light reflection is utilized as a control value.

3,812,597
OVEN
Jean Robert Perilhou, Bourg-la-Reine, and Michel Joseph Auphan, Courbevoie, both of France, assignors to U.S. Philips Corporation, New York, N.Y.
Filed June 1, 1973, Ser. No. 366,057
Claims priority, application France, June 29, 1972, 72.23597
Int. Cl. F26b *25/02*
U.S. Cl. 34—105 **2 Claims**



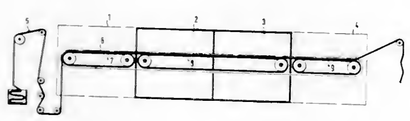
A device for heating liquid samples carried in test tubes which are provided on a moving conveyor belt. A second belt has cavities so as to accommodate the test tubes, moves at the same speed with respect to the first belt. A wall which is parallel to the belts has longitudinal grooves through which air of different temperatures can flow. Openings are provided in the conveyor near each test tube, opposite to one of the grooves so that the air in the groove can heat the test tube.

3,812,598
APPARATUS FOR DRYING DAMP WEB MATERIAL
Michel S. M. Lefebvre, and Philippe D. Laplerre, both of Saint-Quentin, France, assignors to Omnium de Prospective Industrielle S.A., Neuville Saint-Amand, France
Filed Jan. 24, 1973, Ser. No. 326,427
Claims priority, application France, Jan. 26, 1972, 72.02613; Oct. 2, 1972, 72.34900
Int. Cl. F26b *13/00*
U.S. Cl. 34—155 10 Claims



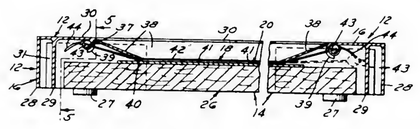
Apparatus for drying damp web material having a distribution chamber with inlet and outlet slots through which the material is moved, the chamber having means for receiving compressed gas to which the material is subjected for uniform drying.

3,812,599
APPARATUS FOR THE TREATMENT OF TEXTILE FABRIC
Kurt Bruckner, Erbach/Odenwald, Germany, assignor to Bruckner Apparatebau GmbH, Erbach/Odenwald, Germany
Filed May 11, 1972, Ser. No. 252,181
Claims priority, application Germany, May 28, 1971, 7120929
Int. Cl. F26b *25/06*
U.S. Cl. 34—216 8 Claims



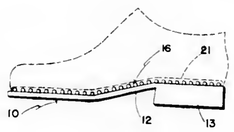
Apparatus for treating textile fabric comprises a housing defining a series of treatment zones maintained at different temperatures and through which the fabric is adapted to be conveyed in succession by conveyors. The zones of lower temperature have conveyors allotted thereto and the zones of higher temperature have other conveyors allotted thereto.

3,812,600
MODULAR CHART
William R. Rondello, 18420 Stephens Dr., East Detroit, Mich. 48021
Filed June 15, 1972, Ser. No. 263,092
Int. Cl. G09b *19/18*
U.S. Cl. 35—7 R 3 Claims



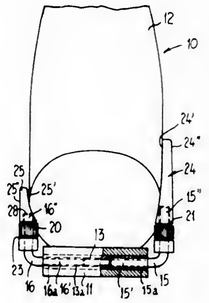
A rigid rectangular mounting panel unit provides a fixed rectangular base to support a markable data sheet which is marginally designated by data insignia in one way or another. This will optionally be in terms of chart-like column or listing headings, or in terms of Cartesian-like coordinates for a proposed graph, or the like. A rectangular extruded grid frame unit is hingedly connected to the mounting panel for swinging movement to and from an operative position in which it parallels the mounting panel in direct juxtaposition thereover; and the vertical and horizontal extrusion parts of the frame uniformly present inwardly extending flange formations defining a rectangular opening to frame the data sheet. Sets of parallel, horizontally and vertically extending grid elements visually subdivide the area of said sheet from top-to-bottom and side-to-side, in suggested minimum spacings of said respective elements from one another of, say, one inch; thus visually outlining spaces at which ascertained graph or chart data may be inscribed on the sheet. For the purpose of affording releasable frame connections of said grid elements, which are preferably of elastic cord material, the respective horizontal and vertical extrusions of the frame have spaced slot and notch formations behind which opposite ends of the stretchable grid elements are releasably anchored under tension, and by which the spacings of said elements are accurately set up and maintained.

3,812,601
BOOT AND SHOE ASSEMBLIES
Thomas Flottorp, 207 Argyle St., Regina, Saskatchewan, Canada
Filed Mar. 5, 1973, Ser. No. 338,142
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 C 4 Claims



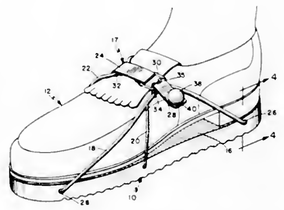
The sole and heel portion of footwear is made of plastic reinforced with steel hooks around the perimeter of the sole detachably engageable by an upper portion by means of a flexible wire attached around the perimeter of the base of the upper portion so that a plurality of sole and heel portions can be provided together with a selection of upper portions all of which can be readily interchanged by the user. The device can be used for boots, shoes, rubbers, overshoes and the like.

3,812,602
SKI BOOT
Ernst Gertsch, Wengen, and Ulrich Gertsch, Interlaken, both of Switzerland, assignors to Gertsch AG, Interlaken, Switzerland
Filed Apr. 9, 1973, Ser. No. 349,465
Claims priority, application Great Britain, Apr. 17, 1972, 17567/72
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 AL 6 Claims



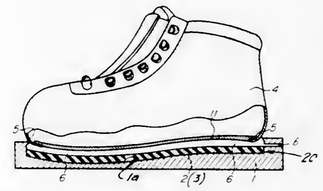
A ski boot wherein at both sides of the upper section bounding the sole there bear impact or abutment plates secured to the sole, which impact plates can be adjusted with regard to their spacing from one another.

3,812,603
DETACHABLE SPIKED SHOE PROTECTIVE COVER
Mallard S. Goodman, 401 E. 17th Ave., Escondido, Calif. 92025
Filed Oct. 9, 1973, Ser. No. 404,347
Int. Cl. A43b *3/10*
U.S. Cl. 36—2.5 AN 9 Claims



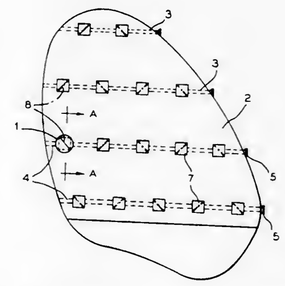
A spiked shoe protective cover having a pad of deformable material shaped to conform to the sole and heel of a spiked shoe and having resilient strap members extending along the sides of said pad from the front to the rear with a central connecting strap that quickly and easily interconnects the strap members to resiliently hold the pad against the shoe sole with the deformable material absorbing the spike or cleat projections from the bottom of the shoe with the pad abutting against a substantial portion of the bottom surface of the show providing maximum support.

3,812,604
SHOE CONSTRUCTION AND METHOD OF MANUFACTURING A SHOE
Tomoyoshi Sato, Tokyo, Japan, assignor to Nihon-Yohin Co., Ltd., Chiyoda-ku, Tokyo, Japan
Filed Aug. 28, 1972, Ser. No. 284,106
Int. Cl. A43c *13/08*; A43d *9/00*
U.S. Cl. 36—14 8 Claims



A shoe includes an instep which is joined to a bottom layer by an intermediate layer which is bonded between the instep and the bottom layer. The intermediate layer is advantageously applied in a liquid form after first positioning the bottom layer at the bottom of a mold and positioning the instep so that its lower inturned edges project into the mold. The liquid in the form of a synthetic plastic is permitted to fill the space between the bottom layer and the instep and to be cooled and become bound to these parts. In one embodiment, the bottom layer is advantageously made of an upper and lower superposed layer part with the upper layer having at least one through opening to permit the flow of the intermediate bonding layer therethrough and securement to a recess of the lower part of the bottom layer. In one form the shoe includes a bottom layer made up of upper and lower parts which are joined together by the bonding layer which flows through openings in the upper part into receiving recesses or bores of the lower part. The lower part may advantageously includes a bottom having corrugations or projections and which either includes recesses or receiving bores for the bonding material which extends therethrough.

3,812,605
SPORT SHOE WITH INTERCHANGEABLE GRIPPING ELEMENTS
Berthold Kaestle, Balingen, Germany, assignor to BRS, Inc., Beaverton, Oreg.
Filed July 9, 1973, Ser. No. 377,180
Claims priority, application Germany, July 12, 1972, 2234117
Int. Cl. A43c *15/00*
U.S. Cl. 36—67 D 20 Claims



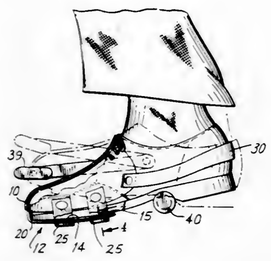
An athletic shoe is described in which the gripping elements or spikes are releasably fastened in recesses in the sole by

locking pins extending through holes in the base portions of such spikes along lateral passages

stress as a result of the mounting arrangement of the auger

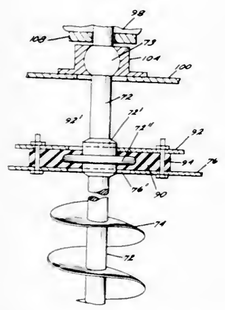
locking pins extending through holes in the base portions of such spikes along lateral passageways provided across the interior of the sole between such recesses.

3,812,606
FOOTWEAR UPPER PROTECTOR FOR CYCLE RIDERS
Vincent Anthony Merola, Box 116 River Rd., West Cornwall, Conn. 06795
Filed Sept. 4, 1973, Ser. No. 394,170
Int. Cl. A43b *13/22*
U.S. Cl. 36—72 R
9 Claims



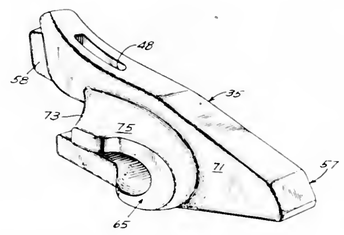
This invention provides a protector for covering the upper portion of, for example, dress shoes against abrasion and indentation of the leather while riding a motorcycle. The invention comprises a sheet of leather or leather-like material, generally conformed to the outline of the forward portion of a shoe from the instep forward to the tip of the toe, and retaining straps designed and adapted to connect the sheet to the shoe by passing under the shoe and rearwardly around the ankle of the wearer.

3,812,607
LATERALLY AND VERTICALLY SHIFTABLE AUGER LOADERS
Howard D. Fenske, 2646 Kenowa, S.W., Grand Rapids, Mich. 49504
Filed Mar. 2, 1973, Ser. No. 337,279
Int. Cl. B60p *1/36*
U.S. Cl. 37—4
18 Claims



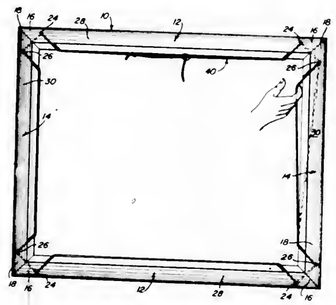
A bowl type earth moving vehicle auger apparatus employing vertical augers above the earth inlet opening and scraper, the augers having free lower ends and having the upper ends specially mounted in a floating fashion to accommodate entry of large objects such as rocks. The auger lower end is laterally controllably shiftable in response to lateral stresses as a result of a special bearing assembly on the auger upper end shaft, and the auger is vertically shiftable in response to vertical stress as a result of the mounting arrangement of the auger framework to the bowl assembly. Also, the auger is vertically shiftable in cooperation with opening of the apron, as a result of the auger framework being specially cooperable with the apron elevating mechanism, to assure free discharge flow from the bowl without auger interference.

3,812,608
DIPPER BUCKET CORNER MEMBER WITH INTEGRAL SHROUD
Thomas A. Ratkowski, Chicago Heights, Ill., assignor to Abex Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 204,965, Dec. 6, 1971, abandoned. This application July 2, 1973, Ser. No. 375,431
Int. Cl. E02f *3/40, 9/28*
U.S. Cl. 37—141 T
3 Claims



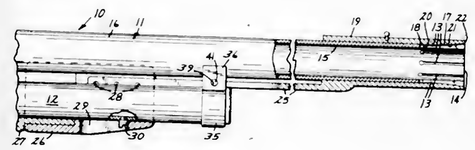
The corners of the lip of a power shovel adjacent the digging edge of the lip are protected by removable guards, more specifically in the form of teeth, and projecting forwardly at each corner; each corner guard preferably includes an integral shroud embracing the portion of the digging edge of the lip which intervenes between the corner and the next adjacent dipper tooth, the latter being of any preferred form. Additionally the guard is so constructed as to present an extension at the rear thereof constituting a portion of the side wall of the dipper.

3,812,609
KNOCKDOWN PICTURE FRAME
Eugene A. Volden, R.R. 2, Henning, Minn. 56551
Filed Feb. 14, 1972, Ser. No. 226,148
Int. Cl. G09f *1/12*
U.S. Cl. 40—155
7 Claims



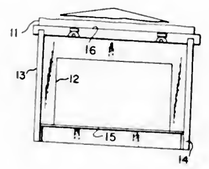
A knockdown picture frame having two perpendicularly arranged pair of opposed frame members, each member having spaced end portions provided with a hole passing therethrough from an opening provided in an outer wall surface to an opening provided in an end wall surface and arranged to mate with a similar hole in the end portion of an abutting frame member. The frame members are connected together by a longitudinally extending, flexible member passing through the holes and having spaced ends fastened together by a loop formed in one end and a disc provided with a pair of holes. The other of the ends of the flexible member is passed through the holes in the disc, the loop in the one end of the flexible member, and between itself and the disc.

3,812,610
CHOKE MEANS
Jeremiah J. Kranz, 3620 Jefferson, Rapid City, S. Dak. 57701
Filed Mar. 17, 1972, Ser. No. 235,498. The portion of the term of this patent subsequent to Sept. 20, 1988, has been disclaimed.
Int. Cl. F41c *21/00*
U.S. Cl. 42—79
4 Claims



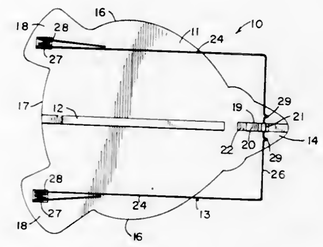
A tubular member having an arcuately diverging convex inner surface coaxially fitted over the arcuately diverging concave outer wall of a slotted portion of a gun barrel in longitudinal sliding engagement therewith for forcing the slotted portion of the gun barrel inwardly to vary the choke thereof and supporting the slotted portion of the gun barrel along substantially the entire length.

3,812,611
ANIMATED CHILDREN'S MARIONETTE THEATRE
Martha Bierwiler, 120 E. Hazel, Orlando, Fla.
Filed May 23, 1973, Ser. No. 363,133
Int. Cl. A63h *33/00*
U.S. Cl. 46—13
23 Claims



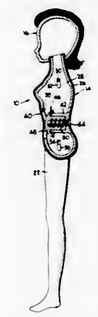
A children's marionnette theatre for self-propelled puppets comprising a housing defining a stage where puppets are displayed and an upper ceiling member disposed over the stage area. The upper ceiling member has a maze of open slots or grooves formed in it through which supporting guy wires for the puppets extend. A self-propelled puppet transport vehicle of the wound mechanical spring or battery operated type is supported on the ceiling member and is designed to run along the pathway defined by the open slots or grooves of the ceiling member with the puppets secured thereto by guy wires extending through the open slots or grooves. In this way the puppet transport vehicle supports and moves the puppet-like figures displayed on the stage. The theatre preferably is collapsible and may employ two-dimensional or three-dimensional puppet figures. The open slots or grooves in the ceiling member preferably are open ended whereby the puppet transport vehicles easily may be loaded on and unloaded from the ceiling member from a side or the back of the theatre. The puppet transport vehicles may be designed to include an additional mechanism for imparting movements to arms, legs, or other members of the puppet like figures, and the theatre is designed to employ one or a plurality of puppets displayed on the stage simultaneously.

3,812,612
TOY GLIDER
Victor Petrusek, 14611 Halsted St., Harvey, Ill. 60426
Filed June 18, 1973, Ser. No. 371,035
Int. Cl. A63h *27/00*
U.S. Cl. 46—79
8 Claims



A toy glider made from a light weight material having a substantially flat wing of generally triangular shape, a body which tapers toward the apex, and a landing gear made from a spring wire which is generally U-shaped with the legs fixedly attached to the base of the wing and the bight of the U detachably latched to the apex of the wing so that the legs are normally bowed away from the body. The bight of spring wire is released from the body when the glider lands so that the legs support the body in a generally upstanding position.

3,812,613
EDUCATIONAL FIGURE TOY
Marvin I. Glass, Chicago; Jeffrey D. Breslow, Highland Park, and Eugene Jaworski, Park Ridge, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed May 17, 1972, Ser. No. 253,952
Int. Cl. A63h *11/00*
U.S. Cl. 46—119
7 Claims

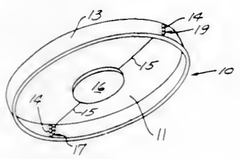


An educational doll which simulates pregnancy including a torso of generally self-supporting material having a yieldable abdominal portion and a plunger movably mounted in the interior of the torso and engageable with exterior drive means for moving the plunger into engagement with, and extending the yieldable abdominal portion of, the torso of the doll.

3,812,614
ROTATABLE STROBASCOPIC TOY

Richard H. Harrington, 313 N. 7th St., Ann Arbor, Mich. 48103

Filed Aug. 21, 1972, Ser. No. 282,392
Int. Cl. A63h 33/26
U.S. Cl. 46—228 1 Claim



A strobascopic light source and a rotatable toy to create exciting optical illusions as to the toy's rotational or lateral motion. Light emitting diodes placed on the periphery of a resilient aerodynamic disc toy which is thrown from one player to another cooperate with a multivibrator type electronic drive circuit, to create an unusual strobascopic effect.

3,812,615
METHOD OF COATING SOIL WITH AN AGRICULTURAL MULCH

Saunders Eliot Jamison, Summit, N.J., assignor to Celanese Corporation, New York, N.Y.

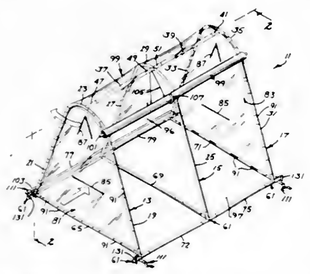
Filed June 1, 1972, Ser. No. 258,561
Int. Cl. C08f 45/24; A01g 7/00
U.S. Cl. 47—9 10 Claims

Foamed material suitable for use in connection with agricultural endeavors which is produced by agitating a mixture comprising: (1) a fibrous material, (2) water, (3) a wetting agent, (4) a thickening material, (5) an acrylic polymer emulsion, and (6) a polyepoxide. The foam is then applied onto the surface of the soil where it dries and cures to form an air and water permeable protective coating which retains its structural integrity throughout the growing season and may be broken up and turned into the soil at the beginning of the next season.

3,812,616
PORTABLE GREENHOUSE

Leonard L. Koziol, 1109 18th St., West, West Billings, Mont. 59102

Filed June 26, 1972, Ser. No. 266,291
Int. Cl. A01g 9/00, 13/04
U.S. Cl. 47—17 7 Claims

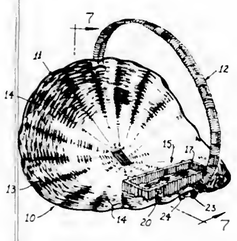


A portable greenhouse is disclosed having a support structure including a plurality of covered sides with one of the sides being movable between a first position for enclosing the greenhouse and a second position when the side is rolled about a roller member for exposing the inside of the portable greenhouse.

3,812,617
FLOWER BASKET WITH WATER RECEPTACLE AND DETACHABLE HANDLE

Ernest O. Brody, Cleveland, Ohio, assignor to Lancaster Colony Corporation, Columbus, Ohio

Filed Jan. 31, 1973, Ser. No. 328,463
Int. Cl. A47g 7/06
U.S. Cl. 47—41 7 Claims

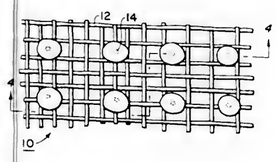


A flower basket is provided having an integrally-formed, water impervious receptacle and a detachable handle structure. The receptacle formed on a side wall of the basket is open-topped and incorporating hooks releasably engageable with wire-mesh cover for retaining a porous florist oasis within the receptacle thereby better supporting flowers in a desired arrangement. The handle is of the bail-type having terminal end portions specifically configured to interlockingly interfit with respective complemental sockets formed at opposed points on the main body of the basket. A base structure is provided to maintain the basket in either an upright position or in a tilted position with the receptacle opening vertically upward.

3,812,618
SEED-FOAM-FABRIC COMPOSITE

Louis L. Wood, Rockville; Clifton L. Kehr, Silver Spring, both of Md., and Kurt C. Frisch, Grosse Ile, Mich., assignors to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 250,012, May 3, 1972, abandoned. This application Mar. 8, 1973, Ser. No. 339,489
Int. Cl. A01g 9/10
U.S. Cl. 47—56 19 Claims



The invention disclosed provides a seed-foam-fabric composite which may be readily applied over a ground area for supporting and protecting seeds during germination.

3,812,619
HORTICULTURAL FOAM STRUCTURES AND METHOD

Louis L. Wood, Potomac, Md., and Kurt C. Frishch, Grosse Ile, Mich., assignors to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 250,012, May 3, 1972, abandoned. This application Aug. 10, 1972, Ser. No. 279,403
Int. Cl. A01g 9/10, 31/00
U.S. Cl. 47—58 21 Claims

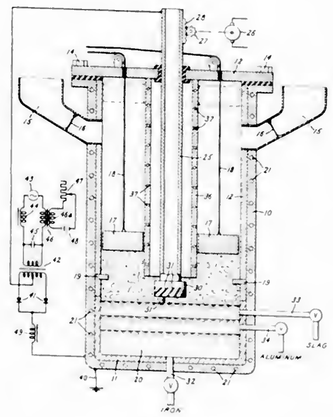
The invention disclosed is for horticultural foam structures prepared by reacting an isocyanate capped polyoxyethylene polyol reactant with large amounts of an aqueous reactant containing seeds or the like. Desirably, the aqueous reactant

further includes materials useful or necessary for plant growth. The resultant foam structures provide an effective means for protecting dormant seeds as well as means for sustaining seed germination and plant growth.

3,812,620
APPARATUS AND PROCESS FOR SEGREGATING AND DECOMPOSING HETEROGENEOUS WASTE MATERIALS

Charles H. Titus, Newtown Square, and J. Kenneth Wittle, Berwyn, both of Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed Mar. 22, 1973, Ser. No. 343,727
Int. Cl. C10j 3/18
U.S. Cl. 48—65 13 Claims



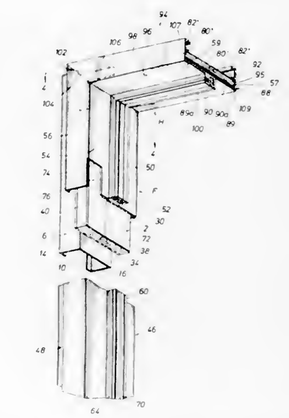
A method and apparatus for innocuous disposal of heterogeneous solid waste from residential and other sources comprises a pyrolytic furnace having a sump for collecton of molten glass and metal and an elongate electrode having an arcing tip in juxtaposition to the surface of a molten metal pool in the sump. An exhaust passage for gases has an inlet end near the arc. In operation a charge of heterogeneous waste above the metal pool is progressively immersed in the pool wherein organic material is decomposed by pyrolysis and inorganic material is melted into the pool.

3,812,621
ADJUSTABLE DOOR FRAME ASSEMBLY

Douglas Ragland, Houston, Tex., assignor to Ragland Manufacturing and Construction Company, Houston, Tex.

Filed Nov. 6, 1972, Ser. No. 304,148
Int. Cl. E06b 1/04
U.S. Cl. 49—505 18 Claims

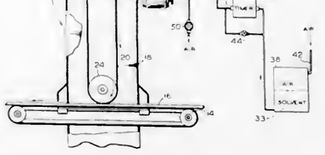
The present invention comprises an adjustable door frame assembly in which the weight of the door is carried by hidden support means rather than the door facing. The support means are enclosed by overlapping L-shaped jamb members which are telescopically adjustable to accommodate walls of varying thicknesses. The interfaces between the adjustable pieces, as well as the attachment means for attaching said pieces together, are hidden so as to enhance the beauty of the door frame.



3,812,622
SANDER CLEANER

James W. Parsons, P.O. Box 38, Ashland, Oreg. 97520

Filed June 14, 1972, Ser. No. 262,621
Int. Cl. B24b 1/00, 21/18
U.S. Cl. 51—5 9 Claims



A solvent is sprayed onto a moving sander belt by a solvent nozzle moved across the belt in advance of an air nozzle, which blows air onto the belt. The nozzles are directed toward the belt at an angle such that the air from the air nozzle is deflected toward an exhaust port in a sander housing surrounding the belt. The nozzles form a part of a cleaner mounted as a unit on the sander housing, and including a nozzle carriage reciprocating the nozzles across the belt.

3,812,623
INTERNAL GRINDING MACHINE

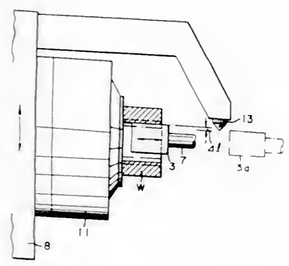
Makoto Kikuchi, Kariya; Hiroaki Asano, Chiryu; Ikuo Otsu, Toyoda, and Toyoaki Saeki, Kariya, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya-shi, Japan

Filed Dec. 29, 1972, Ser. No. 319,760
Claims priority, application Japan, Feb. 10, 1972, 47-14647
Int. Cl. B24b 53/00
U.S. Cl. 51—5 D 10 Claims

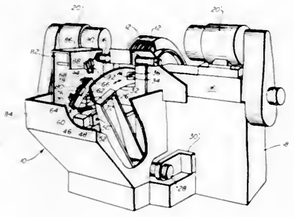
An internal grinding machine comprising a bed upon which is slidably mounted a work head containing a workpiece to be ground and a table which in turn slidably supports a grinding

wheel head which houses a grinding wheel. The axes of the workpiece and the grinding wheel are parallel to

wheel head which houses a grinding wheel. The axes of the workpiece and the grinding wheel are parallel to one another and the work head and the grinding wheel head are slidable in directions transverse to such axes while the table is reciprocable in directions parallel to such axes. A dressing tool is pivotably mounted upon the bed so as to be pivotable within a plane perpendicular to the axes. A plurality of feeding means and control means for controlling the feeding means are provided for selectively and sequentially operating the grinding wheel head and table, as well as the work head and dressing tool whereby the workpiece may be moved toward and away from the grinding wheel, and the grinding wheel may be inserted within and withdrawn from the inner bore of the workpiece and also moved toward and away from the dressing tool, the latter in turn being pivotable toward and away from the dressing station.

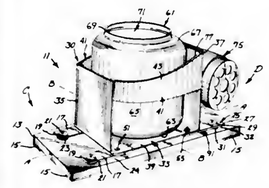


3,812,624
GRINDING APPARATUS WITH INFEED CONTROL
Elman R. Dunn, Roscoe, Ill., assignor to Litton Industries, Inc., Beverly Hills, Calif.
Filed Nov. 14, 1972, Ser. No. 306,309
Int. Cl. B24b *7/16, 51/00*
U.S. Cl. 51—115 **5 Claims**



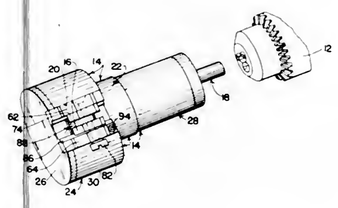
A grinding apparatus comprising abrasive disc means including at least one abrasive disc, means for mounting the abrasive disc means for rotative displacement about the axis of the abrasive disc means, means for rotationally displacing the abrasive disc means, means for axially displacing the abrasive disc means towards a workpiece surface to be ground, means for mounting a workpiece having at least one surface to be ground by the abrading action of the face of the disc, means for repetitively displacing the mounting means through a first zone wherein only a portion of the workpiece surface overlaps the abrasive disc and through a second zone wherein the abrasive disc completely overlaps the workpiece surface, and means for activating the axially displacing means only when the mounting means is located within the second zone.

3,812,625
VIBRATING ROCK POLISHER
Wayne L. Olson, Box 9 Keystone Rt., Rapid City, S. Dak. 57701
Filed Mar. 13, 1972, Ser. No. 234,263
Int. Cl. B24b *31/06*
U.S. Cl. 51—163 **5 Claims**



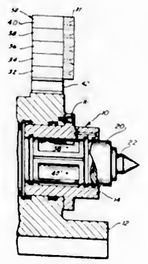
An apparatus is disclosed for polishing rocks in which a rock container is insertable within a frame member which has attached to it a vibrator for imparting a desired motion. Two pair of elongated resilient strips are mounted at an end of each strip in parallel longitudinally extending spaced apart relationship to a base member. Each strip of a pair is in transverse spaced apart relationship to the other. One pair is mounted at a forward end of the base plate and the second pair is mounted at a rearward end of the base plate. The frame member is secured to the unmounted ends of the strips, whereby, the vibrator causes the frame member to move the container in a vertical vibratory motion in conjunction with a rocking motion. A tuning bar is insertable transversely between one pair of strips and the base member in order to vary the resonate frequency of the system and the amplitude of the rock container.

3,812,626
ICE SKATE SHARPENING DEVICE
Arnold M. Thompson, Box 172A Gary Ave., Wheaton, Ill. 60090
Filed Sept. 1, 1972, Ser. No. 285,627
Int. Cl. B24b *9/04, 23/02*
U.S. Cl. 51—170 PT **9 Claims**



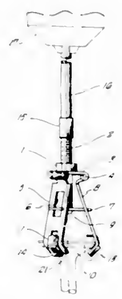
A portable ice skate sharpening device in the form of an attachment for a conventional hand drill and including a rotary abrasive grinding wheel which is enclosed in a casing having formed therein an opening which exposes a limited portion of the periphery of the rotating wheel and renders the same accessible for application thereto of a skate blade. A removable skate blade positioning unit is positioned within the opening and defines a guide slot through which the skate blade to be sharpened is manually guided to draw the edge of the blade progressively and transversely across the periphery of the wheel, the unit being so designed that the lateral thrust which is applied to the blade incident to its contact with the rotating wheel serves to bring the general plane of the skate blade into coincidence with the axis of rotation of the wheel, thus resulting in a hollow ground skate blade edge the radius of curvature of which lies precisely in the midplane of the skate blade.

3,812,627
PRESSURE INDICATING DEVICE FOR HYDROSTATIC BEARINGS
Kurt M. Gebel, and Ralph E. Price, both of Waynesboro, Pa., assignors to Landis Tool Company, Waynesboro, Pa.
Filed Dec. 29, 1972, Ser. No. 319,462
Int. Cl. B24b *41/06*; **F16c** *13/00*; **G01l** *19/12*
U.S. Cl. 51—238 R **4 Claims**



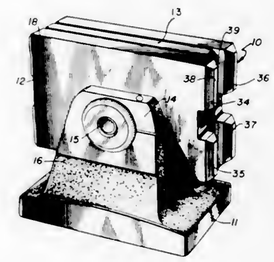
A hydrostatic bearing assembly for a grinding machine comprising a head stock including at least one bearing housing, the bearing housing having a cylindrical bore for receiving a rotatable spindle and a plurality of circumferentially spaced, axially extending pads established in the cylindrical wall of the bore, a corresponding plurality of fluid manifolds, means for establishing parallel fluid flow paths between the plurality of bearing housing pads and the corresponding plurality of fluid manifolds, means for supplying pressurized liquid to the plurality of fluid manifolds and means for sensing when the pressure of the fluid flowing to any one of the plurality of bearing housing pads is less than a predetermined minimum pressure and means for stopping or preventing the operation of the grinding machine when the sensed pressure of the fluid flowing to any one of the plurality of bearing housing pads is less than the predetermined minimum pressure.

3,812,628
PORTABLE VALVE SEAT FACER
Jack Rogers, 6557 Costello Ave., Van Nuys, Calif. 91401
Filed Dec. 20, 1971, Ser. No. 209,670
Int. Cl. B24b *19/00*
U.S. Cl. 51—241 VS **7 Claims**



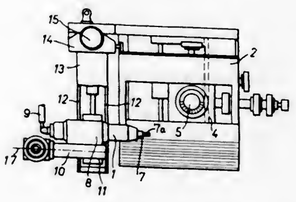
A portable valve seat facer is disclosed having a flexible transmission line assembly, an adjustable mounting assembly and a grinding assembly. The transmission assembly comprises a flexible cable having one end adapted to be placed within a chuck of a hand drill. The other end of the cable is drivingly connected to the mounting assembly. The mounting assembly comprises a ring threadedly mounted on a rod, one end of which is connected to the cable. Three mounting plates are hingeably connected to the periphery of the ring. The proximal portions of the plates include elongated slots for slidably receiving a tongued plate which is fixedly connected to the other end of the rod. The distal portions of the plates are adapted to open and close about a valve head for retaining the valve head in a secured position. The outer extremities of the plates further include means for pivotally receiving the grinding assembly. The grinding assembly comprises a plurality of hooked tabs which are adapted to be removably mounted within a plurality of apertures formed within the extremities of the plates. The interior surfaces of the tabs are adapted to lie flush against the seating surface of the valve head to enable the grinding bits to assume the same angular orientation. The valve stem is then positioned within the valve chamber to act as a guide, with the grinding surfaces of the bits engaging the surface of the valve seat to reface the surface at the same angle as the valve head seating surface.

3,812,629
WORKHOLDER
Peter Campbell, P.O. Box 262, Holden, Mass. 01520
Filed Aug. 15, 1972, Ser. No. 280,899
Int. Cl. B25b *11/00*
U.S. Cl. 51—216 R **10 Claims**



A workholder of the magnetic type having movable magnetic elements to render it selectively either operative or inoperative.

3,812,630
METHOD FOR ADJUSTING MACHINE TOOLS AND CONTROLLING THE MACHINING OPERATION
Alberto Walser, Zollikon, Switzerland, assignor to Albert Walser Prazisionsmechanik & Werkzeugbau, Zollikon, Switzerland
Filed Jan. 17, 1972, Ser. No. 218,444
Claims priority, application Switzerland, Jan. 21, 1971, 907/71
Int. Cl. B24b *3/34*
U.S. Cl. 51—281 R **2 Claims**



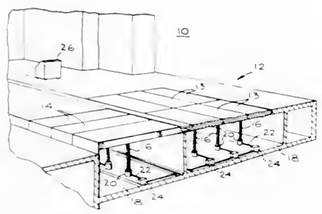
A method of and apparatus for adjusting the substantially cylindrical cutting surface of a machining tool at a machine tool in a predetermined angle at the point of intersection

between a substantially cylindrical surface and a reference surface of the workpiece to be machined, especially

jacent structural arch members and extend from

between a substantially cylindrical surface and a reference surface of the workpiece to be machined, especially a cutting tool, and controlling this angle at the workpiece to be machined with the aid of an optical system, wherein for the control and/or adjustment of such angle the optical axis of the optical system at a carriage also carrying the spindle for the machining tool is displaced such that such optical axis assumes a position corresponding to the working position of the spindle axis. Thus the common carriage for the optical system and spindle and a carriage carrying the clamping mechanism for the workpiece are adjusted relative to one another in two directions perpendicular to one another to such an extent until a reference surface of the workpiece extends substantially parallel to a line of a crosshair of the optical system and the cylindrical surface of the workpiece to be produced coincides with a centering circle of the optical system, which centering circle is analogous to the diameter of the cylindrical cutting surface of the machining tool so that the apex of the angle to be controlled is disposed along a radial line of the centering circle, the angle of which with regard to an adjacent line of the crosshair corresponds to the angle to be controlled and/or adjusted. And after carrying out the control and/or adjustment the spindle is retracted back into its work position.

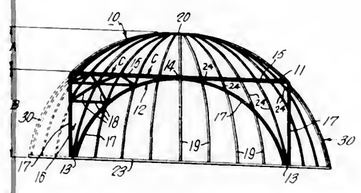
3,812,631
STAGE PLATFORM CONTROL SYSTEM
William Marion Cruse, Los Angeles, Calif., assignor to Henry M. Bissell, Los Angeles, Calif., a part interest
Filed Sept. 19, 1972, Ser. No. 290,337
Int. Cl. E04h *3/26*
U.S. Cl. 52—1 **17 Claims**



A system for controlling the positioning of segmented portions of a theater stage or the like. The stage, including the orchestra pit, is divided into segments, each of which has an independent lift apparatus. The respective lift apparatus are controlled from a console which has the capability of providing control of each lift apparatus individually or, alternatively, interconnecting the drive portions of selected lift apparatus together to a common control module for movement of the corresponding stage segments as a unit.

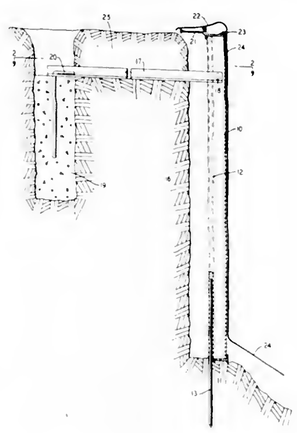
3,812,632
DOME STRUCTURE
Robert C. Robertson, 1629 Selkirk Ave., Montreal, Quebec, Canada, and G. V. Francis, 60 Hill Top Ave., Cheadle Hulme, England
Filed Aug. 28, 1972, Ser. No. 284,142
Int. Cl. E04b *1/32*
U.S. Cl. 52—81 **10 Claims**

A dome shaped building structure comprising at least three structural arch members which are small circles of a sphere and each extending in a respective vertical plane from two ground anchorage points. The apex of each of the adjacent arch members are interconnected by a horizontal arc shaped member itself a portion of a small circle whereby a continuous ring is formed by the arc shaped members connected to at least three structural arch members. A spherical triangular shaped frame is formed between adjacent apexes and two adjacent structural arch members and extend from one of the anchorage points. At least one of the reinforcing members is a segment of a great circle extending from the arc shaped



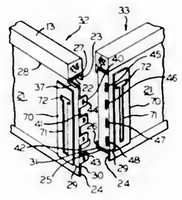
member radially outward and downward to connect with the anchorage point or the arch shaped member. These reinforcing members provide support for the vertical load on the arc member between the apex connections.

3,812,633
SWIMMING POOL CONSTRUCTION
Vincent Shanni, Scotch Plains, and Emil J. Boassy, Berkeley Heights, both of N.J., assignors to Champion, Inc., Scotch Plains, N.J.
Filed June 8, 1972, Ser. No. 261,077
Int. Cl. E04h *3/16*
U.S. Cl. 52—169 **1 Claim**



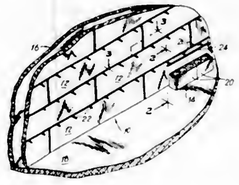
The specification describes a swimming pool construction in which the earth retaining walls that form the pool sidewalls are specially constructed so that the earth adjacent to the sidewall remains substantially undisturbed. The construction uses aluminum panels having integral tubular sleeves extending vertically and spaced apart along the length of the panel. The boss of each panel is anchored into the earth supporting the wall by pins inserted through the sleeves from above and driven into the earth. This eliminates the need for "overexcavating" the pool site. The top of the panels are anchored into the ground with laterally extending braces.

3,812,634
FLASHING BASE WITH ADJUSTABLE CANT
Raymond W. Resech, La Grange Park, Ill., assignor to Pate Manufacturing Company, Broadview, Ill.
Division of Ser. No. 246,565, April 24, 1972. This application June 1, 1973, Ser. No. 366,195
Int. Cl. E04d *13/14*
U.S. Cl. 52—741 **4 Claims**



Modular sections of a flashing base, having a cant adjustably attached thereto, may be made either in standard sizes or to order and shipped to site in knockdown and disassembled form. On site, the parts may be assembled and erected in place. The cant may then be moved relative to the deck line to cause the cant to rest upon the deck. Thereafter, roofing felt or similar material may be brought up from the approximately horizontal plane of the deck to the cant and flashing base for a distance of eight inches or more above the deck.

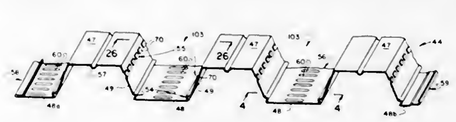
3,812,635
METHOD OF FABRICATING A COMBINATION WATER AND INSULATED WALL ASSEMBLY
Alfred A. Hala, 28 Meeks Ln., Islip, N.Y. 11751
Division of Ser. No. 231,206, March 2, 1972, Pat. No. 3,772,840. This application June 8, 1973, Ser. No. 368,330
Int. Cl. E04b *1/70*; **H04b** *12/28*
U.S. Cl. 52—741 **17 Claims**



A combined insulating and waterproofing apparatus, system and method comprising substantially rectangular shaped blocks of expanded polymeric plastic materials having insulative characteristics which blocks are disposed in predetermined adjacent proximate relationship with one another and positioned between the inner and outer wythes of a wall construction with the horizontal edges of the blocks being angularly inclined in a downward direction as viewed from the inner wythe with respect to the outer wythe.

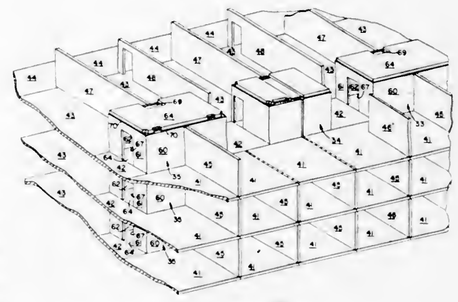
3,812,636
SHEET METAL DECKING UNIT AND COMPOSITE FLOOR CONSTRUCTION UTILIZING THE SAME
Raymond E. Albrecht; Bernard E. Curran, and Robert G. Lindner, all of Sewickley, Pa., assignors to H. H. Robertson Company, Pittsburgh, Pa.
Filed May 26, 1971, Ser. No. 146,989
Int. Cl. E04b *1/16*
U.S. Cl. 52—334 **16 Claims**

A sheet metal decking unit useful in the construction of a composite floor. The sheet metal decking unit exhibits substantial wet strength (ability to support wet concrete between spaced supports); has long span capabilities; and is useful in single and multiple span applications. The sheet metal decking unit presents hold-down elements above and below the geometric mid-plane of the decking unit, and presents shear-resisting elements below the geometric mid-plane, which cooperate in the composite floor construction to achieve the



composite load carrying capability of the floor. The decking unit is fully nestable in jam-free relation with others of the decking unit for packaging, storage and shipment. A side joint of the overlap type is provided which is laterally adjustable to facilitate spreading or drawing together of the decking units thereby to accommodate camber or sweep in the decking units, deviations from the specified spacing between the supporting beams, and the like.

3,812,637
METHOD FOR ERECTING A REINFORCED CONCRETE BUILDING
Yue-Chyou Yang, 131 16th Ave., and Jorge de Quesada, 3329 Clay St., both of San Francisco, Calif. 94118
Filed Jan. 3, 1972, Ser. No. 214,647
Int. Cl. E04g *21/00*
U.S. Cl. 52—745 **13 Claims**

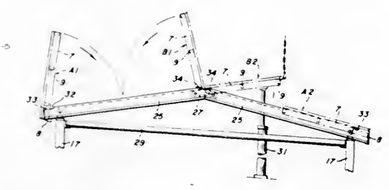


A reinforced concrete superstructure is erected from three principal types of prefabricated elements: (1) rectangular floor slabs, (2) rectangular wall panels, and (3) box units comprising integrally poured vertical walls, preferably integral with a ceiling or floor and having openings through the vertical walls to provide doors and windows and also passages through these or the floor or ceiling for conduits and piping. Typical box units comprise two bathrooms in back-to-back arrangement or two kitchens similarly arranged, but there are other types. The boxes are vertically stacked and, typically, at each level they are erected before the other walls are erected so that they serve as the bracing system for the erection of a keyed construction. Reinforcing rods in the various units are arranged so that they can be structurally joined to each other by simple grouting operation after being set in place.

3,812,638
METHOD OF ASSEMBLING A BUILDING

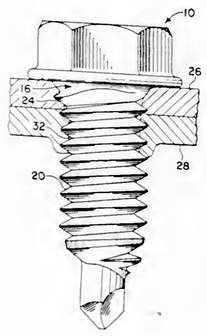
circular in cross section and is

3,812,638
METHOD OF ASSEMBLING A BUILDING
Adolph F. Lerch, Valencia; Nick C. Otis, Monroeville, and John D. Montgomery, Washington, all of Pa., assignors to Advance Housing Corporation, Wilkins Township, Pa.
Division of Ser. No. 160,846, July 8, 1971, Pat. No. 3,771,269.
This application Mar. 8, 1973, Ser. No. 339,152
Int. Cl. E04b 7/04
U.S. Cl. 52—747
8 Claims



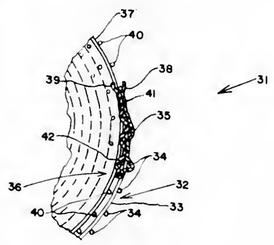
A building is constructed with spaced uprights, each upright having a projecting tongue at the top. Specially formed inverted channel sections set astraddle of these tongues and bolted thereto constitute rafter elements extending crosswise of the building and in gable and hip roofs these rafters slope upwardly from the posts and are joined at the ridge. Prefabricated roof panels have spaced inverted channels that nest over the rafters. The roof panels are lowered into position in a vertical plane, rested edgewise on the rafters and then swung down to rest on the rafters. A gabled roof usually has two panels on each of its two slopes, each panel extending the full length of the roof. The outermost panels on each slope are first put into place and then the inner ones. The lower panels are swung from the vertical plane toward the ridge of the roof and the upper ones are swung down from the ridge toward the eaves to properly overlap. Uprights at the building corners are outwardly-facing angle sections through the flanges of which bolts are passed and screwed into nuts welded on the abutting vertical ends of the end wall panels, after which a cover member is secured in place.

3,812,639
LOCKING AND STRIP-RESISTANT FASTENER
Henry Anton Sygnator, Arlington Heights, Ohio, assignor to Illinois Tool Works, Chicago, Ill.
Filed Mar. 26, 1973, Ser. No. 345,024
Int. Cl. F16b 5/02
U.S. Cl. 52—758 F
7 Claims



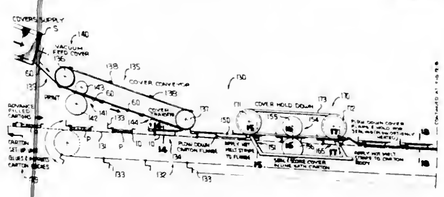
A threaded fastener device provided with a locking section extending from the threaded shank portion to the clamping face of the driving head. The locking section is generally non-circular in cross section and is eccentric to the axis of the fastener providing peripheral surfaces of varying radial distance from the axis of the shank and upon which a partial thread convolution is formed which has a crest diameter greater than the crest diameter of the threaded shank portion.

3,812,640
METHOD AND APPARATUS FOR PACKAGING WIRE MESH MATERIAL
James M. Knott, Wellesley, Mass., assignor to Coatings Engineering Corporation, South Natick, Mass.
Filed Oct. 5, 1972, Ser. No. 295,131
Int. Cl. R65b 63/04
U.S. Cl. 53—14
23 Claims



Disclosed is a method and apparatus for rolling wire mesh material such as "hex poultry netting." According to the subject method the mesh material is cut forming an edge defined by a plurality of sharp wire ends. After a roll is formed, the edge is affixed to the body thereof to prevent unrolling and a cover is applied over the wire ends.

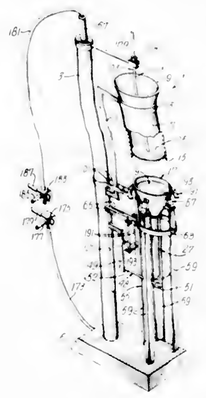
3,812,641
METHOD OF FORMING, FILLING AND CLOSING CARTONS, AND SPECIFIC CARTONS THEREFOR
Robert P. Bemiss, 925 Vista Rd., Hillsborough, Calif. 04010
Filed Apr. 3, 1973, Ser. No. 347,411
Int. Cl. B65b 1/00, 61/26
U.S. Cl. 53—14
11 Claims



This disclosure is directed to a novel method of forming, filling, covering and sealing a carton which includes a bottom panel, four upstanding side panels, and a minor flange joined to each of the side panels, a product is packaged within the carton body, and a cover which preferably is post-scored but may be pre-scored is applied thereto and includes four major flanges, one overlying each of the minor flanges of the carton body, the method including the steps of deflecting the minor and major flanges relative to each other to provide an area for the receipt of a hot-melt adhesive, thereafter applying pressure to unite the flanges, and subsequently securing the adhered flanges to the carton side panels. The covers may be individually fed from a stack of blanks, severed from a web drawn from an appropriate roll or as another alternate the carton body and cover would be of an integral one-piece construction.

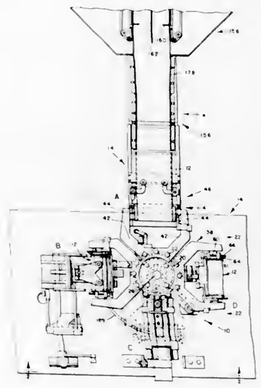
From a carton standpoint both the carton and cover are preferably coated on each side with an over-all barrier coating of moisture impervious material and minor-flange to major-flange adhesion as well as adhesion of the latter flanges to the side panels is preferably though not exclusively achieved by the use of in-line applied hot-melt adhesives, although adhesive pre-coating may be employed along with other adhesives or equivalents.

3,812,642
METHOD AND APPARATUS FOR PACKAGING A PRODUCT
Marcus Mintz, Burlington, Vt., and Bernard H. Engelhardt, Dollard Des Ormeaux, Quebec, Canada, assignors to Industrial Knitting, Inc., Montreal, Quebec, Canada
Filed Dec. 16, 1971, Ser. No. 208,728
Claims priority, application Great Britain, Dec. 21, 1970, 60695/70; Canada, Oct. 1, 1971, 124249
Int. Cl. B65b 9/10, 63/00
U.S. Cl. 53—21 R
12 Claims



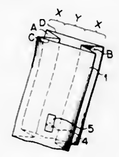
A method and apparatus for packaging a product with tubular encasing material. A leading length of the encasing material is placed over one end of an open-ended tubular member. The product is inserted through the other end of the tubular member and the tubular member is then withdrawn from the product and the leading length of the encasing material. Additive material can be added to the product before, during or after withdrawal of the tubular member. The tubular member may be employed to package material without a casing by moving it relative to a closure member to form a container and then moving it away from a product inserted in the so-formed product. Apparatus is provided for adding material to a product. The apparatus includes injection members which are open at one end. The one end of the injection members are inserted into a product and then withdrawn while injecting material into the product. The material adding apparatus can be adapted to feed the product into the tubular member. The material adding apparatus could be used in conjunction with the packaging apparatus, with or without casing material, or independently thereof. Apparatus is also provided for moving casing material onto a member such as the tubular member employing stretchable material. The packaging apparatus, employing a casing and the additive apparatus can also be adapted for vacuum packaging.

3,812,643
SEMI-AUTOMATIC MACHINE FOR PACKAGING TEA BAGS
Robert W. Vergobbi, Braintree, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.
Filed Aug. 31, 1972, Ser. No. 285,187
Int. Cl. B65b 5/06, 63/00
U.S. Cl. 53—24
47 Claims



Apparatus for packaging tea bags distended in part by a non-uniform distribution of tea therein, comprising a rotor on which there is mounted a carton holder for movement from a loading station at which it is adapted to receive and support a carton in an upright position with its upper end open and with a stack of tea bags therein, the collective thickness of which exceeds the depth of the carton with the excess tea bags supported above the open end; to a second station where the carton is vibrated to effect a redistribution of the tea in the tea bags such as to diminish the height of the stack to a dimension no greater than the depth of the carton and where the carton is partially closed; and from thence to a third station where the filled carton is discharged and simultaneously completely closed.

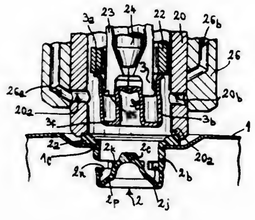
3,812,644
METHOD FOR PACKAGING FLOWABLE MATERIALS AND APPARATUS FOR MANUFACTURING PACKAGING BAGS
Kousaku Kamikawa, and Seikichi Kawabe, both of Kanazawa, Japan, assignors to Chuba Kikai Co., Ltd., Ishikawa-ken and The Nisseki Plastic Chemical Co., Ltd., Minato-ku, both of, Japan
Filed Sept. 12, 1972, Ser. No. 288,356
Claims priority, application Japan, Sept. 4, 1971, 46-78044
Int. Cl. B65b 43/10
U.S. Cl. 53—29
10 Claims

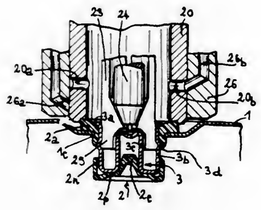


A method for packaging a flowable material comprising folding a flattened tubular film of a thermoplastic material such as polyethylene so that both sides thereof are folded in-

ward; sealing the thus folded tubular film at the position which is to be the top of the finished package; unfolding the opening of the folded tubular film so that the inwardly folded portions are turned outward and the opening comprises two layers; introducing a flowable material in the thus formed bag; sealing the opening in the two layer state; and pressing flat the two layer sealed end to form a bottom. An apparatus for manufacturing thermoplastic packaging bags to be used for this method is disclosed, too.

3,812,645
METHOD OF FILLING CONTAINERS WITH PRESSURIZED FLUID AND CLOSING BY MEANS OF A DISCHARGE VALVE ASSEMBLY
Roger Remane, Sainte-Colombe-les-Vienne, France, assignor to Application Des Gaz, Paris, France
Division of Ser. No. 215,306, Jan. 4, 1972, Pat. No. 3,776,427, which is a continuation-in-part of Ser. No. 886,242, Dec. 18, 1969, Pat. No. 3,735,903. This application May 2, 1973, Ser. No. 356,464
Int. Cl. B65b *31/02*
U.S. Cl. 53—37 **3 Claims**





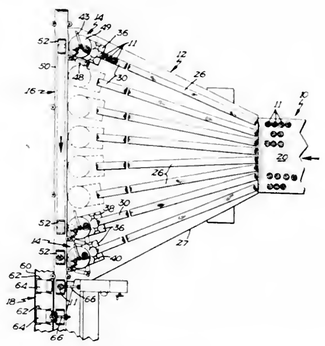
Method for filling and closing a container filled with a pressurized fluid and closed by a valve, said valve being formed mainly by two pieces, one rigid piece being in the form of a cup embedded inside an aperture of the container above the other piece formed of elastomer material, which, on the one hand, forms a watertight assembly joint by a peripheral portion pressed between rigid cup and the edge of said aperture, and, on the other hand, forms a seat with a central portion applied against an annular portion of the rigid piece; a valve flap between the two said portions which is traversed by at least one porthole for fluid passage; said pieces resting upon the outer wall of container by peripheral superposed flanges, and wherein the flange of the elastomer piece overlaps the outer wall of the container beyond the periphery of the flange of the rigid piece to form around it an annular watertight joint, suitably centered with respect to a tubular filling mouthpiece adapted to be pressed axially against the container.

3,812,646
SUPPORTING A THIN WALLED BOTTLE DURING CAPPING
Eugene P. Baldyga, Springfield, Mass., and John E. Griesing, Granby, Conn., assignors to Monsanto Company, St. Louis, Mo.
Filed Mar. 24, 1972, Ser. No. 237,858
Int. Cl. B65b *7/28*
U.S. Cl. 53—42 **5 Claims**



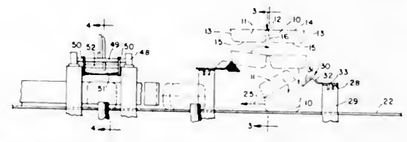
In capping a bottle containing a carbonated beverage capable of generating a pressure of from about 15 to 150 psig depending on temperature conditions, wherein a top load is applied to force a closure into sealing engagement with an end section of the bottle, the improvement of circumferentially enveloping a curved, stress minimizing transition zone in the bottle between the side and bottom walls with a restraining member during application of the top load to prevent outward deflection of the transition zone, the bottle being formed of a high barrier, flexible, thermoplastic material having a wall thickness in the area of the transition zone of between 10 to 35 mils. The apparatus comprises a shallow support member for the lower portion of the bottle to resist outward deflection of the thermoplastic during capping.

3,812,647
APPARATUS FOR STACKING AND PACKAGING FOOD PRODUCTS
Rudolph B. Bertling, New Albany, Ind., and Edward R. Kerr, Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.
Filed Nov. 29, 1972, Ser. No. 310,291
Int. Cl. B65b *57/20*
U.S. Cl. 53—62 **6 Claims**



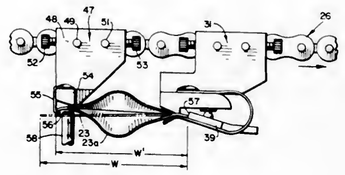
Flat, disc-shaped food products are packaged by first transferring the products from a continuously moving belt conveyor to a group of continuously moving endless spreading conveyors of a smaller width which carry the articles generally in the same direction but are oriented relative to one another in a fan arrangement to spread out the rows of articles laterally. At the ends of the spreading conveyors the pieces drop onto an accumulator table which allows six pieces to be stacked one on top of another. The stack is indexed onto a constant speed turntable which moves the entire stack of six to a predetermined holding station for loading onto a horizontally disposeed bucket conveyor. When one of the buckets comes into alignment with the stack, suitable sensing and actuating means causes the stack to be transferred into the bucket. The bucket conveyor motion is continuous. The buckets, therefore, move sequentially past the turntable loading stations. As each bucket passes the loading station, material is transferred to the bucket only if empty and only if the stack is present in the loading position. Once loaded in the bucket conveyor, the stack is transferred to a carton loading location where an extendable pusher arm engages the stack in the bucket and transfers it to a carton positioned in alignment with the bucket. The carton is then closed and sealed conventionally.

3,812,648
PACKAGE ORIENTING APPARATUS
John Edward Nissel, 1010 Conway Rd., Fredericksburg, Va. 22401
Filed Mar. 13, 1973, Ser. No. 340,647
Int. Cl. B65b *63/02*
U.S. Cl. 53—124 A **5 Claims**



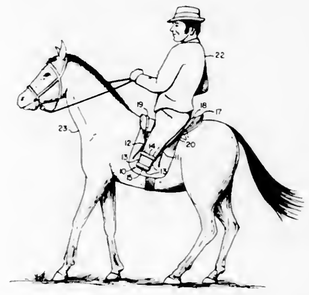
This specification discloses apparatus for orienting packages of frankfurters as they come from a conveyor into condition and position for having a wrapper applied about the contour thereof. The frankfurters are packed in two plastic envelopes, each containing a tier with the two envelopes in end to end relation and connected by an integral hinge. The apparatus which is the subject of this invention receives the connected envelopes from a conveyor, folds them into a two-layer formation, rotates the two-layer formation through 90° in a horizontal plane, and then applies rolling pressure to the upper surface to shape the formation into a compact uniform body for the reception of a wrapper.

3,812,649
AUTOMATIC PACKAGING MACHINES
David Clancy, Canaan, Conn., assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Nov. 20, 1972, Ser. No. 307,846
Int. Cl. B65b *43/36*
U.S. Cl. 53—187 **11 Claims**



An automatic packaging machine wherein empty envelopes carried by a conveyor are each laterally bowed between fixedly spaced carrier and retainer devices on an endless conveyor to ensure full envelope opening while material is being introduced into the envelope.

3,812,650
SADDLE STIRRUP FOR USE BY A LEG AMPUTEE
Douglas H. Dabney, Grey Gables, Louisa, Va. 23093
Filed May 21, 1973, Ser. No. 362,452
Int. Cl. B68c *3/00*
U.S. Cl. 54—47 **16 Claims**



Saddle stirrups for use by a horseback rider who has had one or both legs amputated. Each stirrup includes a cup in the configuration of a hollow, truncated, open topped, right circular cone. A pair of buckles on the cone mate with a pair of straps which attach to a saddle. The buckles and straps permit adjustment of the length and of the angle of the stirrup cup to suit the rider's needs.

3,812,651
PROCESS FOR SEPARATING GAS BY DIFFUSION
Edward F. Steigelmann, Park Forest, Ill., assignor to Standard Oil Company, Chicago, Ill.
Filed July 19, 1972, Ser. No. 273,215
Int. Cl. B01d *53/22*
U.S. Cl. 55—16 **17 Claims**

There is described the separation of aliphatically-unsaturated hydrocarbons of two to four carbon atoms from gaseous mixtures by the combined use of liquid barrier permeation and metal complexing techniques. The liquid barrier is in contact with a film membrane, and the barrier contains complex-forming metal ions in aqueous solution. The film membrane is contacted with a swelling agent to increase the selectivity of the separation and, preferably, increase permeation by the aliphatically unsaturated hydrocarbon to be separated. The metal ions in the liquid barrier may be, for example, noble metal, nickel, mercurous, cuprous or other metal ions, and mixtures of the metal ions, with or without other cations, may be used. The separation of ethylene from ethane and methane is of particular interest.

3,812,652
PROCESS FOR REGENERATING METAL OXIDES USED IN THE REMOVAL OF ARSENIC FROM GASEOUS STREAMS
Norman L. Carr, The Hague, Netherlands; Franklin E. Massoth, Middlesex Twp., City of Butler, Pa.; Donald L. Stahlfeld, Glenshaw, Pa., and John E. Young, Jr., Middlesex Twp., City of Butler, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Apr. 27, 1972, Ser. No. 247,982
Int. Cl. B01d *53/04*
U.S. Cl. 55—68 **10 Claims**

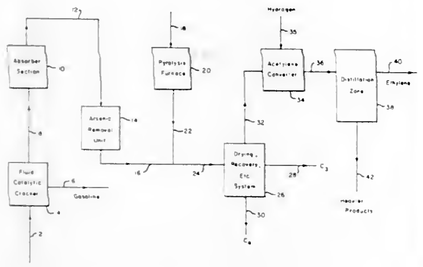
A process for regenerating a metal oxide sorbent used in the removal of arsenic from a gaseous hydrocarbon stream. The

sorbent, usually copper oxide or lead oxide, is contacted with a stream of free molecular oxygen at low temperatures suitably in the range of 150° to 700°F. for a period of from about 2 to about 40 hours.

3,812,653
PROCESS FOR REDUCING THE ARSENIC CONTENT OF GASEOUS HYDROCARBON STREAMS BY USE OF SUPPORTED COPPER OR COPPER OXIDE

Franklin E. Massoth, and John E. Young, Jr., both of Middlesex Twp., Butler County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Apr. 27, 1972, Ser. No. 247,984
Int. Cl. B01d 53/04
U.S. Cl. 55—68 **17 Claims**

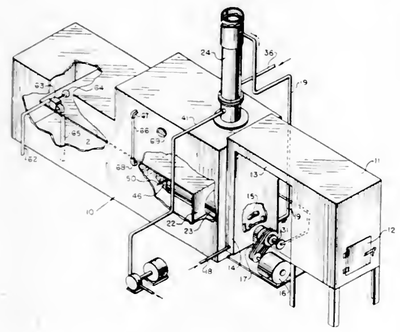


A process for reducing the arsenic content of a gaseous hydrocarbon stream by contacting the stream with a sorbent comprising copper or an oxide of copper dispersed upon a supporting material.

3,812,654
METHOD AND APPARATUS FOR REMOVING PRODUCTS OF COMBUSTION FROM A STREAM OF GASEOUS FLUID

Kenard D. Brown, 1227 S. Willow St., Casper, Wyo. 82601

Filed Mar. 2, 1972, Ser. No. 231,148
Int. Cl. B01d 47/02
U.S. Cl. 55—92 **30 Claims**



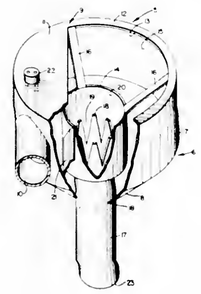
An apparatus for removing particulate matter and other constituents from a stream of combustion products comprises a vacuum pump of the liquid vortex type connected to receive the products of combustion and to drive them through a liquid vortex into a tank of liquid to remove most of the particulate matter; gases are collected above the liquid and are discharged through a liquid and gas treating stack to remove any remaining particulate matter and various other components of the combustion fluid stream. The pump is provided with a two stage rotor, the first stage is the gas compressing and mixing stage and the second stage the liquid vortex stage. Balancing of the pump rotor and minimizing of vibration are facilitated by a pressurized lubricant suspension and distribution system for the rotor shaft and bearings. The apparatus is effective to remove particulate matter and gaseous products from a wide range of combustion product sources and other contaminated gaseous fluid sources.

A gas purifying method is disclosed whereby particulate matter and undesired constituents of the gas are removed by first mixing the gas with water or other liquid and then introducing the mixture to the liquid vortex of a vortex pump, releasing the gas to a body of liquid, maintaining the gas above liquid at a pressure higher than atmospheric, thereafter passing the gas through a column of liquid to maintain the liquid in the column and treat the gas thereby.

3,812,655
GAS-LIQUID SEPARATOR

David F. Bennett, 1100 Fleetwood Ave., Holly Hill, Fla.

Filed Jan. 23, 1973, Ser. No. 326,122
Int. Cl. B01d 45/12
U.S. Cl. 55—204 **7 Claims**



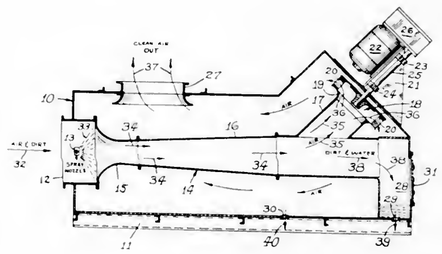
A device for separating a gas from a liquid having a cylindrical receptacle, an inlet tangentially disposed there to, a centrally disposed down spout cntending into said receptacle, a cylindrical baffle surrounding the upper end of said down spout and a vane positioned between the baffle and the receptacle wall for deflecting swirling liquid downwardly and away from the inlet as the liquid completes a revolution of the receptacle.

3,812,656
AIR CLEANING DEVICE

John T. Barnhart, R.R. 1, Box 179, Rolling Prairie, Ind. 46379

Filed Aug. 21, 1972, Ser. No. 282,288
Int. Cl. B01d 47/06, 47/10, 47/16
U.S. Cl. 55—220 **8 Claims**

The air cleaning device described herein uses the well known cleaning ability of a "venturi" scrubber arranged in a configuration which will allow efficient cleaning of dirt laden air at significantly lower horsepowers than other devices currently in use. The apparatus incorporates a venturi nozzle section for accelerating the air into the necessary high velocity component to break up the water droplets for adequate collection of sub-micron particles. By incorporating an efficient regain section on the downstream side of the nozzle and running this regain section directly into the inlet of an unhoused centrifugal backwardly inclined fan, we are able to fully utilize the velocity already generated and the energy contained within that high velocity air to create an integral venturi fan combination which will operate at significantly lower horsepowers than other devices using separate components. Other aspects of the device include a "Y" separator which removes a large percentage of the water from the water air mixture in the nozzle to further reduce the horsepower consumed in the fan wheel. The clean air passing through the fan

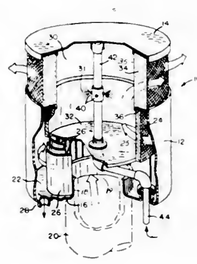


wheel is then discharged into an enclosure which acts as a supporting structure for the entire device. This enclosure offers additional separation of the water mist from the air through possible centrifugal action of the fan wheel within the enclosure. The device then is able to collect air-borne matter using water or other liquids as the collecting media and is able to separate these such that the clean air is discharged for re-use, while the dirt laden water is processed through conventional means for final removal of the original airborne matter.

3,812,657
AIR POLLUTION DEVICE

Leo Kalevi Lampinen, 25 Northy Dr., Toronto, Ontario, Canada

Filed July 6, 1972, Ser. No. 251,368
Int. Cl. B01d 47/06
U.S. Cl. 55—223 **2 Claims**

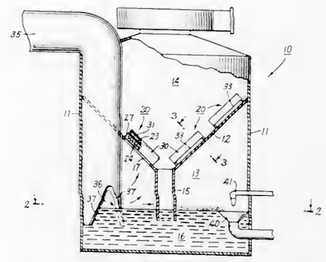


A method and apparatus for scrubbing industrial stack gas streams for the effective removal of pollutants consisting of solid particulate, vapours and mist therefrom comprising subjecting the gas stream to a centrifugal action by a cyclone effect, passing the gas stream through a liquid-wetted filter counter-current to a liquid spray, passing said gas stream through a liquid-mist zone and passing said gas stream through a second liquid-wet filter co-current to a liquid spray, whereby a substantially clean gas stream and a liquid stream containing pollutants are separately discharged.

3,812,658
GAS CLEANING APPARATUS

Orlan M. Arnold, Norwalk, and Carlo A. Vancini, Stamford, both of Conn., assignors to Peabody Engineering Corporation, New York, N.Y.

Filed May 14, 1973, Ser. No. 359,748
Int. Cl. B01d 47/02
U.S. Cl. 55—239 **6 Claims**

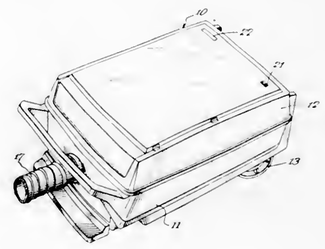


Gas cleaning apparatus comprising a vessel having a moisture eliminator zone and a reservoir to receive the separated liquid. An inlet duct extends into the liquid in the reservoir peripherally of the vessel with a peripheral discharge opening disposed to cause the gases and liquid to rotate in the vessel. The foam is blown away from the opening by the force of the gas flow and is removed in a collecting zone. A separator plate in the liquid below the end of the duct assists in maintaining relatively clear liquid in the zone below the duct and in the path of the discharged gases.

3,812,659
CANISTER VACUUM CLEANER LATCHING MEANS

George A. Westergren, Whitebear Lake; David G. Koland, Sandstone, and Thomas F. Eggert, Richfield, all of Minn., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 2, 1972, Ser. No. 277,326
Int. Cl. B01d 46/02
U.S. Cl. 55—375 **17 Claims**

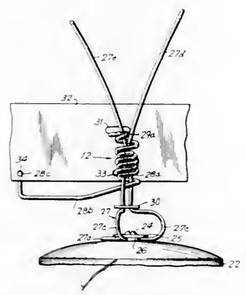


A canister vacuum cleaner having a base and a hood selectively closable on the base. A filter bag for receiving dirt laden air through a hose connected to a pickup wand is retained within the canister by an adapter. A locking member is secured to the base for releasably retaining the filter bag adapter in the canister and for locking a hose latch to the base. A hood latch is further mounted on the base and includes latching means for removably securing the same thereto. The canister and latching means may be formed of molded plastic and cooperatively define a low cost snap-in assembly eliminating the need for conventional fasteners.

3,812,660
FILTER APPARATUS

J. Paul Vandenhoeck, New York, N.Y., assignor to Combustion Equipment Associates, Inc., New York, N.Y.

Filed Jan. 11, 1973, Ser. No. 322,832
Int. Cl. B01d 46/06
U.S. Cl. 55—378 6 Claims

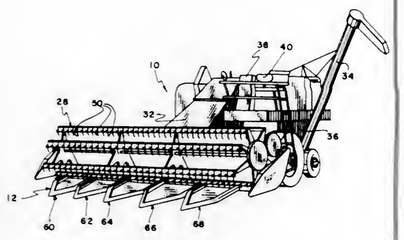


Air carrying particulate matter is directed through rows of filter bags in a bag house. The air is filtered by trapping the particulate matter on the interior walls of the bag, while the filtered air passes through the walls of the bag. The filter bags are adjustably suspended at one end by a spring arrangement which permits the bags to be extended and retracted and fixed at the other end by a collar or ring for installation and servicing.

3,812,661
HARVESTING MACHINE WITH CROP SAVING ATTACHMENT

Clinton F. Baker, R.R. No. 4, Box 49, Fredonia, Kans. 66736

Filed May 1, 1973, Ser. No. 356,163
Int. Cl. A01d 45/02
U.S. Cl. 56—14.4 22 Claims

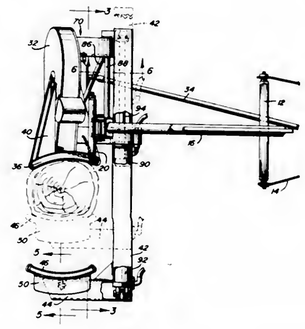


A harvesting machine for row crops including a plurality of transversely spaced catchers extending forwardly and slightly downwardly from above the deck or platform of the machine and over the sickle bar to terminate at a forward end spaced substantially in advance of the sickle bar. Each catcher is mounted for swinging movement about a vertical axis that is substantially in front of the sickle bar, whereby a row of plants is accommodated between and tends to force compliance by swinging alignment of the catchers with the crop row with the catchers lifting fallen or lodged plants and catching inadvertently dislodged plants.

3,812,662
TREE SHAKER WITH TREE EMBRACING CLAMP

Basil W. Savage, Box 38, Madill, Okla. 73446

Continuation of Ser. No. 68,731, Sept. 1, 1970, abandoned, which is a continuation-in-part of Ser. No. 17,083, March 6, 1970, Pat. No. 3,594,999. This application Sept. 29, 1972, Ser. No. 293,464
Int. Cl. A01g 19/08
U.S. Cl. 56—328 TS 4 Claims

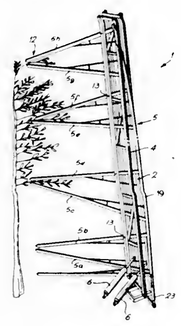


A tractor mounted tree shaker for the harvesting of nuts and the like including power driven rotating weights within a chain suspended casing. The rotating weights set up vibrations which are transmitted to a tree through an enlarged casing mounted pad which engages against the tree by means of clamping apparatus. The clamping apparatus includes a second adjustable pad mounted on a hydraulically controlled arm whereby a clamping of a tree between the pads can be effected.

3,812,663
HARVESTING APPARATUS

John A. Kivlen, Altamonte Spring; Richard L. Orr, Winter Park; William H. Schwab, Fern Park, all of Fla., and George F. Macindoe, New Foundland, N.J., assignors to Ashland Company of N.J, Inc., Newfoundland, N.J.

Continuation of Ser. No. 39,372, May 21, 1970, abandoned. This application Nov. 30, 1972, Ser. No. 310,907
Int. Cl. A01g 19/08
U.S. Cl. 56—328 R 13 Claims

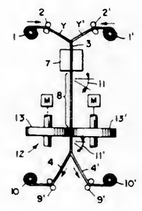


The present invention involves a harvesting apparatus for harvesting the crop from trees or bushes. Generally the harvesting apparatus comprises a movable platform to which an upstanding support is affixed. The support carries an elongate mast provided with rigid extending arms. The arms are injected into the tree or bush in such fashion as to grab the foliage and/or the secondary limbs and a substantially vertical vibratory movement is imparted through the mast and arms to remove the mature crop from the tree without measurably disturbing the immature fruit on the tree or causing any injury to the tree itself.

3,812,664
CONTINUOUS CRIMPING OF YARNS

Heinz Schippers, Remscheid, Germany, assignor to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed July 26, 1972, Ser. No. 275,174
Int. Cl. D02g 1/02
U.S. Cl. 57—34 HS 9 Claims



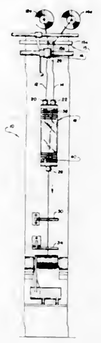
A process and apparatus for continuous crimping of thermoplastic heat-settable yarns by the pretwisting of separate yarns into a twisted strand which is then continuously pulled apart at one end while using the rotational movement thus imparted to the strand to feed the individual yarns into the other end of the strand under tension, the strand passing through a heat-setting zone to durably crimp the individual yarns before they reach the separation point where they are pulled apart, the invention being essentially characterized by the step or means of frictionally rotatably driving the strand in the vicinity of the point where the yarns are separated at a drive velocity greater than the peripheral rotational velocity of the strand itself. The process and apparatus are especially useful for very high speed continuous crimping in a twist-detwist manner with uniform results.

3,812,665
METHOD AND APPARATUS FOR FORMING RANDOM SLUBS IN YARN

Kenneth W. Holland, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1972, Ser. No. 317,561
Int. Cl. D02g 1/16, 3/34, 3/36
U.S. Cl. 57—34 B 18 Claims

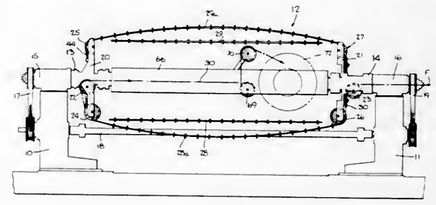
Method and apparatus for forming in a yarn random slubs of random length and random diameter at random spaced intervals along the yarn. A slubbing yarn strand at a predetermined percent of overfeed and a core yarn strand under predetermined tension are introduced through separate inlets into one end of a slubbing chamber. The inlet for the slubbing yarn strand is a jet, which introduces into the chamber along with the slubbing yarn strand a first stream flow of compressible liquid. The outlet from the chamber for both yarn strands is a second jet, which introduces into the chamber a second stream flow of compressible liquid, the two stream flows being directed generally toward each other. The stream flows from the jets are adjusted to support the slubbing yarn strand generally free from contact with the chamber wall, and to move the slubbing yarn strand freely about in the chamber relative to the core yarn strand, forming slubs and entwining and entangling with the core yarn strand. The two strands exit together from the chamber through the second jet countercurrent to the second stream flow consolidating the slubbing yarn strand with the core yarn strand, and thus a more unitized yarn bundle is formed.



3,812,666
DOUBLE-TWIST STRANDING OR CABLING MACHINE

Marcello Sarracino, Milan, Italy, assignor to Industrie Pirelli Societa per Azioni, Milan, Italy

Filed June 15, 1973, Ser. No. 370,336
Claims priority, application Italy, June 22, 1972, 26026/72
Int. Cl. D07b 3/10
U.S. Cl. 57—58.52 8 Claims



A double-twist stranding or cabling machine in which wires to be twisted pass through a hollow shaft to a pulley on a rotating arm to be twisted, then over a flexible transfer track to a second arm to be returned to a central take-up reel on a rocking cradle while being twisted again. The flexible transfer tracks can be formed by steel ropes which are pulley mounted and spring tensioned to extend from a flat state to a curved state during operation of the machine. This flexibility of the tracks avoids the undesirable bending stresses which affect prior art transfer tracks or arcs, which are relatively rigid and inflexible.

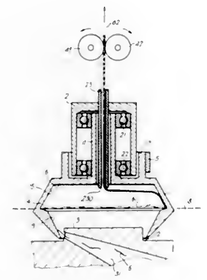
3,812,667
RINGLESS SPINNING OF SEPARATED STAPLE FIBRES

Milan Marsalek; Jan Junek; Vaclav Brynda; Frantisek Burysek; Frantisek Hortlik; Josef Ripka, and Jiri Lanta, all of Usti nad Orlici, Czechoslovakia, assignors to Vyzkumny Ustav Bavlnarsky, Usti nad Orlici, Czechoslovakia

Filed Mar. 6, 1972, Ser. No. 231,833
Claims priority, application Czechoslovakia, Mar. 5, 1971, 1650-71
Int. Cl. D01h 1/12
U.S. Cl. 57—58.89 12 Claims

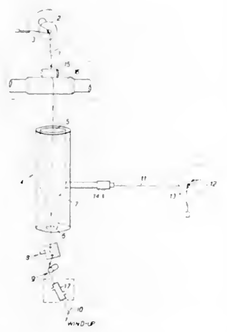
A rotary spinning chamber is provided having on its inner circumference an annular groove surrounding its axis of rota-

tion and being delimited by two mutually inclined surfaces. Separated staple fibers are admitted into the spinning chamber to form in the recess a sliver having a triangular cross section, a shorter and a longer side of which have a ratio of between 1:1.5 and 1:5. The sliver is withdrawn from the chamber during rotation in such a manner that it will initially



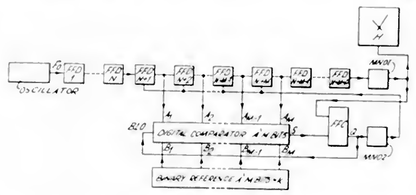
move along an inner surface of the chamber to be imparted twist by friction with respect to the surface, and thereupon along the axis of rotation of the chamber to be imparted additional twist due to the rotation of the chamber with reference to the portion of the sliver which is being withdrawn and thus becomes converted into a yarn.

3,812,668
PROCESSES FOR THE MANUFACTURE OF SLUB EFFECT YARNS
William Wilson, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England
Filed May 29, 1973, Ser. No. 364,634
Claims priority, application Great Britain, June 5, 1972, 26135/72
Int. Cl. D02g *3/02*; **D01h** *1/00*
U.S. Cl. 57—157 F **10 Claims**



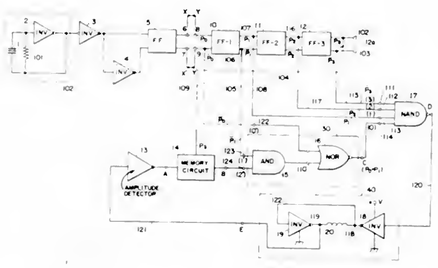
A method for the preparation of a tension stable slub effect yarn, wherein a core yarn at zero overfeed is fed into a turbulence chamber and an effect yarn is simultaneously injected into the turbulence chamber at 100–120 percent overfeed and permitted to combine with the core yarn and the combined yarn is then intermingled and wound-up.

3,812,669
ELECTRONIC TIMEPIECE
Fridolin Wiget, Neuchatel, Switzerland, assignor to Ebauches S.A., Neuchatel, Switzerland
Filed Apr. 24, 1972, Ser. No. 246,533
Claims priority, application Switzerland, Apr. 22, 1971, 5852/71
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 R **6 Claims**



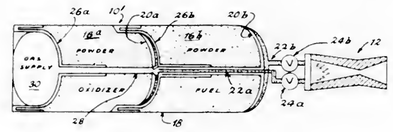
In an electronic timepiece in which a piezoelectric oscillator acts as a time base and controls a display device through a frequency division chain, the scale of division in the chain is adjustable for regulating the timepiece. A digital comparator compares the logic state of a binary reference with that of specific stages of the division chain, the comparator being alternately blocked during a natural period of the division chain and unblocked during the ensuing period. That ensuing period is cut short and the specific stages of the division chain are reset when there is coincidence between the logic states of the specific stages and the reference.

3,812,670
CONVERTER DRIVE CIRCUIT IN AN ELECTRONIC TIMEPIECE
Akira Nikaido; Fumio Nakajima, both of Tokyo; Mitsuo Onda, Omiya; Takayasu Machida, Iruma, and Takashi Toida, Tokyo, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan
Filed Sept. 25, 1972, Ser. No. 291,531
Claims priority, application Japan, Sept. 25, 1971, 46-74759
Int. Cl. G04b *1/00*
U.S. Cl. 58—23 R **6 Claims**



A converter drive circuit in an electronic timepiece movement, which provides pulses of adjustable pulse width to a drive coil of an electro-mechanical converter of the timepiece movement, to thereby generate an induced voltage in the coil and thus drive the time-piece. The drive circuit is designed so as to be able to sense the oscillation amplitude of the converter in terms of electrical voltage, and increase the pulse width of the drive pulses fed to the coil in an abruptly and stepwise way when an outside mechanical disturbance is applied to the timepiece movement in the reducing sense of the induced voltage in the drive coil.

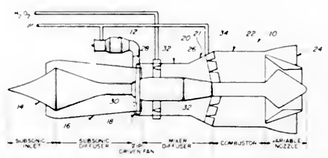
3,812,671
ROCKET FUEL SUPPLY SYSTEM
John W. Burr; Hans D. Fricke, and Mathew G. Sobieniak, all of Lewiston, N.Y., assignors to Textron, Inc., Providence, R.I.
Filed Aug. 26, 1971, Ser. No. 175,276
Int. Cl. F02c *3/26*
U.S. Cl. 60—39.47 **4 Claims**



A system for supplying a powdered fuel/oxidizer to rocket engines characterized as including a powdered fuel storage chamber and a system for fluidizing the fuel within the chamber and for forwarding the fuel in a fluidized state from the chamber to the engine. The arrangement permits variable control of fuel feed, as well as restarts of the engine.

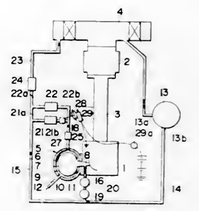
In a preferred form of the invention, fluidized fuel is discharged from the chamber through a plurality of outlets arranged adjacent an end of the chamber remote from a fuel follower; the outlets being bounded by additional fluidizing gas admission areas permitting discharge of fluidized fuel through the outlets in a uniform or controllable manner.

3,812,672
SUPERCHARGED EJECTOR RAMJET AIRCRAFT ENGINE
William J. D. Escher, St. Johns, Mich., assignor to CCI Aerospace Corporation, Van Nuys, Calif.
Filed Feb. 10, 1972, Ser. No. 225,255
Int. Cl. F02k *3/04*, *3/08*
U.S. Cl. 60—244 **9 Claims**



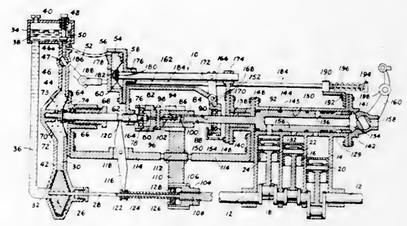
An aircraft engine which employs the use of a high bypass ratio fan and an ejector in combination with a ramjet, the fan being driven by a gas generator associated with the engine, the ejector formed of multiple jet nozzles to supply a monopropellent fluid forward of the combustion chamber of the engine.

3,812,673
FORCED DRAFT COOLING SYSTEM FOR AN EXHAUST GAS PURIFYING DEVICE
Takumi Muroki, Aki, and Tomoo Tadokoro, Kure, both of Japan, assignors to Toyo Kogyo, Ltd.
Filed July 23, 1971, Ser. No. 165,463
Claims priority, application Japan, July 24, 1970, 45-74007; July 31, 1970, 45-76942; July 31, 1970, 45-76943; July 31, 1970, 45-77075; July 31, 1970, 45-77076
Int. Cl. F02b *75/10*; **F01n** *3/10*
U.S. Cl. 60—286 **32 Claims**



A forced draft cooling system for an exhaust gas purifying device for forcibly cooling the latter without any substantial reduction of the temperature within the interior of the device in which combustion of unburned noxious compounds of an exhaust gas emitted from the exhaust system of an internal combustion engine take place, which comprises means for supplying a cooling air to the surrounding of the device to effect the forced cooling and means for supplying a secondary air to the interior of the device, the supply of said cooling air to the surrounding of the device being effected in association with the supply of said secondary air in response to the engine condition or the temperature of the engine or of the exhaust system. Also provided is a single valve structure into which various valving devices employed are assembled.

3,812,674
ADMISSION CONTROL SYSTEM AND MEANS
Absalom Brown, deceased, late of Haskell, Okla. (by Mary Eleanore Brown, administratrix), assignor to Ellis A. Creek and Frank E. Brown, both of Coweta, Okla., part interest to each
Filed Oct. 13, 1972, Ser. No. 297,405
Int. Cl. F01b *1/02*
U.S. Cl. 60—327 **10 Claims**



A method and means for controlling the admission of any expansive gas under propelling pressure into the power cylinders of reciprocating piston, crankshaft type engines for use in service requiring power at varying speeds and loads. A hydraulic fluid system cooperates with a slidable and rotatable manifold for supplying fuel or any expansive propelling gas to the power cylinders of the engine in a manner for automatically controlling the admission of the gas in accordance with the work requirements of the engine, such as at varying speeds and loads, and particularly to function in two stages. A primary pressure chamber is provided having one side thereof sealed and movable, and a secondary or supplementary pressure chamber is provided also having a sealed and movable side. In the normal primary stage of operation of the engine, the movable side section of the primary pressure chamber is actuated by hydraulic pressure subject to the rotational speed of the engine crankshaft for automatically controlling the starting time, the throttling, the time duration period, and cut-off timing of each admission of the propelling gas into the power cylinders of the engine. During a supplementary, or extra power stage of operation of the engine, the movable side section of the secondary pressure chamber is actuated by supplementary hydraulic pressure subject to both rotational

speed of the crankshaft and the regulation of the circulation of liquid being bled from the primary chamber. The secondary pressure chamber automatically and independently affects only the extra power throttling, duration period and cut-off timing of each admission of propelling gas.

3,812,675

HYDRAULIC FLOW CONTROL VALVE ASSEMBLIES

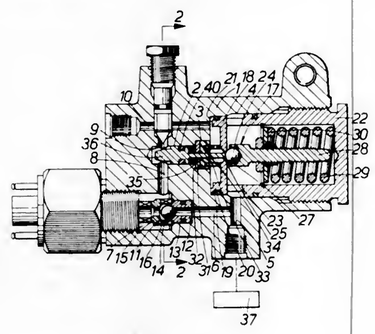
Robin Adam Cochrane, Haseley Knob, England, assignor to Girling Limited, Birmingham, England

Filed May 30, 1972, Ser. No. 257,786

Claims priority, application Great Britain, June 1, 1971, 18236/71

Int. Cl. F15b *1/02*

U.S. Cl. 60—413 **6 Claims**



In an hydraulic flow control valve assembly a valve is normally urged into a closed position by a return spring, and movement of the valve into an open position in opposition to the force in the return spring is effected by a differential piston working in a stepped bore. The end of the piston which is of smaller area acts on the second valve, and the end of greater area is exposed to the pressure in an inlet passage. The differential piston is operative to open the valve when the force applied to the piston by the pressure in a first outlet passage overcomes at least the force of the return spring.

3,812,676

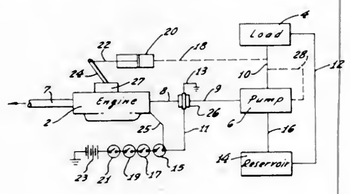
NOISE REDUCTION APPARATUS AND METHOD

Fred T. Smith, Dearborn Heights, Mich., assignor to Sargent Industries, Inc., Los Angeles, Calif.

Filed July 24, 1972, Ser. No. 274,798

Int. Cl. F16h *39/46*

U.S. Cl. 60—431 **39 Claims**



An apparatus and method for operating an auxiliary hydraulic load at low noise levels. A pump having a capacity which is sufficiently large to supply the load with the necessary volume of hydraulic fluid at relatively low pump speeds is driven by an engine operating at a speed near its idling speed. Throttle control means control the fuel supply to the engine at a level sufficient to drive the pump while maintaining the engine speed near its idling speed. When the engine speed is increased to a predetermined level in excess of its idling speed, means are provided to maintain the output from the pump at or below a predetermined flow rate to not overload the pump means or the auxiliary load. The pump may include a variable displacement pump or a plurality of fixed displacement pumps with means to vary the pump output in response to the pressure demand from the auxiliary load to maintain the torque input requirements for the pump below a predetermined level. The throttle control means may be actuated in response to the pressure demands of the auxiliary load to vary the torque from the engine in response to the torque input required for operation of the pump while the engine is operating at a speed near its idling speed.

3,812,677

HOT GAS ENGINE WITH CO-AXIAL CYLINDER BORES OF DIFFERING DIAMETER

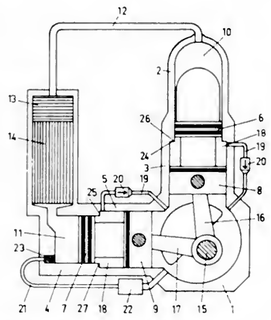
Ingemar Greis, Malmo, Sweden, assignor to Kommanditobolaget United Sterling (Sweden) AB & Co., Malmo, Sweden

Filed Dec. 15, 1972, Ser. No. 315,479

Claims priority, application Great Britain, Dec. 21, 1971, 59267/71

Int. Cl. F02g *1/04*

U.S. Cl. 60—517 **6 Claims**



A Stirling engine has two cylinders one having a higher and one having a lower pressure working space interconnected by a regenerator cooler array. The two cylinders and accompanying pistons are disposed at 90° with each cylinder having coaxial bores and associated pistons of different diameters separated by shoulder surfaces having sharp edges. A crankcase is disposed adjacent the larger diameter bores of both cylinders. A space between the two cylinders is connected to the crankcase by a conduit including a non-return valve, and the crankcase is connected to the lower pressure working space by a conduit with a restricted area orifice or a non-return valve.

3,812,678

CONTROL VALVE

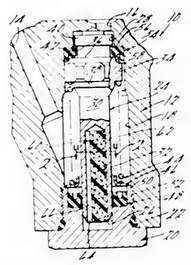
Roger E. Doerfler, Detroit, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Feb. 5, 1973, Ser. No. 329,396

Int. Cl. F16k *31/363*

U.S. Cl. 60—591 **21 Claims**

A fluid pressure control valve for controlling the flow of fluid from a fluid source to some predetermined destination, the valve including first and second chambers, an inlet communicating fluid from the source to the first chamber and an outlet communicating fluid from the first chamber to the destination, means including a movable valve member within the first chamber operative to reduce the fluid pressure transmitted to the outlet relative to the inlet, means sealingly engaging the valve member for preventing fluid from passing from the first chamber into the second chamber, and means



for preventing any fluid passing around or through the sealing means from the first chamber into the second chamber from affecting normal operation of the valve member.

3,812,679

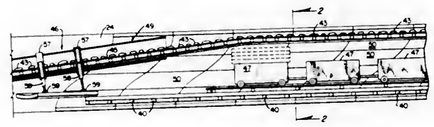
TUNNEL LINING AND METHOD OF APPLYING

Werner A. Ruemmele, 950 E. 1217 N., Bountiful, Utah 84101

Filed Aug. 8, 1972, Ser. No. 278,811

Int. Cl. E21d *11/00*

U.S. Cl. 61—42 **3 Claims**



A lining for a cylindrical tunnel is constructed by applying to the tunnel wall a multiplicity of panels of reinforced concrete which are substantially longer than they are wide. The panels comprise peripheral segments with straight side edges and helical end edges and are individually applied and secured directly to the tunnel wall with anchor bolts, in a helical pattern. The circumferential extent of each panel is preferably in the range of 50° to 70°. Length and helix angle are so chosen that the advance for one full turn is equal to the length of a panel. The boring machine bores in increments of predetermined length and grippers are then moved forward and re-set. When the advance of each panel is about equal to one boring advance, one panel may be put in place during each boring cycle. The longitudinal edges of the panels are formed with grout flow channels and inlet and outlet ports communicate with the channels to supply grout to the cavity between the lining and the tunnel wall to form a permanent lining.

3,812,680

SHIFTABLE SUPPORT FOR USE IN TUNNELS, MINES AND THE LIKE

Heinz-Theo Walbrohl, Nordstrasse 73, Bonn, Germany

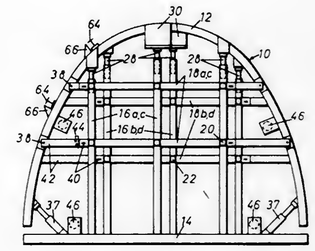
Filed Apr. 29, 1971, Ser. No. 138,705

Claims priority, application Germany, May 4, 1970, 2021734

Int. Cl. E21d *19/00*

U.S. Cl. 61—45 C **30 Claims**

A shiftable support for use in tunnels, mines and the like. A plurality of longitudinally arrayed supporting frames is connected by connecting means, which connects at least alternate ones of the frames to form them into units. Displacing means displaces the supporting frames individually or the units with reference to one another, between a supporting position and a shifting position in which the respective frames or units are advanced in forward direction. Operating means decreases the dimensions of the frames in a plane transverse to the direction



of advancement preparatory to displacement to the shifting position, and increases the dimensions upon displacement from the shifting position to the support position.

3,812,681

MINE ROOF SUPPORTS

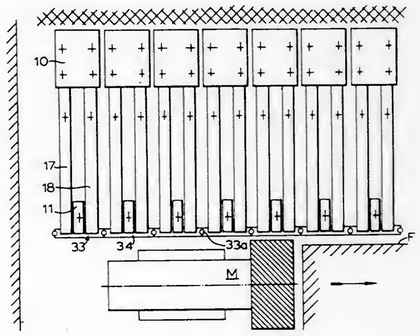
Archelaius Dawson Allen, Preston, England, assignor to Gullick Dobson Limited, Wigan, Lancashire, England

Filed July 11, 1972, Ser. No. 270,617

Claims priority, application Great Britain, July 16, 1971, 33424/71

Int. Cl. E21d *15/44*

U.S. Cl. 61—45 D **5 Claims**

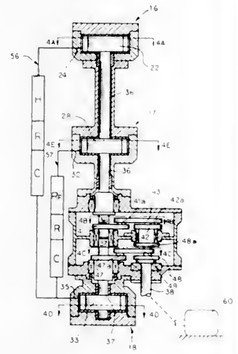


Advancing means of a self-advancing mine roof support, or a part of the support which is moved thereby, is connected to or carries a section of rail adapted when advanced to register or line-up with a similar and separate section of rail connected to or carried by the advancing means, or a part moved thereby, of a neighbouring or adjacent support. The section of rail may be provided with means for temporarily connecting it to a neighbouring or adjacent section of rail. The sections of rail may serve as a means for connecting one support to a neighbouring or adjacent support so that one support will provide an effective abutment or anchorage for the advance of the other or a part thereof. The section of rail may include or be in the form of a spill plate or baffle. The spill plates or baffles, which are moved forwardly individually by the advancing means of their supports, then form a continuous barrier or wall in front of the supports and serve to prevent mineral spilling into the supports.

3,812,682
THERMAL REFRIGERATION PROCESS AND APPARATUS

Kenneth P. Johnson, 124 Castle Crest Rd., Walnut Creek, Calif. 94529

Continuation-in-part of Ser. No. 850,439, Aug. 15, 1969, abandoned. This application Apr. 19, 1971, Ser. No. 135,490
Int. Cl. F25b 9/00
U.S. Cl. 62—6 38 Claims

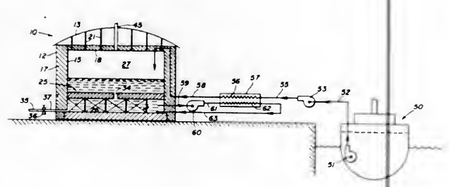


Process and apparatus for producing refrigeration, or refrigeration and work directly from thermal energy. The thermal energy input can also be supplemented by work input to enhance the refrigeration effect.

3,812,683
METHOD FOR STORING A SUBCOOLED LIQUID

Royce Jay Laverman, South Holland, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed May 15, 1972, Ser. No. 253,110
Int. Cl. F17c 5/02
U.S. Cl. 62—45 8 Claims



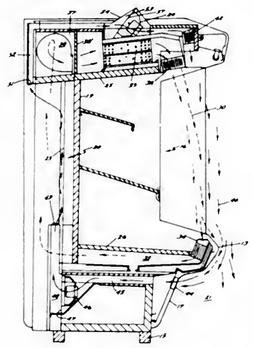
An enclosed cryogenic storage tank having an insulated bottom, a vertical insulated wall projecting upwardly from the bottom, an insulated roof projecting to the wall and completely covering the space surrounded by the wall, and an insulated deck inside and extending across the tank at a fixed location between the tank bottom and tank roof.

A process of removing a subcooled liquefied gas from the space beneath an insulated deck in an insulated cryogenic storage tank, feeding the removed subcooled liquefied gas in heat exchange with a stream of warm liquefied gas of the same composition as the subcooled liquefied gas to cool the warm stream, returning the subcooled liquefied gas to the tank below the deck, and feeding the cooled stream of liquefied gas to the tank above the deck. Alternatively, a stream of the subcooled liquefied gas can be mixed with the steam of warm liquefied gas and the combined stream then fed to the tank above the insulated deck.

3,812,684
REFRIGERATED DISPLAY CASE

Grant M. Brown, Atlanta, Ga., assignor to Kysor Industrial Corporation, Cadillac, Mich.

Filed Dec. 7, 1972, Ser. No. 312,977
Int. Cl. F25d 17/06
U.S. Cl. 62—89 13 Claims

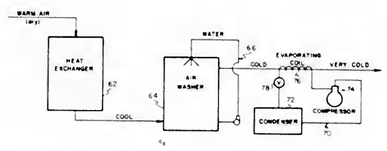


A refrigerated display case includes an open front permitting customer access to the products contained therein and rear doors permitting access for restocking. An inner curtain of refrigerated air is circulated across the open front and adjacent surfaces forming a portion of the display case to refrigerate the contents therein. The case includes an air inlet extending along the lower front of the case for drawing cooled air therein which is then circulated rearwardly and discharged upwardly adjacent the exterior surface of the rear doors to prevent condensation thereon. The air stream adjacent the doors is then circulated over the top of the case and across the front of the case to form a guard curtain adjacent and outside the inner curtain of refrigerated air.

3,812,685
AIR CONDITIONING PROCESS

Ted R. Brown, 1212 Princeton Ave., Salt Lake City, Utah 84105

Continuation-in-part of Ser. No. 172,968, Aug. 19, 1971, abandoned. This application May 11, 1973, Ser. No. 359,368
Int. Cl. F25d 17/06
U.S. Cl. 62—93 2 Claims

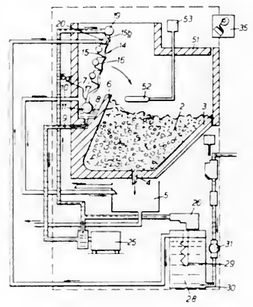


A process for efficiently conditioning air for beneficial use by sequentially cooling dry air in three distinct steps, e.g., precooling the air out of the presence of moisture, adiabatically cooling the air in the presence of moisture, and refrigerating the air to finally cool the air and coincidentally condense excess moisture.

3,812,686
ICE MAKING APPARATUS

Colin Alfred Tester, Maidstone, England, assignor to Winget Limited, Rochester, Kent, England

Filed Jan. 12, 1973, Ser. No. 322,910
Int. Cl. F25c 1/12
U.S. Cl. 62—180 8 Claims

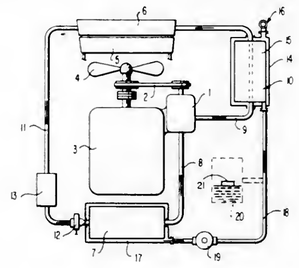


An ice-making machine by which batches of pieces of ice are made repeatedly automatically relies on the flow of water over a freezer surface to make the ice. The water is pumped from a trough that initally contains a predetermined volume of water, and water not retained by the freezer surface flows back into the trough. When the level in the trough has fallen to a predetermined value, a level responsive device puts the pump temorarily out of action and operates means for causing the ice to fall from the freezer device. The trough is automatically replenished so that it again contains the predetermined volume of water and the cycle is repeated.

3,812,687
AIR CONDITIONING SYSTEM FOR COOLING THE INTERIOR SPACE OF MOTOR VEHICLE

Albert Stolz, Pfrondorf, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 6, 1972, Ser. No. 295,700
Claims priority, application Germany, Oct. 6, 1971, 2149819
Int. Cl. F25b 27/00
U.S. Cl. 62—323 10 Claims

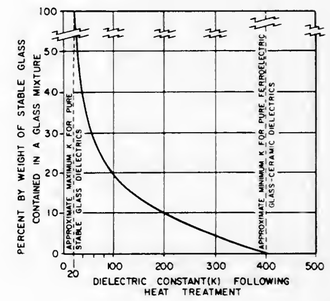


An air-conditioning system for cooling the interior space of motor vehicles which consists of a compressor, of a condenser cooled by a cooling air stream as well as of an evaporator coordinated to the interior space of the motor vehicle, in which the cooling medium flowing from the compressor to the condenser in the form of hot gases is cooled prior to the entry into the condenser by means of a cooling-medium-water-heat-exchanger traversed by at least a portion of the hot gas line from the compressor to the condenser.

3,812,688
FRIT CAPACITOR AND METHOD FOR OBTAINING THE DIELECTRIC CONSTANT THEREOF

John W. Asher, Elmira, and Andrew Herczog, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Division of Ser. No. 71,750, Sept. 14, 1970, Pat. No. 3,753,057, which is a division of Ser. No. 729,800, May 16, 1968, Pat. No. 3,699,620. This application Mar. 30, 1973, Ser. No. 346,594
Int. Cl. C03b 23/20, 29/00; C04b 35/26
U.S. Cl. 65—18 3 Claims



A frit capacitor of either the discrete or integrated microcircuit variety having a ferroelectric glass-ceramic dielectric whose dielectric constant is of intermediate value between about 20 and 400. The desired value of dielectric constant is accurately obtained in a readily reproducible manner by mixing a batch containing appropriate quantities of stable non-crystallizable glass particles and glass particles capable of forming a ferroelectric crystal phase. The desired dielectric constant is obtained by subjecting the batch to heat treatment. By controlling the weight ratio of the two glass components during the batch preparation, individual capacitor dielectrics having different dielectric constants can be provided utilizing the same firing schedule for each.

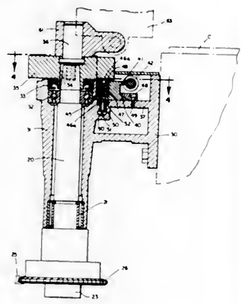
3,812,689
METHOD OF MAKING GLASS-CERAMIC ARTICLES

Richard F. Reade, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed May 26, 1972, Ser. No. 257,324
Int. Cl. C03b 29/00
U.S. Cl. 65—33 3 Claims

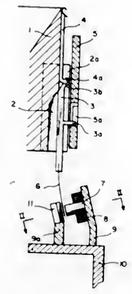
This invention relates to the production of glass-ceramic articles having compositions within the Li_2O-Al_2O_3-SiO_2 field which are modified through the addition of ZnO in combination with a second metal oxide (R_mO_n) selected from the group consisting of SrO, BaO, Y_2O_3, La_2O_3, and mixtures thereof. When nucleated with TiO_2, beta-spodumene solid solution crystals are formed as the predominant crystal phase with minor amounts of such secondary crystal phases as gahnite, rutile, or anatase, and complex crystals associated with the second metal oxides also being present. The resultant products exhibit low coefficients of thermal expansion and excellent creep resistance up to temperatures of 1,000°C. and higher. This desirable combination of properties can frequently be achieved where the heat treatment to produce the glass-ceramic body is of relatively short duration.

3,812,690
ADJUSTABLE AIR-CYLINDER SUPPORT FOR 90° PUSH-OUT IN GLASSWARE FORMING EQUIPMENT
Alphonse W. Faure, Philadelphia, Pa., assignor to C.S.S. Machine and Tool Company, Inc., Philadelphia, Pa.
Filed May 23, 1973, Ser. No. 362,917
Int. Cl. C03b 9/40
U.S. Cl. 65—260 7 Claims



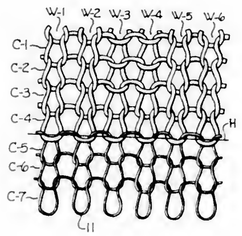
In a 90° push-out for glassware forming equipment, a rotary slide assembly is provided for adjusting the angular position at which air pressure is applied to the fluid motor of the push-out mechanism for initiating withdrawal of the push plate.

3,812,691
JACK AND NEEDLE ACTUATOR FOR A CIRCULAR KNITTING MACHINE
Werner Engelfried, Sindelfingen, Germany, assignor to C. Terrot & Soehne, Stuttgart, Germany
Continuation-in-part of Ser. No. 864,402, Oct. 7, 1969, abandoned. This application Sept. 20, 1971, Ser. No. 182,082
Int. Cl. D04b 15/78
U.S. Cl. 66—50 R 4 Claims



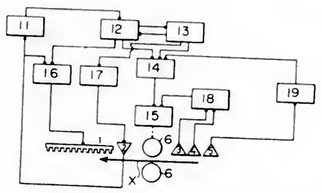
A selected jack and needle of a circular knitting machine are rapidly and positively positioned into and maintained in their operative knitting or non-knitting positions during the associated knitting cycle in response to a momentary control pulse applied to an actuating electromagnet. A magnetizable spring member is drivingly connected to the jack and is mechanically biased into one of two extreme positions corresponding to the knitting or non-knitting positions of the jack. When the momentary control pulse is applied, the actuating electromagnet initially overcomes the force of a permanent magnet which is maintaining the spring in the mechanically biased condition and thereby switches the spring into an opposite position. At the conclusion of the control pulse the spring is prevented from returning to its bias position until the end of the associated knitting cycle by a cam member.

3,812,692
KNITTED EDGING FOR A FABRIC OR GARMENT
Werner Arndt, Geitbeck 2, 5870 Hemer, Germany
Filed Feb. 15, 1972, Ser. No. 226,616
Claims priority, application Germany, Feb. 18, 1971, 2107722; Aug. 28, 1971, 2143225
Int. Cl. D04b 9/46
U.S. Cl. 66—172 R 8 Claims



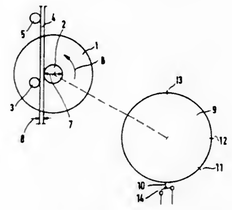
The knitted edging is adapted to form the trim along the edge of a garment and is folded lengthwise with opposite edge portions straddling the portion of the garment to which it is to be attached. The edging has a non-raveling selvedge along one edge and the opposite edge portion has a course of stitch loops which will ravel. An adjacent pair of courses of stitch loops is spaced inwardly from the ravel edge and are knit to face in opposite directions providing a hinged fold line to cause the portion of the edging from the ravel edge to the fold line to fold inwardly against the back side of the edging so that it may be easily attached to the garment with a line of stitching. The ravel edge is then positioned under one side of the edging material and is protected and hidden from view.

3,812,693
AUTOMATED STEEL SECTION ROLLING CONTROL SYSTEM AND METHOD FOR OPERATING SAME
Yoshiro Kamogawa, Sakai, and Takao Tuchiya, Osaka-fu, both of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
Filed Dec. 11, 1972, Ser. No. 314,263
Claims priority, application Japan, Dec. 11, 1971, 46-99846; Dec. 11, 1971, 46-99847; Dec. 11, 1971, 46-99848
Int. Cl. B21b 37/10
U.S. Cl. 72—13 10 Claims



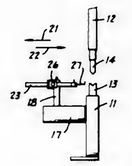
Automated control system for a steel rolling operation which comprises the cooperation of a means for calculating the steel rolling temperature, a means for preparing a pass schedule for the rolling based upon the temperature calculated, a means for setting up a roll pass in each individual rolling pursuant to the schedule prepared, and a means for effecting the rolling of the steel rolling section.

3,812,694
BENDING MACHINE FOR METAL RODS
Paul Carl Peddinghaus, Kornerstrasse, 5820 Gevelsberg, Germany
Filed Nov. 30, 1971, Ser. No. 203,340
Claims priority, application Germany, Nov. 30, 1970, 2058793
Int. Cl. B21d 7/024
U.S. Cl. 72—21 6 Claims



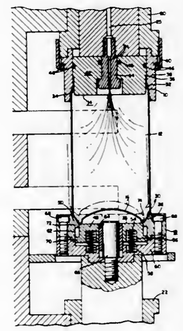
A bending machine for bending metal rods having a rotatable bending plate which carries a centrally disposed bending tool and at least one eccentric bending tool, means being provided for continuing angular movement of the rotatable bending plate beyond a nominal angular position in order to compensate for spring-back of a metal rod after a bend has been effected, there being impulse transmitting means actuable on rotation of the bending plate, means for counting impulses transmitted by said impulse transmitting means and means for comparing such transmitted impulses with a number of impulses pre-set in said counting means. The rotatable bending plate continues beyond the nominal bending angle by the provision of delay means which delay by a pre-selected variable period the moment at which the number of transmitted impulses corresponds to the number of impulses pre-set in the counting means. The period of said variable delay is proportional to the value of the nominal bending angle, the value of the ratio of the diameter of the centrally disposed bending tool to the diameter of the rod being bent and a factor, dependent upon the hardness of the rod, lying between 0.004 and 0.008.

3,812,695
BACK GAUGE FOR PRESS BRAKE
Gerald V. Roch, New Augusta, Ind., assignor to Hurco Manufacturing Company, Inc., Indianapolis, Ind.
Continuation of Ser. No. 41,138, May 25, 1970, abandoned. This application June 21, 1972, Ser. No. 264,867
Int. Cl. B21d 43/26
U.S. Cl. 72—36 24 Claims



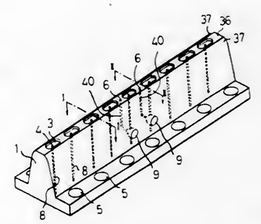
A pair of horizontally spaced supports behind a press brake bed holds an elongated gauge bar adjacent the press brake dies. The gauge bar is pivotally mounted to the supports and suitably counter-balanced to permit upward pivoting for clearance of return flanges formed in the stock. Pivoted gauge fingers can be quickly secured to the gauge bar at any point and are pivotable upwardly to clear return flanges, the pivots being spring-loaded detents facilitating choice of orientation of finger gauge face.

3,812,696
METHOD OF AND APPARATUS FOR FORMING CONTAINER BODIES
Raymond H. P. Kneusel, Flourtown, Pa., and Vinson S. Potts, Cherry Hill, N.J., assignors to Crown Cork & Seal Company, Inc., Philadelphia, Pa.
Continuation of Ser. No. 82,986, Oct. 22, 1970, abandoned. This application Oct. 30, 1972, Ser. No. 302,479
Int. Cl. B21d 41/04
U.S. Cl. 72—57 20 Claims



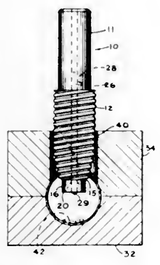
The open end of a container body is deformed by a die having a passageway connected to a source of air under pressure. As the die approaches the open end, the air under pressure passes through the die and into the container to depress a central container supporting surface with respect to a peripheral positioning surface. At the time the die engages the open end, the peripheral positioning surface has properly guided the container body into alignment with the die. The air under pressure continues to enter the container as the die forms a seal with and deforms the open end in order to prevent collapse of the container body.

3,812,697
METHOD AND AN APPARATUS OF LEVELING A METAL STRIP
Kiyoshi Kawaguchi, Kudamatsu; Yasunori Miyamatsu, Yokohama; Arao Kamoi, Kudamatsu, and Kinya Fukuda, Yokohama, all of Japan, assignors to Toyo Kohan Co., Ltd., Tokyo, Japan
Filed Feb. 5, 1973, Ser. No. 329,310
Int. Cl. B21d 11/02
U.S. Cl. 72—60 11 Claims



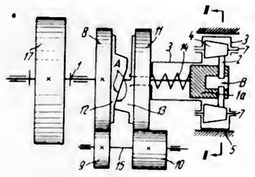
An apparatus for leveling a metal strip wherein the strip is made to travel along an elongated guide mounted on a bed The guide has an outwardly tapered elongated central section with a plurality of guide capillaries and a flat portion at the top of the guide with recesses in the flat portion around each of the capillaries. The moving strip is supported on a fluid fed through the capillaries and is not in contact with the guide flat portion.

3,812,698
SPIN-FLANGING TOOL
Edwin Henry Stock, St. Louis, Mo., assignor to Intertherm, Inc., St. Louis, Mo.
Filed Mar. 5, 1973, Ser. No. 338,166
Int. Cl. B21d 22/14
U.S. Cl. 72—71 8 Claims



A tool forms an externally flanged hole, either in ductile flat sheet metal or tubes, by a single downward rotating stroke. Circular slugs are removed and the resultant circular edges spun upward and outward in flanges of precise inner and outer diameter. The tool is especially useful where T-connections are to be brazed to the wall of a ductile metal tube.

3,812,699
WORKING HEAD OF A ROTARY SWAGING MACHINE
Oliver Augustovich Koost, Ulitsu Vyarsi, 31 kv 1, and Kheino Ioanovich Bezzubov, Ulitsa Pelguranna, 51 kv 3, both of Tallin, U.S.S.R.
Filed June 4, 1971, Ser. No. 150,123
Int. Cl. B21j 7/16
U.S. Cl. 72—321 2 Claims

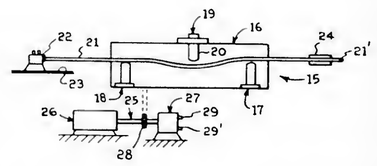


In the head, taper rollers are freely mounted on axles secured in a casing for their independent rotation as strikers roll over them in the course of rotation of the arbor which has a kinematic drive linkage with the casing to impart thereto reciprocatory movements in the axial direction.

3,812,700
METHOD AND APPARATUS FOR STRAIGHTENING TUBULAR ELEMENTS
Herbert D. Horton, Mayhill, N. Mex. 88339
Filed Jan. 22, 1973, Ser. No. 325,686
Int. Cl. B21d 3/06
U.S. Cl. 72—79 6 Claims

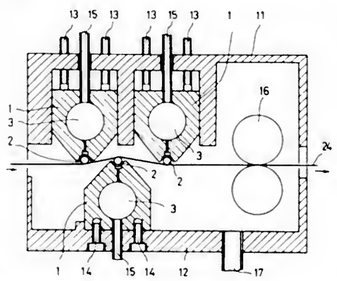
Method and apparatus for straightening tubular elements, such as crooked pipe, comprising an elongate frame upon which a pipe coupling apparatus is slidably disposed for longitudinal movement. Rotatably mounted to the frame and generally spaced from the coupling apparatus is a pipe deforming device for inducing a localized rotating bending moment into the pipe.

The pipe deforming apparatus comprises opposed pipe engaging members which are mounted within a rotatable drum



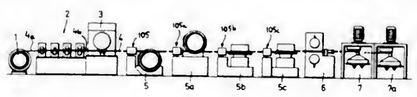
so that pipe coupling means longitudinally moves the pipe through the drum as the rotating drum imparts a localized bending moment into the pipe.

3,812,701
METHOD AND AN APPARATUS OF LEVELING A METAL STRIP
Yasunori Miyamatsu, Yokohama; Arao Kamoi, Kudamatsu, and Kinya Fukuda, Yokohama, all of Japan, assignors to Toyo Kohan Co., Ltd., Tokyo, Japan
Filed Dec. 14, 1972, Ser. No. 315,108
Int. Cl. B21d 1/02
U.S. Cl. 72—163 5 Claims



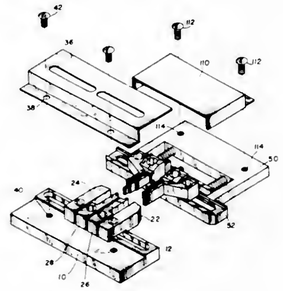
A method of working a thin metal strip comprising the step of: passing the metal strip along an elongated flat support having a thin roll thereon while pressing the thin roll against the strip by passing a pressurized fluid along the bearing surface between the support and the roll.

3,812,702
MULTI-PASS METHOD AND APPARATUS FOR COLD-DRAWING OF METALLIC TUBES
Helmut Benteler, Im Buchenwald 1, Bielefeld; Franz-Josef Hartmann, Dalheimer Weg 10, Paderborn, and Heinz Hefendehl, Im Quinhagen 10, Scholb Neuhaus, all of Germany
Filed June 26, 1972, Ser. No. 265,969
Claims priority, application Germany, June 26, 1971, 2131874
Int. Cl. B21c 3/16, 1/12
U.S. Cl. 72—283 7 Claims



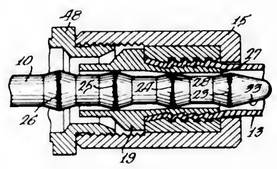
Metallic tubes are cold-drawn by being pulled through a series of swiveling reducing dies each followed by a motor-driven wheel around which the tube forms at least one convolution. The speed of the motors is regulated to insure that the tube is subjected to tensional stresses downstream as well as upstream of each die. The tensional stressing upstream of the dies reduces the resistance which the tube offers to a reduction of its diameter and/or wall thickness during passage through the dies.

3,812,703
ADJUSTABLE DIE PAIR FOR CUTTING AND FORMING AXIAL LEADS OF ELECTRICAL COMPONENTS
Leonard Tepper, Langhorne, Pa., assignor to Henry Mann, Inc., Huntingdon Valley, Pa.
Filed Apr. 26, 1973, Ser. No. 354,897
Int. Cl. B21f 45/00
U.S. Cl. 72—326 10 Claims



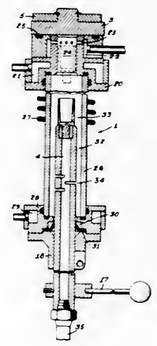
This invention pertains to an adjustable die pair for cutting and forming the leads of axial lead components. As reduced to practice, in one embodiment the same die is adapted to form a lead component at as little as 3/10 inch pitch or as great as two inch pitch of wire centers. The die pairs comprise opposed sets of fingers carried on opposed base members. The fingers retained on each die may be readily adjusted without removing the base from the press or ram to which they are attached.

3,812,704
APPARATUS FOR MAKING UP AN EXPANDABLE INSERT FITTING
Leonard J. Kowal, Prospect Heights, Ill., assignor to Imperial-Eastman Corporation, Chicago, Ill.
Division of Ser. No. 127, Jan. 2, 1970, Pat. No. 3,665,591. This application Mar. 17, 1972, Ser. No. 235,728
Int. Cl. B21d 41/02
U.S. Cl. 72—392 3 Claims



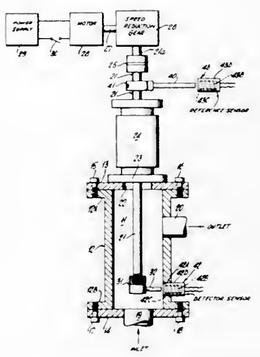
A method of making-up a fitting having a deformable insert adapted to be disposed coaxially within a tube end. The insert is expanded by a punch having spaced annular swaging portions of progressively increasing diameter whereby successive enlarging operations are effected as a result of an axial movement of the punch through the insert. The punch includes a shaft with the annular swaging portions being formed integrally with the shaft. The enlarging portions may be uniformly axially spaced to assure the action of only a single swaging portion on the insert at a given time.

3,812,705
DEVICE FOR DEGASSING A SAMPLE
Pierre Boillot, Le Pecq, France, assignor to Institut De Recherches De La Siderurgie Francaise, Saint Germain en Laye, France
Filed Aug. 7, 1972, Ser. No. 278,208
Claims priority, application France, Aug. 12, 1971, 71.29507
Int. Cl. G01n 7/00
U.S. Cl. 73—19 8 Claims



Device for degassing a sample and measuring the gas therein having a vertically movable chamber for the sample which in its upper sample loading position includes actuating means to flow a curtain of protective gas therearound and further includes carrier gas flowing through the chamber in both the upper loading position and the lower testing position.

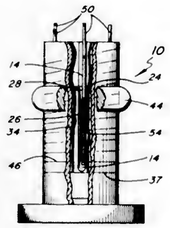
3,812,706
CONSISTOMETER
Kenneth O. Higgs, Port Neches; Robert C. Richmond, and Lawrence F. Marsch, both of Port Arthur, all of Tex., assignors to Texaco Inc., New York, N.Y.
Filed Dec. 10, 1971, Ser. No. 206,717
Int. Cl. G01n 11/14
U.S. Cl. 73—59 33 Claims



An apparatus for continuously measuring the consistency of a stream of material, such as grease, comprising a resilient member located in the stream so that the two surfaces about which it is flexible are parallel to the direction of the flow of the material in the stream. Means are provided for rotating the resilient member at a constant rate about an axis which is parallel to the direction of flow of the stream. Means are provided for measuring the reaction forces exerted on the

resilient member as it rotates by determining its condition of flexure, said means including a relatively rigid reference member and means for rotating the reference member in synchronism with the resilient member, together with means for periodically detecting the relative positions of the resilient member and the rigid reference member as the resilient member is rotated in the stream of material. In one embodiment, the rigid reference member and the resilient member are mounted to a common shaft and their relative positions determined periodically as the two members are rotated at a constant rate past respective magnetic detectors coupled to an electric circuit means for measuring any time displacement between the passage of the two members as they travel past their respective detectors.

3,812,707
HEMATOCRIT TUBE MEASURING APPARATUS
Oscar Proni, Hollywood, Fla., and Brian S. Bull, Loma Linda, Calif., assignors to Coulter Electronics, Inc., Hialeah, Fla.
Filed Aug. 30, 1972, Ser. No. 285,051
Int. Cl. G01n *15/04, 33/16*
U.S. Cl. 73—61.4 **33 Claims**



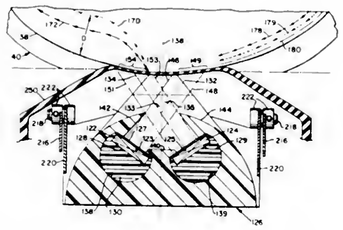
A central cylindrical member has axially extending grooves opening to its circumferential surface and means for frictionally holding hematocrit capillary tubes inserted into the grooves. A transparent coaxial cylindrical tubular member is telescoped over the central cylindrical member and has a scale with a reference area provided thereon so that the hematocrit tubes can be aligned with chosen locations circumferentially along the reference area. The reference area has indicia establishing a lower limit which substantially lies in a plane normal to the axis of the cylindrical members and an upper limit whose distance from the lower limit increases uniformly circumferentially around the cylindrical members in one revolution. The reference area is everywhere divided into the same number of equal divisions, the division dimensions varying as the distance between upper and lower limits of the reference area. The exterior cylindrical member is rotatable relative to the central cylindrical member so that the reference area may be moved relative to a spun down hematocrit tube at a point where the contents of the tube are subtended between the upper and lower limits of the reference area so that percentage packed cell volume may be read directly on the reference scale. A toroidal magnifier may be coaxially slidable on the exterior cylindrical member to aid in reading the scale.

3,812,708
METHOD AND APPARATUS FOR TESTING WHEELS AND DEFECT DETECTION IN WHEELS
John Vincent Cowan, Danbury; Gerald DeG. Cowan, New Preston, and John Gerald Cowan, Southbury, all of Conn., assignors to Scanning Systems, Inc., Danbury, Conn.
Filed Nov. 17, 1971, Ser. No. 199,487
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.5 R **45 Claims**

Wheel testing apparatus according to the invention comprises at least one search unit positioned "in-track" replacing a portion of a rail so that the gauged wheels of a passing railroad train roll thereover. Each search unit has a thin vertical rail aligned with the gauge edge of the track for supporting each passing wheel adjacent to its flange, and thereby exposing the running surface of the wheel for testing in a zone which does not interfere with the wheel's path.

Each search unit has two ultrasonic transducers enclosed in a flexible fluid-filled boot and are positioned adjacent to the thin vertical rail in the test zone under the running surfaces of passing wheels, the fluid-filled boot providing good ultrasonic coupling therewith.

The transducers are angled and opposed; ultrasonic energy pulses are refracted substantially tangent to the wheel and thereafter travel about the periphery of the wheel in opposite directions, depending on which transducer is pulsed. The pulse travels around the wheel and returns to the search unit, where a portion of the pulse is returned from the wheel to the



second transducer confirming the presence of the pulse in the wheel and halting further pulsing of the first transducer. The returned pulse also is used to adjust the amplified gain of the output of the first transducer, which is monitored for echo pulses reflected from defects in the surface of the wheel. The travel time of pulses around the wheel is measured to indicate wheel size.

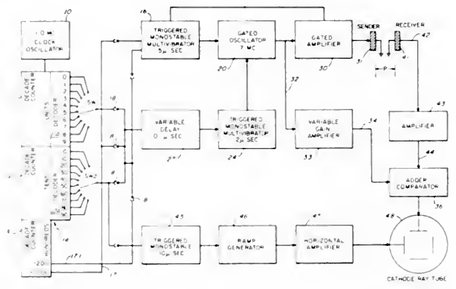
A wear measurement is made by measuring the time interval between the time for the pulse to travel about the periphery of the running surface and the time for the pulse to travel about the larger diameter flange.

Outputs from the electronic test circuit include a defect alarm signal, an excessive wear alarm signal, a wheel size indication, and a test certification signal. These outputs trigger pressurized color-coded paint sprays for marking the wheels if they are passing at low speed, or terminals for connection with automatic car identification systems for recording information relating to the wheels passing at either low or high speed.

3,812,709
STRESS GAGE
Robert W. Benson, and James Ronald Chapman, both of Nashville, Tenn., assignors to Thermo Electron Corporation, Waltham, Mass.
Filed Feb. 9, 1972, Ser. No. 224,794
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.5 R **11 Claims**

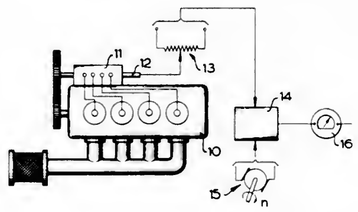
This application discloses a system for non-destructive measurement of stress in metallic specimens by use of elastic wave energy, preferably shear or surface waves in the ultrasonic frequency range. More particularly, there is described a measuring technique using either type of wave according to which

the relative transit times for the ultrasonic waves over a fixed path length and along two principal axes of stress are deter-



mined with a precision equal substantially to one nanosecond. A self-contained stress gage instrument for practising the procedure is disclosed.

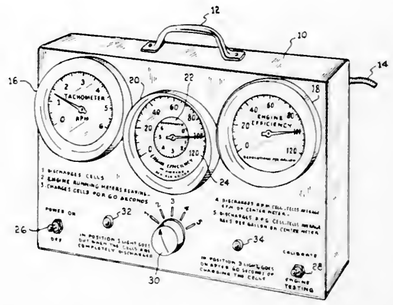
3,812,710
ELECTRONIC FUEL CONSUMPTION METER
Gunther Bauman, Stuttgart; Peter Schmidt, Schwieberdingen; Hermann Eisele, Ditzingen, and Josef Wahl, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed July 7, 1971, Ser. No. 160,302
Claims priority, application Germany, July 9, 1970, 2034067
Int. Cl. G01l *3/26*; G01m *15/00*
U.S. Cl. 73—114 **24 Claims**



Electric signals, corresponding to two or more engine operating parameters, such as rotational speed of the engine drive shaft and the setting of the throttle valve or a rotational speed and the pressure in the intake manifold or the pressure in the intake manifold and the setting of the throttle valve, are obtained by transducers, these signals being fed to an evaluating circuit that produces an electric output that is conducted to a meter that reads fuel consumption in unit distance, or unit time, travelled.

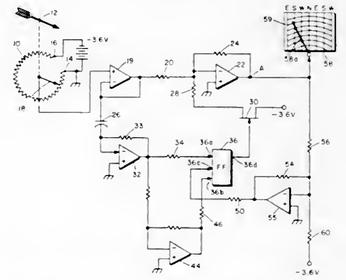
3,812,711
ENGINE EFFICIENCY DETERMINING APPARATUS
Perc C. Sorenson, 1431 Underwood Ave., Milwaukee, Wis. 53213
Filed Sept. 20, 1972, Ser. No. 290,450
Int. Cl. G01m *15/00*
U.S. Cl. 73—114 **9 Claims**

In accordance with the present invention, apparatus is provided for determining instant readings of revolutions per minute (r.p.m.) and engine efficiency (ratio of fuel input to engine revolutions) and an averaged reading of r.p.m. and engine efficiency. The apparatus provides electrolytic cells forming a first energy reservoir into which energy is introduced proportional to the r.p.m. of the engine and a second energy reservoir into which energy is introduced proportional to engine efficiency, for a predetermined length of time. The introduced energy is then extracted from the reservoirs while a



corresponding registration is obtained, such registration thereby being an average of engine r.p.m. and of engine efficiency under the given operating conditions.

3,812,712
WIND DIRECTION MONITOR SCALE CONVERTER
Philip A. Hoffman, and Frederick K. Davey, both of Baltimore, Md., assignors to The Bendix Corporation, Southfield, Mich.
Filed Apr. 9, 1973, Ser. No. 349,136
Int. Cl. G01f *13/02*
U.S. Cl. 73—188 **9 Claims**

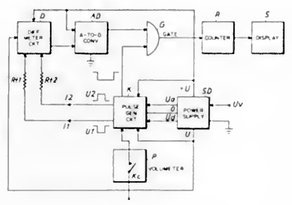


A wind vane drives a movable contact of a voltage divider comprised of a 360° potentiometer. The movable contact is connected into a voltage summing point in an electrical circuit which responds to a discontinuity in the potentiometer output to add or subtract a voltage at the summing point to compensate for the discontinuity. In addition, at one end of the electrical range of the circuit a voltage equivalent to 360° of vane rotation is provided at the summing point to reposition the electrical sum to a value intermediate of its range, while the potentiometer discontinuity is arranged to occur at the other end of the electrical range of the circuit.

3,812,713
METHOD AND APPARATUS FOR MEASURING THERMAL PROPERTIES OF A FLOWING MEDIUM
Stig Ingvar Karlsson, Karlskrona, Sweden, assignor to AB Svensk Varmematning CB System, Bramma, Sweden
Filed May 25, 1972, Ser. No. 256,925
Claims priority, application Sweden, June 9, 1971, 7441/71
Int. Cl. G01k *17/10*
U.S. Cl. 73—193 R **7 Claims**

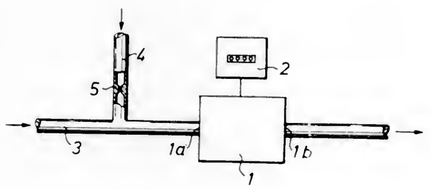
In a method for measuring thermal properties in a flowing medium, a single voltage pulse is applied to two spaced tem-

perature dependent elements in the medium immediately after a certain volume of the flowing medium has been measured.



The differential electrical properties of the elements responding to the differential temperature are then used to give an indication of the thermal properties of the medium.

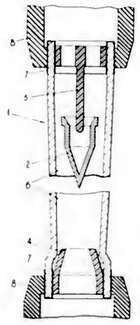
3,812,714
METHOD AND DEVICE FOR MEASURING THE FLOW RATE OF AN INTERMITTENT FLUID FLOW
Sven Olofsson, Jarfalla, and Jan Tysk, Ekero, both of Sweden, assignors to LKB Medical AB, Bramma, Sweden
Filed May 17, 1973, Ser. No. 361,160
Claims priority, application Sweden, May 23, 1972, 6710/72
Int. Cl. G01f *1/00, 3/00*
U.S. Cl. 73—194 R **2 Claims**



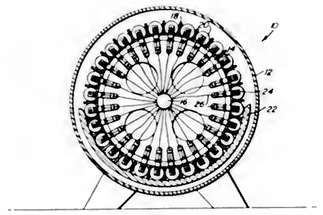
A method of measuring the instantaneous volumetric flow rate of an intermittent or pulsating fluid flow comprises the steps of employing a flow meter unsuitable for measuring flow rates below a given threshold value, adding to the intermittent fluid flow to be measured a second fluid flow having a known flow rate exceeding the threshold value of the flow meter, supplying the resulting combined fluid flow to the flow meter and subtracting from the measuring output of the flow meter a value corresponding to the known flow rate of said second fluid flow, whereby a measuring output is produced representing the instantaneous volumetric flow rate of the unknown intermittent fluid flow.

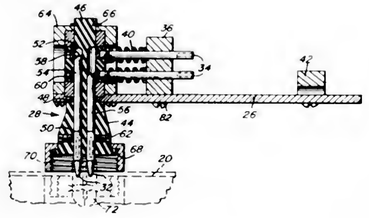
3,812,715
VARIABLE-AREA FLUID FLOWMETERS
Francis Cuthbert Whalen, London, England, assignor to Elliott Brothers (London) Limited, Chelmsford, England
Filed Aug. 9, 1972, Ser. No. 279,192
Claims priority, application Great Britain, Aug. 12, 1971, 37979/71
Int. Cl. G01f *1/00*
U.S. Cl. 73—209 **9 Claims**

A fluid flowmeter of the tapered tube and float type wherein the internal surface of the tube is provided with an electrically conductive coating and the tube carries a terminal whereby the coating may be grounded, thereby preventing the appearance of any electrostatic charge on the inner surface of the tube.



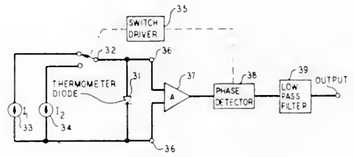
3,812,716
POSITIVE CONTACT ROTARY THERMOCOUPLE UNIT
Edwin L. McIntyre, 700 W. A St., Dixon, Calif. 95620
Filed May 11, 1972, Ser. No. 252,191
Int. Cl. G01k *13/08, 7/04;* **H01r** *39/43*
U.S. Cl. 73—341 **9 Claims**





A rotary contact thermocouple assembly for heat penetration measurements of foods prepared by rotary cookers. The thermocouple assembly comprises a rotor core of insulation material which supports a pair of thermocouple contact terminals connected to a pair of conductive slip rings which coact with a pair of spring-biased brushes, whereby positive contact is maintained at all times over a relatively large temperature range.

3,812,717
SEMICONDUCTOR DIODE THERMOMETRY
Gabriel Lorimer Miller, Westfield, and David Arthur Hall Robinson, Murray Hill, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Apr. 3, 1972, Ser. No. 240,705
Int. Cl. G01k *7/24;* **H01l** *9/10*
U.S. Cl. 73—362 SC **8 Claims**



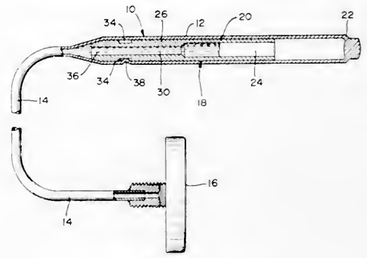
A temperature measuring apparatus is disclosed, in which the temperature sensing element is a semiconductor diode. The diode used is constructed such that carrier recombination takes place principally within the depletion region of the p-n junction. The temperature reading is made by measurement of the forward voltage drop across the diode as the diode current is switched between two current levels of a fixed ratio. The difference between the voltages measured at the two current levels is linearly proportional to the absolute temperature. The temperature scale thus defined is essentially constant from diode to diode from cryogenic temperatures to somewhat above room temperature.

3,812,718
CASED HEAT RESISTANT ALLOY TO REDUCE MERCURY CORROSION
Harvey J. Shopsky, Latrobe, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 26, 1972, Ser. No. 247,773
Int. Cl. G01k *1/08, 5/00*
U.S. Cl. 73—368 **3 Claims**

Mercury corrosion of the interior of closed metal vessels, such as bulbs of temperature responsive devices, which contain mercury at elevated temperatures and pressures is reduced by constructing the walls of such vessels of a heat resistant ferrous alloy which is essentially free of elements, such as chromium and nickel, that are relatively soluble in hot mercury and by casing the outer periphery of the walls normally exposed to an oxidizing atmosphere with an element such as chromium and/or nickel.

3,812,719
A TEMPERATURE BULB WITH AN INNER LINER TO REDUCE MERCURY CORROSION
Harvey J. Shopsky, Latrobe, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 26, 1972, Ser. No. 247,776
Int. Cl. G01k *5/00, 1/08*
U.S. Cl. 73—368 **2 Claims**

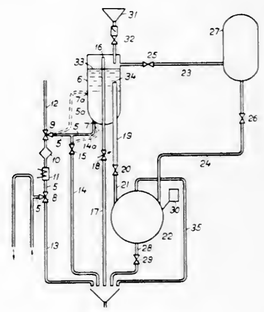
Mercury corrosion of the interior of closed metal vessels, such as bulbs of temperature responsive devices, which contain mercury at elevated temperatures and pressures is reduced by providing the vessels with an inner liner constructed of a mercury resistant material which forms a barrier between the mercury and the interior of the vessel. The vessel walls which are normally exposed to an oxidizing atmosphere at their outer surfaces are constructed of a heat resistant ferrous alloy containing chromium and/or nickel. The liner material is essentially free of chromium and/or nickel.



3,812,720
INHIBITOR TO REDUCE MERCURY CORROSION
Harvey J. Shopsky, Latrobe, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 26, 1972, Ser. No. 247,772
Int. Cl. G01k *5/02;* **C23f** *15/00*
U.S. Cl. 73—368.4 **4 Claims**

Mercury corrosion of the interior of closed metal vessels, such as bulbs of temperature responsive devices, which contain mercury at elevated temperatures and pressures is reduced by disposing an inhibitor, such as a film of ferric oxide, within the interior of the vessel. The vessels which are normally exposed to an oxidizing atmosphere on their outer surfaces are constructed of a ferrous alloy containing an element such as chromium and/or nickel.

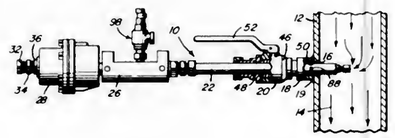
3,812,721
MEANS FOR TAKING SAMPLES OUT OF A REACTION VESSEL CONTAINING ALKALINE LIQUID UNDER PRESSURE
Hakan Englund; Ronny Eriksson, and Bengt Nilsson, all of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Feb. 16, 1972, Ser. No. 226,864
Claims priority, application Sweden, Feb. 22, 1971, 2206/71
Int. Cl. G01n *1/10*
U.S. Cl. 73—422 R **3 Claims**



For taking samples from a sulphate digester which contains alkaline liquid under pressure, a circuit is provided with a pump from which a branch conduit leads through valves to the bottom of a container for the alkaline liquid. A valve pipe

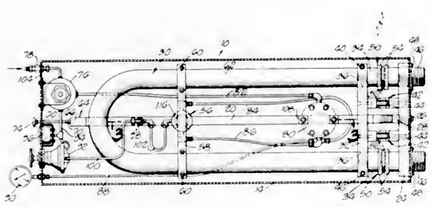
leads downwardly from the top of the container to the atmosphere. There is also an outlet from the container below the top thereof. A sampling vessel is constituted by a pipe which opens at the top at an intermediate point within the container and communicates through a valved pipe with an analysis vessel. A water holder can be used for rinsing the analysis vessel and the container.

3,812,722
FLUID SAMPLING DEVICE
Morris A. Soudelier, Houma, La., assignor to Houma Valve Service, Inc., Houma, La.
Filed June 21, 1972, Ser. No. 264,828
Int. Cl. G01n *1/10*
U.S. Cl. 73—422 TC **6 Claims**



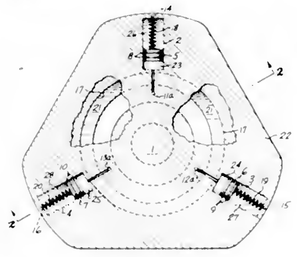
Fluid flowing through a conduit is sampled by repeated expansion of a pressure chamber in an elongated tubular housing projecting into the flow conduit through a sampling outlet to which the housing is releasably clamped. The pressure chamber is formed between an inlet check valve and a reciprocating piston mounted on a discharge check valve through which fluid is transferred to a passage in the piston plunger during contraction of the pressure chamber. A relief valve carried by the plunger opens in response to a predetermined pressure of the fluid in the plunger passage, to supply a sample of the fluid.

3,812,723
FORCE MEASURING WEIGHING DEVICE
Charles D. Barron, Fountain Valley, Calif., assignor to Byron Jackson, Inc., Long Beach, Calif.
Filed Jan. 21, 1972, Ser. No. 219,741
Int. Cl. G01g *5/04*
U.S. Cl. 73—434 **40 Claims**



A weighing device such as a U-tube densimeter for measuring the densities of liquids and producing indications of densities including a fluid pressure operated load or force measuring unit employing a booster pilot. The measuring unit has provision for balancing the tare weight of the U-tube and for making a zero set calibration for the U-tube.

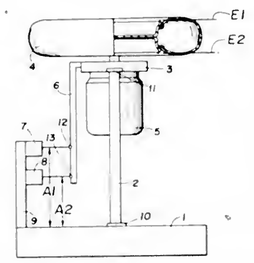
3,812,724
ROTATIONAL BALANCER
William C. Curtz, 8621 Fauntleroy Way, S.W., Seattle, Wash., 98116, and Merkham J. Matson, 17680 S.W. Blue Heron way, Lake Oswego, Wash. 97034
Continuation of Ser. No. 859,503, Sept. 19, 1969, abandoned.
This application Dec. 16, 1971, Ser. No. 208,977
Int. Cl. G01m *1/16, 1/36*
U.S. Cl. 73—458 **23 Claims**



A rotating system for counterbalancing an off-center mass causing dynamic imbalance in a rotating body is provided. A fluid reservoir comprising a plurality of fluid accumulators disposed about a rotatively mounted body with interconnecting fluid passages communicating with each other in a circuit about the geometric axis and with the accumulators such that rotation of the body distributes a fluid into the accumulators variably in accordance with dynamic unbalance of the rotating system so as to return the rotation system toward rotational equilibrium.

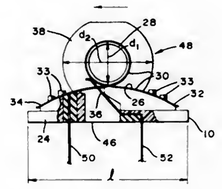
The amount of fluid contained in each of the plurality of fluid accumulators may be taken as an indication of the amount and angular location of dynamic imbalance.

3,812,725
BALANCING APPARATUS
Helmut Frank, Dieburg; Otfrid Maus, Darmstadt-Arheilgen, and Endre Tary, Darmstadt, all of Germany, assignors to Carl Schenck Maschinenfabrik GmbH, Darmstadt, Germany
Filed Mar. 12, 1973, Ser. No. 340,078
Claims priority, application Germany, Mar. 28, 1972, 2215002
Int. Cl. G01m *1/22*
U.S. Cl. 73—462 **11 Claims**



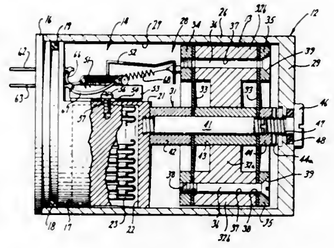
A dynamic mass balancing machine includes a flexibly supported motor drive shaft bearing assembly which is coupled to two motion sensor-transducers. The points of coupling are in a mutual vertical plane which is coplanar with the axis of rotation and the plane of displacement of the spring supported bearing assembly of the machine. The vertical coupling points of the sensor-transducers are located so that independent measurement of unbalances in two different planes will be achieved.

3,812,726
VELOCITY RESPONSIVE APPARATUS
Lon E. Bell, Altadena, Calif., assignor to Technar Incorporated, Pasadena, Calif.
Filed Sept. 28, 1972, Ser. No. 293,209
Int. Cl. G01p *7/00, 15/02*
U.S. Cl. 73—503 **14 Claims**



A velocity measuring apparatus is provided with means for increasing the rotational moment of inertia of a roller which displaces a band of electroconductive material against a preselected resisting force and into contact with a conductive member. The extent of displacement necessary for contacting the band with the conductive member is thereby decreased without changing the magnitude of the preselected resisting force. The velocity measuring apparatus is highly reliable in operation and is sufficiently compact to be economically installed in a limited space.

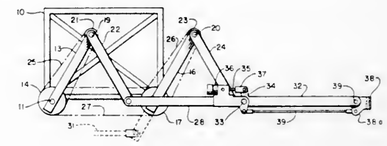
3,812,727
ACCELEROMETER
Robert L. Pitzer, Arcadia, Calif., assignor to Edcliff Instruments, Monrovia, Calif.
Continuation of Ser. No. 92,453, Nov. 24, 1970, abandoned.
This application Sept. 14, 1972, Ser. No. 288,951
Int. Cl. G01p *15/12*
U.S. Cl. 73—516 R **5 Claims**



Seismograph, or moving mass, type of accelerometer in which the sensing mass has substantially the same diameter as the housing in which it is mounted. A potentiometer is utilized as an output transducer, and the unit is filled with a light weight oil to provide damping of the movements of the mass.

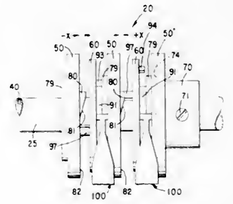
3,812,728
SPRAYING MACHINE
Henry B. Lee, Cudahy, Calif.; Donald E. Orem, and Paul L. Wycoff, both of Indianapolis, Ind., assignors to Ransburg Corporation, Indianapolis, Ind.
Filed May 29, 1973, Ser. No. 364,895
Int. Cl. F16h *21/16*
U.S. Cl. 74—25 **6 Claims**

A spray machine can reciprocate a cantilevered support for a spray device with straight-line motion. The machine includes a pair of linked mechanisms, each including a rotating first shaft with a first arm fixed to it and including at the end of the arm a second rotating shaft with a second arm fixed to it. The second shafts are rotated hypocycloidally about the first shafts



and swing linked ends of the second arms in a straight line. Spraying devices are movably cantilevered from the linked second arms so that they may be vertically positioned with respect to their support.

3,812,729
ELECTROMECHANICAL DISC ADDER MECHANISMS
Stanley J. Ketterer, Jamesburg, N.J., assignor to The Singer Company, New York, N.Y.
Filed July 16, 1973, Ser. No. 379,535
Int. Cl. F16h *25/12*
U.S. Cl. 74—56 **10 Claims**

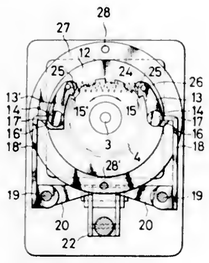


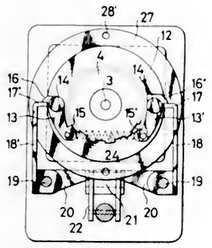
An electromechanical adder mechanism for selectively influencing the operation of sewing machine stitch forming instrumentalities in accordance with a preselected pattern and comprising a plurality of discs which are arranged coaxially on a drive shaft including discs keyed to the drive shaft and freely journaled discs frictionally coupled to turn with the keyed discs. Axial cam segments on adjacent keyed and freely journaled discs may be selectively brought into engagement by electromagnetically influenced stop means for changing the angular orientation of the freely journaled discs relative to the keyed discs thus selectively to regulate the total axial dimension of the stack of discs on the shaft which is the output of the adder mechanism.

3,812,730
DEVICE FOR INTERMITTENTLY MOVING AN INFORMATION CARD OR THE LIKE FOR AN ADJUSTABLE PREDETERMINED DISTANCE
Nobuyuki Yanagawa, Kanagawa, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Filed Oct. 24, 1972, Ser. No. 300,352
Claims priority, application Japan, Oct. 27, 1971, 46-84647
Int. Cl. F16h *27/00*
U.S. Cl. 74—112 **14 Claims**

A device for moving an information card, microfiche, or the like, including a reversible drive shaft, a clutch associated therewith, solenoid-operated means for controlling the clutch to produce a predetermined angular increment of output rotation from the clutch each time the solenoid is energized, and a set of gears for transmitting drive from the clutch to an output shaft that is connectable to move an information card. The clutch comprises a toothed wheel connected to the drive shaft, a separately rotatable disk, and a pair of arms pivotally

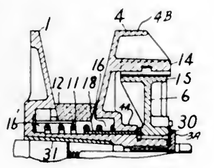
mounted on the disk for engaging the toothed wheel to drivingly connect the drive shaft to the disk. The clutch-controlling means comprises a pair of levers respectively engageable with the clutch arms, and movable by the solenoid to cause movement of the arms into and out of operation engagement with the teeth of the wheel. The transmitting gears include a





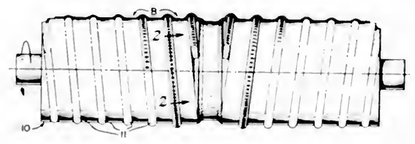
first gear connected to the disk, a sun gear connected to the output shaft, and a planet gear meshing with the first gear and sun gear and mounted so as to be movable about the sun gear when the first gear is stationary to effect minor angular displacement of the output shaft for fine adjustment of the position of the information card.

3,812,731
V-BELT TYPE AUTOMATIC SPEED CHANGE GEAR
Takao Sugimoto, and Izumi Takagi, both of Akashi, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe City, Japan
Filed Jan. 16, 1973, Ser. No. 324,182
Claims priority, application Japan, May 27, 1972, 47-52645
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.17 E **9 Claims**



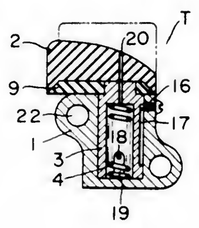
An automatic speed change V-Belt drive pulley having a fixed conical flange and a movable cooperating conical flange for engaging the edges of a V-Belt with a drive disc fixed to the same shaft carrying the fixed conical flange and cooperating cam means and centrifugally outwardly movable weights operating cam followers which engage the cam surface on one of the movable flange and the fixed disc so that when the centrifugal weight moves outwardly due to increased speed the movable flange moves toward the fixed flange thereby causing the V-belt to move outwardly along the surfaces of the belt engaging conical surfaces of the fixed and movable flanges, the centrifugal weights being mounted on pivoted arms pivoted about axes parallel with the shaft on which the speed change device is mounted.

3,812,732
SCALLOPED BELT ENGAGING TANGENT FOR RIBBING ON CENTERING AND IDLER TRACKING ROLLERS
Rene Conrad, 700 Catamaran, San Mateo, Calif.
Filed June 28, 1972, Ser. No. 267,139
Int. Cl. F16h *7/18*
U.S. Cl. 74—240 **12 Claims**



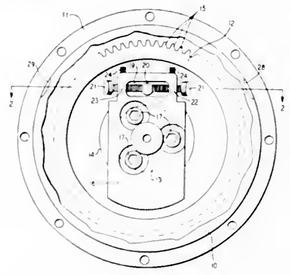
A serrated or scalloped tangent surface on ribbing for tracking rollers disposed to engage and grip ribbon strips of material such as belting with a positive traction therebetween. A series of equally spaced V grooves formed across the belt engaging tangent of ribbing and transverse to the lineal axis of the ribbing to provide intermediate lands. The provision of tooth like barbs on at least one edge of the V-shaped grooves of such scalloping and the variation in grip dependent upon belt characteristics by greater or lesser recessing of such ribbing into the peripheral surface of the roller.

3,812,733
TENSIONING DEVICE FOR FLEXIBLE MEMBERS
Hiroshi Yoshida, Urawa, Japan, assignor to Yamakyu Chan Kabushiki Kaisha, Tokyo-to, Japan
Filed May 4, 1973, Ser. No. 357,519
Claims priority, application Japan, May 17, 1972, 47-56823[U]; May 17, 1972, 47-56824[U]
Int. Cl. F16h *7/12*
U.S. Cl. 74—242.11 S **13 Claims**



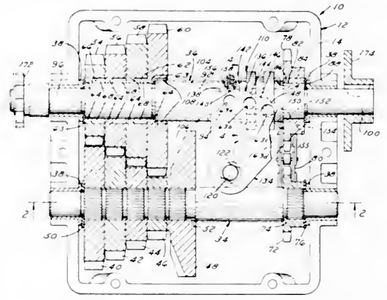
A flexible elongated member such as a power transmission belt or chain which has a tendency to slacken during use can be automatically tensioned by a device comprising a support structure, a sliding member slidable in the support structure, an engaging member secured to the sliding member and adapted to engage the flexible member, resilient means biasing the sliding member in an advancing direction relative to the support structure, a series of indentations formed on one side of the sliding member, and detent means mounted in the support structure to engage one of the indentations. The detent means is capable of selectively taking two positions in one of which the sliding member is prevented from advancing and in the other of which the sliding member is prevented from retracting.

3,812,734
EXTERNALLY ADJUSTABLE CAM TIMER
Edward O. Hamburger, 6 Riverpark Dr., Brick Twp., Ocean County, N.J. 08723
Filed Jan. 30, 1973, Ser. No. 327,952
Int. Cl. F16h *55/30*
U.S. Cl. 74—243 PC **9 Claims**



For providing cam timing, a sprocket wheel housed in a timing cover is attached to a cam shaft by means of an intermediate adjusting arm placed in a recess of the sprocket wheel. The adjusting arm is rigidly fixed to the cam shaft and moveably secured to the sprocket wheel. Adjustment of the relative angular positions of the sprocket wheel and the cam shaft is achieved by repositioning a screw in the adjusting arm which is inclined to the face of the sprocket wheel so as to facilitate its rotation without removal of the timing cover.

3,812,735
TRANSMISSION
Roland L. Von Kaler, Tecumseh, and Norman E. Jolliff, Tipton, both of Mich., assignors to Tecumseh Products Company, Tecumseh, Mich.
Continuation-in-part of Ser. No. 171,920, Aug. 16, 1971, abandoned. This application Jan. 31, 1973, Ser. No. 328,481
Int. Cl. F16h *3/08*
U.S. Cl. 74—371 **65 Claims**



A change-speed transmission with a shift mechanism which selectively couples a plurality of change gears one at a time to a shaft on which the gears are journalled. The shift mechanism is disposed entirely within the transmission housing and includes a shift key arranged for axial sliding movement in a groove in the shaft. A pair of axially spaced projections at one end of the key project outwardly of the groove to embrace a collar which is journalled on the shaft. The collar is axially shifted on the shaft by a rotary shift fork which engages a circular groove in the collar to selectively position the key axially of the shaft in its several gear-engaging positions. A third radial projection at the other end of the key engages a different gear in each of the several positions thereby drivingly coupling the selected gear to the shaft to provide various forward drive speeds. The end projection of the projection pair which embrace the collar is adapted to engage a reverse gear on the other end of the shaft for providing a single reverse speed. The arrangement and construction of the several gears and the shift key are such that when the key is shifted between adjacent gear-engaging positions, it always passes through a neutral position wherein no gear is drivingly coupled to the shaft. The shift mechanism includes a detent arrangement for positively establishing selected shift positions which are correlated to the gear-engaging and neutral positions of the shift key. The particular detent arrangement permits a neutral safety switch to be used with the shift mechanism without any additional parts other than the switch itself so that the engine to which the transmission is coupled may be cranked when the transmission is in any one of its several neutral positions. A modified change speed transmission is also disclosed incorporating an improved yieldable self-biasing spring shift key, gear construction and detent sector.

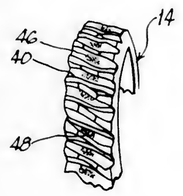
3,812,736
REVERSING MECHANISM
Gerhard Nickstadt, Oakland, N.J., assignor to General Electric Company, Fort Wayne, Ind.
Filed Aug. 30, 1972, Ser. No. 284,946
Int. Cl. F16h *57/00, 3/14, 55/04*
U.S. Cl. 74—404 **10 Claims**

A gear drive reversing mechanism is disclosed for reversing the direction of rotation of an output shaft driven by a drive shaft rotating in a contant direction. A gear drive reversing mechanism is also disclosed for driving two output shafts in mutually opposite rotary directions by means of a drive shaft rotating in a constant direction. The mechanisms include spiral angle face gears driven by pinions having both right-hand and left-hand spiral angle pinion gear teeth.

3,812,737
WORM GEAR CONSTRUCTION
Gary Campbell, Gering, Nebr., and Eliot K. Buckingham, Springfield, Vt., assignors to Lockwood Corporation, Gering, Nebr.
Filed Feb. 9, 1973, Ser. No. 331,336
Int. Cl. F16h *1/16, 55/04*
U.S. Cl. 74—425 **6 Claims**

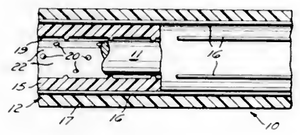
A gearbox construction comprising a housing rotatably supporting a worm gear and a meshing worm. The worm and worm gear are characterized by a recessed action drive relationship. The worm and worm gear are both formed of iron

castings, and the tensile strength of the respective castings is selected so that the worm will have a tensile strength between 75,000 and 105,000 pounds per square inch with the tensile strength of the worm gear being between 45,000 and 55,000



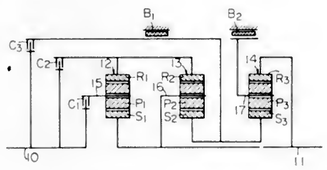
pounds per square inch. The recessed action drive and the combination of materials used for the worm and worm gear provide a gearbox construction suitable for very low speed-high torque applications.

3,812,738
FLEXIBLE CABLE ASSEMBLY
Louis B. Courtot, Euclid, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio
Filed Apr. 6, 1972, Ser. No. 241,776
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 R **3 Claims**



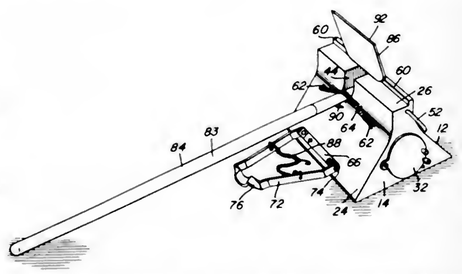
A control cable assembly, method and apparatus for its manufacture wherein a casing includes a flexible plastic body portion having a longitudinal bore in which are formed axially and circumferentially spaced plastic projections which cooperate to radially and slidably support a wire core therein. In one embodiment the projections are formed as elongated filaments or cilia having a non-axial orientation to improve cable efficiency under bending conditions and in reversal of wire movement.

3,812,739
GEAR TRAIN ARRANGEMENTS
Yoichi Mori, Yokohama; Nobuo Okazaki, Chigasaki; Kunio Ohtsuka, and Tetsuya Iijima, both of Tokyo, all of Japan, assignors to Nissan Motor Company Limited, Yokohama City, Japan
Division of Ser. No. 30,496, April 21, 1970, Pat. No. 3,701,293. This application Sept. 13, 1972, Ser. No. 288,550
Claims priority, application Japan, June 4, 1969, 44-43274
Int. Cl. F16h *57/10*
U.S. Cl. 74—763 **1 Claim**



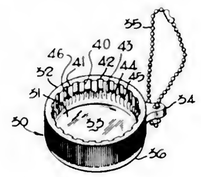
Gear train arrangements for transmitting a power from a driving source to a driven member at more than three speeds in one direction and another speed in the opposite direction, the gear train arrangements using basically three planetary gear sets and at least five friction elements such as clutches and brakes which are selectively actuated to selectively engage the rotary members of the three planetary gear sets to deliver an output power at the above said speeds. The gear train arrangements are specifically adapted for use in an automatic transmission system of a motor vehicle using a torque converter or fluid coupling.

3,812,740
HOLDER FOR HANDLED TOOLS TO BE SHARPENED
William J. Gilliland, R.R. 2, Box 254, Campbell, Mo. 33830
Filed Mar. 5, 1973, Ser. No. 338,188
Int. Cl. B21k *11/14*
U.S. Cl. 76—82 **8 Claims**



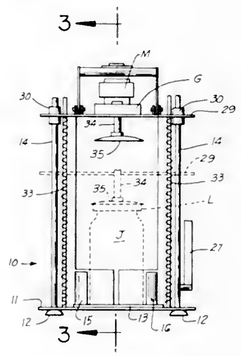
A support body including a broad and long undersurface for stable support from any suitable supporting surface such as a workbench or the ground. The body further includes specifically contoured upper surface portions and attendant selectively usable prop structure for supporting various types of tools such as rakes, hoes, hatchets and axes, in stationary position relative to the body and in an attitude adapted to have the work-engaging surfaces thereof sharpened by the use of a sharpening implement such as a file. Still further, the body is hollow and defines an interior storage compartment together with a removable closure for one end of the compartment and the storage compartment is of dimensions adapted to have sharpening tools such as a file and a cleaning tool such as a wire brush stored therein.

3,812,741
BOTTLE CAP REMOVER
Charles A. Heine, Imperial, Mo., assignor to Alexander Manufacturing Company, St. Louis, Mo.
Filed Jan. 3, 1972, Ser. No. 214,866
Int. Cl. B67b *7/18*
U.S. Cl. 81—3.4 **1 Claim**



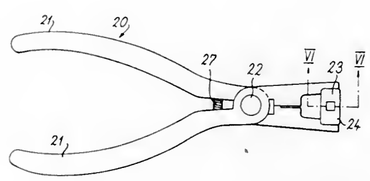
This bottle cap remover includes a unitary body having an opening adapted to receive a bottle cap of the type having circumferential ribs and grooves. The opening defines a side wall and an end closure wall, the side wall including a corresponding number of ribs and grooves compatibly shaped to suit the ribs and grooves of the cap. The closure wall is engageable by the cap to facilitate the cap removal, which is effectuated by twisting the body.

3,812,742
JAR OPENER
Emil Polasek, Route 3, Box 278B, Corpus Christi, Tex. 78415
Filed Aug. 10, 1972, Ser. No. 279,506
Int. Cl. B67b *7/14*
U.S. Cl. 81—3.32 **10 Claims**



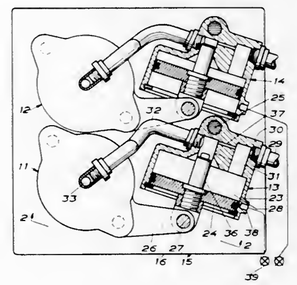
An apparatus is disclosed for mechanically rotating lids of jars wherein a jar is placed on the frame of the apparatus and a pair of cupped opposing arms, attached to the frame, are forced by resilient means to clamp the jar tightly against movement while a lid rotating means, having a high coefficient of friction and mounted on the frame and disposed above the pair of cupped opposing arms, engages the lid of the jar for rotation.

3,812,743
DETACHABLE BLADE HANDLING TOOL
Alexander Shaw, and Joseph McKie, both of Glascow, Scotland, assignors to National Research Development Corporation, London, England
Filed Jan. 23, 1973, Ser. No. 326,150
Claims priority, applization Great Britain, Jan. 28, 1972, 4170/72
Int. Cl. B25b *7/02*
U.S. Cl. 81—5.1 R **6 Claims**



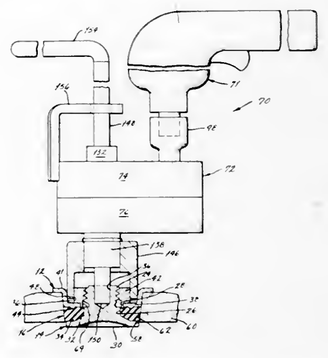
A tool for separating detachable blades from surgical scalpels takes the form of a pair of pliers having a respective channel formation in each jaw, the side walls of which formations approach engagement in mutually facing and aligned disposition during closure of the tool to define a passageway therethrough. This passageway receives the stem portion of a holder on which a conventional detachable scalpel blade is clipped, and the side walls of one of the channel formations are relieved towards one end thereof, and the side walls of the other formation elevated towards the corresponding end thereof, so that closure of the tool jaws grips the blade while lifting one end of the blade from the holder. The blade can then be slid off the holder while still held by the tool.

3,812,744
TORQUE CONTROL DEVICE FOR A NUT RUNNER OF THE CONTINUOUS TORQUE TYPE
Sven Peter Jonas Westerberg, Saltsjo-Boo, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden
Filed Nov. 20, 1972, Ser. No. 307,762
Claims priority, application Sweden, Nov. 25, 1971, 15131
Int. Cl. B25b , *13/00*
U.S. Cl. 8—52.4 R **15 Claims**



A multiple nut runner comprises a frame in which a number of coaxial nut runners are rotatably mounted. Each nut runner has an arm on the housing and a pneumatic cylinder coupled between the arm and the frame so as to transmit the reaction torque to the frame. The cylinder is built together with a control valve that shuts off the motive air to the pneumatic motor of the nut runner in response to the cylinder giving away at a pre-determined torque. The cylinders and the motors as well, are connected to a common adjustable pressure regulator.

3,812,745
CLOSURE DEVICE
Eugene E. Wehmeyer, c/o Provident Tool & Engineering Co., 4501 Swan Ave., St. Louis, Mo. 63110
Filed Aug. 9, 1972, Ser. No. 278,996
Int. Cl. B25b *17/00*
U.S. Cl. 81—56 **12 Claims**



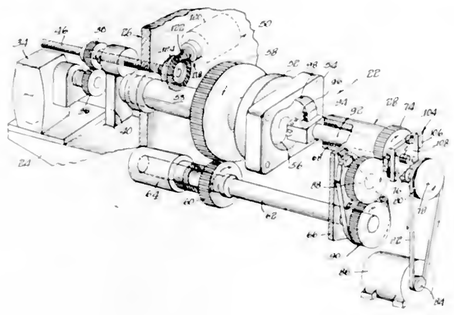
A closure device for sealing the opening of a refillable container, the closure device including spaced pressure members

having a soft resiliently deformable washer member sandwiched therebetween, and a tightening member engageable with a neck portion of one of the pressure members for drawing the pressure members together. Tightening apparatus for the closure device includes a power driven wrench engageable with the tightening member. The wrench is power driven through a transmission device by a torque controlled power unit, thereby enabling a predetermined torque to be applied to the pressure members. A key member engageable with the pressure member neck portion holds the closure device in fixed position during torquing of the pressure members.

3,812,746
APPARATUS FOR FORMING EPITROCHOIDAL SURFACES

Oliver Edward Saari, Niles, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Oct. 11, 1972, Ser. No. 296,710
Int. Cl. B23b *3/28, 3/00*
U.S. Cl. 82—18 **19 Claims**



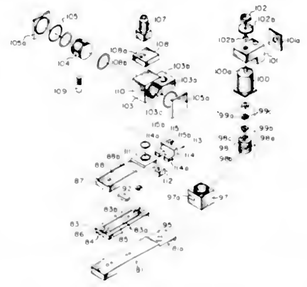
The present invention relates generally to apparatus for forming with a high degree of accuracy an epitrochoidal surface in a recessed workpiece, and more particularly to novel and practical mechanism for forming such surfaces in the cylinder block of a rotary type internal combustion engine. The embodiment of the invention disclosed herein comprises a machine frame upon which is mounted means for supporting a recessed workpiece or cylinder block and for rotating said workpiece at a predetermined speed in a given direction about a first fixed axis. A tool actuating member or spindle is rotatable in the opposite direction about a second fixed axis which is parallel to and spaced laterally from said first fixed axis. A tool supporting means or boring bar is coupled with said actuating spindle through the agency of a unique device which oscillates about a third fixed axis and serves to maintain the cutting edge of said tool in position for actively forming an epitrochoidal surface as the workpiece rotates at a relatively high predetermined speed in one direction and the tool actuating means rotates at a predetermined faster speed in the opposite direction.

3,812,747
TOOL ARM STRUCTURE

Carl H. Werth, 818 Thurman St., Saginaw, Mich. 48602

Division of Ser. No. 59,443, July 30, 1970, Pat. No. 3,707,101.
This application June 12, 1972, Ser. No. 261,939
Int. Cl. B23b *29/034, 29/12*
U.S. Cl. 82—36 R **10 Claims**

A tool arm structure comprising a movable or yieldable, tool mounting portion, adjustable control mechanism for adjusting the machining position of the tool mounting portion, and mechanism for separating the adjusting mechanism and

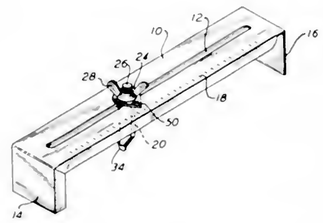


tool mounting portion when the control mechanism is being adjusted.

3,812,748
GLASS CUTTING DEVICE

Irving Nausbaum, New York, N.Y., assignor to New Age Mirror and Tile Industries, Inc., Newark, N.J.

Filed Oct. 17, 1972, Ser. No. 298,227
Int. Cl. B26d *3/08*
U.S. Cl. 83—12 **6 Claims**



A device for cutting glass which can cut a sheet of glass of indeterminate length has a central bridge member with a channel formed therein. It has one or two outwardly extending arms which may be perpendicular to the bridge member. A glass cutter wheel is interlockable with the central bridge member channel through a cutting support member. The bridge member has distance markings inscribed on it. The cutter support member is adapted to be engaged by a pointer member which will indicate glass cutter position in respect to the bridge member.

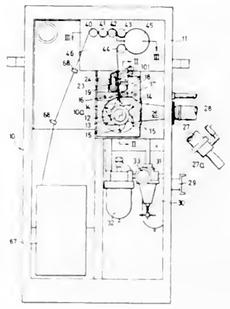
3,812,749
SEVERING AND DISPENSING FIBROUS MATERIAL

Michael David Lowen, London, and Ronald Newby, Boreham Wood, both of England, assignors to John Laing and Son Limited, London, England

Filed Feb. 23, 1972, Ser. No. 228,607
Claims priority, application Great Britain, Feb. 25, 1971, 5426/71
Int. Cl. B26d *7/24*
U.S. Cl. 83—66 **15 Claims**

The present invention relates to an apparatus for severing a predetermined quantity of fiber into short lengths and dispensing same through an air conveyor. The apparatus is powered by compressed air. A pneumatic motor drives the cutter and one of the feed rollers, whilst a pneumatic piston and cylinder arrangement forces a pressure roller into contact with the feed roller when feeding of the material is required. A

digital counter which is pre-set to meter the required amount of fibre is indexed by pneumatic pulses generated by the feed

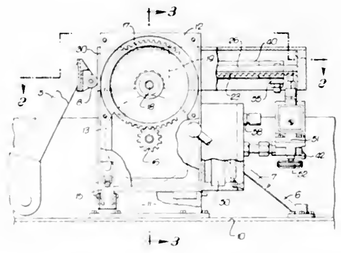


mechanism and provides a stop signal to the apparatus when the batch is complete. Low pressure air fluidic devices control the various functions of the apparatus.

3,812,750
AUTOMATICALLY CONTROLLED BRAKE ACTUATOR FOR UNMANNED VEHICLES

Ulrich Meyer, Lilienthal, Germany, assignor to Vereinigte Flugtechnische Werke-Fokker, Gesellschaft mit beschrankter Haftung, Bremen, Germany

Filed June 26, 1972, Ser. No. 266,094
Claims priority, application Germany, July 6, 1971, 7127342
Int. Cl. F16d *65/28;* **B60t** *13/74*
U.S. Cl. 188—106 P **11 Claims**



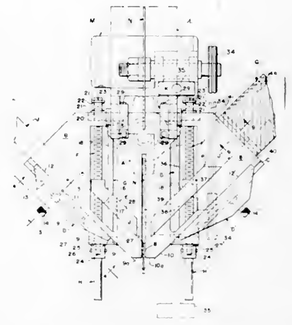
An actuator mechanism for installation in an unmanned vehicle and for operation of the brake pedal. The mechanism includes a pair rods driven by a motor with disk rotor and coupled thereto through gearing. A pneumatically operated emergency brake actuator can operate the pedal independently from the position of the motor driven actuator portion.

3,812,751
MITER CLAMP VISE AND SAW

Robert W. Lewis, P.O. Box 132285, Oakland, Calif. 94661

Filed Sept. 8, 1972, Ser. No. 287,422
Int. Cl. B27b *5/20;* **B23d** *45/14*
U.S. Cl. 83—471.3 **5 Claims**

A miter clamp vise and saw that can grip an elongated piece of material and make a transverse cut in it that is at a 45° angle right or left to the length of the material. Also the device can clamp two pieces that have already had their ends provided with 45° angle cuts, the clamps gripping the pieces for holding

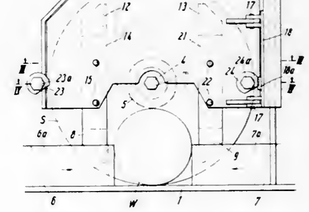


the mitered ends in abutting relation while the operator secures these ends together by nails or adhesive and the like.

3,812,752
SAW FOR COLD METALS

Leopold Jaegers, Euskirchen/Rhld, Germany, assignor to Trennjaeger Maschinen und Saegefabrik, Euskirchen/Rhineland, Germany

Filed Sept. 1, 1971, Ser. No. 180,237
Claims priority, application Germany, Sept. 3, 1970, 2043599
Int. Cl. B23d *19/00;* **B26d** *1/12*
U.S. Cl. 83—478 **2 Claims**



Improved cold saw for metals utilizing a vertically displaceable circular saw blade and transmission therefor whereby the saw blade is positioned between guide means on each side of the major plane thereof. Each guide means has four points of contact with the major surface of the saw directed toward it consisting of two above and two below the saw axis and two in front and two behind the saw axis.

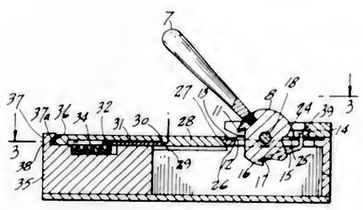
3,812,753
MICRO-FILM JACKET-NOTCHING DEVICE

Paul A. Kiejzik, 2907 Monterey Ct., Springfield, Pa. 19069

Filed Oct. 15, 1973, Ser. No. 406,594
Int. Cl. B26d *7/28, 5/10*
U.S. Cl. 83—522 **7 Claims**

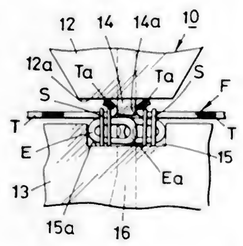
In a preferred embodiment, a wheel-like blade structure shaped substantially as a disk having a substantially flat circumscribing periphery with a notch therein forming the blade, and with each of opposite ends of the disk extending axially in

substantially conical shapes and being biased in an upward blade position, havkng handle structure for rotating the disk in a downwardly blade-cutting direction against a biasing spring which spring simultaneously biases a flat horizontally positioned plate having a central hole therein in which the disk is mounted for suitable rotation and for movement of the blade downwardly in flush alignment with the forward inner edge of the hole in order to effect a scissor-type cutting action, with there being shoulders extending in opposite directions from the notch defining the blade, the shoulders serving as aligning shoulders for a linear edge of a microfilm jacket which when aligned therewith extends through the blade-notch between the blade and the top edge of the cutting portion of the plate



such that when the blade is brought downwardly a notch is cut into the edge of the microfilm jacket, and there being a slidable flat horizontally positioned plate for sliding to and fro laterally in front of the aligning shoulders and in front of the cutting blade, on which the microfilm jacket is flatly mountable with there being included on the slidable microfilm mount a plurality of designations in series of different notching positions relative to a seating position for the microfilm jacket on the horizontal laterally to and fro slidable plate, and including a spring-biased key for snap-in releasable engagement of the slidable mounting plate in each of the designated notching positions so as to intermittently hold the slidable mounting plate in a fixed position during a notching operation.

3,812,754
APPARATUS FOR PRODUCING FASTENER-ELEMENT-FREE GAPS IN A CONTINUOUS SLIDER FASTENER CHAIN
Koichi Kawakami, Toyama, Japan, assignor to Yoshida Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed June 7, 1973, Ser. No. 367,711
Claims priority, application Japan, June 10, 1972, 47-57938
Int. Cl. B26f *1/02*
U.S. Cl. 83—622 **2 Claims**



An apparatus is disclosed for producing fastener-element-free gaps in a continuous slide fastener chain. The apparatus comprises a punch block, a cutting punch reciprocally movable therein, and a die block positioned in oppositely spaced relation to said punch block and having a recess for receiving a group of fastener elements to be severed, said cutting punch having an upward stroke limited such that the distance between an extreme operating end of said punch and the bottom surface of said recess is smaller than the overall thickness of said fastener chain but larger than the thickness of said fastener elements.

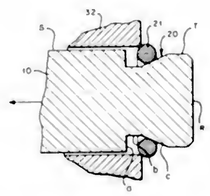
The arrangement of the apparatus ensures that adjacent longitudinal edges of the fastener stringer tapes are deflected upwardly progressively away from each other as the fastener chain is moved past the cutting punch so that a group of fastener elements severed off the deflected edges of said tapes along a length of the chain corresponding to a fastener-element-free gap to be produced.

3,812,755
PRODUCT, PREFERABLY A ROTATABLE WORKING TOOL, E.G., A SAW BLADE
Bo Sixten Danielsen, Nora Stad, Sweden, assignor to AB Nora-Gomex, Nora Stad, Sweden
Filed Dec. 14, 1971, Ser. No. 207,895
Claims priority, application Sweden, Dec. 14, 1970, 16892/70; Apr. 20, 1971, 5081/71
Int. Cl. B27b *33/08*; **B23d** *61/02*
U.S. Cl. 83—835 **13 Claims**



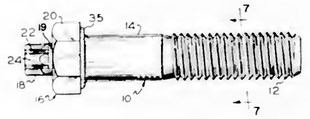
A rotatable working tool assembled of at least two parts which are intimately interconnected by a flue and adapted to eliminate oscillations; the glue may contain an electrically conductive material to enable spot welding of the parts together.

3,812,756
POSITIVE LOCK SELF-RETAINED FASTENER
Maurice J. Wenger, 5813 N. 13th St., Philadelphia, Pa. 19141
Continuation of Ser. No. 10,353, Feb. 11, 1970, abandoned.
This application July 18, 1972, Ser. No. 273,017
Int. Cl. F16b *19/00*, *21/18*
U.S. Cl. 85—8.8 **13 Claims**



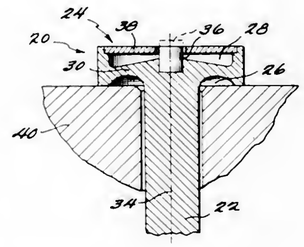
A positive lock self retained bolt adapted to pass into a hole in a work piece. The bolt automatically locks when fully inserted. Locking means on the bolt are provided near the end thereof first inserted into the work piece and become operative to lock after passing beyond the hole in the work piece. The locking means comprise an annular groove in the bolt and a ring having an elastically compressible overall diameter in the groove. The groove has certain cross-sectional configurations, generally characterized by having one wall substantially perpendicular to the long axis of the bolt, a bottom surface, and another wall having an average slope from the bottom surface to outer surface of the bolt in the direction of insertion of the bolt, and the ring and the groove having certain mutual positional and dimensional relationships.

3,812,757
THREADED FASTENER WITH TORQUE CONTROL HEAD
Bernard F. Reiland, Rockford, Ill., assignor to Textron Inc., Rockford, Ill.
Continuation of Ser. No. 873,915, Nov. 4, 1969, abandoned.
This application Jan. 27, 1972, Ser. No. 221,399
Int. Cl. F16b *31/02*
U.S. Cl. 85—61 **7 Claims**



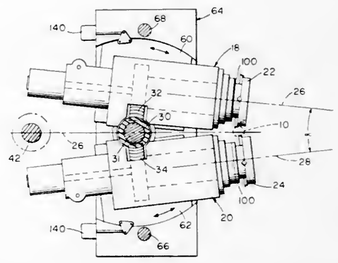
A threaded bolt has an enlarged hexagonal auxiliary driving head and an outwardly adjoining smaller main driving head. The small driving head is dimensioned so that it will shear from the remainder of the bolt under an applied driving torque which approximates the seating torque of the bolt. Thus when the bolt is screwed into a workpiece by applying a driving tool to the small driving head, the small head shears from the bolt when the bolt is fully seated and tightened in an assembly under a tensile load approximating the design load of the bolt. The large hole is used in removing the fastener from the assembly.

3,812,758
BOLT HEAD WHICH MEASURES AND MAINTAINS PRELOAD
Robert B. Bossler, Jr., Bloomfield, Conn., assignor to Kaman Aerospace Corporation, Bloomfield, Conn.
Filed Oct. 24, 1972, Ser. No. 299,799
Int. Cl. G01l *5/00*
U.S. Cl. 85—62 **8 Claims**



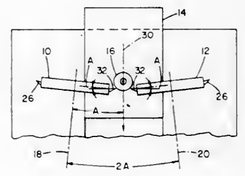
A bolt providing an indication of pre-load and continuous load thereafter wherein the bolt head has recesses on both sides thereof leaving a central ring which functions as a diaphragm spring and deflects along the bolt axis as a function of load. An indicator pin is mounted in or forms part of the ring so as to deflect with the ring, moving through a passage in an indicator washer or ring which closes the top recess and which permits a ready determination, by comparison of the relative positions of pin and indicator ring, of bolt pre-load. A further embodiment of the pre-load indicating device eliminates the indicator pin and replaces the indicator washer with a transverse buckled column, which indicates load along the bolt axis by the deflected location of the buckled column.

3,812,759
CUTTING TEETH ON WORKPIECES
Ernest Wildhaber, Rochester, N.Y., assignor to Bird Island, Inc., Boston, Mass.
Filed Mar. 22, 1973, Ser. No. 343,969
Int. Cl. B23f *1/06*
U.S. Cl. 90—3 **12 Claims**



Apparatus for cutting teeth on a workpiece, comprising a workpiece support rotatable about a work axis; a pair of cutters respectively rotatable about cutter axes; each cutter having cutting edges arranged to make successive finish cuts each extending across the entire working depth of a tooth; the edges of each cutter having identical radial and axial positions relative to their respective cutter axes; the cutter axes defining a plane transverse to the work axes; the cutter axes lying on opposite sides of the work axes and defining therebetween an acute angle; one cutter having its cutting edges offset forward, with respect to its cutter axis, of a plane transverse to that cutter axis and including the work axis; the other cutter having its cutting edges offset rearward; with respect to its cutter axis, of a plane transverse to that cutter axis and including the work axis; the cutters being arranged to respectively cut the opposite surfaces of each tooth, with the cutting edges cutting clearance for each other; and a drive train for rotating the cutters and the work piece in timed relation to each other and effecting relative feed motion between the cutters and the workpiece axially of said workpiece.

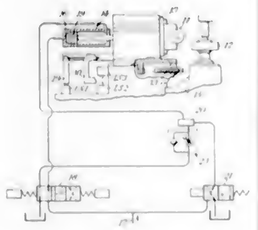
3,812,760
GEAR MAKING
Ernest Wildhaber, Rochester, N.Y., assignor to Bird Island, Inc., Boston, Mass.
Filed Apr. 9, 1973, Ser. No. 348,889
Int. Cl. B23f *5/20*
U.S. Cl. 90—3 **4 Claims**



Gear making apparatus of the type in which a rotary cutter has linear cutting edges, a relative feed motion is provided between the cutter and a continuously indexing workpiece to

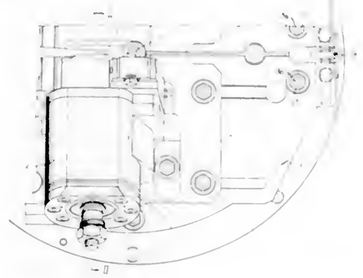
approximate the profile generating motion of an imaginary rack conjugate to the profiles to be generated, and the cutting edges lie in a longitudinally concave surface of revolution about the cutter axis and provide crowned gear teeth, the direction of the cutter axis being altered to bring the profile generating cutting edges closer to, or into, the plane of the ideal rack tooth surface as the edges pass through a plane halfway across the face width of the workpiece.

3,812,761
GEAR HOBBING MACHINES
Christopher John Morrison Southworth, Ryton-upon-Tyne, England, assignor to Machine Tool Divisional Services Limited, Coventry, England
Filed May 3, 1972, Ser. No. 250,042
Claims priority, application Great Britain, May 4, 1971, 12964/71
Int. Cl. B23f 5/22; B23b 21/00
U.S. Cl. 90—4 2 Claims



A gear hobbing machine comprising a rotary hob, an infeed slide carrying the hob, a hydraulic piston and cylinder assembly connected to the infeed slide and operable to advance it towards a gear blank to be hobbed, said cylinder and piston assembly discharging liquid during advance of the infeed slide through a normally open pilot operated check valve, a solenoid operated valve which normally permits of application of hydraulic pressure to the pilot of the check valve to maintain the check valve open, and a limit switch operable by the infeed slide to actuate the solenoid operated valve to cut off pressure from the pilot of the check valve and thereby to cause closure of the check valve to terminate advance of the infeed slide.

3,812,762
GEAR-CUTTING MACHINE
Alexei Petrovich Koshaev, ulitsa Ogorodnaya 170/1 kv. 29, Saratov, U.S.S.R.
Continuation of Ser. No. 850,040, Aug. 14, 1969. This application Feb. 28, 1972, Ser. No. 230,105
Int. Cl. B23f 1/04
U.S. Cl. 90—10 3 Claims



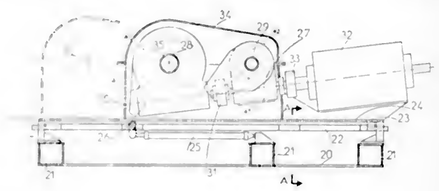
A support for a machine for cutting straight toothed bevel gears comprises a tool holder supported from first and second adjusting assemblies, the tool holder undergoing rotational movement about one assembly by means of a drive connection therefrom while undergoing oscillating movement about the second assembly so as to perform an oscillatory movement in which the tip of a tool carried by the holder moves along a closed curve of wedge-like form.

3,812,763
CUTTING TOOL
Anatoly Dmitrievich Neshumaev, ulitsa Kremenetskaya, 4/9, kv. 37; Boris Konstantinovich Goncharov, ulitsa Entuziastov, 45, kv. 107; Anatoly Alexeevich Smolyar, ulitsa Entuziastov, 45, kv. 104, and Leonid Nikolaevich Chigir, ulitsa Scherbakova, 59, kv. 10, all of Kiev, U.S.S.R.
Filed Mar. 30, 1971, Ser. No. 129,379
Int. Cl. B23q 3/16
U.S. Cl. 90—11 A 3 Claims



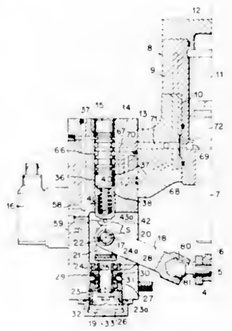
A tool of the milling cutter-type with a variable angle of inclination of the cutting members mounted on levers one end of which is pivotally connected to a holder and the other end is connected to a rod mounted coaxially to this holder, characterized in that the holder has a tail to provide for a direct connection with the machine spindle and also in that the rod can be secured in the stationary member of the machine.

3,812,764
DRIVING SYSTEM OF THE SPINDLE OF A MILLING LATHE
Claude Brochard, Dunkerque, and Rene Cossart, Coudekerque-Branche, both of France, assignors to Creusot-Loire, Paris, France
Continuation-in-part of Ser. No. 113,829, Feb. 9, 1972, abandoned. This application May 7, 1973, Ser. No. 357,829
Claims priority, application France, Feb. 11, 1970, 70.04748
Int. Cl. B23b 3/22; B23c 3/00
U.S. Cl. 90—11 R 2 Claims



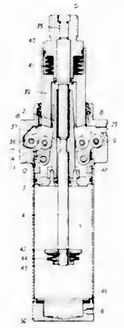
One or more hollow spindles of a milling lathe are driven by tangent wheel and worm reduction gears at different speeds with the worms aligned; connected; and rotated by a single motor. The spindles are selectively moved to a working position by a jack, which moves the entire assembly, to bring the selected hollow spindle into position to receive the bar to be milled. Each spindle mounts a tool support plate which in turn carries cutters to mill the bar as it passes through the support plate.

3,812,765
DEVICE FOR ADJUSTING THE STROKE VOLUME OF HYDRAULIC UNITS
Conrad R. Himmler, Les Essarts-Le-Roi, France, assignor to Indramat-Gesellschaft Fuer Industrie Rationalisierung und Automatisierung GmbH, Lohr am Main, Germany
Continuation of Ser. No. 58,031, July 24, 1970, abandoned. This application Mar. 3, 1972, Ser. No. 231,605
Int. Cl. F15b 13/16
U.S. Cl. 91—387 6 Claims



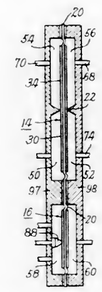
A control cylinder is operative for adjusting the stroke volume of a hydraulic unit, and restoring means is provided for restoring a piston in the control cylinder from a displaced control position to a normal starting position. Servo-control means is associated with the control cylinder and comprises fluid supply means for supplying pressure fluid to the cylinder, control valve means controlling the flow of such pressure fluid to the cylinder, and throttling-gap regulating means operatively associated with the control valve means and with the cylinder via the restoring means for controlling the operation of the cylinder.

3,812,766
WORK LOCATING APPARATUS
Dieter Weiss, Wilhelmstrasse 58, Neckarweihingen, Germany
Filed Apr. 28, 1972, Ser. No. 248,455
Int. Cl. F15b 15/22
U.S. Cl. 92—14 22 Claims



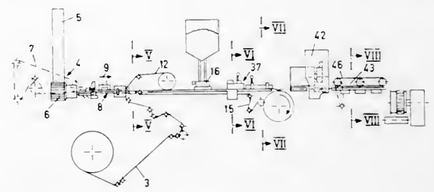
A work locating apparatus having a tension member actuated by an actuating member, particularly an actuating piston, via a starting stroke and a working stroke in which a pneumatic cylinder constitutes a control means and a mechanical step-up mechanism is operable between the control means and the tension member with the actuating member abutting directly the tension member by the starting stroke and the step-up mechanism by the working stroke of the tension member.

3,812,767
PLANAR PRESSURE-RESPONSIVE ELEMENTS
Robert C. Prescott, Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Continuation-in-part of Ser. No. 163,951, July 19, 1971, Pat. No. 3,717,162. This application Feb. 2, 1972, Ser. No. 222,934
Int. Cl. F01b 19/00
U.S. Cl. 92—48 18 Claims



Pneumatic instrumentation apparatus of the planar type comprising a laminar sandwich construction one layer of which is a stiffly-flexible metal plate formed with cut-out openings to define an interior flat operator pivotally and sealingly supported at intermediate pivot axis region. The operator includes two separate but integral sections, located on opposite sides of the pivot axis. One of these sections is sub-divided into a plurality of separate side-by-side segments each integral with the pivot axis region, and arranged to supply separate torques to such pivot axis, or to move therewith in response to forces applied by other segments of the operator. Such multi-segmented pivotable operator is embodied in a variety of instruments, including process controllers, a ratio unit, and a digital-to-analog converter.

3,812,768
METHOD AND DEVICE FOR PRODUCING A CIGARETTE FILTER UNIT
Charles Burrus, Boncourt, and Serge Boegli, Zurich, both of Switzerland, assignors to F. J. Burrus & Cie, Boncourt, Switzerland
Filed July 14, 1972, Ser. No. 271,639
Claims priority, application Switzerland, July 16, 1971, 010464/71
Int. Cl. A24c 5/50
U.S. Cl. 93—1 C 4 Claims



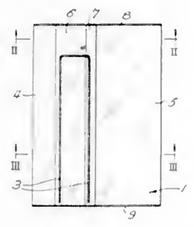
The invention relates to a method and a device for producing a cigarette filter unit wherein an external cover strip even-

tually shaped as a tube, is glued around the entire periphery of filter elements which are spaced and aligned axially within said tube, fluent filter material being disposed between adjacent pairs of filter elements within the tube.

3,812,769
MANUFACTURE OF PLASTIC BAGS

John Grober Barnes, Brampton, Ontario; Emil Bizon, Mont-Saint-Hilaire, Quebec; Charles Robertson Murray, Toronto, Ontario; Edward Kenneth Rowley, Beloeil Station, and Clayton Thomas Waugh, St. Leonard, Quebec, all of Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada

Filed Dec. 7, 1972, Ser. No. 312,961
Claims priority, application Canada, Dec. 20, 1971, 130613
Int. Cl. B31b *1/84, 41/60*
U.S. Cl. 93—35 R 11 Claims

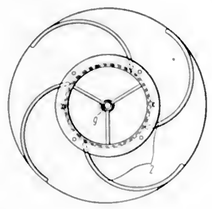


An apparatus and method for the manufacture of bags from a length of plastic film by folding inward and sealing together the longitudinal margins of the film to form a tube, and then sealing the tube transversely. The apparatus can be employed to manufacture valve bags having the valve formed by an unsealed portion of the longitudinal margins of the length of film. The length of film may be constituted by multiple plies of film.

3,812,770
DEVICE FOR AIR DISTRIBUTION IN PREMISES

Vyacheslav Vyacheslavovich Morozov, Lisnaya ulitsa 13, kv. 4, Moscow, U.S.S.R.

Filed Mar. 29, 1971, Ser. No. 128,856
Int. Cl. F24f *13/06*
U.S. Cl. 98—40 D 5 Claims

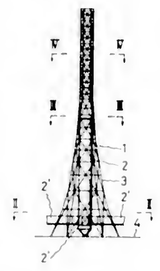


A device, in which a vented rotor is capable of being set in rotation under the effect of an incoming air stream from an air supply duct, whereby an electrical drive for setting the rotor in rotation can be dispensed with, the design of the claimed device is simplified, and it is rendered more economical and efficient than the known air distributing devices.

3,812,771
STEEL-TOWER CHIMNEY

Nobuo Yokoyama, and Takasumi Ujihara, both of Hiroshima, Japan, assignors to Mitsubishi Jakogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 20, 1972, Ser. No. 316,673
Claims priority, application Japan, Dec. 21, 1971, 46-2669
Int. Cl. E04h *12/28*
U.S. Cl. 98—60 3 Claims

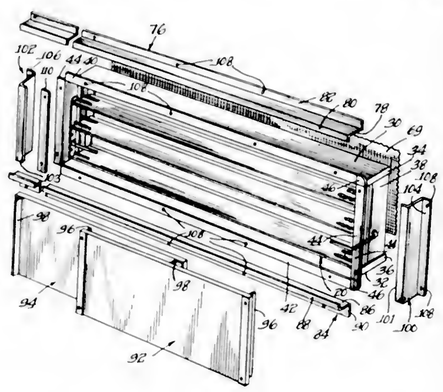


A steel-tower chimney comprising a steel tower for support, and a single stack located inside the tower and communicated to smoke sources, said stack being composed of a lower portion held upright on a foundation and an upper portion connected to the upper end of the lower portion with an expansion joint and formed of walls which are secured to the framework of the supporting steel tower.

3,812,772
VENTILATOR

Steven A. Kaiser, Milford, Ind., assignor to Chore-Time Equipment, Inc., Milford, Ind.

Division of Ser. No. 76,158, Sept. 28, 1970, Pat. No. 3,741,102. This application Dec. 11, 1972, Ser. No. 313,859
Int. Cl. E06b *7/02*
U.S. Cl. 98—110 3 Claims

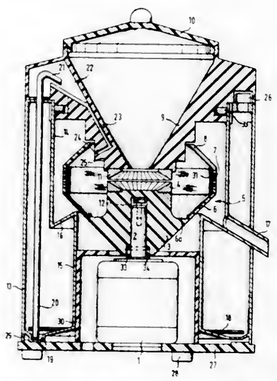


A unit for ventilating an enclosure such as a poultry or livestock house is disclosed and claimed herein and includes a rectangular frame mountable within a framed opening in a wall of the enclosure for defining an air inlet opening. Negative pressure is created within the enclosure by suitable exhaust fans mounted therein and causes the flow of fresh air to pass through the inlet opening. The direction of this fresh air is controlled by a plurality of elongated adjustable louvers mounted to the frame, while a sliding door assembly independently controls the amount of air which passes through the inlet opening.

3,812,773
COFFEE MAKING MACHINE WITH GRINDING DEVICE AND CENTRIFUGE DRUM

Gunther Hultsch, Max-Wonner-Str. 31, 8 Munchen 50, Germany

Filed Aug. 10, 1972, Ser. No. 279,717
Claims priority, application Germany, Oct. 19, 1971, 2151921; Oct. 19, 1971, 2151920; Nov. 23, 1971, 2157894; Mar. 4, 1971, 2116339
Int. Cl. A47j *31/00*
U.S. Cl. 99—290 24 Claims

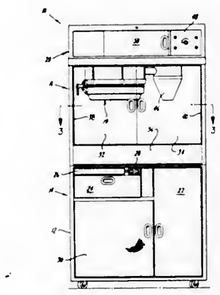


A coffee maker having a grinding mill and an extraction basket in coaxial relation in which the extraction basket includes a cylindrical perforated region. The coffee ground in the mill is supplied to the basket and, thereafter, when hot water is supplied to the basket and the basket is rotated the ground coffee forms a layer about the cylindrical perforated region and the hot water passes radially therethrough while simultaneously forming a coffee beverage.

3,812,774
AUTOMATIC POPCORN POPPING MACHINE

Alan M. Day, Oakland, and Gordon D. Browning, Castro Valley, both of Calif., assignors to Compupop, Inc., San Leandro, Calif.

Division of Ser. No. 875,759, Nov. 12, 1969, Pat. No. 3,697,289. This application Aug. 25, 1972, Ser. No. 283,932
Int. Cl. A23l *1/18*
U.S. Cl. 99—323.8 37 Claims

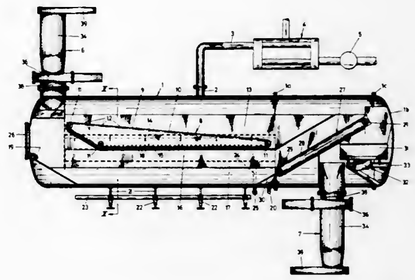


Method and apparatus for automatically popping corn in heated seasoning oil. Raw corn is fed by an air conveyor to a hopper above the popping pot, and an air current is used for injecting a charge of corn and salt into the pot. Seasoning oil is metered into the pot by an adjustable valve providing precise volume measurement. The oil supply is delivered to the metering valve by a pump in an oil vat and with a heater adapted to melt the seasoning adjacent the pump intake, and melt along a telescoping feed tube to prevent pump cavitation. Electronic sensors in the corn and oil supply signal a control circuit for supplies refill as required. A rotary valve disc in the pot is mechanically interlocked with switching circuits of the control system to correlate corn and salt input into the pot, cooking, steam discharge to a condenser, and air discharge of popped corn to a display area. A deflector plate in the air stream into the pot directs the air into a path for optimum corn evacuation through a discharge tube opening downwardly inside the pot. The pot remains closed throughout a series of popping cycles for cleanliness, convenience, and safety. An agitator in the pot is formed in a configuration drawing the popped corn radially inwardly for evacuation into the discharge opening. A self-cleaning condenser is adapted to condense steam and waste oil exiting from the pot and a steam condensate trap is provided in a modified form. A venturi formed at the condenser outlet and communicating with a blower is adapted to create a vacuum in the pot during the popping cycle to prevent effluent from discharging into the display case and to draw it into the condenser. A spring-load agitator drive shaft releasably interlocks with a corresponding socket in the agitator base affording easy opening and closing of the pot by pivotal movement of the agitator and hot plate. "Old maids" in the discharge of popped corn from the pot are trapped and separated therefrom for removal through a chute in one form, or through a screen in the bottom of the display case in another form.

3,812,775
PROCESS AND APPARATUS FOR PREPARING FRIED EDIBLE PRODUCTS

Pieter Herman Sijbring, Rhenen, Netherlands, assignor to Instituut Voor Bewaring En Verwerking Van Landbouwprodukten, Wageningen, Netherlands

Division of Ser. No. 850,290, July 7, 1969, Pat. No. 3,687,679. This application Mar. 9, 1972, Ser. No. 233,373
Claims priority, application Great Britain, Oct. 29, 1968, 51301/68; Netherlands, Oct. 28, 1966, 6615316
Int. Cl. A47j *37/12*
U.S. Cl. 99—404 8 Claims

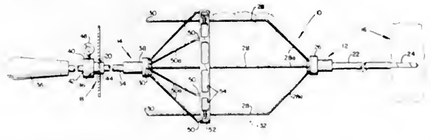


Edible products formed from compositions comprising edible starch materials and containing a sugar are fried in a two-stage operation in an oil such as peanut oil. In the first stage the frying is continued until the moisture content drops to 5 to 20 percent by weight. In the second stage the frying is done under reduced pressure at a temperature of not more than 100°C. and is continued until the moisture content is not more than 2.5 percent by weight.

A suitable oven for carrying out the second stage consists of a closed housing, supply and discharge sluices, suction means for drawing off water vapor and to keep the pressure below at-

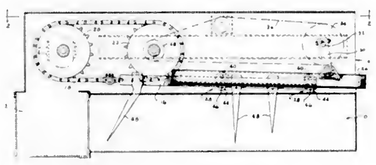
mospheric, conveyor means for moving the edible product toward the discharge outlet and means for removing the fried edible product from the oil before such product reaches the discharge sluice.

3,812,776
CAGE-TYPE ROTARY SPIT
George W. Kean, Woodland Dr., Granby, Conn. 06035
Filed July 21, 1972, Ser. No. 274,099
Int. Cl. A47j *37/04*
U.S. Cl. 99—421 H **8 Claims**



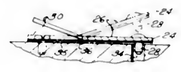
A two-piece rotary spit for use with an electric drive motor above an open charcoal bed or the like in barbecuing roasts, fowl and the like. Each part of the spit includes an elongated rod section and a cage half section. One rod section has a square end portion for engagement by a drive motor and the other rod section is provided with a handle and an adjustable bearing member. One cage section comprises six (6) equally circumaxially spaced axial members which have extensions inclined inwardly to a hub member on the rod to form a cone-shaped outer cage portion. The other cage half section is similar but includes an annular member having small axial openings for slidably receiving the axial members of the first cage half section. Thumb screws associated with the axial openings secure the cage half sections in assembled relationship and a roast or fowl therewithin is held in a symmetrical and substantially balanced position.

3,812,777
MOUNTING STRUCTURES FOR THE FEED MECHANISM OF A CROP BALER
Robert G. Yound, Bird-in-Hand; Paul S. Trible, Ephrata, and Emmett F. Glass, Akron, all of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Sept. 1, 1972, Ser. No. 285,947
Int. Cl. B30b *15/30*
U.S. Cl. 100—189 **7 Claims**



An improved mounting structure for the feed mechanism of a crop baler. The feeding mechanism includes a feed finger support mechanism and a channel assembly, the feed finger support mechanism being slideably interconnected with the channel assembly being supported by a second drive means. Means are provided whereby the feed finger support mechanism may be easily disconnected from its associated drive means, and similarly, means are provided whereby the channel assembly can be easily removed from its associated drive means whereby the feed mechanism for the crop baler can be easily removed from the crop baler for service and the like.

3,812,778
PLATE RETAINER ASSEMBLY
John C. Ziska, Wickliffe, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio
Filed Jan. 19, 1973, Ser. No. 324,937
Int. Cl. B41l *47/04*
U.S. Cl. 101—110 **3 Claims**



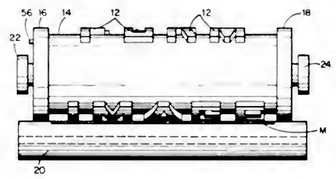
A facsimile signature plate is retained on a data recorder machine by a plate retainer assembly comprising a leaf spring secured to the bed of the machine and a plate retainer mounted on the leaf spring with the plate retainer having locator pins for cooperating with apertures in the facsimile signature plate and the bed and a flange on the plate retainer for pivoting the assembly against the bias of the leaf spring to release the facsimile signature plate.

3,812,779
AUTOMATIC MULTI-COLOR PRINTING ARRANGEMENT
Clyde C. Cobb, Brooklyn, N.Y., assignor to American Screen Process Equipment Company, Chicago, Ill.
Filed May 22, 1969, Ser. No. 826,793
Int. Cl. B41f *15/04*
U.S. Cl. 101—115 **1 Claim**



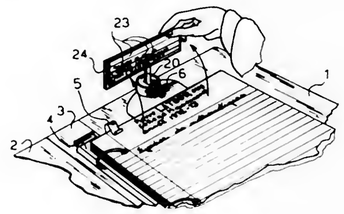
A multi-color printing arrangement adapted to print cut piece textile goods with different colors without running, smearing, overlapping or the like. Means is provided to assure proper registration of the workpiece carrying the material to be printed, a portion of the registration means also functioning to hold the workpiece during the printing cycle. Means in the novel control circuit permits selection of the duration of the cycle best suited for the ink used.

3,812,780
ELECTROGRAPHIC FORMS PRINT STATION
Ronald F. Borelli, Edmond, Okla., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed Jan. 2, 1973, Ser. No. 320,419
Int. Cl. B41f *5/00*
U.S. Cl. 101—216 **9 Claims**



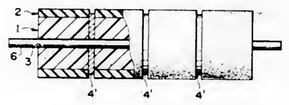
An electrographic printing device is provided with a forms print station including an electrode drum having forms information raised thereon which operates on a dielectric print medium. The forms print station provides means for the rapid printing of various size forms on the print medium which are then transported through the electrographic printing device for the addition of variable information at a print station downstream thereof.

3,812,781
WRITING PAD HOLDER WITH IDENTIFICATION AND PRINT MEANS
Claude Bissonet, 3747 Coronet Rd., Apt. 10, Montreal, Quebec, Canada
Filed Jan. 31, 1973, Ser. No. 328,343
Int. Cl. B41f *1/48, 1/02*
U.S. Cl. 101—298 **9 Claims**



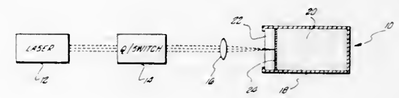
A writing pad holder such as a binder or folder for sheets of paper or the like comprising a base panel including a cover forming a folder therewith to hold the sheets of paper, a visual owner's identification plate pivoted onto said base panel about an upright and a transverse axis relative thereto to adjust the horizontal and vertical directions of the owner's identification plate, a printing plate secured on one side of the latter to print owner's identification onto the paper, an ink pad slidable over the printing plate and a window into the cover to register with the visual owner's identification when the cover is closed.

3,812,782
SELF-INKING ROLLER
Takaji Funahashi, No. 1, 2-chome, Kitatakasho-machi, Nagoya, Japan
Filed Dec. 14, 1972, Ser. No. 315,188
Claims priority, application Japan, Dec. 17, 1971, 46-119655; July 13, 1972, 47-82837; Sept. 4, 1972, 47-103117; Nov. 7, 1972, 47-128162; Nov. 7, 1972, 47-128163
Int. Cl. B41f *31/22*
U.S. Cl. 101—367 **12 Claims**



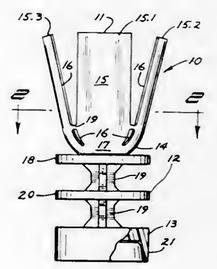
A self-inking roller comprising an inner cylindrical member made of porous synthetic polyvinyl formal resin having innumerable fine continuous pores, and an outer cylindrical member concentrically mounted over the outer surface of the inner cylindrical member and made of sponge rubber having innumerable fine continuous pores.

3,812,783
OPTICALLY DETONATED EXPLOSIVE DEVICE
Lien C. Yang, Los Angeles, and Vincent J. Menichelli, Glendale, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Aug. 3, 1972, Ser. No. 277,904
Int. Cl. F42c *13/02*; **F42d** *1/04*; **F42c** *19/08*
U.S. Cl. 102—70.2 R **14 Claims**



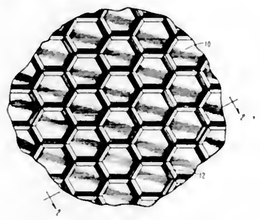
A technique and apparatus for optically detonating insensitive high explosives, is disclosed. An explosive device is formed by containing high explosive material in a housing having a transparent window. A thin metallic film is provided on the interior surface of the window and maintained in contact with the high explosive. A laser pulse provided by a Q-switched laser is focussed on the window to vaporize the metallic film and thereby create a shock wave which detonates the high explosive. A plurality of explosive devices may be concurrently or sequentially detonated by employing a fiber optic bundle to transmit the laser pulse to each of the several individual explosive devices.

3,812,784
ONE PIECE WAD COLUMN AND SHOT CUP
George L. Herter, Waseca, Minn., assignor to Herter's, Inc., Waseca, Minn.
Filed Jan. 17, 1972, Ser. No. 218,231. The portion of the term of this patent subsequent to Mar. 27, 1990, has been disclaimed.
Int. Cl. F42b *7/08*
U.S. Cl. 102—95 **3 Claims**



A one piece shot cup and gas sealing wad column for a shotshell wherein the shot cup is supported upon a transverse disc and has a partially spherically rounded bottom, the cup sidewalls having slits extending into the rounded bottom, and the cup having bridging strips traversing the slits adjacent the bottom of the cup.

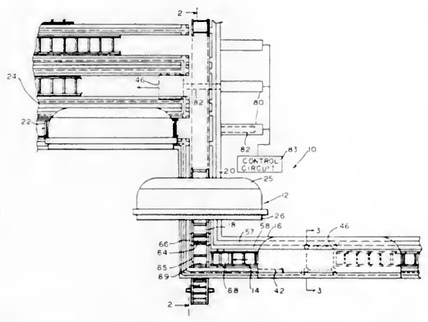
3,812,785
PROPELLANT FORMED CURE-SHRINKABLE PROPELLANT MATERIAL
Joseph Cohen, Carmichael, Calif., and Ralph Scotoni, Jr., Eifeld, Switzerland, assignors to Aerojet-General Corporation, El Monte, Calif.
Continuation-in-part of Ser. Nos. 384,821, July 21, 1964, abandoned, and Ser. No. 790,180, June 28, 1968, abandoned. This application Mar. 30, 1970, Ser. No. 23,895
Int. Cl. F42b *1/00*
U.S. Cl. 102—100 **21 Claims**



This patent describes a novel caseless ammunition comprising a solid unitary propellant grain of generally uniform circular cross-section and containing a plurality of longitudinal openings therein extending the length of said grain to provide increased burning surface. The ammunition is prepared by adding a flowable, curable propellant to a generally enclosed mold of circular cross-section containing a plurality of longitudinally extending pins, curing said propellant, and removing the mold including the pins.

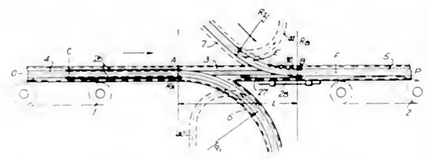
This patent also discloses a novel solid-rocket motor comprising a plurality of spaced-apart free-standing propellant grains cast in a rocket motor casing. A method for forming a novel propellant grain structure in a motor chamber which comprises inserting a separator which divides the chamber into a plurality of smaller chambers, filling the chamber with a propellant which shrinks upon curing, and curing the propellant. A method for forming a novel propellant grain structure in a motor chamber which comprises casting the propellant, chosen from a class which has the characteristic of shrinking upon curing, around lengthwise positioned mandrels coated with a mold release agent, curing the propellant, removing the mandrels to provide spaces in the structure and casting and curing additional propellant in the spaces provided by the mandrels.

3,812,786
CONVEYOR APPARATUS
Robert L. Cahn, 257 Grand Central Ave., Amityville, N.Y 11701
Filed Apr. 18, 1972, Ser. No. 245,136
Int. Cl. B61j *3/00*
U.S. Cl. 104—88 **9 Claims**



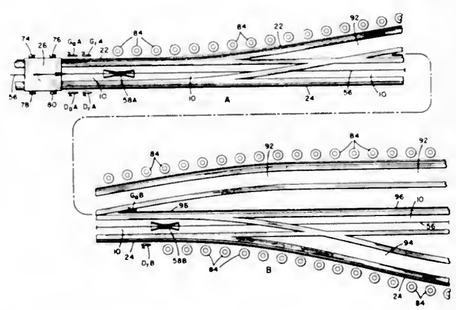
Conveyor apparatus for receptacles comprising an assembly of vertical and horizontal tracks with the horizontal tracks disposed at different elevational levels. A drive means moves receptacle holders along the tracks and electromechanical switching devices shift the receptacle holders between the vertical and horizontal tracks.

3,812,787
CONVEYOR COMPRISING A PLURALITY OF DRIVE MEANS FOR SUCCESSIVELY DRIVING A LOAD CARRIER
Georg Kling, Bonn, Germany, assignor to Pohlig-Heckel-Bleichert Vereinigte Maschinen-fabriken Aktiengesellschaft, Cologne, Germany
Filed Nov. 1, 1971, Ser. No. 194,321
Claims priority, application Germany, Oct. 31, 1970, 2053658
Int. Cl. B61j *3/04*
U.S. Cl. 104—96 **16 Claims**



Conveyor comprising a plurality of drive means for driving a load carrier in a successive manner. The load carrier is carried by wheels movably supported on at least one track rail and adapted to be coupled to a drive chain which is guided by a drive rail and provided with coupling elements. The load carrier includes a main stop movable into and out of the path of a coupling element, and a locking pawl, with the main stop extending therebetween. First and second camming bars of predetermined lengths are positioned respectively above and below the track rail at distances to each other with at least a portion of the second camming bar extending into a transfer section so as to maintain the main stop in predetermined inoperative relationship until the main stop has been conveyed beyond that transfer section.

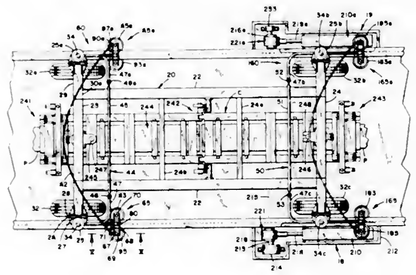
3,812,788
TRANSPORT INSTALLATION WITH INDEPENDENT VEHICLES
Roger Laurent, Chambery, France, assignor to Poma 2.000 S.A., Fontaine, France
Filed Apr. 4, 1972, Ser. No. 240,963
Claims priority, application France, Apr. 7, 1971, 71.12413
Int. Cl. E01b *25/12*
U.S. Cl. 104—130 **10 Claims**



A high-capacity transport installation making use of passive vehicles of low passenger capacity but moving at a high

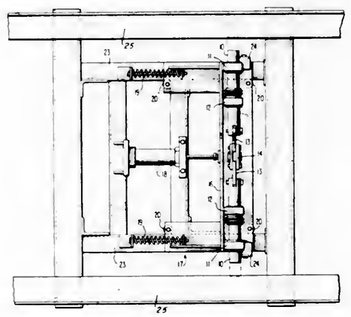
frequency, hauled along a main track by a continuously moving traction cable. Bifurcations of the track at the level of the stations permit a deviation of the vehicles, without previous slowing down, on to a loop line where they are taken over by a drive system with friction wheels. The section of the track above the bifurcation is equipped with two guide rails, each of which extends along one of the tracks below the bifurcation. The track to be followed the vehicles is determined by guide components carried by the vehicles.

3,812,789
TRANSPORTATION SYSTEM
Roy A. Nelson, Grand Prairie, Tex., assignor to LTV Aerospace Corporation, Dallas, Tex.
Filed Oct. 13, 1972, Ser. No. 298,716
Int. Cl. B61b *5/02*
U.S. Cl. 104—130 **13 Claims**



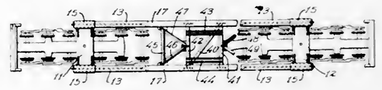
A transportation system having a roadway and a plurality of vehicles movable over the roadway, the roadway having parallel guide rails between which the vehicles move, the vehicles having pairs of front and rear wheels which are turned as required by individual guide and steering means engageable with the guide rails for guiding movement of the vehicles along each section of the track and for selectively steering or switching the vehicles from one section of the roadway to another which extends angularly therefrom.

3,812,790
DYNAMIC STOP
Hans-Udo von Tresckow, Muehlenstrasse, Germany, and Calvin R. Davis, Birmingham, Mich., assignors to Rexnord Inc., Milwaukee, Wis.
Filed Nov. 24, 1972, Ser. No. 309,373
Int. Cl. B61k *7/00*
U.S. Cl. 104—252 **3 Claims**



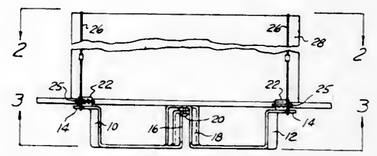
A dynamic stop for an operator-less, remotely controlled unit carrier system consisting of a pair of stopping bars positioned between the tracks of the carrier system and mounted so that they do not interfere with the passage of the cars of the unit carrier system when not in use, but may be extended into an outward position so that they will contact stopping brackets on the underside of a car which it is desired to stop. The dynamic stop may be mounted on a reciprocating device to absorb the energy of contact.

3,812,791
ADJUSTABLE FLAT CAR
Benjamin R. Barnard, Minnetonka, Minn., assignor to The Maxson Corporation, Ramsey, Minn.
Filed July 27, 1972, Ser. No. 275,747
Int. Cl. B61d *3/16, 5/00;* **B61f** *01/00*
U.S. Cl. 105—393 **6 Claims**



An adjustable length railroad flat car having slideable body bolsters resting directly on the center of the rail trucks and adaptable to slide along two side sills so as to be able to carry heavy vessels or structures of varying lengths directly on the rail trucks.

3,812,792
COLLAPSIBLE PALLET FOR FREIGHT AND CARGO
Clayton J. La Belle, River Rouge, Mich.
Filed July 5, 1973, Ser. No. 376,424
Int. Cl. B65d *19/00*
U.S. Cl. 108—56 **4 Claims**

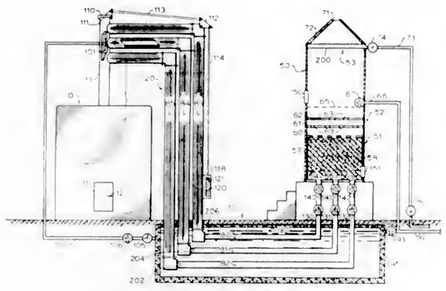


A collapsible load-supporting pallet having a pair of elongated members with an upright arm on each end. A raised central portion in each of the elongated members has a vertically disposed pintle therethrough pivotally connecting the two elongated members. A flat member is removably supported by the upright arms and the raised central portions on the elongated members. A laterally disposed clip pivotally attached to each of the upright arms, releasably holds the flat member in its assigned position on the elongated members. A resilient member on the pintle yieldably urges the two elongated members apart so that they may be pivoted together to facilitate storage when the flat member is removed.

3,812,793
APPARATUS FOR TREATING NOXIOUS EFFLUENTS
Raymond Lewis Solomon, Deming, N. Mex., assignor to William J. Trayler and Lois J. Trayler, both of Edmund, Ohio, part interest to each
Filed Apr. 19, 1972, Ser. No. 245,334
Int. Cl. F23g *3/00*
U.S. Cl. 110—8 R **4 Claims**

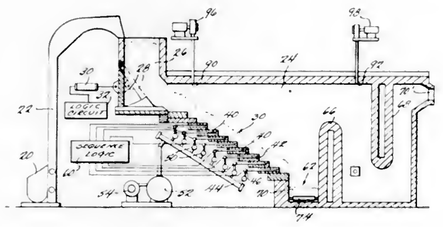
A system of uncomplicated structure which lends itself to unskilled manual operation for treating the output of a furnace, burner, or the like, in which the furnace output is

cooled, directed and forced into a treating tank containing a scrubbing fluid, and exposed to a burner flame before being



discharged into the atmosphere. The system is of particular use in ensuring that the output from the burner or furnace contains no noxious effluents.

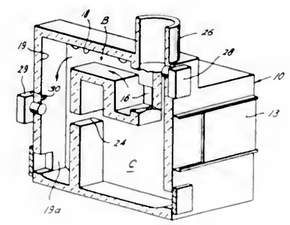
3,812,794
STAIRSTEP JET PULSE INCINERATOR
Fred W. Taylor, 60 Village Cir., Bartow, Fla. 33830
Filed Sept. 21, 1972, Ser. No. 291,029
Int. Cl. F23g *3/00*
U.S. Cl. 110—8 R **11 Claims**



An improved combustion furnace having a grate formed as a plurality of downward leading steps from an upper to a lower region with a number of separated, outwardly flaring openings among the steps, and a source of air connected to the openings by valves which can be sequentially actuated to supply pulses of air which promote combustion as the air penetrates into and among the burning material and at the same time moves the burning material down the grate.

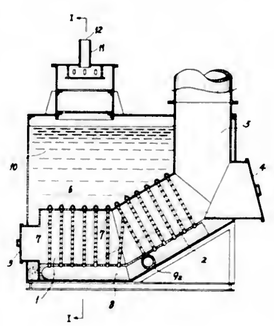
3,812,795
INCINERATOR
Harry L. Bowles, Jr., Houston, Tex., assignor to Austral Incinerator Corporation, Houston, Tex.
Filed Mar. 14, 1973, Ser. No. 341,305
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 C **12 Claims**

An incinerator apparatus for burning waste material wherein a primary chamber is connected to a secondary chamber through an angular duct or passageway of predetermined size and configuration and a nozzle or opening of a preselected size, whereby the velocity of flow of the products of combustion through the apparatus, and particularly through the nozzle or opening, is controlled to maintain the proper draft and the desired dwell time of the combustion products within the apparatus to assure complete oxidation of said products prior to their exit from the usual flue stack. Additionally, a secondary burner is located in such relationship to the nozzle or opening that the products of combustion must pass through the burner flame, and also secondary air inlets



for introducing air into the duct are positioned in said duct, all of which substantially increases the efficiency of the apparatus.

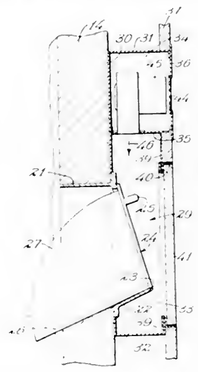
3,812,796
REFUSE INCINERATOR
Tadayoshi Nagata, and Wahei Hamanaka, both of Osaka, Japan, assignors to Iwatani & Co., Ltd., Osaka, Japan
Filed Mar. 22, 1973, Ser. No. 343,735
Int. Cl. F22b *33/18*
U.S. Cl. 110—10 **6 Claims**



A refuse incinerator adapted for burning plastic refuse in a sanitary and efficient manner, which comprises a primary combustion chamber and a secondary combustion chamber, the latter being slanted in relation to the former, such that the secondary combustion chamber functions not only as a furnace chamber but also as a passageway for refuse moving into the primary combustion chamber, thus, the refuse is completely burned thereby avoiding air pollution.

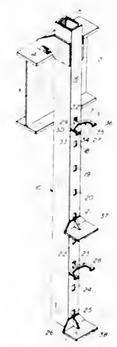
3,812,797
SMOKE ELIMINATOR DUMP CHUTE DOOR
Robert H. Wieken, West St. Paul, and Harland C. Potter, White Bear Lake, both of Minn., assignors to Temperature Control Inc., Ramsey County, Minn.
Filed Oct. 26, 1972, Ser. No. 301,151
Int. Cl. F23g *3/00*
U.S. Cl. 110—18 A **8 Claims**

An apparatus for preventing smoke leakage from chimneys provided with dump chute doors is provided. The device includes an enclosure encircling the dump chute door, and an access door in the enclosure providing access to the dump chute door. Means is provided for subjecting the interior of



the enclosure to a slight positive pressure to overcome any position pressure experienced in the chimney.

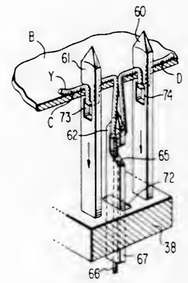
3,812,798
MOUNTING MEANS FOR A REFRACTORY SHIELD
Frank P. Merkle, Jr., R.R. 2, Farmington, Long Grove, Ill. 60047
Filed Feb. 28, 1973, Ser. No. 336,629
Int. Cl. F23m *5/08*
U.S. Cl. 110—99 R **12 Claims**



Mounting means for a suspended refractory shield such as a furnace wall or roof in a high temperature furnace comprises a support beam providing structural support for the refractory shield, a hollow, structural hanger tube depending from the support beam, metal hanger means engaging the hanger tube through oblong openings provided therein, and a cooling fluid supply means communicating with the hanger tube through the open end thereof. In use, a cooling fluid is passed through the oblong openings and cools the metal hanger means.

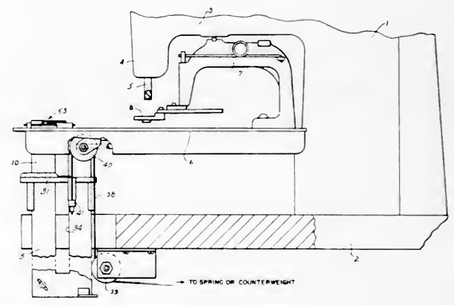
3,812,799
METHOD AND MEANS OF TUFTING
Abram N. Spanel, 344 Stockton St., Princeton, N.J. 08540; Bernard H. Wittler, Dover, and Nichloas Leszczak, Point Pleasant, both of N.J., assignors to said Spanel, by said Leszczak and Wittler
Filed Apr. 21, 1972, Ser. No. 246,305
Int. Cl. D05c *15/10*
U.S. Cl. 112—79 R **20 Claims**

A method and means for use in pneumatic multi-color tufting and other tufting systems wherein at each tufting needle station three needles with linearly aligned eyes are disposed to receive yarn for tufting. In a preferred embodiment the yarn is cut into a discrete yarn bit prior to tufting and may be clamped at the central needle which, of the three needles, may be the first to descend through the backing. The central needle descent is followed by the descent of the two outer needles which pull the remainder of the yarn bit through the backing



layer thereby implanting a series of tufts in the backing layer. The central needle may have an open eye for creating loop tufts or it may have a closed eye in which case a knife member will be used to release the yarn from the central needle to form cut tufts. A single member may serve dual functions; first as a clamp until the yarn is deposited in the backing to a desired point and then serving as a knife when the yarn is to be cut and released from the eye of the central needle.

3,812,800
LABEL ATTACHING MACHINE
Arnold H. Ziegler, New City, and George J. Schweitzer, Lake Grove, both of N.Y., assignors to Gellman Industries, Inc., New York, N.Y.
Filed July 31, 1973, Ser. No. 384,183
Int. Cl. D05b *3/12*
U.S. Cl. 112—104 **9 Claims**

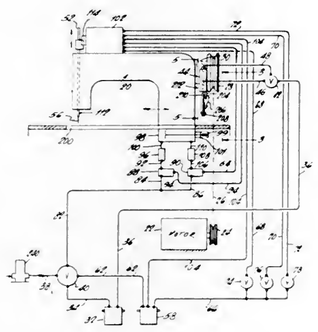


In a label attaching machine attachment for sewing machines, a label magazine containing a stack of labels is mounted below the worktable and labels are fed upwardly by pressure applied to the bottom of the stack to a label feeding position when the topmost label is engaged by a picker finger mounted on a reciprocating carriage which moves the label to an attaching station.

3,812,801
PNEUMATIC DRIVE SYSTEM FOR A SEWING MACHINE

Nick Lukowicz, 48 Kilburn Ave., Huntington Station, N.Y. 11746

Filed Jan. 19, 1973, Ser. No. 325,167
Int. Cl. D05b *3/00, 69/08*
U.S. Cl. 112— 121.14 6 Claims



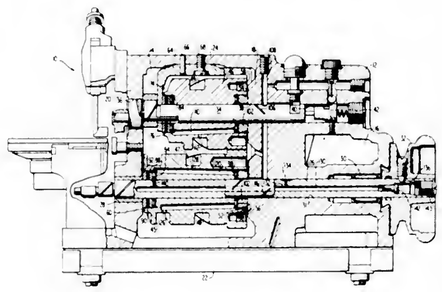
A pneumatic drive system for controlling the stitching direction of a sewing machine including a base and having a needle bar with a sewing needle driven between uppermost and lowermost position by a motor connected to the sewing machine through a clutch comprising a main air supply, a clutch air control cylinder, a clevis assembly connecting between the clutch air control cylinder and the clutch a four-way air control valve, and various pneumatic lines interconnecting the clutch air control cylinder, the four-way air control valve and a main air regulator that connects to the main air supply, so that the sewing needle sews straight stitches as a foot pedal is depressed closing the various pneumatic lines between the main air supply and clutch air control cylinder and releasing the clutch. A brain member connects to the machine, and a jet sensor is attached to the brain member and has a structure defining a substantially U-shaped member having at least one opening in each arm through which air from the brain member flows. Various pneumatic lines and regulator valves interconnect with the main air regulator and are closed to the main air supply as a second pedal is depressed to send air to the brain member. A flag member breaks the flow of air through the openings in the arms which causes a number of flow control valves and booster valves interconnected by pneumatic lines to cause the base of the machine to oscillate and cause the sewing machine to reciprocate and sew zig-zag stitches.

3,812,802
SEWING MACHINE NOISE AND VIBRATION REDUCTION

Bernard N. Pierce, West Hartford, Conn., assignor to The Merrow Machine Company, Hartford, Conn.

Filed May 3, 1973, Ser. No. 356,851
Int. Cl. D05b *69/02*
U.S. Cl. 112—218 R 6 Claims

Noise and vibration are reduced in an axial cam drive mechanism by spring loading the rotary cam assembly to one end of its limit of axial travel. The spring load is applied through an antifriction axial thrust bearing, and is reacted by a second antifriction axial thrust bearing. The spring load applied exceeds the axial component of the maximum reaction load applied by the cam driven mechanism during operation

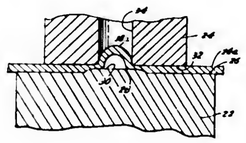


so that there is no tendency of the rotary cam assembly to shift axially upon reversal of the reaction load.

3,812,803
METAL FORMING

Omar L. Brown, Dayton, Ohio, assignor to Ermal C. Fraze, Dayton, Ohio

Continuation-in-part of Ser. No. 288,204, June 17, 1963, abandoned. This application June 18, 1965, Ser. No. 464,909
Int. Cl. B21d *51/38*
U.S. Cl. 113—121 C 7 Claims



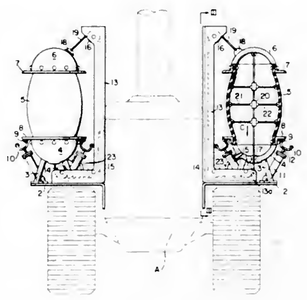
An upstanding hollow rivet is formed in a metal can end by pressurally engaging opposite sides of the can end with a pair of die elements, one of which is formed with a recess. The dies place a continuous zone of the can end under compressive stress sufficient to cause metal of the zone to be forcibly displaced into the die recess with consequent thinning of the compressed area whereby an integral rivet is formed which comforms to the size and shape of the die recess.

3,812,804
APPARATUS FOR FLOATING A VEHICLE FOR UNDERWATER OPERATION

Yoshihiro Nagata; Tadashi Yoda, and Yoshinobu Tanaka, all of Osaka, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed July 29, 1971, Ser. No. 167,344
Claims priority, application Japan, July 29, 1970, 45-65762
Int. Cl. B63g *8/00, 8/14*
U.S. Cl. 114—16 R 4 Claims

An apparatus for floating a vehicle for operating under water and which has a pair of floats each having upper and lower convex members and a resilient cylinder and secured to



both sides of the vehicle, and pipes for feeding compressed air to the floats.

3,812,805
INFLATABLE PONTOON BOAT

Dag C. G. Forssell, Manhattan Beach, and Henry J. Folson, Redondo Beach, both of Calif., assignors to Vector Company, Manhattan Beach, Calif.

Filed Oct. 12, 1972, Ser. No. 296,784
Int. Cl. B63b *1/12, 7/08*
U.S. Cl. 114—61 12 Claims

There is described a boat having two rubberized fabric inflatable pontoons and two separate open box-like hulls. The hull sections are joined to the pontoons by a beading on the pontoons which engages slots on either side of the hull sections. The pontoons are locked into position when they are inflated.

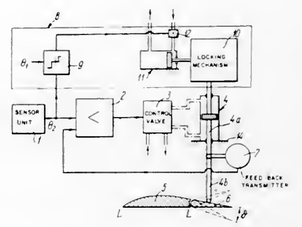
3,812,806
AUTOMATIC STABILIZATION SYSTEM FOR HYDROFOIL CRAFT

Mikhail Mikhailovich Korotkov, Sormovskoe shosse, 3, kv. 2; Stanislav Nikolaevich Suldin, ul. Geroev Kosmosa, 24, kv. 12, and Alexandr Ivanovich Vasin, Bulvar Jubileiny, 7, kv. 17, all of Gorky, U.S.S.R.

Filed Aug. 16, 1972, Ser. No. 281,013
Int. Cl. B63b *1/28*
U.S. Cl. 114—66.5 H 3 Claims

A system comprising a sensor unit serving to control hydraulic cylinders which actuate the control surfaces of foils and incorporating automatic interlocking means assuring safe operation of the craft.

The automatic interlocking means comprise an electronic relay with adjustable setting and locking mechanisms for

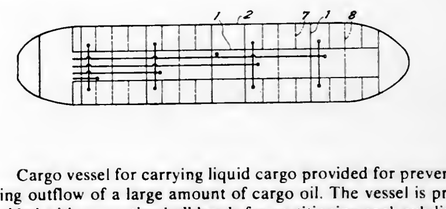


setting the control surfaces of foils into the neutral positions should the craft exceed the maximum preset angles of deviation.

3,812,807
CARGO VESSEL FOR CARRYING LIQUID CARGO

Shigemi Ando, Chiba, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tokyo, Japan

Filed Dec. 1, 1971, Ser. No. 203,529
Claims priority, application Japan, Apr. 14, 1971, 46-23556
Int. Cl. B63b *25/08*
U.S. Cl. 114—74 R 1 Claim



Cargo vessel for carrying liquid cargo provided for preventing outflow of a large amount of cargo oil. The vessel is provided with separating bulkheads for partitioning each subdivision divided by oiltight bulkheads, and each separating bulkhead having a valve for communicating between subdivisions on both sides thereof.

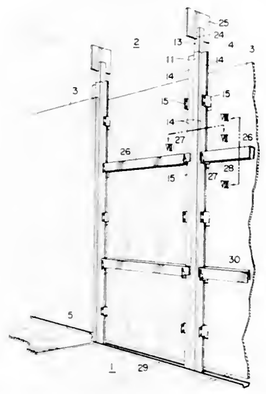
3,812,808
SHIP PARTITION AND LINING CONSTRUCTION

Masahiko Shirota, No. 2-15-4, Hiratsuka, Shinagawa-ku, Tokyo, and Tomoji Nagano, 1-11-409, Chayamadai-danchi, No. 2-1, Chayamadai, Sakai-shi, Osaka, both of Japan

Filed Oct. 2, 1972, Ser. No. 293,894
Claims priority, application Japan, Oct. 2, 1971, 46-90526; June 30, 1972, 47-77995; June 30, 1972, 47-77996
Int. Cl. B63b *3/56*
U.S. Cl. 114—78 9 Claims

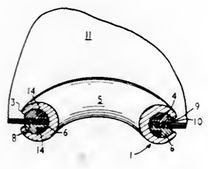
Laterally spaced vertical securing members in the form of telescoping tubes support respective sides of lining panels extending therebetween. The outer tubular support member is formed by a pair of U-shaped members whose vertical flanges extend outwardly therefrom in the plane of the panels, lie face-to-face and carry hooks which extend at right angles away from the flanges at their outer edges on both sides of the outer support member. Slots within the panels of a width in excess of the hooks and at positions corresponding to the hooks permit the panels to be hung thereon. The panels terminate in L-shaped recesses at their edges and an L-shaped vibration dampener is sandwiched within the recess and between the panel and right angle wall portions of the outer vertical tubular support member.

The inner telescoping tubular member may be slotted at the top at right angles to the plane of the panel supported thereby, and a plate is welded within the slot and to the upper deck to securely position the vertical support member. U-shaped



backing spacers having a lengthwise dimension corresponding to the lateral width of the partition and lining are slotted adjacent both ends to receive the hooks and retain adjacent vertical support members at desired spaced intervals.

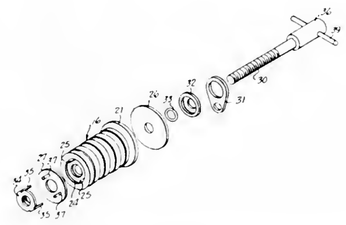
3,812,809
CRINGLE ASSEMBLY
Paul Mervyn Salmon, Marrickville, New South Wales, Australia, assignor to William Adams & Company Limited (Manufacturing Division), Marrickville, New South Wales, Australia
Filed Sept. 1, 1972, Ser. No. 285,618
Claims priority, application Australia, Sept. 2, 1971, 6148/71
Int. Cl. B63h *9/08*
U.S. Cl. 114—114 **2 Claims**



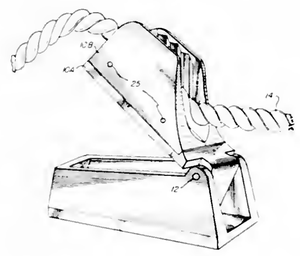
The invention relates to a cringle assembly for mounting in a sail in which the assembly includes a sleeve and a pair of rings which clamp the rings together around a hole in the sail and the invention provides a means for securely clamping the rings by the sleeve without the likelihood of the rings working loose under the strain applied by the sail securing rope attached to the assembly.

3,812,810
CONTROLLED EXPANSION MARINE PLUG
Axel Moeller, St. Petersburg Beach, Fla., assignor to Moeller Manufacturing Co., Inc., Greenville, Miss.
Filed Mar. 2, 1973, Ser. No. 337,291
Int. Cl. B63b *13/00*
U.S. Cl. 114—197 **5 Claims**

A bailer plug is described comprising a resilient compressible stopper body having resilient sealing ribs, in which the grooves between the ribs are of reduced height so as to provide quicker purchase on the interior of the thimble in which the plug is inserted. The threaded stem, attached to a turning handle, engages a threaded plate having upstanding fingers received in slots in a lower compression plate and in corresponding slots in the lower portion of the resilient compressible stopper body. This arrangement prevents overturning with consequent rubber flow over the end of the plug and loss of the seal. In order to prevent leakage of water through the plug, an O-ring of compressible material is provided between the upper compression plate and the stem.



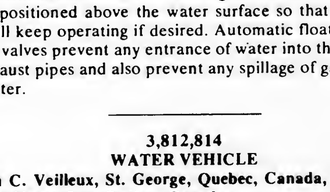
3,812,811
ROPE RETAINING CLEAT WITH AUTOMATIC RELEASE
Bernard Rodriguez, R.D. No. 2, Box 375, Highland, N.Y. 12528
Filed Nov. 14, 1972, Ser. No. 306,182
Int. Cl. F16g *11/00*
U.S. Cl. 114—218 **4 Claims**



A pivotally mounted rope retaining cleat for sailboats having a pressure retarding action to the pivotal movement of the cleat and a releasing action at the full movement of the cleat to release the sail rope and more particularly for use on a catamaran or trimaran sailboat where the sail retaining rope may be set in a cleat to hold the sail at a preferred sailing angle and in the event of a strong wind, the cleat will release the sail rope automatically and prevent the possibility of an overturned or capsized sailboat.

3,812,812
TROLLING PROPELLER WITH SELF ADJUSTING HYDRODYNAMIC SPOILERS
Mathew Hurwitz, 63 Oakland Ave., Auburndale, Mass. 02166
Filed June 25, 1973, Ser. No. 373,397
Int. Cl. B63h *1/14*
U.S. Cl. 115—34 R **3 Claims**

A marine propeller carrying a plurality of hydrodynamic spoilers formed of elastomeric material which self-deploy at low engine speeds to present maximum effective fluid contacting areas impeding propeller flow, said effective areas being progressively reduced as the propeller speed progressively is increased or its direction of rotation reversed. The propeller manifests a greater-than-normal slip coefficient at low engine



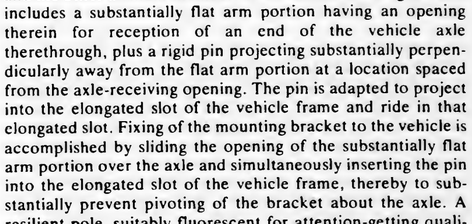
speed thus, decreasing the minimum trolling speed without sacrificing performance in reverse or at intermediate and high engine speeds.

3,812,813
SHOULDER PACK POWER UNIT FOR PROPELLING WATER SKIS OR SURF BOARDS
Wayne D. Dickson, P.O. Box 574, Forest Grove, Oreg. 97116
Filed Nov. 6, 1972, Ser. No. 303,680
Int. Cl. B63b *35/00*
U.S. Cl. 115—70 **8 Claims**

A shoulder pack containing a light weight engine for propelling water skis or a surf board on which the operator stands, propulsion units being mounted under the skis or surf board and novel means being provided for operatively connecting the engine to the propulsion units with hand operated means for controlling the speed of the engine, thereby controlling the speed of the skis or surf board. The novel means that connects the engine to the propulsion units can be quickly disconnected from them for freeing the propulsion units and skis or surf board from the power pack when desired. I also provide novel means for quickly freeing the shoulder pack power unit from the back of the operator in case of an emergency and the power pack is so designed that it can float in water with the air intake to the engine and its exhaust pipes being positioned above the water surface so that the engine can still keep operating if desired. Automatic float controlled check valves prevent any entrance of water into the air intake or exhaust pipes and also prevent any spillage of gasoline into the water.

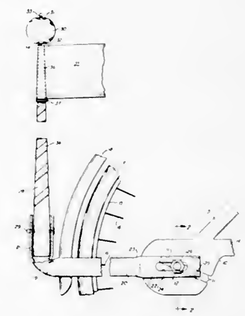
3,812,814
WATER VEHICLE
Joseph C. Veilleux, St. George, Quebec, Canada, assignor to Moto-Naute, Inc., Quebec, Canada
Filed May 18, 1973, Ser. No. 361,620
Int. Cl. B63b *35/00, 1/00*
U.S. Cl. 115—70 **18 Claims**

A power boat with a generally mid-ship mounted motor and propeller is provided. A rudder is disposed at the rear of the boat and generally on the longitudinal center line thereof. Straightening vanes are mounted longitudinally on the underside of the hull with the rearwardmost portion thereof located generally adjacent the forwardmost portion of the rudder. The vanes extend forwardly a distance of about one-tenth the length of the entire hull. Longer protuberances on the hull ex-



tend longitudinally from a forward position near the propeller to a rearward position near the rudder. The longer protuberances lie on opposite sides of the center line of the hull. A third shorter protuberance extends rearwardly from the propeller toward the rudder and along the center line of the hull. The hull has a convex shape relative to the water line.

3,812,815
SAFETY ATTACHMENT
Robert R. Kuenzel, 2706 Gilbert, Missoula, Mont. 59801
Filed Jan. 10, 1973, Ser. No. 322,295
Int. Cl. B60q
U.S. Cl. 116—28 R **11 Claims**

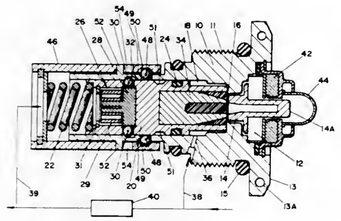


The safety attachment is for a vehicle of the type having a frame with an elongated slot through which an axle perpendicularly extends and along which the axle may be slidably adjusted and fixed at different locations. The safety attachment comprises an elongated member with the opposite ends thereof extending as arms in angular relationship to each other. One of the arms comprises a vehicle mounting bracket and the other a holder member. The vehicle mounting bracket includes a substantially flat arm portion having an opening therein for reception of an end of the vehicle axle therethrough, plus a rigid pin projecting substantially perpendicularly away from the flat arm portion at a location spaced from the axle-receiving opening. The pin is adapted to project into the elongated slot of the vehicle frame and ride in that elongated slot. Fixing of the mounting bracket to the vehicle is accomplished by sliding the opening of the substantially flat arm portion over the axle and simultaneously inserting the pin into the elongated slot of the vehicle frame, thereby to substantially prevent pivoting of the bracket about the axle. A resilient pole, suitably fluorescent for attention-getting qualities, is carried by the arm forming the holder member; and a ball and flag may be carried by the pole. The safety attachment creates a high profile for low profile vehicles.

3,812,816
DIFFERENTIAL PRESSURE INDICATOR WITH INTERNAL RESET

Charles Juhasz, West Caldwell, N.J., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed Mar. 1, 1972, Ser. No. 230,880
Int. Cl. G01l 19/12
U.S. Cl. 116—70 8 Claims

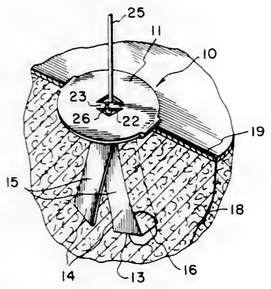


A differential pressure indicator is described in which a pressure sensitive means is arranged to respond to an increase in differential pressure within a fluid system. This means is operatively associated with an indicator which provides a signal when the differential pressure in the fluid system exceeds a set limit. At this point, the pressure sensitive means is locked in place and neither the indicator signal or the pressure sensitive means can be reset until the cause of the increased differential pressure is corrected. A thermally sensitive element is incorporated in the pressure sensitive means to prevent false pressure responses when the fluid may be in a more viscous state at low temperature.

3,812,817
SHEET METAL NAIL AND APPARATUS FOR TESTING

Robert L. Hallock, Jr., 48 Rockland Ave., Larchmont, N.Y. 10538

Filed Jan. 29, 1973, Ser. No. 327,254
Int. Cl. G01d 21/00
U.S. Cl. 116—114 R 4 Claims

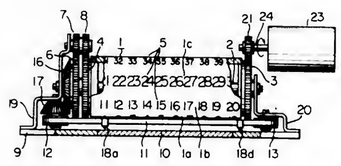


A hollow sheet metal nail apparatus and apparatus for testing the holding capacity of the nail in which the nail apparatus includes a head connected to a shank constructed of a pair of legs joined to the head by a flexible connection in such a manner that the legs are free to move apart along their lengths. The head of the nail includes a frangible portion which is adapted to rupture when a predetermined force is applied thereto. The apparatus for testing the nail includes an elongated shank with a hook portion at one end to engage the frangible portion of the nail and arranged to facilitate the application of an axial force on the testing apparatus so that the nail can be tested without destroying such nail.

3,812,818
INDICATOR DEVICE

Shigeto Saruwatari, Chigasaki, Japan, assignor to Matsushita Electric Industrial Co., Ltd, Osaka, Japan

Filed Dec. 27, 1972, Ser. No. 318,767
Claims priority, application Japan, Dec. 28, 1971, 46-3902
Int. Cl. H03j 1/02
U.S. Cl. 116—124.1 4 Claims

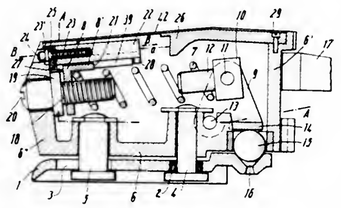


An indicator device which is small in size but large in indication capacity and adapted for use in television receiving sets for indicating the channel numbers of VHF and UHF telecasting stations, said indicator device having a rotary drum bearing on the outer peripheral surface characters desired to be indicated arranged in groups in the axial direction of said drum and driven automatically intermittently, and pointers being movable axially and along said rotary drum to point to a selected one of said characters.

3,812,819
INDICATOR DEVICE FOR SPORT EQUIPMENT

Paul Sebastian Unger, Bruckwiesenstrasse 113, 8501 Altenberg near Nurnberg, Germany

Filed Feb. 9, 1972, Ser. No. 224,908
Claims priority, application Germany, Feb. 16, 1971, 2107252
Int. Cl. G09f 9/00
U.S. Cl. 116—135 8 Claims

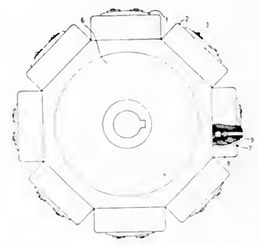


Indicating device for sport equipments that operate against the effect of an adjustable spring or for associated equipments which measure the force of the spring, comprising an indicator coupled with the spring adjusting means which participates in the movement of the adjusting means the position of which can be read on a scale, the indicating device which includes first and second retaining means for supporting the spring at opposite ends has spring adjusting means at one end of the spring which supports the indicator, scale means extending adjacent the first retaining means, the indicator and the spring adjusting means, the scale setting means being operable to displace the scale means in the direction of adjustment of the spring, while the adjusting means and spring setting means each include an adjusting screw that is accessible from the exterior of the housing and stop abutments are disposed at opposite ends of the scale means for limiting the extreme adjustable positions of the spring.

3,812,820
MACHINE FOR APPLICATION FOR ADHESIVE OR OTHER LIQUID

Henning Ronneberg, Blegdamsvej 28-32, Copenhagen, Denmark

Filed Apr. 5, 1971, Ser. No. 131,380
Claims priority, application Denmark, Apr. 6, 1970, 1703/70
Int. Cl. B05c 5/02
U.S. Cl. 118—3 7 Claims

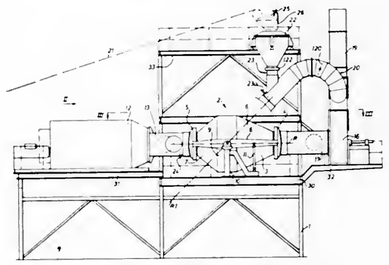


A machine for application of adhesive or other liquid, of the type having a rotating wheel which is rolled upon the material on which liquid is to be applied, the wheel having one or more application apertures on its circumference, the machine having means for carrying liquid from a reservoir to said aperture or apertures, characterized in that the means for carrying the liquid to the aperture or apertures of the wheel comprises a conduit system rotating with the wheel.

3,812,821
PRODUCTION OF COATED ROADSTONE

Geoffrey Laycock, Whashton, near Richmond, England, assignor to Underground Mining Machinery Limited, Darlington, Durham, England

Filed Apr. 14, 1972, Ser. No. 243,944
Claims priority, application Great Britain, Apr. 15, 1971, 9515/71
Int. Cl. B05c 3/00
U.S. Cl. 118—418 20 Claims

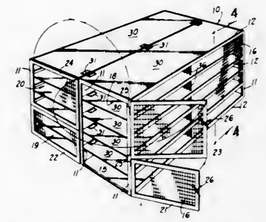


An apparatus for producing coated roadstone in which a cold aggregate material having a predetermined moisture content and a bituminous binder are charged into a mixer barrel open at both ends while the latter is disposed with its axis inclined to the horizontal. The barrel is pivoted into a position in which its axis is horizontal and rotated without heating so as to produce a cold mix. Mixing continues while hot air is passed through the barrel. When mixing is complete, the barrel is returned to its inclined position and rotated in reverse direction to discharge the mix.

3,812,822
POULTRY HANDLING SYSTEM

Milton O. Blankenship, Canton, Ga.

Division of Ser. No. 107,771, Jan. 19, 1971. This application June 6, 1972, Ser. No. 260,308
Int. Cl. A01k 31/06
U.S. Cl. 119—17 3 Claims

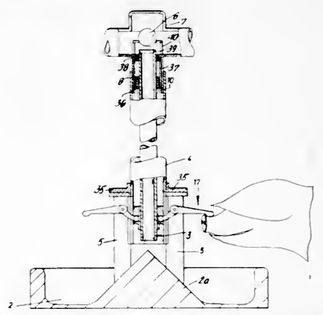


A receiving station having an upwardly open operable conveyor surface for conveying poultry to be processed from one location along a predetermined path to a second location is provided with an adjustable support platform means movable between operable and inoperable positions for effecting a transfer of poultry by gravity from a container means onto the conveyor surface in response to the platform being moved to the operable position. Padded guide means is provided on an opposite lateral side edge of the conveyor means from the adjustable platform means for absorbing the impact of poultry deposited thereon and for effecting a guided movement of the deposited poultry onto the conveyor means. The conveyor means is operable for effecting a transfer of the poultry deposited thereon from a first location adjacent the operable platform to a second location adjacent suspension means used for conveying poultry through a processing operation. Special container means is provided for transporting poultry from poultry growing facilities to the receiving station. The container means is detailed to be supported on the platform means and for movement to the angular oriented operable position for effecting a transfer of poultry by gravity from within the container means onto the conveyor and padded guide means.

3,812,823
DEVICE FOR SUPPLYING FLUID FEED INTO FEEDERS

Hubert Ridder, Raesfeld; Winfried Epping, Borken-Weseke, and Paul Icking, Borken, all of Germany, assignors to GEBR Schmeing, Weseke, Germany

Filed Oct. 12, 1972, Ser. No. 296,991
Claims priority, application Germany, Oct. 13, 1971, 2150968; May 27, 1972, 2225967
Int. Cl. A01k 5/00
U.S. Cl. 119—54 9 Claims

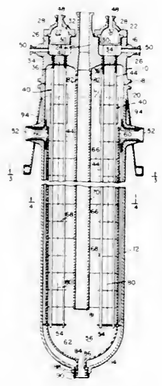


A device for supplying fluid feed from an overhead supply pipe into a feeder for hog-raising comprises a tapping pipe ver-

tically supported over the feeder and extending into the main supply pipe. The tapping pipe is urged into its topmost position by a return spring. The upper end portion of the tapping pipe passes through an opening in a trestle structure and the upper orifice of the tapping pipe is closed by a ball valve. The feed pressure in the main supply pipe, urges the ball valve and thereby the tapping pipe is lowered, against the action of the return spring, until the ball vale is retained in the opening of the trestle structure. Further lowering of the tapping pipe against the action of the return spring, causes a flow of feed into the feeder. This lowering is effected by levers which are located adjacent to the feeder and actuated by the animals.

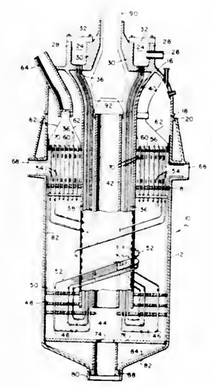
In another embodiment, a feed reservoir arranged above the main supply pipe communicates with the same through a connection tube in which a double-acting valve is positioned and connected to a float within the reservoir, rigidly, by a rod. The reservoir also has an outlet which leads to the feeder and is closed by a ball valve, this valve being connected to an arm extending over the double-acting valve. The feed under pressure flows into the reservoir until the float causes the double-acting valve to close the connection tube. After the filling up of all reservoirs on the line is terminated, the pressure in the main supply pipe increases and pushes the double-acting valve farther into the reservoir so that the arm to which the ball valve is connected is lifted and the reservoir is discharged into the feeder. Both the outlet and the connecting tube are then closed owing to the weight of the float and of the ball valve.

3,812,824
SODIUM-HEATED STEAM GENERATOR
John Polcer, Florham Park; Robert O. Barratt, Parsippany, both of N.J., and John Roberts, San Jose, Calif., assignors to Foster Wheeler Corporation, Livingston, N.J. and General Electric Company, San Jose, Calif.
Filed Mar. 4, 1971, Ser. No. 121,100
Int. Cl. F22b *1/06*
U.S. Cl. 122—32 **8 Claims**



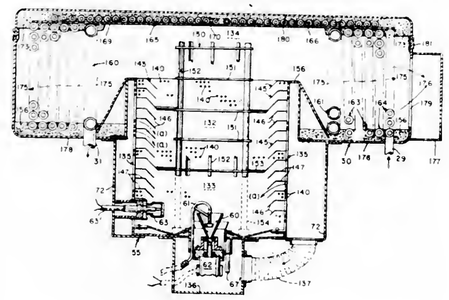
A sodium heated steam generator in which the likelihood of tube failure from such factors as thermal growth is reduced and in which in the event of a tube failure the products of a sodium water reaction are quickly exhausted out of the steam generator. Water is generated to steam in bayonet tube assemblies extending downward into a vessel down through which liquid sodium flows and into which a central relief pipe extends to provide means for the escape of the products of an accidental sodium water reaction.

3,812,825
SODIUM HEATED HELICAL COIL ARRANGEMENT
John Polcer, Florham Park; Robert O. Barratt, Parsippany, both of N.J., and John Roberts, San Jose, Calif., assignors to Foster Wheeler Corporation, Livingston, N.J. and General Electric Company, San Jose, Calif.
Filed Mar. 8, 1971, Ser. No. 121,665
Int. Cl. F22b *1/06*
U.S. Cl. 122—34 **5 Claims**



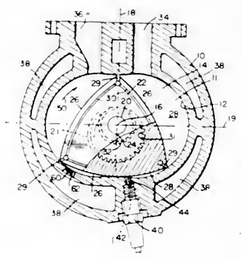
A superheater heated by liquid sodium which is efficient, occupies a minimum of space and provides means to safely exhaust the products of an accidental sodium-water reaction. Saturated steam flows through downcomers which pass between a tube bundle support pipe and a relief duct extending co-axially within the support pipe and then upwardly through helical coils which encircle the support pipe and which are heated by downward flowing liquid sodium.

3,812,826
COMBUSTOR FOR POWER VAPOR GENERATORS
William P. Lear, Verdi, Nev., assignor to Lear Motors Corporation, Reno, Nev.
Continuation-in-part of Ser. No. 261,691, June 12, 1972. This application June 16, 1972, Ser. No. 263,407
Int. Cl. F22b *21/00*
U.S. Cl. 122—250 R **6 Claims**



The vapor generators are for powering external combustion engine systems. The combustors thereof provide heat in response to engine power demand to vaporize liquid in their boiler tubes. Their combustion emissions are with low noxious pollutant content over the power operating range of the engine system. Internal arrangements are incorporaed in the combustors that maximize burning-up of fuel that is injected into the primary combustion zone. Portions of the combustors that may reach above 2,100° F are minimized to inhibit the formation of nitrous oxide. Regions that might fall below 1,500°F are controlled to avoid quenching that would result in the formation of carbon monoxide and unburned hydrocarbon particles. The flow of combusted gases is moderated by arranging for the flow of incoming air to be in the counter direction. Air and fuel particles are thoroughly intermixed towards complete combustion. A wide range of available fuels may be used, and operation over at least a 20:1 ratio of fuel input is effected. An important feature hereof is the use of a flat spiral wall of fluid filled tubing above the combustion zones. Fluid to be vaporized flows through the fluid tube wall, and shields the combustor housing from reaching excessive temperature.

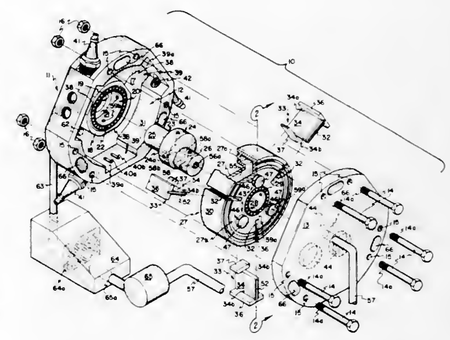
3,812,827
ENGINE
Wallace Leon Linn, 6705 Grosvenor Pl., Indianapolis, Ind.
Filed Mar. 16, 1973, Ser. No. 341,983
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.01 **12 Claims**



A rotary combustion engine of the type comprising a housing providing a two-lobed epitrochoidal cavity in which rotates a generally triangularly-shaped piston, the sides of which cooperate with the peripheral wall of the cavity to define three variable-volume work chambers. A thermally conductive member is placed in the peripheral wall of the cavity and insulated from that wall, the member being positioned such that it has an inwardly-directed face engaged by the axially extending seals carried at the apices of the piston. One such conductive member may be placed in the peripheral wall at the portion thereof providing a transition between the compression phase and the expansion phase. Another such conductive member may be placed in the peripheral wall in advance of the exhaust port such that the exhaust gases must move therepast to be exhausted from the port.

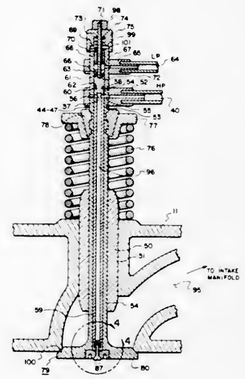
3,812,828
ROTARY ENGINE
Franklin E. Griffiths, 1494-B S.W. Temple, Salt Lake City, Utah 84115
Filed Feb. 14, 1973, Ser. No. 332,343
Claims priority, application Japan, Feb. 17, 1972, 47-16623
Int. Cl. F02b *55/14*
U.S. Cl. 123—8.45 **7 Claims**

A rotary engine incorporating a housing wherein a cylindrical center cavity is formed to contain a cylindrical piston and radial vanes extending therefrom that divide the center cavity into equidistantly spaced firing chambers. The cylindrical piston is journaled as an eccentric to an off-center axle, and is induced by sequential combustion of a fuel-air mixture in each firing chamber to move eccentrically in a circular path. The off-center shaft to which the cylindrical piston is journaled extends off-center at a normal angle from one side of an enlarged portion of a drive shaft, which drive shaft is in turn rotated by the eccentric movement of the cylindrical piston and the off-center shaft journaled thereto. The cylindrical piston of the invention is arranged to be supported within the housing center cavity on one side by spaced reaction bearings,



and by the output shaft on the other, and incorporates expansion seals arranged in the piston sides and along the radial vanes for maintaining the individual firing chamber integrity, which radial vanes are arranged in spaced radial slots formed in the cylindrical piston to act as both firing chamber end walls and as valve heads for controlling chamber fuel and air intake and exhaust.

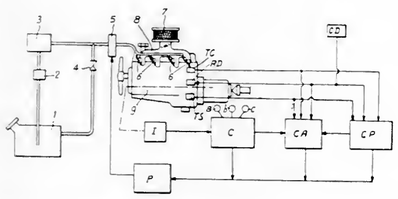
3,812,829
FUEL INJECTION SYSTEM AND ASSOCIATED STRUCTURE
Alan G. McCormick, 645 Aloha, Salt Lake City, Utah 84103
Filed Aug. 18, 1972, Ser. No. 281,770
Int. Cl. F02b *3/00*; **F02m** *39/00*
U.S. Cl. 123—32 VN **8 Claims**



A fuel injection system and structure therefor, wherein a high-pressure pump is used to inject fuel through the air intake valve structures of the engine. The valve structures are unique in many particulars, among which is the structural provision for valve displacement to effect air intake, as well as fuel injection through the valve stem at desired times directly into the associated cylinder. While the system lends itself to multiple piston pump operation, still, single piston pump operation is

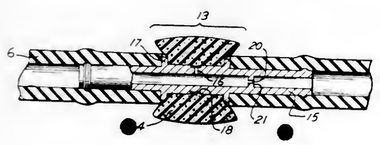
preferred for cost and maintenance considerations. A lost-motion structural provision is incorporated so as to insure the commencement of fuel injection immediately prior to valve opening as to air intake. A low pressure fuel return system is provided in the event of seal-leakage or failure in the valve stem structures. Timing as to fuel injection depends solely upon rocker-arm or other depression of the valves and, hence, is of simplified and yet highly effective form.

3,812,830
ELECTRONIC FUEL INJECTION CONTROL DEVICES FOR INTERNAL COMBUSTION MOTORS
Pierre Traisnel, Evreux, France, assignor to Societe Des Procedes Modernes D'Injection Sopromi, Les Mureaux, France
Filed Aug. 29, 1972, Ser. No. 284,614
Claims priority, application France, Sept. 10, 1971, 71.32677
Int. Cl. F02b *3/00*
U.S. Cl. 123—32 EA **18 Claims**



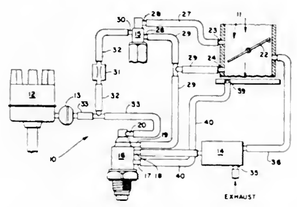
Control circuits for a fuel injection system for engines in which the engine is provided with a pre-injection and/or supplementary injections of fuel in addition to the normal injections for cold starting conditions.

3,812,831
VACUUM ADVANCE CONTROL SYSTEM
Milford M. Scott, Jr., Las Vegas, Nev., and Floyd J. Wheeler, Jr., Marina Del Rey, Calif., assignors to STP Corporation, Ft. Lauderdale, Fla.
Filed Nov. 1, 1972, Ser. No. 302,936
Int. Cl. F02p *5/06*
U.S. Cl. 123—117 A **9 Claims**



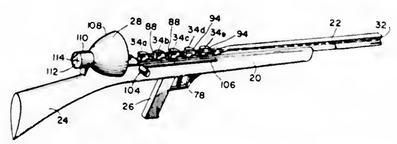
The amount of pollutants expelled from an internal combustion engine is lowered by bleeding a predetermined amount of ambient air into the conduit which connects a conventional vacuum advance control system with the intake manifold. This results in a retardation of the vacuum advance that otherwise would be obtained and provides a considerable reduction in oxides of nitrogen, CO and hydrocarbons. The vacuum advance bleed control comprises a conduit inserted into the vacuum advance line of an internal combustion engine, with a characterized bleed hole in the conduit, and filter medium for preventing dirt from entering the bleed hole. Flanges on the conduit hold the filter in position and an annular recess is provided in the conduit over the bleed hole. An orifice may be provided in the conduit between the bleed hole and the carburetor.

3,812,832
DUAL FUNCTION THERMAL VALVE
Arthur A. Scott, Mount Prospect, Ill., assignor to Eaton Corporation, Cleveland, Ohio
Filed Jan. 8, 1973, Ser. No. 321,502
Int. Cl. F02m *25/06*; **F02p** *5/04*; **F02m** *7/12*
U.S. Cl. 123—119 A **7 Claims**



A dual function thermal valve system independently controls first and second valves or motors which in turn may control vacuum operated accessories such as a hydrocarbon emissions control, a distributor timing device or heater controls and the like. A diaphragm actuated by a thermal unit in a dual-function valve body separates a first normally open inlet and outlet from a second normally closed inlet and outlet. Valve seats for each inlet and outlet are so positioned that a first predetermined travel of the thermal unit communicates the second inlet with the second outlet at a first temperature while a second predetermined travel of the thermal unit at a second higher temperature closes the first inlet from the first outlet.

3,812,833
ELASTIC BAND GUN
John A. Skillern, 132 State St., Framingham, Mass. 01701
Filed Jan. 31, 1972, Ser. No. 221,960
Int. Cl. F41b *7/02*
U.S. Cl. 124—19 **15 Claims**

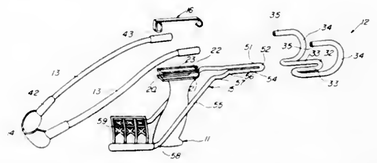


An elastic band gun having a plurality of pivotally mounted releasers which are serially located from front to back on the stock. Each releaser is adapted to support the rear end of a stretched elastic band and upon actuation to release the band at a level above that of the tops of any forwardly located releasers. A spring action powered, manually cocked, escapement-type sequencing system responsive to actuation of the trigger works either semi-automatically or fully-automatically to free the releasers to discharge the bands. In another form, the bands are retained in notches, and scrapers controlled by the sequencing system free the bands from the notches to discharge them. A combination safety shield and sighting device is designed to capture rearwardly discharged elastic bands.

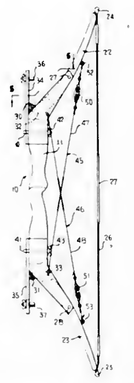
3,812,834
SLINGSHOT ASSEMBLY
Charles A. Saunders, Columbus, Nebr., assignor to Saunders Archery Co., Columbus, Nebr.
Filed Apr. 13, 1973, Ser. No. 350,906
Int. Cl. F41b *7/00*
U.S. Cl. 124—20 R **7 Claims**

A slingshot assembly separable into component parts for shipping and storage, and forming an accurate, arm-braced

device for use. Components of the device are a handle having a grooved crown, a hook assembly and an arm brace fitting frictionally within the grooves, and a retaining clip for preventing forward shifting of the components within the grooves. The arm brace has a U-shaped portion that frictionally engages grooves in the crown and extends around the forward end of the crown. While in the grooves the clip is positioned over the arm brace at the forward end of the crown. The rear portion of the clip is positioned over the rear portion of the crown.



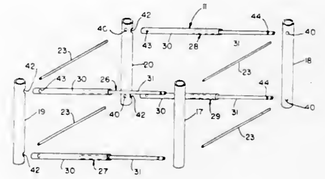
3,812,835
FORCE MULTIPLYING TYPE ARCHERY BOW
George C. Smith, 1738 Edeline Ave., McKinleyville, Calif. 95521
Filed Nov. 29, 1972, Ser. No. 310,448
Int. Cl. F41b *5/00*
U.S. Cl. 124—24 R **12 Claims**



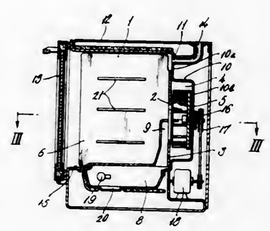
An archery bow formed by a main member adapted to be grasped by an archer with a limb pivotally attached to each opposite end thereof, with construction for reducing the pull or draw poundage of the bow between undrawn and fully drawn positions of a bow string. The limbs are pivoted relative to the main member and lesser force is required to maintain the reduced poundage than that required at the fully drawn position absent the reducing means. The bow has an element for limiting the amount of rotation of the limbs relative to the main member that is gripped by a user. Each limb has an anti-friction member that bears against a resilient member and is biased by the resilient member when pivoted relative to the main member.

3,812,836
PORTABLE KNOCKDOWN OVEN
William B. Jackson, 1256 Laurel Hill Dr., San Mateo, Calif. 94402
Filed Sept. 27, 1972, Ser. No. 292,541
Int. Cl. F24c *1/16*
U.S. Cl. 126—9 R **5 Claims**

A portable oven is disclosed having a knockdown enclosure with removable side and end members. A heat-proof cover may be provided for enclosing the top, sides and ends thereof. The oven may further include a grill rack for receiving food desired to be cooked in the oven and a fire pan tray on which the rack is set for receiving charcoal or the like. Optionally, the oven may be covered with aluminum foil, thus providing a completely portable knockdown oven.



3,812,837
COOKING OVEN
Tadayoshi Takase, Nagoya, Japan, assignor to Rinnai Kabushiki Kaisha, Nagoya-shi, Aichi-ken, Japan
Filed May 14, 1973, Ser. No. 360,166
Claims priority, application Japan, Jan. 17, 1973, 48-7558
Int. Cl. F24c *15/16*, *15/32*
U.S. Cl. 126—21 A **9 Claims**

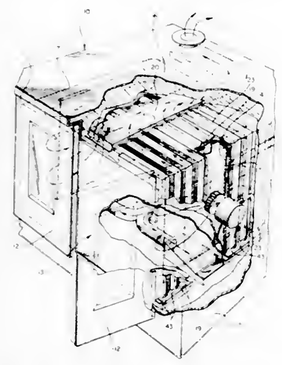


A cooking oven comprising a heating chamber divided by a partition wall to form a rear blower chamber containing a blower. The partition wall is provided with an opening leading to the blower chamber so that heated air from a combustion chamber is directly drawn from the combustion chamber to the blower chamber. A pair of left and right side plates project forwardly from opposite side edges of the partition plate to form air passages communicating between the interior of the blower chamber and the front portion of the interior of the heating chamber. A portion of a rear wall of the heating chamber is bent into substantially the same plane as the partition plate and an exhaust opening leading to ambient atmosphere is formed in the bent portion. The partition plate and the side plates are formed integrally and are detachably mounted within the heating chamber.

3,812,838
OVEN COMBUSTION PRODUCTS DISTRIBUTION SYSTEM
Paul A. Mutchler, University, Mo., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed July 5, 1973, Ser. No. 376,661
Int. Cl. F24c *15/32*; **A21b** *1/10*
U.S. Cl. 126—21 A **6 Claims**

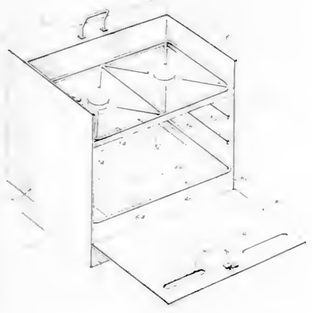
A liquid fuel-fired convection oven wherein the gases of combustion from a burner are blended with cooling air flowing through an annular space surrounding the combustion chamber and the blended hot gases are divided into two streams each of which is caused to flow through a plurality of

channels which extend vertically along the side wall and across the top wall of the oven, emptying into an exhaust manifold on the top of the oven. The contiguous, hollow chan-



nels allow the hot gases to flow in substantially uniform streams in contact with the side and top walls to provide a uniformly efficient transfer of heat to the oven.

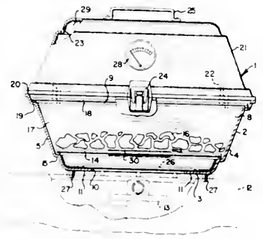
3,812,839
PORTABLE CAMP STOVE
Peter L. Helgeson, Macungie, Pa., assignor to Raytheon Company, Lexington, Mass.
Filed Mar. 1, 1973, Ser. No. 337,248
Int. Cl. F24c *3/14*
U.S. Cl. 126—38 **11 Claims**



A portable camp stove which comprises an arrangement of bottom, back, front and end sections hingedly connected together so as to be assembled in one position of use and to be folded into a compacted relationship for portability, together with gas burners for top cooking and additional gas heating elements for selective broiling and baking operation.

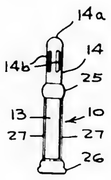
3,812,840
PORTABLE GRILL
Kenneth R. Whaler, 502 Murray Rd., Lees Summit, Mo. 64063
Filed Dec. 12, 1972, Ser. No. 314,343
Int. Cl. F24b *7/04*; **A47j** *37/00*
U.S. Cl. 126—275 R **6 Claims**

A closable cooking device in the nature of a charcoal fired smoke oven has a bottom portion containing a heat grid supporting non-combustible heat absorbing and radiating material and an opening through the lower wall of the bottom portion, whereby the device may be placed upon a camping stove or the like. This exposes the radiating material to direct flame,



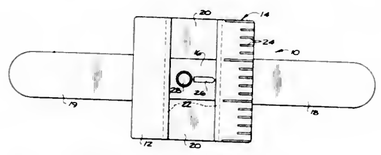
whereupon it tends to produce characteristic barbeque oven cooking without utilizing charcoal or other fuel supply normally used for this purpose.

3,812,841
URETHRA MAGNETIC VALVE STRUCTURE
Leland H. Isaacson, 8117 New Riggs Rd., Hyattsville, Md. 20783
Filed Aug. 21, 1972, Ser. No. 282,041
Int. Cl. A61b *19/00*
U.S. Cl. 128—1 R **12 Claims**



A urethra magnetic valve structure comprising an implantable tubular valve housing to be located in the urethra at its juncture with the bladder. The valve housing has a pair of spaced, inflatable retention collars to be inflated for supporting the valve unit in proper position with a slotted head portion of the housing in the bladder. A valve member is resiliently biased to closed position against an apertured valve seat, and a magnetic core is connected to the valve member, to be moved by a force field generated by an electromagnet activating device external of the patient's body to open the valve and void the bladder.

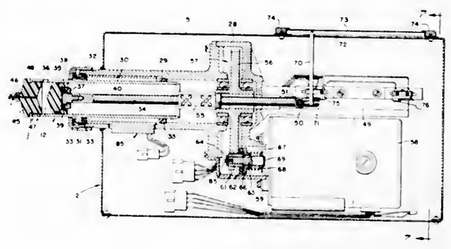
3,812,842
METHOD FOR LOCATING BLOOD VESSELS FOR CATHETERIZATION
Paul L. Rodriguez, 2116 N. Center, Garden City, Kans. 67846
Filed Jan. 18, 1973, Ser. No. 324,863
Int. Cl. A61b *5/00*; **G03b** *41/16*
U.S. Cl. 128—2 A **4 Claims**



An indexing scale positioned on the exterior of the body of a human being includes markers that are visible in X-ray photo-

graphs to facilitate locating a particular blood vessel relative to the scale in an X-ray photograph. By reference to the X-ray, a movable indicator carried with the scale is positionable to indicate the location of the vessel relative to the scale on the exterior of the body. Under a fluoroscope, a catheter can then be guided into alignment with the indicator and thus into the vessel to catheterize same quickly and easily with minimum exposure to X-rays.

3,812,843
METHOD AND APPARATUS FOR INJECTING CONTRAST MEDIA INTO THE VASCULAR SYSTEM
John A. Wootten, South Euclid, and George S. Rives, Sheffield Lake, both of Ohio, assignors to Lear Siegler, Inc., Maple Heights, Ohio
Filed Mar. 12, 1973, Ser. No. 340,226
Int. Cl. A61b *5/02*; **A61m** *5/20*
U.S. Cl. 128—2 R **26 Claims**

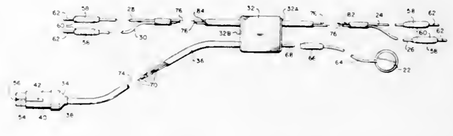


A method and apparatus by which fluid is delivered either sequentially at two different rates or at one rate as desired. Suitable controls are provided for independently selecting such different flow rates and the duration of time of each flow rate, which may either be manually or automatically delivered. During the injection cycle, a slow prolonged infusion, typically 2 ml per second for 20 seconds is made into the femoral artery, immediately followed by a rapidly delivered holus, typically 20 ml per second for 2 seconds. On completion of the injection, the low flow injection has reached the digital vessels and the high flow injection is localized in the distal aorta with all vessels between being opacified, whereby a single X-ray exposure may be taken from the aorta to the foot with the film positioned under the area of interest. The injection apparatus is relatively compact and permits both extension and retraction as well as rotation of the syringe assembly relative to the control cabinet. Suitable means are also provided for accommodating any misalignment between the syringe piston and ball screw shaft and also for absorbing the rotational forces acting on the ball screw shaft during axial movement thereof. A ground fault interrupter guards against current leakage to ground by removing the power from the motor and controls when the current leakage to ground exceeds a predetermined low level, for example, 0.5 milliamps.

3,812,844
APPARATUS FOR MEASURING BLOOD PRESSURE WITH CORRESPONDING CUFF SECTIONS AND INDICATION RANGES
Kurt Rudolf Franz Sokol, Schwachhauser Heerstrabe 295, 28 Bremen, Germany
Filed May 26, 1971, Ser. No. 147,034
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 G **14 Claims**

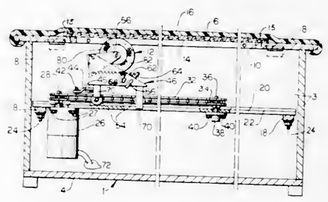
Apparatus for measuring blood pressure, with automatic compensation for variation in limb diameter, includes a bandage and a measuring apparatus indicating unit connected thereto. The bandage is subdivided along its length into a plurality of sections, each of which is associated with its own indicating zone in the measuring apparatus. The subdivisions can be visual. Alternatively, they can be by means of electrical contacts or a resistor extending longitudinally of the bandage; in which case the use of the apparatus can be simplified by the incorporation of rotating sealers or pointers actuated by circuitry responsive to the effective length of bandage in use.

3,812,845
PATIENT CORD ASSEMBLY
Leslie W. Partridge, Janesville, Wis., assignor to The Burdick Corporation, Milton, Wis.
Filed May 19, 1972, Ser. No. 255,006
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 R **18 Claims**



A patient cord assembly for connecting an electrocardiograph to arm, leg and chest electrodes includes a junction block from which electrode leads extend in such a way that the leads are easily and naturally arranged relative to the patient in the optimum configuration to reduce electromagnetically coupled interference.

3,812,846
MASSAGING MACHINE
Horace I. Trout, Rt. 4, Box 44, Bowie, Tex. 76230
Filed Oct. 24, 1972, Ser. No. 300,288
Int. Cl. A61h *15/00*
U.S. Cl. 128—57 **2 Claims**



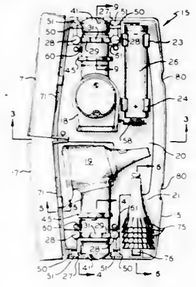
A machine for moving a massaging roller lineally along a path beneath a sheet of material which covers an elongated slot in a table or cabinet top, which table or cabinet is usually covered with upholstery material, and overlies a sheet of material which may be urged upwardly against the upholstering material and the spinal area of the person lying on the table to be massaged, when the machine is in operation. The roller is moved substantially the length of the spine, in a timed sequence and under controlled resilient pressure, so as to relax the muscles and relieve tension of the nerves of the spinal area. Provision is made for moving the roller, which is preferably faced with a cushioning material, by means of a motor which drives an endless chain, with the travel of the roller preferably being the length of the adult spine. The roller is mounted to move back and forth in timed relation, with the upward pressure on the roller being regulated to give the most desirable effect on the back muscles and on the spine.

3,812,847

3,812,847
COMBINATION BATTERY HANDLE-CASE FOR A PAIR OF ATTACHED, OUTFOLDING ILLUMINATED MEDICAL INSTRUMENTS

William C. Moore, Skaneateles, and John D. Connors, Auburn, both of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Filed May 8, 1972, Ser. No. 251,303
Int. Cl. A61b *1/22*
U.S. Cl. 128—9 **11 Claims**

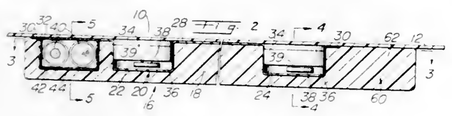


A pocket-size combination case and battery handle for attached otoscope and ophthalmoscope heads has an external shut-off switch and contains a swing-out holder for otoscope tips and a battery and wiring to both instruments. Each instrument may be individually swung out and rotatably adjusted at its end of the case to a plurality of operative positions. The electrical connection to each instrument is automatically made when it is swung out and is broken when it is returned to the case. Access to each instrument is by a separate hinged cover over half the case for each, the covers being alternatively spring biased to open or closed position.

3,812,848
APPARATUS FOR CLEANSING AND MASSAGING

Gerhard Kollitz, 1144 N. Euclid, Apt. 11, Anaheim, Calif. 92801

Filed Nov. 24, 1972, Ser. No. 309,154
Int. Cl. A61h *1/00*
U.S. Cl. 128—36 **3 Claims**



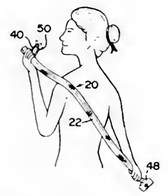
A device for cleansing and massaging comprising an elongated support strap having openings disposed in each end thereof to provide means for grasping the device with both hands, a sponge-like, moisture-retaining member being secured to at least one side of the strap, said device having disposed and sealed therein a vibrating massage means with energizing means removably housed within the sponge structure to provide the operating power to the device.

3,812,849
SKIN CONDITIONING ARTICLE

Grace G. Giunta, 576 Riviera Dr., Hillsborough, Fla. 33606

Filed Aug. 2, 1972, Ser. No. 277,365
Int. Cl. A61h *7/00*
U.S. Cl. 128—67 **22 Claims**

A skin conditioning article has a springy and pliable body of layers of nylon net fabric with a mesh of about one-eighth inch, more or less. In the illustrated embodiment, the body is elongated and has four layers of fabric gathered at either end to form necks and pleats. The fabric is first doubled upon itself to form a folded end edge. Both sides of the fabric are then doubled over to form a pair of folded side edges and open edges proximate each other at the center of one face of the body. The layers are secured to each other in any suitable

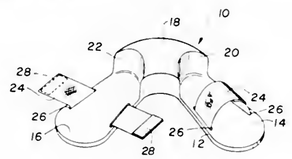


manner, as by stitching, proximate each of the opposite ends of the body, and this stitching may also secure ties to the body for gathering the layers and forming the pleats and necks. The open edges of the body layers provide access to a pocket, formed by the folded end edge of the body, for retaining a bar of soap or other suitable article. The skin may be lubricated and the net fabric rubbed over the skin to cleanse and condition the skin.

3,812,850
CORRECTIVE FOOT SPLINT

Reuben H. Reiman, 23 Beachway, Port Washington, N.Y. 11050

Filed June 28, 1973, Ser. No. 374,477
Int. Cl. A61f *3/00*
U.S. Cl. 128—80 A **6 Claims**

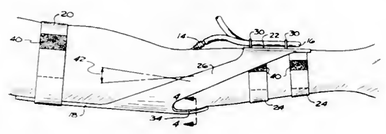


The present invention is directed to a foot splint for the correction of toed-in or pigeon-toeing, sometimes known as clubfoot, by the use of a single fixed angle support for both feet simultaneously without the requirement for dynamic periodic readjustment.

3,812,851
I. V. ARM REST AND SUPPORT

Paul L. Rodriguez, 2116 N. Center, Garden City, Kans. 67846

Filed Nov. 21, 1972, Ser. No. 308,315
Int. Cl. A61m *5/00*
U.S. Cl. 128—133 **10 Claims**



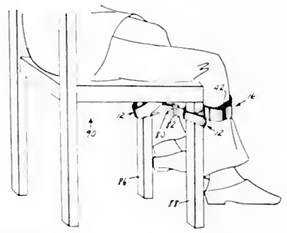
A medical arm support that substantially immobilizes the arm to facilitate intravenous injection of fluid into the arm adjacent the elbow, but which allows a limited amount of natural

flexure of the arm at the elbow for patient comfort. A spiral, slightly flexible section joins a panel overlying the forearm with a support panel underlying the upper arm to produce the desired immobility while allowing limited flexure. Upstanding posts secure and hold flexible tubing that supplies the fluid being injected to the forearm panel to prevent relative needle movement during flexing of the arm.

3,812,852
BODY RESTRAINT

Robert L. Konvalin, Shandelee Rd., R.D. 2, Livingston Manor, N.Y. 12758

Filed Jan. 11, 1973, Ser. No. 322,817
Int. Cl. A61f *5/37*
U.S. Cl. 128—134 **10 Claims**



A body restraint for persons having diminished control of motor functions while sitting in chairs. Adjustable circumference cuffs are placed around the person's legs just under the knee and above the belly of the calf muscle. Retaining rings secured to the cuffs are positioned to the rear of the calves.

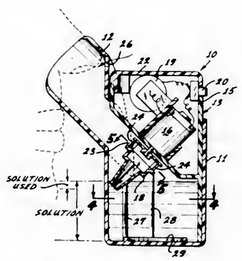
First and second straps, both having closed loops at one end, the second having a buckle at the other end, are secured to the front legs of the chair by circumnavigating the chair legs with the free ends and passing them through the closed loops, one strap for each leg. The tongue of the first strap is then passed through the retaining rings of each of the cuffs and secured to the buckle of the second strap.

Sufficient length is left in the strap to allow the person in the chair to have relative freedom of movement of the legs, and yet if he should slide down with his legs moving forward, the straps will hold his lower legs and accordingly will prevent the rest of his body from continuing the downward and forward motion.

3,812,853
APPARATUS FOR APPLYING MEDICATION OR THE LIKE TO HUMAN NASAL PASSAGES

Philip W. Crain, 507 Esplanade Ave., Redondo Beach, Calif. 90277

Filed Nov. 17, 1971, Ser. No. 199,658
Int. Cl. A61m *11/00*
U.S. Cl. 128—173 **4 Claims**

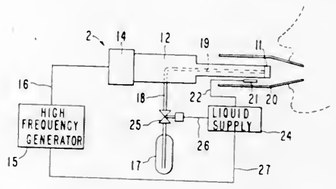


Apparatus for applying a solution in particle form to a body cavity such as the nasal passage for medicinal, therapeutic and hygiene purposes. An electrically powered battery operated pump is provided in a solution holding housing which is provided with a tubular opening into which the nose of the user for example, is inserted. The actuation of the pump disperses particles of the solution in the housing toward the nose of the user. A small opening to the atmosphere is also provided in the tubular opening to enable the user to deeply inhale, thereby drawing the solution particles deep into the nasal passages.

3,812,854
ULTRASONIC NEBULIZER

Alan S. Michaels, 97 Mt. Vernon, Atherton; Richard G. Buckles, 491 Middle Ct., Menlo Park, both of Calif. 94025, and Michael P. Keller, 2272 Latham St., Mountain View, Calif. 94040

Filed Oct. 20, 1972, Ser. No. 299,194
Int. Cl. A61m *15/00*
U.S. Cl. 128—194 **8 Claims**

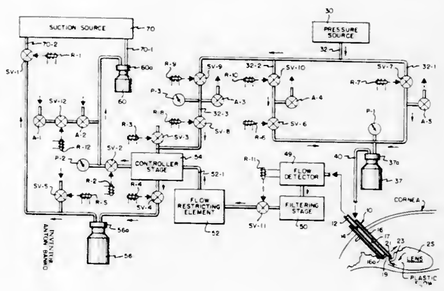


A device for the ultrasonic nebulization of liquids. Nebulization takes place in a porous solid body the porosity of which determines the size of the liquid particles generated. The device is especially suitable for nebulizing liquid medicaments for inhalation therapy.

3,812,855
SYSTEM FOR CONTROLLING FLUID AND SUCTION PRESSURE

Anton Banko, Bronx, N.Y., assignor to Surgical Design Corp., Long Island City, N.Y.

Filed Dec. 15, 1971, Ser. No. 208,282
Int. Cl. A61m *1/00*
U.S. Cl. 128—276 **19 Claims**



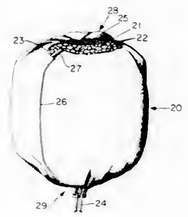
A system for controlling pressurized fluid and suction pressure to be supplied to an instrument, such as an instrument for performing surgical operations. The system permits a variety of flow configurations to the instrument including either pressurized fluid or suction pressure alone or combinations of the two at adjustable pressures. The flow configurations are readily selectable by an operator under the control of an electrical operating system.

3,812,856

3,812,856
HYDRO-DISSOCIATIVE AGGLOMERATE TAMPON

Robert Campbell Duncan, and Darrel Dayfield Kokx, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed May 17, 1972, Ser. No. 254,055
Int. Cl. A61f *13/20*
U.S. Cl. 128—285 **13 Claims**

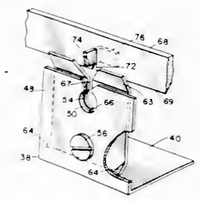


A tampon having an absorbent body which is an agglomerate of pieces of absorbent foam, said agglomerate being held together by an overwrap which has water frangible closures that are maintained before use and in vivo but open up when the tampon is agitated in an excess of water such as a standard sewage disposal system.

3,812,857
DIFFERENTIAL BEAK TRIMMER

James Lyon, 2922 Qualtruagh St., San Diego, Calif. 92106

Filed Nov. 30, 1972, Ser. No. 310,935
Int. Cl. A61b *17/36;* **A61n** *3/00*
U.S. Cl. 128—303.1 **8 Claims**



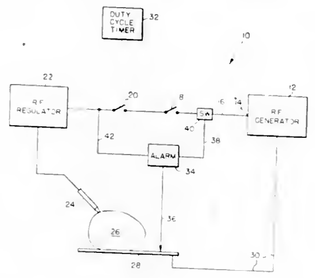
The apparatus is used for trimming and cauterizing the beaks of fowl and utilizes a heated cutting and cauterizing blade with a cauterizing projection attached thereto so that the blade and the cauterizing element move together across the face of a beak holding means, thereby shearing off and cauterizing the end of the beak while the cauterizing projection passes between the upper and lower halves or mandible and maxilla of the beak. The beak holding means limits the portion of beak exposed to the blade by the size of an aperture through which the beak is protruded, the aperture being adjustable in size to accommodate different sized beaks, and adjustable sideways to permit alignment of the plane between the mandible and maxilla of the beak with the cauterizing projection.

3,812,858
DENTAL ELECTROSURGICAL UNIT

Maurice Jules Oringer, New York, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Oct. 24, 1972, Ser. No. 300,181
Int. Cl. A61b *17/38;* **A61n** *3/04*
U.S. Cl. 128—303.14 **7 Claims**

Disclosed is a dental electrosurgical apparatus having means to automatically regulate the proper amount of power needed to cut soft tissues of the body, a timing device to regulate and repeatedly interrupt the period of active current flow

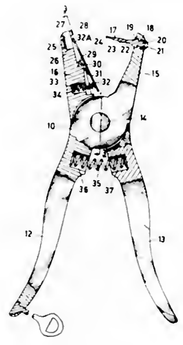


and a regulator means that cuts off current flow when the patient is not in contact with the inactive electrode.

3,812,859
ANIMAL EAR TAG APPLICATORS

Brian Egmont Murphy, Kaponga; John Reginald Burford, and Alexander Wassilieff, both of Palmerston, all of New Zealand, assignors to Delta Plastics Limited, Palmerston, North, New Zealand

Filed Nov. 20, 1972, Ser. No. 307,964
Claims priority, application New Zealand, May 25, 1972, 167280
Int. Cl. A61b *17/00*
U.S. Cl. 128—330 **3 Claims**



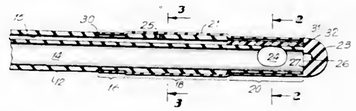
An animal ear tag application having two lever members pivoted together, one side of the levers at their pivot formed as handles and the other side formed as jaws, a pin fixed to the jaw of a first one of the lever members directed towards the jaw of a second one of the lever members and having an ear-piercing free end, the jaw of the second lever member formed with an open slot from its side facing the jaw of the first lever member and a hole passing through the jaw behind the open slot, an open-slotted plate centrally pivoted to the jaw of the second lever member and spring-loaded thereto, the slots being in line, and a spring arranged between the levers at their handle side of the pivot to normally move the jaws away from each other, the construction and arrangement being such that with a headed tubular male component of an ear tag mounted on the fixed pin of the jaw of the first lever member beyond the ear-piercing free end of the pin and a female component of the ear tag being located in the open slot of the jaw of the second lever member behind the plate of such jaw retained by the spring-loaded plate; on a closing of the jaws towards an

animal's ear located between the jaws, the free end of the pin will pierce the animal's ear, then carrying the tubular male component through the female component and be secured thereby; upon release of handle pressure, the jaws will be opened by spring pressure and the pin withdrawn from the tag and the animal's ear.

3,812,860
RETENTION CATHETER

John W. Gilbert, Greenwich, and Ahmed Panagrossi, North Haven, both of Conn., assignors to International Paper Company, New York, N.Y.

Filed Apr. 5, 1973, Ser. No. 347,996
Int. Cl. A61m *25/02*
U.S. Cl. 128—349 B **18 Claims**

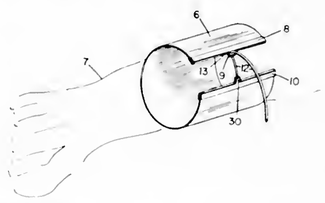


Disclosed is a retention catheter of the Foley type and a method of manufacturing such a catheter. The catheter is comprised of an extruded tube with a funnel at one end and, at the other end, a closed end sleeve peripherally bonded to the tube and having a substantially solid tip. The method of manufacture includes the step of radially compressing the tube and sleeve while bonding.

3,812,861
DISPOSABLE ELECTRODE

Ronald L. Peters, 927 W. MacArthur Blvd., Oakland, Calif. 94608

Filed Nov. 15, 1972, Ser. No. 306,614
Int. Cl. A61n *3/06*
U.S. Cl. 128—418 **3 Claims**



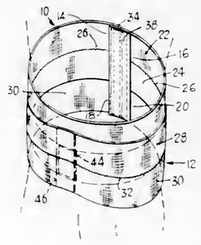
A disposable electrical plate for creating electrical contact with a human body comprises a flexible sheet of paper board, cardboard, or the like coated on both sides with a conductive foil film. One edge of the plate is formed into tabs which alternately wrap over and under a metal bar in a woven fashion to electrically connect the two foil film surfaces. To the opposing edge of the plate a clip with a notch, hook, or the like is secured. An electrical conductor secured to the metal bar completes a circuit to the plate. The plate may be wrapped around a limb of a subject to make electrical contact and then secured by positioning the conductor in the notch or hook, preventing the plate from unwrapping and breaking contact.

3,812,862
WAIST-SUPPORTING GARMENT

Bertram L. Bernstein, 85 Tahmore Ct., Fairfield, Conn. 06430

Filed Oct. 29, 1973, Ser. No. 410,904
Int. Cl. A41c *1/00;* **A61f** *5/02*
U.S. Cl. 128—578 **13 Claims**

An adjustable-width posture belt consisting of two resilient, thin, flat ribbon-like belt members intended to encircle the waist of the wearer, the members having corresponding juxtaposed ends which are secured together in partially overlapping relation, and being positioned to be coextensive with each other. The secured ends of the belt members are provided with cooperable, separable fastener means such as rows of hooks and eyes whereby they can be joined so as to hold the members around the waist of the wearer in the manner of a corset or girdle. At least portions of the belt members are arranged in overlapping relation, and cooperable Velcro fastener elements are disposed substantially at their midpoints

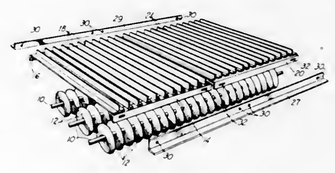


for securing the same together in any of a number of different overlapping positions, thereby to provide for different widths of the garment. With the hook and eye fasteners at the rear of the user, opposite or front portions of the belt members can be adjustably related by making them overlap either more or less, thereby to provide a reinforced support of the abdomen at the desired places while at the same time ensuring comfort for the wearer. Or, the hook and eye fasteners can be located at the wearer's abdomen, and the opposite belt portions adjusted at the rear to give firm support where needed.

3,812,863
CROP ORIENTING MECHANISM

Frederick P. West, Rt. No. 1, Terrell, Ga. 31742

Filed Apr. 9, 1973, Ser. No. 348,927
Int. Cl. A01d
U.S. Cl. 130—30 C **11 Claims**



A crop orienting device is disclosed for orienting a crop being fed through a harvesting stemmer having a plurality of parallel rows of cutting disks adapted to sever stems from the crop upon rotation. The device comprises first support means supporting a first set of laterally spaced elongated crop orienting members with the spacings between adjacent crop orienting members being substantially equal. Second support means support a second set of laterally spaced elongated crop orienting members in juxtaposition with the first set of crop orienting members and with the spacing between adjacent crop orienting members of the second set being substantially equal to the equal spacings between adjacent crop orienting members of the first set. Means are also provided for securing the first and second support means rigidly together in a plurality of relative positions to render the spacing between the juxtaposed first and second sets of crop orienting members adjustable.

3,812,864
TOBACCO REPLACEMENT MATERIAL

3,812,866

3,812,864
TOBACCO REPLACEMENT MATERIAL

William Francis Cartwright, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.

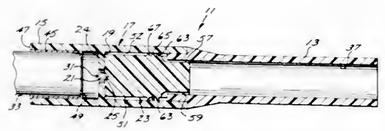
Filed Feb. 9, 1972, Ser. No. 224,997
Int. Cl. A24b *15/00*
U.S. Cl. 131—2 5 Claims

A smoking material is disclosed which consists essentially of a vinyl methyl ether: maleic anhydride copolymer or salts thereof, an inorganic particulate filler and optionally a second combustible material. The second combustible filler may be of tobacco dust, sodium gluconate, pectins, natural gums, or cellulose or its derivatives. The inorganic particulate material serves in the capacity of a combustion modifier and reduces the total effective combustible material in a particular charge.

3,812,865
SMOKING HABIT CONTROL KIT

Daniel J. Anderson, 4909 Ironwood, Seal Beach, Calif. 90740

Filed Nov. 17, 1972, Ser. No. 307,429
Int. Cl. A24f *13/04*
U.S. Cl. 131—171 A 2 Claims

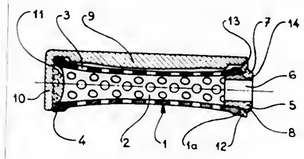


A smoking habit control kit including a set of holders including respective housings formed on their one ends with tubular mouthpieces and on their respective opposite ends with smoking piece receiving barrels, such mouthpieces and barrels being separated by respective trapping chambers. A transverse blocking wall separates the trapping chamber and barrel and is formed with a central aperture. The respective barrels include respective bleed passages in their peripheral walls, the cross sectional flow area of the bleed passages for sequential holders of the set being progressively larger to admit progressively greater quantities of diluting air to the barrel and mouthpiece as the user selectively progresses through the holders of the set. The holders each include a core received within the respective trapping chambers and formed on one end with a face abutting the transverse wall and having a diametrical linear scar formed thereacross to define a trapping passage leading radially outwardly from the aperture to the opposite sides of such core to enable smoke traveling through the aperture to flow radially outwardly through the opposite trapping passages to opposite sides of the core for axial flow rearwardly along an annular passage formed between such core and the wall of the trapping chamber to finally enter the mouthpiece and exit into the smoker's mouth. Consequently, the smoker desiring to control or break his smoking habit may commence utilizing the holder having the smallest bleed passage thus only slightly diluting the smoke drawn from the smoke piece and trapping tars and nicotene in the barrel and trapping chamber as the smoke and air mixture flows therethrough. The smoker may progress from holder to holder as he adjusts to the bleed air admitted for each respective holder in the kit to thus progressively mix greater and greater amounts of air with the smoke from the smoke piece thus reducing the hazard resulting from smoking and decreasing the smoker's reliance on smoking.

3,812,866
HAIR CURLER

Bruno Pierre Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed June 12, 1972, Ser. No. 261,995
Claims priority, application France, June 10, 1971, 71.21096
Int. Cl. A45d *2/00*
U.S. Cl. 132—40 3 Claims

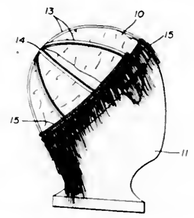


The present invention concerns a hair curler comprising a retaining bar articulated on to one end of the curler body, the articulation consisting of a ring that revolves freely around the end of the curler body and hinge connecting said ring with the retaining bar, the axis of the hinge being perpendicular to the axis of the curler.

3,812,867
CAPLESS WIG

Robert M. Wanderman, and Alice R. Wanderman, both of 126 Monroe St., both of Lawrence, N.Y. 11559

Filed Oct. 29, 1971, Ser. No. 193,793
Int. Cl. A41g *3/00*
U.S. Cl. 132—53 4 Claims

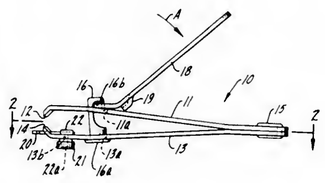


A capless wig consisting of an elastic wig frame and wefted hair strips, all of which are assembled onto a water soluble liner that is shaped in the form of a human head, with the water soluble liner being subsequently dissolved by washing after completion of the wig.

3,812,868
GUARDED FINGER NAIL CLIPPERS

Francis J. Keating, 44 E. North Ave., Lake Forest, Ill. 62702

Filed May 7, 1973, Ser. No. 358,002
Int. Cl. A45d *29/18*
U.S. Cl. 132—75.4 5 Claims

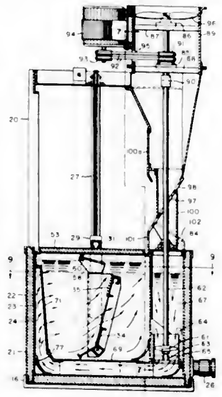


A finger nail clipper in which front or side guards, or both, are attached to protect the user from cutting the soft skin of his fingers or toes; the guards include an adjustably mounted curved front guard, attached to the lower clipper jaw, which butts against the skin under the finger nail or toe nail to assure uniformly trimmed nails, and a side guard which is affixed to at least one side of the cutting element of one jaw member and projects alongside the cutting element of the other jaw member.

3,812,869
HOT-WATER MASK-WASHING MACHINE

Harry Szczepanski, 755 Oakleigh N.W., Grand Rapids, Mich. 49504

Filed Apr. 13, 1972, Ser. No. 243,601
Int. Cl. B08b *3/04*
U.S. Cl. 134—111 7 Claims



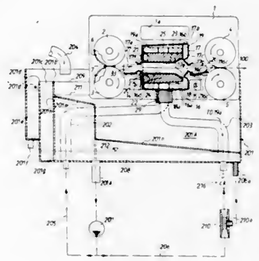
Masks to be cleaned are immersed in a tank in which liquid circulation is maintained at and past the masks, and over a filtering weir. This circulation is induced by a high-volume, low-pressure, and low-velocity system that creates a gravity pressure head to maintain the circulation with a minimum of energy loss. In the preferred form of the machine, the pressure system centers in a shrouded axial-flow propeller driving downward the liquid in a low-pressure portion of the tank to establish the pressure head differential. Provision is made for controlling the deposit of condensate accumulating on the cover of the heated tank.

3,812,870
APPARATUS FOR PROCESSING PHOTOGRAPHIC MATERIAL OR THE LIKE

Erwin Geyken; Peter Dawidowitsch, and Franz Ertl, all of Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 16, 1973, Ser. No. 342,321
Claims priority, application Germany, Mar. 22, 1972, 2213742
Int. Cl. G03d *3/06*
U.S. Cl. 134/122 15 Claims

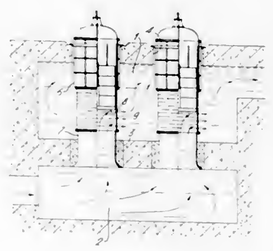
Apparatus for wet treatment of photographic films has two pairs of rollers which transport films in a channel between upper and lower liquid discharging chambers. The lower roller of each pair dips into a supply of processing liquid in the first compartment of a vessel. When the first compartment is filled, the liquid overflows into a second compartment of the vessel whose capacity at least equals that of the chamber or chambers located above the maximum level of liquid in the first compartment. The chambers receive liquid from the first and second compartments by way of one or more pumps. The second compartment serves to store liquid which, on stoppage of the pump or pumps, leaves by gravity flow the chamber or chambers which are located above the maximum liquid level in the first compartment.



3,812,871
HYDRAULIC INSTALLATION

Eric Miller, Marlow, England, assignor to Glenfield & Kennedy Limited, Kilmarnock, Scotland

Filed Mar. 2, 1973, Ser. No. 337,639
Claims priority, application Austria, July 20, 1972, 44784/72
Int. Cl. F16k *3/24, 51/00*
U.S. Cl. 137—1 4 Claims



An hydraulic installation incorporating two underground conduits one end of which commences at a point above and overlapping an end of the other conduit and at least one vertical discharge valve interconnecting the conduits which is actuated above ground.

3,812,872
SYSTEM TO PREVENT FREEZING OF HEATING UNITS SUCH AS BOILERS

Leo Block, Woodland Hills; Larry J. Ashton, Thousand Oaks, and Kenneth F. Vodraska, Newbury Park, all of Calif., assignors to Raypak, Inc., Westlake Village, Calif.

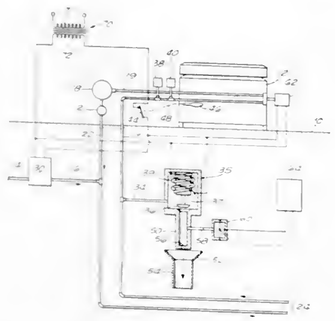
Filed June 22, 1972, Ser. No. 265,125
Int. Cl. E03b *7/10*
U.S. Cl. 137—62 1 Claim

A control system to prevent freezing of heating units, such as boilers, particularly those which may be outdoors, such as on a rooftop. A drain valve is provided to automatically drain the water from the unit in the event of power failure which would prevent heating of the water, or in the event of the occurrence of a low temperature of the water approaching freez-

-ing, or both. The system may also include a valve which closes in response to one or both of these conditions

controlled variable source and from a

-ing, or both. The system may also include a valve which closes in response to one or both of these conditions to prevent ad-



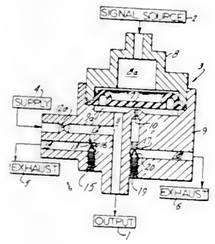
mission of water to the unit. The drain valve embodies a time delay feature so as to not respond to power failures of minimum predetermined duration.

3,812,873

FLUID SIGNAL LIMITING DEVICE

Richard N. Laakaniemi, and Robert R. Stahl, both of Milwaukee, Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Division of Ser. No. 199,893, Nov. 18, 1971. This application May 29, 1973, Ser. No. 364,536
Int. Cl. G05d *16/00*
U.S. Cl. 137—84 4 Claims



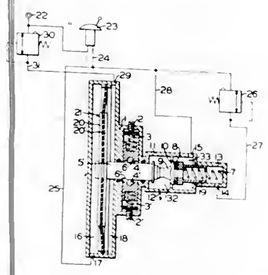
A pneumatic signal limiter includes an integrated fluidic repeater and variable restrictor assembly having a pair of telescoping interconnected input and output body members with opposing and complementary recessed faces defining an input chamber and an output chamber to opposite sides of a diaphragm. The output portion includes an exhaust orifice and passageway within which a variable low limit restrictor is mounted to control the exhaust flow. The output body further includes an output passageway and intersecting exhaust passageway with an adjustable high limit restrictor connected directly to the exhaust passageway. The supply is connected to the output passageway in series with a restrictor through the intersecting passageway or a separate connection. Each restrictor is a needle valve which is adjustably secured within the housing with a conical point within a related limiter orifice. The threaded pin valve member has a relatively small cone angle and very fine adjusting threads. A closed loop control system includes a controller connected to sensors from a controlled variable source and from a master variable source through limiters. The controller is connected via a limiter to a control apparatus for the controlled variable unit.

3,812,874

DIFFERENTIAL PRESSURE SENSING VALVE

Makoto Takagi, Kobe, Japan, assignor to The Nippon Air Brake Co., Ltd., Kobe, Japan

Filed Nov. 17, 1972, Ser. No. 307,574
Claims priority, application Japan, Nov. 25, 1971, 46-110409
Int. Cl. G05d *16/06*
U.S. Cl. 137—110 9 Claims



A control valve device especially adapted for the control of a marine engine so as to bypass a critical region of its speed range in which a resonant frequency vibration is encountered. The control valve comprises a differential piston abutment the stem of which cooperates with valve means to control the fluid pressure communication between either a first or second inlet and an outlet which controls the throttle of said engine. Detent means provides a latching force in either of two extreme positions to prevent actuation of the piston abutment in response to a variable speed control signal until the speed control signal reaches a value sufficient to overcome the latching force of the detent means, which latching force corresponds to the upper limit of the critical speed range. In one extreme position of the piston abutment, the valve means is effective to pressurize the outlet in accordance with the output of a regulating valve adjusted to limit the speed control signal to a value corresponding to the lower limit of the critical speed range, while in the other extreme position, the valve means is effective to pressurize the outlet in accordance with the speed control signal. The detent means may be employed either alone or in conjunction with a second regulating valve, the output of which biases the piston abutment in opposition to the speed control signal, to establish the upper limit of the critical speed range.

3,812,875

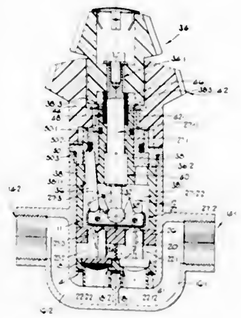
VALVE FOR PROPORTIONING FLUID FLOW

Andreas Buhler, Krugersdorp, South Africa, assignor to Castle Brass Works (Proprietary) Limited, Transvaal Province, South Africa

Filed Feb. 25, 1972, Ser. No. 229,441
Claims priority, application South Africa, Mar. 12, 1971, 71/1640
Int. Cl. F16k *11/14*
U.S. Cl. 137—454.6 3 Claims

The proportioning of the flow of a plurality of fluids, by differentially adjusting the maximum degree of opening relative to their seats of a plurality of valve closure members controlling the flow of such fluids, the said differential adjustment taking place via a cam-like surface co-operating cam-follower

fashion with the closure members. More specifically a hot water and cold water mixer valve for domestic water installa-



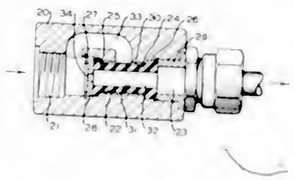
tions for use in sinks, baths, or showers, to proportion the flows of hot and cold water through a single outlet and to maintain such flows when adjusted.

3,812,876

APPARATUS FOR CONTROLLING THE QUANTITY OF FLOW IN A FLUID MEDIUM

Horst Krieter, Ahlem, Germany, assignor to Westinghouse Bremsen-und Apparatebau, GmbH, Hannover, Germany

Filed Apr. 8, 1971, Ser. No. 132,382
Claims priority, application Germany, Apr. 23, 1970, 2019651
Int. Cl. G05d *7/01*
U.S. Cl. 137—501 3 Claims



A fluid flow regulator device including a resilient member subjected on one side to the actual pressure of fluid supplied at the inlet and on the other side to pressure of inlet fluid at a fixed reduced value, thereby establishing a pressure differential across the two sides of said resilient member for producing a distortion thereof into a fluid flow area between the inlet and the outlet for obstructing said area and establishing a flow rate of the fluid medium according to the pressure differential established.

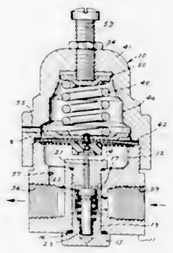
3,812,877

PRESSURE REGULATOR ASSEMBLY

Joseph F. Fleischhacker, Minnetonka, and Thomas W. Hruby, Minneapolis, both of Minn., assignors to Tescom Corporation, Minneapolis, Minn.

Filed Aug. 28, 1972, Ser. No. 284,253
Int. Cl. G05d *16/06*
U.S. Cl. 137—505.42 6 Claims

A pressure regulator assembly that includes a valve body, a bonnet mounted on the body and in combination with the body mounting a flexible diaphragm to separate the body control chamber and bonnet chamber, a nozzle and back cap mounted by the body to provide an inlet chamber, a valve stem assembly extended through the inlet chamber and nozzle and resiliently urged toward the bonnet to block fluid flow through the nozzle to the control chamber, a centering disc abutting against the diaphragm and the valve stem assembly to in cooperation with a spring coiled about a circular axis retain the valve stem assembly radially spaced from the nozzle bore and back cap bore, a filter screen in the inlet chamber, and spring mechanism in the bonnet resiliently urging the diaphragm toward the back cap. In one embodiment an eyelet secures the diaphragm support plate to the diaphragm, and in combination with an integral, raised, annular ring portion (boss) on the diaphragm side of the centering disc and



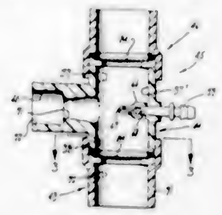
abutting against the diaphragm in surrounding relationship to the eyelet provides for a self-relieving feature, while in the second embodiment the diaphragm support plate is not secured to the diaphragm and no raised ring portion is provided on the diaphragm side of the centering disc. In the second embodiment an adjustment knob is threaded to the bonnet and has part of the adjusting spring extended a substantial distance into the knob bore for the purpose of providing more space for the adjusting spring without increasing the size of the bonnet.

3,812,878

FAIL-SAFE BREATHING CIRCUIT AND VALVE ASSEMBLY FOR USE THEREWITH

Forrest M. Bird, and Henry L. Puhndorf, both of Palm Springs, Calif., assignors to Bird Corporation, Palm Spring, Calif.

Division of Ser. No. 183,822, Sept. 27, 1971. This application Mar. 19, 1973, Ser. No. 342,702
Int. Cl. F16k *15/16*
U.S. Cl. 137—512 2 Claims



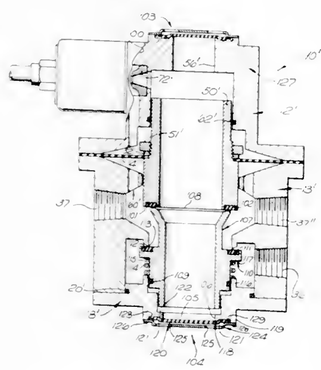
Breathing circuit for use in supplying gas under pressure to the airway of a patient having a control with an inspiratory and expiratory phase for controlling the supply of gas. Means is provided for supplying the gas to the patient to ventilate the patient. An exhalation valve which is controlled by the controller controls the flow of expiratory gases from the patient. Manual means is provided for ventilating the patient in the event of failure of the controller. A first valve assembly having an inspiratory one-way valve and an expiratory one-way valve is provided for maintaining the inspiratory and expiratory gases separate. The first valve assembly is coupled to a second valve assembly which is coupled to the exhalation valve assembly. A resuscitation bulb is coupled to the second valve assembly and is utilized for supplying gas under pressure through the second valve assembly and through the inspiratory one-way check valve to the airway of the patient.

3,812,879

3,812,879
VENT VALVE

Melvin Leon Terrell, Los Angeles, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 21, 1973, Ser. No. 361,880
Int. Cl. F16k 15/14
U.S. Cl. 137—512.15 1 Claim

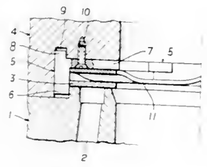


A vent valve including a circular rubber disc clamped around the exhaust port of a dump valve for use in an anti-skid brake control system. The dump valve has a lip around the port over which the disc is clamped. The disc is clamped by an annular flange of a circular plate. The disc has slots between the clamping position and the port. The plate has an offset central portion with holes therethrough partially aligned with the slots. The central portion of the plate keeps the disc from ballooning and rupturing.

3,812,880
COMPRESSOR VALVE

Friedrich Bauer, Vienna, Austria, assignor to Hoerbiger Ventilwerke Aktiengesellschaft, Braunhubergass, Vienna, Austria

Filed Nov. 17, 1972, Ser. No. 307,518
Claims priority, application Austria, Nov. 26, 1971, 10224/71
Int. Cl. F16k 15/08
U.S. Cl. 137—516.15 5 Claims

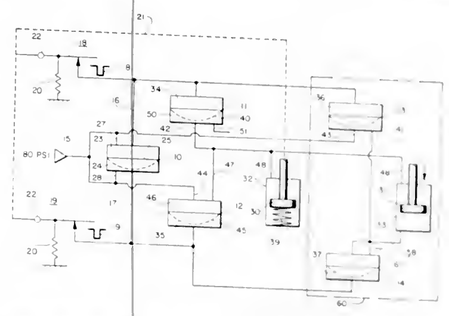


A compressor valve having a spring-loaded valve plate arranged between a valve seat and catcher, the valve plate being slidingly guided on axial guide webs to which radial catcher ribs are connected, wherein the guide webs and the catcher ribs together form guide segments, the guide segments being separate structural parts and which are fixed to the catcher as by screw fasteners.

3,812,881
FLUID RESPONSIVE CONTROL VALVES

Ernest David Anderson, Narragansett, and Larry Clyde Cowan, Saunderstown, both of R.I., assignors to Leesona Corporation, Cranston, R.I.

Filed Apr. 9, 1973, Ser. No. 349,451
Int. Cl. F16k 11/10
U.S. Cl. 137—596.14 7 Claims



Fluid operated devices such as pneumatic or hydraulic rams are controlled by multiple-flow valve apparatus operable from momentary fluid trigger pulses to initiate both fluid power drive and exhaust functions. Thus a fluid pulse triggered bistable state fluid path logic control element controls in a logic network at least one pair of slave valves which respectively convey fluid under pressure from a source to an output channel and exhaust the output channel in response to the state of the logic element.

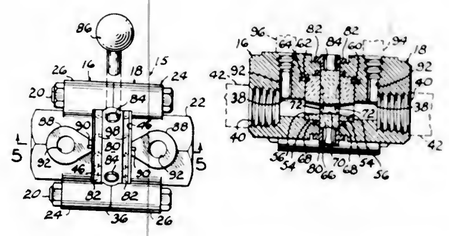
The logic elements and valves comprise a compartment with a diaphragm movable into opposing chambers in response to fluid pressures in contact therewith to open or close fluid flow paths through at least one chamber.

Accordingly, a piston may be reciprocated at will or other load devices may be operated from steady state or continuing fluid paths controlled by momentary fluid pulses either randomly or cyclically in a simple efficient fluid controlled valve arrangement of interconnected fluid logic elements.

3,812,882
RESTRICTOR VALVE

Julian S. Taylor, 8300 S.W. 8, Oklahoma City, Okla. 73108

Filed Jan. 2, 1973, Ser. No. 320,014
Int. Cl. F16k 37/00, 5/12
U.S. Cl. 137—556.6 6 Claims

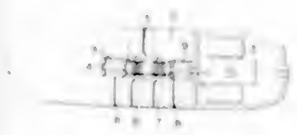


In a restrictor valve housing, having a flow passageway, a pair of plates having aligned orifices intersect the flow passageway within the housing and define an intermediate portion of the flow passageway. A central disk, interposed between the pair of plates, is provided with an opening mating and mismating with the axis of the flow passageway by axial rotation of the disk. An operating ring, secured to the periphery of the central disk, projects outwardly of a portion of the outer limit of the housing permitting manual rotation of the central disk. Indicia, scored on the operating ring, provides visual indication of the position of the central disk opening with respect to the orifices in the pair of plates.

3,812,883
MECHANISM FOR PREVENTING THE STICKING OF SPOOL VALVES

Takio Yokokawa, Takarazuka, Japan, assignor to Sumitomo Precision Products Company Limited, Hyogo Prefecture, Japan

Continuation of Ser. No. 881,997, Dec. 4, 1969, abandoned. This application Apr. 5, 1972, Ser. No. 241,469
Claims priority, application Japan, Dec. 28, 1968, 43-1054
Int. Cl. F16k 11/07
U.S. Cl. 137—625.69 1 Claim

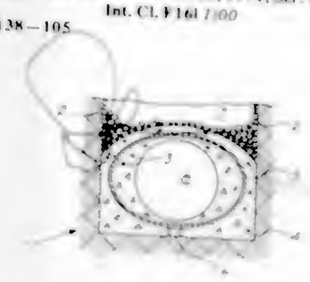


This invention is to make many annular grooves with a very narrow land width on the outer peripheral surface of the land of spool or on the inner peripheral surface of the spool hole of a valve body.

3,812,884
INTEGRALLY COMBINED PREFORMED CORE AND CAST-IN-PLACE OUTER COMPONENT SECTION FOR PIPELINE ASSEMBLIES

Thomas K. Breitfuss, 17541 Orange Tree Ln., Tustin, Calif. 92680

Continuation-in-part of Ser. No. 16,522, March 4, 1970, abandoned. This application Dec. 15, 1971, Ser. No. 208,353
Int. Cl. F16l 1/00
U.S. Cl. 138—105 16 Claims

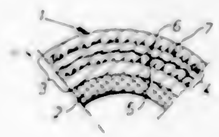


Conduit sections are disclosed for forming pipe lines. Sections have preformed core members of variable shapes and wall thicknesses and cast-in-place concrete components formed selectively on external surfaces and bonded to the core by mechanical and/or chemical means, thereby forming an integral structure. The chemical bonding utilizes adhesives and the like to secure the outer component on core surfaces while the mechanical bonding may utilize various structural shapes to secure the outer component to the inner core. A narrow trench-like form in selected contours and dimensions may be utilized as a side and bottom forming member into which concrete or other plastic mix is placed before it is cured. Preferably only slight clearance is provided between the core and the trench sides to allow placement and consolidation of the concrete mix. Components of variable thicknesses may be so formed, thereby providing greatest strength in areas where maximum support of the load is required.

3,812,885
REINFORCED SYNTHETIC PLASTIC PIPE

Johannes Otto Sajben, Krefeld-Gartenstadt; Axel Lippert, Krefeld-Verbert; Klaus Stumpen, Cologne, and Rainer Grunewald, Krefeld/Bockum, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 29, 1971, Ser. No. 184,844
Claims priority, application Germany, Oct. 15, 1970, 2050734
Int. Cl. F16l 11/04
U.S. Cl. 138—125 8 Claims

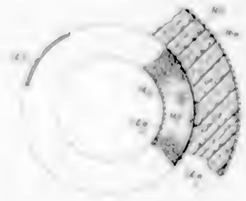


A fibre-reinforced synthetic plastic pipe, with at least one tubular endless knitted fibre fabric which is saturated by a duroplastic material, is produced by applying the duroplastic material to the surface of a core or internal liner whereby the core or internal liner is surrounded by a knitted head, which produces the knitted fabric which is placed into the layer of duroplastic material before this layer is hardened and the finished pipe is continuously drawn away.

3,812,886
CRYOGENIC INSULATION

Harry Hallwood, Arlington Heights, Ill., assignor to Midwesco Enterprise, Inc., Chicago, Ill.

Filed July 5, 1972, Ser. No. 269,052
Int. Cl. F16l 9/14
U.S. Cl. 138—149 9 Claims



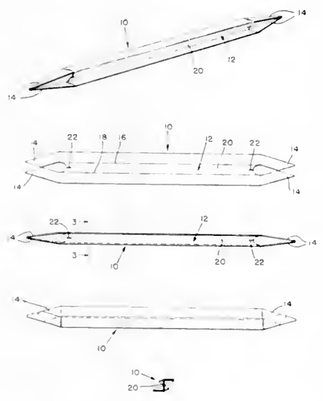
An insulating sleeve for use with transmission pipelines that carry liquid natural gas (LNG) at cryogenic temperatures, which insulator includes a tubularly-shaped bonded perlite core that is sealed in an envelope which is filled with a condensible gas such as carbon dioxide (CO_2). When the insulator is positioned near the cold transmission line, the CO_2 condenses thereby substantially evacuating the insulator, thus providing excellent insulation for the pipeline by reducing the heat gain to the LNG.

3,812,887
SHUTTLE FOR A HAND

3,812,887
SHUTTLE FOR A HAND LOOM

William K. Stars, Durham, N.C., assignor to The Craftool Company, Inc., Woodridge, N.J.

Division of Ser. No. 149,236, May 2, 1971, Pat. No. 3,738,395.
This application Mar. 5, 1973, Ser. No. 338,202
Int. Cl. D03d 29/00
U.S. Cl. 139—29 6 Claims

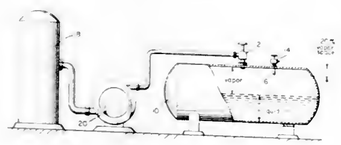


A shuttle for a hand loom is formed from a blank to define a substantially Z-shaped cross-sectional configuration with the central section adapted to have yarn wound thereon. The shuttle end portions are tapered and converge toward each other.

3,812,888
COMPRESSED LIQUID GAS FILLING SYSTEM

Charles Robert Dalton, 3107 Newton, No. 40, Torrance, Calif. 90505

Filed Aug. 25, 1972, Ser. No. 283,831
Int. Cl. B65g 5/00
U.S. Cl. 141—39 20 Claims

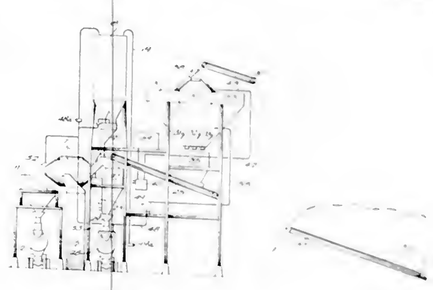


Escaping gas from the 20 percent valve of a compressed liquid gas tank is fed through a metered opening into an expansion chamber. A temperature sensitive element located within the expansion chamber has a first ambient temperature position and a second lower temperature position. The escaping gas normally has the same temperature position. The escaping gas normally has the same temperature as the ambient; however, as the tank is filled beyond the 80 percent volume position, liquid gas is drawn into the expansion chamber where it immediately expands and vaporizes. The expanding process draws heat from the immediate surroundings, thereby lowering the temperature of the expansion chamber and the temperature sensitive element which assumes the second temperature position. Movement of the temperature sensitive element is coupled with a spring-loaded control valve feeding the compressed liquid gas tank, thereby closing the spring-loaded valve and stopping the filling process.

3,812,889
DUST CONTROL SYSTEM UTILIZING TEMPORARILY STORED AGGREGATES

Robert W. Strehlow, New Berlin, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Aug. 14, 1972, Ser. No. 280,401
Int. Cl. B65b 1/28
U.S. Cl. 141—93 6 Claims

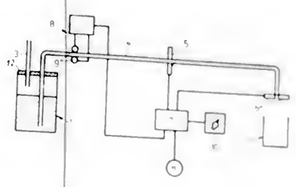


A concrete batch plant is provided with a subatmospheric air carried dust collection system which discharges under positive pressure into the body of the aggregates being processed through the plant. This aggregate body functions as a continuously renewed filter bed.

3,812,890
DEVICE FOR TRANSMITTING PREDETERMINED VOLUMES OF LIQUID FROM ONE CONTAINER TO ANOTHER CONTAINER

Werner Haas, Uttenreuth, and Klaus-Steffen Isensee, Erlangen, both of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed July 25, 1972, Ser. No. 274,901
Claims priority, application Germany, Aug. 5, 1971, 2139258
Int. Cl. B67d 5/54; G01n 21/26
U.S. Cl. 141—94 4 Claims



A device for transmitting predetermined volumes of liquid from one container to another container consists of a pipe leading from the first container to the second container and immersed into the liquid in the first container, means sealing the first container, a pressure transmitting tube introduced into the first container for producing pressure means pressing the liquid through the pipe and means measuring a predetermined liquid volume. The invention is particularly characterized in that there is a substantially constant super pressure in the first container and there are two signalling devices spaced from each other and located in the path of the flowing liquid. When the liquid front passes them they transmit a signal to a calculator which determines from these signals the volume of liquid passing through the pipe per time unit. Closure means for the liquid are connected to the calculator. They receive a closing signal formed by the incoming signals after the passing of time required for the transmission of desired liquid volume set at the calculator.

3,812,891
TOOL HEADS FOR USE IN MACHINING TIMBER

Alfred Reuter, Oberkirch Baden, Germany, assignor to Gebruder Linck, Oberkirch Baden, Germany

Filed Nov. 16, 1972, Ser. No. 307,298
Claims priority, application Germany, Nov. 27, 1971, 2158912
Int. Cl. B27c 9/02, B27l 11/00
U.S. Cl. 144—3 R 7 Claims



The present specification discloses a tool head for use in machining round timber trunks to produce beams or planks. The tool head includes a tool holder which is arranged concentrically and coaxially of the tool head, the tool holder and tool head being independently rotatably drivable about their common axis, the tool holder being drivable at a higher rotational speed than the tool head. Chipping blades are provided on the periphery of the tool head and finishing blades are provided on the working end of the tool holder. Thus, as a trunk is passed over the working front end of the tool head in a direction perpendicular to the rotational axis of the head, the chipping blades process the trunk and the finishing blades which can move at a higher speed than the chipping blades smooth the even surface produced by the chipping blades.

3,812,892
TREE HARVESTER AND METHOD

Stanley C. Jasinski; Leo J. Wenstrup, and Bryant Duffy, all of Woodstoch, Ontario, Canada, assignors to Eaton Yale Ltd., London, Ontario, Canada

Filed June 9, 1972, Ser. No. 261,237
Int. Cl. A01g 23/08
U.S. Cl. 144—309 AC 17 Claims



An improved tree harvester delimbs a tree as it is being felled. The tree harvester includes a vehicle having a felling boom assembly with a gripper assembly which securely grips a lower end portion of the trunk of a standing tree and a shear assembly which is actuated to sever the trunk of the tree adjacent to the ground. The felling boom assembly is then operated to swing the trunk of the tree from the standing position along an arcuate path extending over the vehicle. As the trunk of the tree moves along the arcuate path, it is delimbed by a delimber assembly which is disposed on the outer end of a delimber boom. The delimber assembly is moved along the trunk of the tree by pivoting a section of the delimbing boom relative to the vehicle as the tree moves from the standing position toward a fallen position. The delimber assembly advantageously includes a drive wheel which engages the trunk of the tree and is rotated by a motor to at least assist in moving the delimber assembly along the trunk of the tree as the tree is felled from the standing position.

3,812,893
METHOD AND APPARATUS FOR CUTTING VENEER PRODUCED BY MEANS OF TURNING ON A LATHE INTO SHEETS WITH UNIFORM FIBRE CONFIGURATION

Armas Ervast, Keuruu, Finland, assignor to Messers. Timi Oy, Keuruu, Finland

Filed June 21, 1972, Ser. No. 265,019
Claims priority, application Finland, June 22, 1971, 1772/71
Int. Cl. B27l 5/00
U.S. Cl. 144—326 7 Claims



A method and apparatus for cutting veneer produced by means of turning on a lathe into sheets by first fitting the surface of the log of the veneer with cut markings that, as viewed from the axis of rotation of the log, lie at least approximately on the same radius or radii and by then cutting the veneer into sheets in accordance with the marks on the veneer surface so that a uniform fibre configuration is achieved. As a cutting mark is used a marking substance that is fed onto the log surface by means of a marking equipment synchronized with the movement of rotation of the log. The cutting mark is indicated by means of an indicator device and the cutter is adjusted to cut off the veneer at any desired phase shift in relation to the marks on the veneer face by using a control unit guided by the indicator equipment.

3,812,894
SCREW-DRIVER

James J. Bradbury, 413 University Blvd., Glassboro, N.J. 08028

Filed May 24, 1973, Ser. No. 363,636
Int. Cl. B25b 15/00
U.S. Cl. 145—50 R 1 Claim



A screw-driver designed for operation to exert maximum force on the screw being turned, by providing a gripping member on the shank for engagement by the fingers of the hand of the operator to forcibly press the bit of the tool into engagement with the head of the screw. This force, in an axial direction, supplements the force exerted by the other hand in the same direction, as the tool handle is held by the latter for rotating the screw-driver.

3,812,895

member is seated

3,812,895
FASTENER AND RETAINER ASSEMBLY
Robert E. Smith, Kettering, Ohio, assignor to Dayton Progress Corporation, Dayton, Ohio
Filed Feb. 17, 1970, Ser. No. 12,040
Int. Cl. F16b 39/00
U.S. Cl. 151—41.74 2 Claims

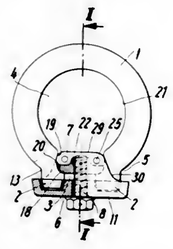


A washer-like safety device serving as a retainer for a headed fastener, such as a screw. The invention contemplates the screw or other fastener being applied in a counterbored passage having in the wall thereof an undercut forming a groove. The retainer is here disclosed as a plate having parallel sides, rounded ends, and a central aperture. The ends are flat and co-planar while the side portions bounding the aperture are offset in the form of an inverted "V." The retainer is dimensioned to easily set in the counterbore cavity to overlie the slotted or socketed head of the screw, whereupon its side portions are flattened to project its rounded ends to bridge the cavity and enter the groove. This retains the screw in the body to which it is applied while permitting its rotation for engaging to or disengaging from a related structure.

ERRATUM

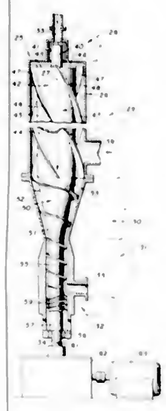
For Class 152—241 see:
Patent No. 3,813,049

3,812,896
CLOSURE MEMBER FOR ANTISKID CHAINS FOR TIRES
Gunter Witzel, Aalen, and Anton Muller, Unterkochen, both of Germany, assignors to Eisen-und Drahtwerk Erlau Aktiengesellschaft, Aalen, Germany
Filed July 24, 1972, Ser. No. 274,629
Claims priority, application Germany, July 22, 1971, 21365651
Int. Cl. B60c 27/04
U.S. Cl. 152—242 12 Claims



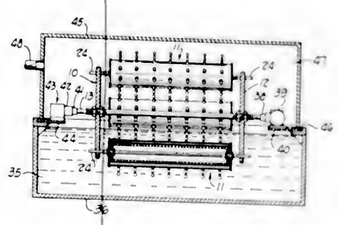
A closure member, especially for antiskid tire chains in which a link member is open at one side and a holding member is seated on the outside of said link member in bridging relation to said opening while a clamping shoe inside the link member also bridges said opening and nests in and is clamped to said holding member.

3,812,897
WIPED FILM DEVOLATILIZATION PROCESS
George A. Latinen, deceased, late of Springfield, Mass. (by May V. Latinen, administratrix), assignor to Monsanto Company, St. Louis, Mo.
Filed Aug. 11, 1971, Ser. No. 171,987
Int. Cl. B01d 1/22, 1/28
U.S. Cl. 159—49 7 Claims



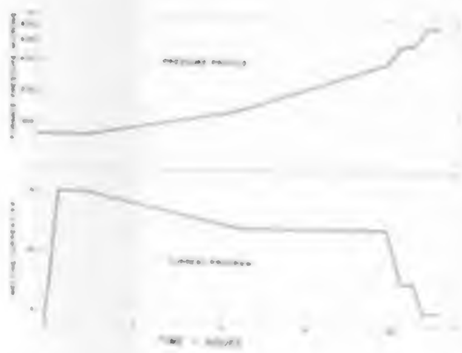
An improved devolatilization process for removing low molecular weight components from a dispersion of polymer in such low molecular weight components. The process employs a zone of separation wherein high mechanical energy dissipation is employed and wherein cocurrent flow of polymer with vapors of low molecular weight components through the separation zone is utilized.

3,812,898
METHOD FOR FORMING CERAMIC SHELL MOLDS
Robert A. Horton, Chesterland, Ohio, assignor to Precision Metalsmiths, Inc., Cleveland, Ohio
Division of Ser. No. 172,035, Aug. 16, 1971, abandoned. This application May 16, 1973, Ser. No. 360,796
Int. Cl. B22c 9/04
U.S. Cl. 164—25 8 Claims



A method is provided for simultaneously coating a plurality of pattern set-ups with refractory material in a single operation during the production of ceramic shell molds. An array of circumferentially spaced pattern set-ups is mounted for rotation about a horizontal axis so that each set-up is moved about the axis between a raised position and a lowered position in which the set-up is at least partially immersed in refractory material. In one preferred embodiment of the invention provision is made for rotating each set-up about its longitudinal axis during the coating operation.

3,812,899
CONTROLLED PRESSURE CONSUMABLE ELECTRODE VACUUM ARC REMELTING PROCESS
Rene Schlatter, Derry Township, Westmoreland County, Pa., assignor to Latrobe Steel Company, Latrobe, Pa.
Filed Mar. 28, 1973, Ser. No. 345,670
Int. Cl. B22d 27/02
U.S. Cl. 164—52 10 Claims

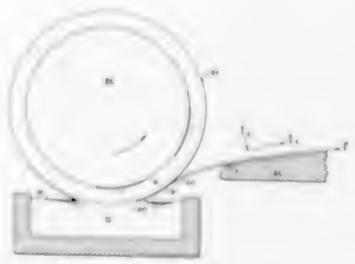


Manganese or other high vapor pressure elements are prevented from volatilizing during vacuum arc remelting by introducing a small flow of inert gas into the mold and varying the rate of exhaust of gases from the mold from a maximum value when the arc zone is at the bottom of the mold to a minimum value when the arc zone is at the top of the mold so as to maintain a pressure in the arc zone higher than the vapor pressure of the volatile element.



When the thickness of the casting falls below a prescribed thickness there is applied to the casting only a contact pressure of a magnitude required for traction and when the thickness of the casting exceeds the prescribed thickness the contact pressure is increased to a greater value calculated to again reduce the thickness of the casting to the prescribed thickness.

3,812,901
METHOD OF PRODUCING CONTINUOUS FILAMENTS USING A ROTATING HEAT-EXTRACTING MEMBER
Oliver M. Stewart, Columbus; Robert E. Maringer, Worthington, and Carroll E. Mobley, Jr., Columbus, all of Ohio, assignors to Battelle Development Corporation, Columbus, Ohio
Filed Jan. 30, 1973, Ser. No. 328,121
Int. Cl. B22d 11/06
U.S. Cl. 164—87 12 Claims



A method of stabilizing the release point of a filamentary product formed from the melt on a rotating heat-extracting member by applying a tension force to the filament subsequent to its release from the rotating member with the tension force of a magnitude to override variations in the adhesion of the filament to the rotating member. The filament is necessarily supported between the release point and the means used to generate the tension force in the filament.

3,812,900
METHOD OF OPERATING A MULTI-ROLL CASTING MACHINE DURING AND AFTER FREEZING OF THE LIQUID CORE OF THE STRAND
Georg Bollig, Buderich; Horst Grothe, Kaarst, both of Germany; Bernhard Knell, Thalwil, Switzerland; Armin Thalmann, and Josef Zeller, both of Weesen, Switzerland, assignors to Schloemann Aktiengesellschaft, Duesseldorf, Germany and Concast AG, Zurich, Switzerland, part interest to each
Filed June 29, 1972, Ser. No. 267,531
Claims priority, application Germany, July 3, 1971, 2133144
Int. Cl. B22d 11/12
U.S. Cl. 164—76 4 Claims

A method of and apparatus for operating a multiple-roll machine, especially a multiple-roll withdrawing machine or a multiple-roll combination withdrawing and straightening machine in a continuous casting plant, wherein a casting and a dummy bar are passed between pairs of rolls. By means of each pair of rolls there is applied to the casting and the dummy bar as they pass therebetween, the requisite contact pressure for generating the necessary traction or withdrawal force.

3,812,902
CONTROL SYSTEM FOR CONTINUOUS CASTING
Hiroshi Kawasaki, Kobe, Japan, assignor to Kobe Steel, Ltd., Kobe, Japan
Filed Jan. 2, 1973, Ser. No. 320,124
Claims priority, application Japan, Jan. 5, 1972, 47-1,000
Int. Cl. B22d 11/16
U.S. Cl. 164—154 3 Claims

A control system for continuous casting wherein the molten metal level in the mold is detected by a level detector and the detected signal is compared with a reference signal to produce a deviation signal which is used to control the withdrawing speed of the cast strand.

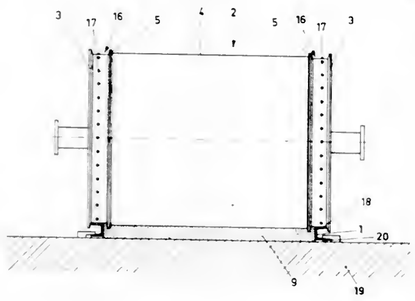
3,812,903
METHOD OF CONTINUOUS CASTING
Hiroshi Kawasaki, Kobe, Japan, assignor to Kobe Steel, Ltd., Kobe, Japan
Filed Jan. 2, 1973, Ser. No. 320,125
Claims priority, application Japan, Jan. 5, 1972, 47-1,001
Int. Cl. B22d 11/16
U.S. Cl. 164—154 3 Claims

A method of continuous casting wherein the molten metal level in the mold is detected by a level detector and the detected signal is compared with a reference signal to produce a deviation signal which is used to control the withdrawing speed of the cast strand.

3,812,902
APPARATUS FOR PREPARING OPEN SAND MOLDS SUITABLE FOR CASTING LARGE METAL PLATES

Heinz Arbenz, Andelfingen, and Jakob Caspar, Kaltenbach, both of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Nov. 3, 1971, Ser. No. 195,274
Claims priority, application Switzerland, Nov. 6, 1970, 16462/70
Int. Cl. B22c *15/02*
U.S. Cl. 164—208 7 Claims

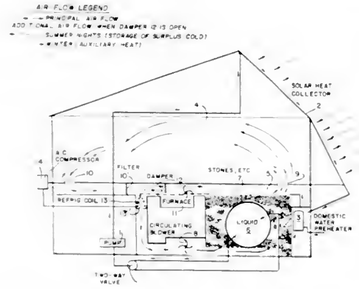


Open sand molds suitable for casting large metal plates, especially aluminium plates for building facades are prepared by using a large roller bearing a model and rolling spaced guides to level a bed of moldable substance therebetween and simultaneously impressing the molding pit in the bed.

3,812,903
HEAT, COLD AND DRY STORAGE

Harry E. Thomason, 6802 Walker Mill Rd., S.E., Washington, D.C. 20027

Filed Apr. 19, 1972, Ser. No. 245,449
Int. Cl. F24f *3/14*
U.S. Cl. 165—3 10 Claims



During the summer cooling season air conditioning equipment filters, cools and dehumidifies a home or other building. To minimize use of power on hot days during "brownouts" and "blackouts" the present invention operates for cold storage to store coolness produced at off-peak power periods. Additionally, the apparatus stores "dryness," so that the air may be dehumidified, such as on hot muggy days, even when the refrigeration apparatus is shut off. And, coolness with dehumidification are achieved with lower overall power consumption because most of the "coldness" is produced during the cool night when the refrigerating equipment is more efficient. In the event the weather becomes too chilly on a cool summer night heat is automatically provided.

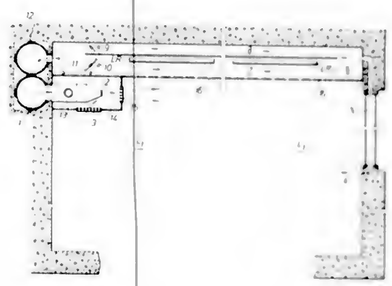
Controls provide for automatic cooling and dehumidification 24 hours a day, plus automatic storage of coolness when not needed to meet the heat load, plus heating if needed.

During the heating season solar produced heat, or heat from another source, is stored and used automatically as needed. Auxiliary heat also is automatically provided as needed.

3,812,904
DEVICE FOR AIR CONDITIONING A NUMBER OF ROOMS HAVING MUTUALLY DIFFERENT HEAT REQUIREMENTS, PREFERABLY ROOMS HAVING A HEAT REQUIREMENT VARYING WITH TIME

Folke Westergren, Skarholmen, Sweden, assignor to Aktiebolaget Svenska Fläktfabriken, Nacka, Sweden

Filed Mar. 29, 1973, Ser. No. 346,187
Claims priority, application Sweden, Apr. 10, 1972, 4600/72
Int. Cl. F24f *3/00*
U.S. Cl. 165—22 5 Claims



A system for air conditioning buildings in which the heat generated by the bulbs in lighting fixtures selectively is used to heat the room, or is carried away with the exhaust air. The system injects central air into the room adjacent the fittings, and exhaust air from the room is conducted away first through the outside window area and then through the lighting fixtures either in a path in direct contact with the bulbs or in a path bypassing direct contact with the bulbs. Dampers are provided to control the proportion of flow through the two paths in the fixtures and thereby to control the proportion of the heat generated by the bulbs which is used to heat the room on one hand and the portion which is discharged with the exhaust air on the other hand. The dampers are controlled in accordance with the demand for heat in the room and an auxiliary heater is provided for the injected air, for operation when the bulbs do not supply sufficient heat to maintain the desired temperature in the space.

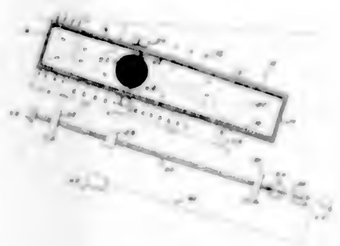
3,812,905
DYNAMIC BARRIER FOR HEAT PIPE

Randolph W. Hamerdinger, Glendora, and Phillip D. Dunn, Highland Park, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 17, 1972, Ser. No. 307,673
Int. Cl. F28d *15/00*
U.S. Cl. 165—32 14 Claims

A heat pipe in which the operating temperature and pressure of the vaporized working fluid is adjustable by means of a dynamic barrier inside the heat pipe. A magnetizable member, in conjunction with a working fluid which is magnetizable,

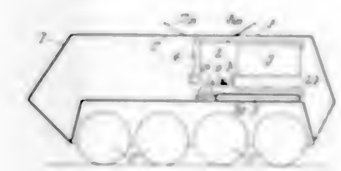
form a hermetic seal, or barrier, at predetermined positions along the length of the heat pipe. The hermetic seal, in the preferred embodiment, is positioned to a point along the heat pipe length whereby the vaporized working fluid is at a desired operating temperature and pressure.



3,812,906
ARMORED VEHICLES HOUSING A COOLED ENGINE

Jean Panhard, Paris, France, assignor to Societe de Constructions Mecaniques Panhard & Levassor, Paris, France

Filed Oct. 4, 1971, Ser. No. 186,301
Claims priority, application France, Oct. 6, 1970, 70.35949
Int. Cl. B60f *3/00*, B60k *3/04*
U.S. Cl. 165—44 9 Claims



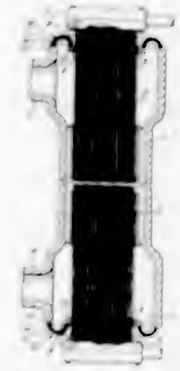
The armored vehicle has a closed body comprising at least one internal engine equipped with a cooling system comprising at least one heat exchanger for the cooling fluid. The heat exchanger is constituted by at least one compartment housed inside the body of the vehicle and bounded in part by a conductive wall belonging to the body as an armor element. The removal of the major portion of the heat given up by the cooling fluid is effected through this wall. A conventional heat exchanger with ambient air cooling can also be provided. This conventional heat exchanger is isolated and rendered inoperative by a valve when the vehicle is in an operational situation or when its body must be entirely sealed with respect to the ambient medium.

3,812,907
HEAT EXCHANGERS

David Lees Linning, Warrington, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed May 8, 1972, Ser. No. 251,238
Claims priority, application Great Britain, June 25, 1971, 21315811/71; May 26, 1971, 17295/71
Int. Cl. F28g *7/00*
U.S. Cl. 165—83 9 Claims

In a tube-in-shell heat exchanger, each tube plate is secured along its outer edge to the shell of the heat exchanger by an intermediate annular member extending across a gap between the outer edge of the tube plate and the shell, the radial cross-section of the annular member being of arched form. Thermal insulation for the tube plates consisting of a series of plate



members edge on to the tube plate and arranged parallel one to another between successive rows of the heat exchanger tubes, is also described.

3,812,908
HEAT TRANSFERRING DEVICE

Patrick Coville, Le Chesnay, and Andre Laurencier, Courbevoie, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 24, 1972, Ser. No. 256,579
Claims priority, application France, Feb. 25, 1972, 72.06482
Int. Cl. F28d *15/00*
U.S. Cl. 165—105 6 Claims



A device of the type known as heat pipe in which the heating means are inside the chamber and covered with a capillary structure in contact with the liquid to be evaporated.

Applicable notably to isothermal oven. FIG. 1.

3,812,909
APPARATUS FOR HEATING AND COOLING LONG CYLINDRICAL PARTS

Anatoly Viktorovich Rogalsky, ulitsa Chicherina 22, kv. 8; Vitaly Mikhailovich Markevich, ulitsa Barkalskaya 11, kv. 125; Georgy Naumovich Kheifets, ulitsa Kirova 8, kv. 29; Jury Leonidovich Zaichenko, ulitsa Karla Libknekhta 41, kv. 5; Valery Efremovich Baburov, Prospekt Petrovskogo 10, kv. 3; Vladimir Petrovich Pavlovsky, ulitsa Karla Libknekhta 7, kv. 5; Eduard Vasilievich Golban, ulitsa Artema 8, kv. 2; Leonid Naumovich Pechennik, Pereulok Ushinskogo 8, kv. 2; Zakhar Osipovich Knyazhinsky, ulitsa Kirova 8, kv. 4, all of Dnepropetrovsk; Nikolai Alexandrovich Bogatov, ulitsa Komso-Molskaya 23, kv. 13, Volzhsk; Jury Isaakovich Raichuk, ulitsa Gagarina 8, kv. 33, Dnepropetrovsk; Viktor Nikolaevich Zaritsky, ulitsa Karla Libknekhta 57/7, kv. 30, Dnepropetrovsk, and Evgeny Fedorovich Grodzitsky, ulitsa Kosiora 37, kv. 1, Dnepropetrovsk, all of U.S.S.R.

Filed Aug. 31, 1972, Ser. No. 285,193
Int. Cl. F28g *7/00*
U.S. Cl. 165—120 2 Claims

An apparatus having at least two mechanisms for rotary conveyance of treated cylindrical articles through a multisec-

tional furnace and a multisectional cooler. The mechanisms are mounted on frames between sections of the furnace and cooler.

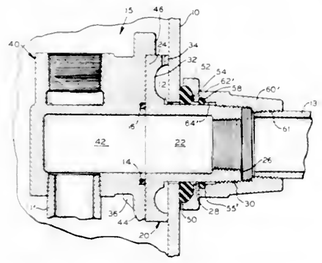
Each mechanism has a ring mounted rotatable with respect to its longitudinal axis on two rolls mounted in the frame. The



ring longitudinal axis is angularly misaligned with respect to the apparatus longitudinal axis. The article being treated rests on the inner surface of the ring and is rotatively moved forward during rotation of the ring.

The mechanisms are provided with means for fixing the ring in the axial direction.

3,812,910
POSITIVE SEAL PITLESS WELL ADAPTER
William Wellstein, P.O. Box No. 430, Fostoria, Ohio 44830
Filed Nov. 20, 1972, Ser. No. 308,025
Int. Cl. E21b *33/03*
U.S. Cl. 166—88 5 Claims

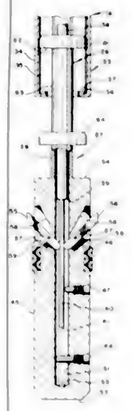


A pipe connector having a duct therethrough for connecting a lateral pipe to a well casing and having an inner casing connector provided with a tubular stem which extends through a hole in the well casing wall. Mounted on this stem externally of the casing wall are a casing contacting O-ring gasket, a follower washer, a stem O-ring gasket and a compression nut which compresses the gaskets into fluid - tight engagement with the casing wall and the stem upon which they are mounted. Also annular grooves to partially seat these O-ring gaskets are provided in the faces of the follower washer and/or the gasket confronting face of the nut.

3,812,911
RETRIEVABLE BLANKING PLUG
Roy R. Vann, P.O. Box 38, Artesia, N. Mex. 88210
Filed June 11, 1973, Ser. No. 368,717
Int. Cl. E21b *23/00*
U.S. Cl. 166—135 10 Claims

Combination wireline fishing tool and retrievable blanking plug for use in conjunction with a seating nipple. The blanking plug has a fishing neck which extends from a shoulder located thereon. The fishing neck includes spaced overshot engaging members so that a fishing tool in the form of an overshot can be forced into engagement with either of the members.

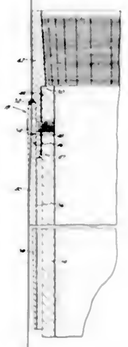
An axial counterbore extending into the blanking plug has a combination stop means and pressure relief means located therein, in the form of spaced breakable plugs. The counterbore further includes means for releasing the blanking plug from the seating nipple. Attached to the overshot in axially aligned relationship therewith is a probe arranged whereby part of the overshot must be positioned in attached relationship between the two spaced members in order for the probe



to break a relief plug and equalize the pressure across the blanking plug. Part of the overshot must next be moved into a position between the shoulder and the lowermost overshot engaging member and the second breakable plug broken by the probe in order for the release device to be actuated

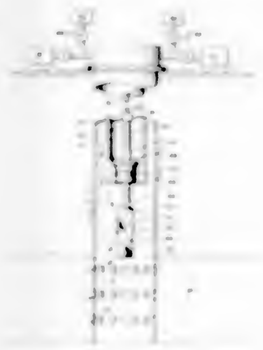
---

3,812,912
REPRODUCIBLE SHOT HOLE APPARATUS
Paul C. Wuenschel, Glenshaw, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
Division of Ser. No. 82,907, Oct. 22, 1970, Pat. No. 3,693,717.
This application June 30, 1972, Ser. No. 267,955
Int. Cl. E21b *17/02*
U.S. Cl. 166—207 9 Claims



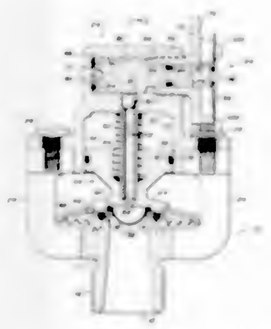
A reproducible shot hole for geophysical use wherein a deformable metal liner, such as aluminum, of predetermined diameter, wall thickness, and alloy is selected, and the annulus between the liner and the hole filled with sand-cement under pressure, so that the lined hole will withstand repeated explosions by expanding.

3,812,913
METHOD OF FORMATION CONSOLIDATION
William C. Hardy, Richardson; Edward F. Schultze, Dallas, and John C. Shepard, Richardson, all of Tex., assignors to Sun Oil Company, Dallas, Tex.
Filed Oct. 18, 1971, Ser. No. 189,854
Int. Cl. E21b *33/13, 43/24*
U.S. Cl. 166—288 6 Claims



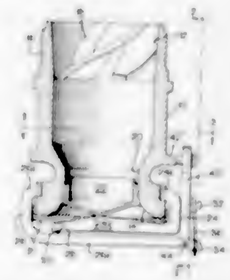
A process of formation consolidation is provided wherein the formation is heated and a substance which acts as a bonding agent when heated is then flowed into the formation. To insure a clean bonding surface, in situ combustion may be initiated in the area to be consolidated prior to injection of the bonding substance. Heat may be supplied to the formation after injection of the bonding substance.

3,812,914
AUTOMATIC ON-OFF SPRINKLER
James William Mears, Warwick, R.I., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Aug. 2, 1973, Ser. No. 385,130
Int. Cl. A62c *37/06, 37/10*
U.S. Cl. 169—20 7 Claims



An automatic water sprinkler has a cylindrical control chamber formed in a body portion and a line pressure operated piston valve slideably and sealingly disposed therein for closing a downstream end of a fluid inlet member. A centrally positioned tubular guide member is mounted to the piston and inserted into a bore formed in said body portion for guiding the piston in the control chamber during reciprocation. A passage is centrally formed in said piston for communicating the inlet member with the control chamber through the tubular guide and bore so that the control chamber is exposed to the inlet fluid pressure. The effective area of the piston exposed to the control chamber fluid pressure is greater than that exposed to the inlet member fluid pressure to thereby establish a differential force for closing the piston valve. A ball is disposed in the bore and adapted to rest on an end of the tubular member for closing the tubular guide member and forming a unidirectional check valve to prevent sprinkler operation as a result of fluctuating inlet fluid pressure.

3,812,915
DISCHARGE HEAD HAVING CONSTANT FORCE PLUG RETAINING MEMBER
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.
Filed June 4, 1973, Ser. No. 366,740
Int. Cl. A62c *37/12*
U.S. Cl. 169—38 12 Claims



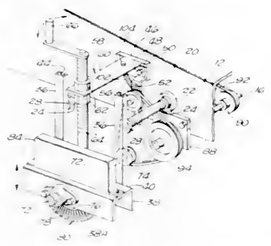
A pressure responsive discharge head in which an expellable plug is disposed in the outlet of a body member having an inlet adapted for connection to a source fo fluid, with the plug being connected relative to the body member in a position preventing the discharge of fluid from the outlet. A connector is provided which applies a constant force to the plug to maintain it in the flow preventing position and which is adapted to release the plug in response to a predetermined fluid pressure existing in the body member.

3,812,916
DRAFT SENSING UNIT FOR TRACTOR
Jean J. Lassen, Villepreux, France, assignor to Massey-Ferguson Inc., Detroit, Mich.
Filed Nov. 22, 1971, Ser. No. 200,958
Int. Cl. A01b *63/112*
U.S. Cl. 172—7 8 Claims



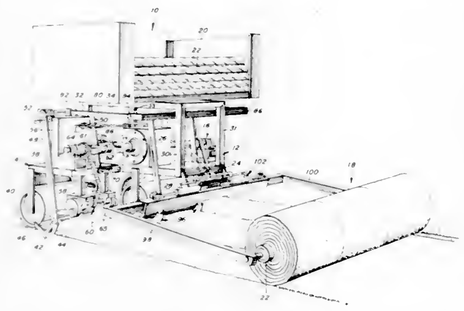
A tractor linkage control has a draft load measuring device in the form of an elongated bar extending between two spaced supports on the tractor, the draft links are connected to the bar to cause the same to deflect under draft loads, measuring means are provided to measure the maximum angular deflection of the bar to provide a usable control signal over a large range of draft forces. The measuring means includes an elongated member clamped at one end to the bar at its point of maximum deflection and having its free end operable to move a cam member carried on the bar.

3,812,917
POWER EDGER ATTACHMENT FOR TRACTOR
Lowell D. Strate, 1340 Greenview Dr., La Habra, Calif. 90631
Filed May 26, 1972, Ser. No. 257,316
Int. Cl. A01d *35/00, 55/18*
U.S. Cl. 172—15 1 Claim



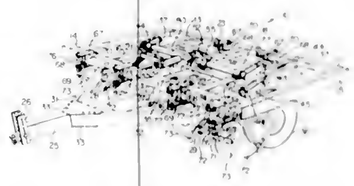
A power edger attachment for wheel supported lawn cutting tractors wherein the edger is supported laterally outwardly of the machine and its wheels at one side thereof, the edger wheel or cutter can be adjusted vertically from the driver's seat to permit an edging operation with the tractor traveling on the surface of the lawn being edged and the edger wheel extending below the wheels of the tractor, or with the edger wheel elevated, an edging operation can be performed with the tractor running in a street adjacent a curb with the edger wheel driving mechanism extending above and beyond the top of the curb and the edger wheel being located between the curb and the sod or lawn lying inside of the curb opposite the street side thereof. Also, an edger wheel construction made up of flexible scarifying elements extending from a hub so the machine can be driven over a sidewalk or similar hard surface without damage to the edger wheel and without necessitating elevation of the wheel by the operator of the machine.

3,812,918
GANGED SOD HARVESTING APPARATUS
Martin Beck, P.O. Box 752, Auburn, Ala. 36830
Continuation-in-part of Ser. No. 149,624, June 3, 1971, abandoned, which is a continuation-in-part of Ser. No. 57,933, July 24, 1970, Pat. No. 3,747,686, which is a continuation-in-part of Ser. No. 605, Jan. 5, 1970, abandoned. This application Dec. 12, 1972, Ser. No. 314,310
Int. Cl. A01b *45/04*
U.S. Cl. 172—19 9 Claims



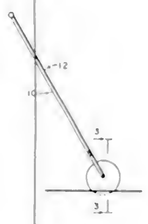
Apparatus for harvesting a plurality of continuous strips of sod, each of uniform thickness, the apparatus comprising a plurality of sod cutters with a central drive means wherein the sod cutters are ganged together. Ganging is accomplished by means of connecting bars and links whereby each cutter is able to move in the vertical direction independently of its interconnected cutters without causing undue wear on, or distortion of its connecting members or drive means. The apparatus is further provided with stabilizer arms which prevent movement of the upper portion of each unit with respect to adjacent units in the direction of travel of the ganged sod harvesting apparatus.

3,812,919
CHISEL PLOW
Herbert W. Baughman, Vermont, and Harry G. Yetter, Colchester, both of Ill. 61484
Continuation of Ser. No. 225,180, Feb. 10, 1972, abandoned. This application June 1, 1973, Ser. No. 366,152
Int. Cl. A01b *59/00, 65/06*
U.S. Cl. 172—328 3 Claims



A rigid wheeled frame supporting or carrying gang type, earth-engaging and working chisel or shovel plow, wherein the wheel mounts are vertically adjustable and lockable in adjusted position with relation to a traversed surface or earth to be, or being worked, and cultivated; the frame, in all positions of vertical adjustment being maintained level and the draft tongue of the wheeled frame concurrently automatically adjusted to compensate for effected changes in the particular height adjustment of both the frame and earth-working devices carried thereby, thus assuring proper hitching to, and towing, by a tractor or other draft vehicle with the frame and earth-working devices level, when active and/or inactive, when traveling to or from a cultivating project over a rough or uneven way and having adjustable brackets providing multiple mounts for supporting a plurality of cultivating devices at equally spaced intervals.

3,812,920
SOIL-LOOSENING ROTARY HOE
Helen R. Green, Council Bluffs, Iowa
Filed Aug. 14, 1972, Ser. No. 280,719
Int. Cl. A01b *21/08*
U.S. Cl. 172—350 16 Claims



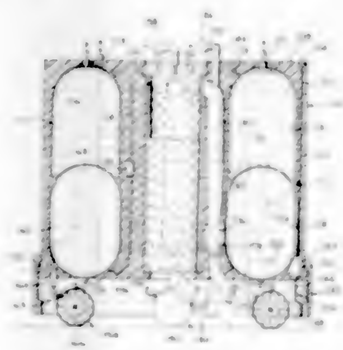
A rotary hoe having a rotating disc with blades on its right and left sides, each blade having a sharp ground-penetration edge facing away from the axis of the disc and inclined with respect to the disc as seen in front view, and inclined with respect to the radius of the disc as seen in side elevation, said hoe having an elongated handle means provided with right and left arm engaging portions disposed above right and left hand grips.

3,812,921
VIDEO SIGNAL PROCESSING SYSTEM AND METHOD WITH ABOVE-WHITE-LEVEL NOISE INVERSION
Peter C. Sherlos, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed July 24, 1972, Ser. No. 274,766
Int. Cl. H04n *5/44*
U.S. Cl. 178—7.3 R 7 Claims



This disclosure depicts method and apparatus for processing a television video signal, particularly for processing a noise-adulterated video signal as developed by synchronous-type video detectors. The disclosed method and apparatus involves sensing in a video signal developed by a synchronous-type video detector noise components having amplitude levels exceeding a predetermined reference level above a level which corresponds to a maximum white video display. A modified video signal is developed for supply to the luminance controls of a video image display device. In the modified signal the sensed above-white-level noise energy is inverted so as to prevent over-driving of the associated image display device. The noise-adulterated video signal from the video detector is supplied directly to a sync separator and AGC stage without noise inversion so as to avoid the introduction of a spurious DC component capable of falsely altering the video signal level relative to an AGC reference level.

3,812,922
DEEP OCEAN MINING, MINERAL HARVESTING AND SALVAGE VEHICLE
Bernard G. Stechler, 766 Brady Ave., Bronx, N.Y. 10462
Continuation-in-part of Ser. No. 848,012, Aug. 6, 1969, abandoned. This application Feb. 16, 1972, Ser. No. 226,911
Int. Cl. E21b *7/12*, B63c *7/00*, E02f *1/88*
U.S. Cl. 175—6 26 Claims



A deep ocean mining, mineral harvesting and salvage vehicles including a body integrally formed of a positive buoyancy material and having recesses therein to receive a plurality of variable buoyancy tanks. Eduction and coring mining systems are alternatively provided for the vehicles, and the vehicles are propelled along the floor of the ocean by means of high velocity jets and/or turbine wheels.

3,812,923
WEIGHT DISPLAY SYSTEM AND METHOD
Frank C. Rock, Santa Rosa, Calif., assignor to National Controls, Inc., Santa Rosa, Calif.
Filed July 20, 1972, Ser. No. 273,415
Int. Cl. G01g *23/14*
U.S. Cl. 177—1 13 Claims



System and method for displaying gross weight or net weight as desired. Net Weight is determined by preloading the tare weight into an up/down counter which counts a digital signal corresponding to the gross weight of a load. Initially the counter counts down toward zero, and upon reaching zero it counts up until the count is completed. If the count is completed before the counter reaches zero, a minus sign is displayed with the count.

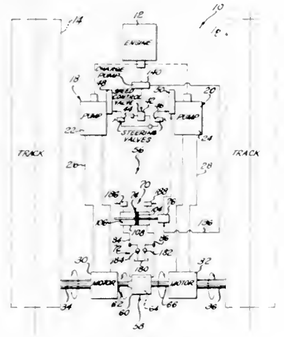
3,812,924
DEVICE FOR MONITORING A CHANGE IN MASS IN VARYING GRAVIMETRIC ENVIRONMENTS
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Joseph P. Valinsky, Huntington Beach, Calif.
Filed Mar. 13, 1973, Ser. No. 340,791
Int. Cl. G01g *19/00, 3/14, 1/18*
U.S. Cl. 177—200 3 Claims



A remotely operable device for detecting changes as they occur in the mass of a selected specimen. The device is

characterized by a balance beam including at one end thereof a support for receiving a specimen having a changing mass and suspension means, including a flexure, supporting the beam near its center of gravity for pivotal movement imparted thereto proportionally to changes occurring in the mass of the specimen, and strain gages coupled with the flexure for providing a read-out indicative of the pivotal movement imparted to the beam.

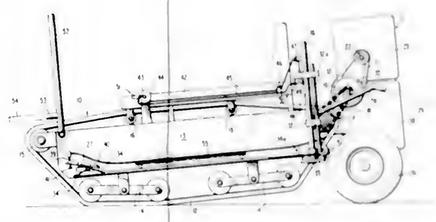
3,812,925
HYDROSTATIC TRANSMISSION CONTROL SYSTEM
Robert B. Lauck, Southfield; Lawrence L. Meyer, Northville, both of Mich., and Charles H. Cargo, Nolanville, Tex., assignors to Eaton Corporation, Cleveland, Ohio
Filed Mar. 1, 1973, Ser. No. 336,911
Int. Cl. B62d *11/04*; **B15b** *15/22*
U.S. Cl. 180—6.48 **18 Claims**



An improved straight tracking control system equalizes the output speeds of a pair of hydrostatic transmissions during straight forward movement of a vehicle. The control system includes a pump assembly having a housing which is rotated at a speed which varies as a function of variations in the speed of one of the tracks of the vehicle. This housing defines a pumping chamber in which a rotor is rotated at a speed which varies as a function of variations in the speed of the other track of the vehicle. When the vehicle is moving straight forward and the two tracks are being driven at the same speed, there is no relative rotation between the rotor and housing so that the pump assembly is ineffective to pump fluid. Upon acceleration of one of the tracks relative to the other and a resulting relative rotation between the housing and rotor, the pump assembly is effective to discharge fluid under pressure to a piston and cylinder assembly. This fluid actuates the piston and cylinder assembly to operate a valve. Operation of the valve ports fluid to an actuator assembly to vary the output speed of one of the hydrostatic transmissions in a manner so as to equalize the output speeds of the two hydrostatic transmissions. In one embodiment of the invention, a second piston and cylinder assembly is actuated to vary the output speed of a second hydrostatic transmission after the first piston and cylinder assembly has been actuated to vary the output speed of the first hydrostatic transmission.

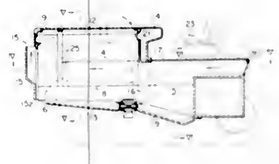
3,812,926
RECREATION VEHICLE
Hubert Tidwell, Box 57, Wellington, Utah 84542
Filed Feb. 1, 1973, Ser. No. 328,725
Int. Cl. B62d *55/02*
U.S. Cl. 180—9.24 **8 Claims**

A recreation vehicle for rough terrain cross-country travel by one or two passengers includes a forward tracked pulling unit and a rear wheeled power unit which is steerable from the forward unit. Additional controls on the forward unit effect braking of the rear wheeled unit and raising and lowering of



the forward unit to vary the degree of contact of the endless track means with the ground. The vehicle may be converted to water travel and may be used on snow.

3,812,927
ENDLESS TRACK TYPE TRACTOR
Ryohei Kawamura, Nomi-gun, Ishikawa-ken, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Filed Aug. 30, 1971, Ser. No. 175,865
Claims priority, application Japan, Aug. 29, 1970, 45-75420
Int. Cl. B60k *11/04*
U.S. Cl. 180—54 A **6 Claims**

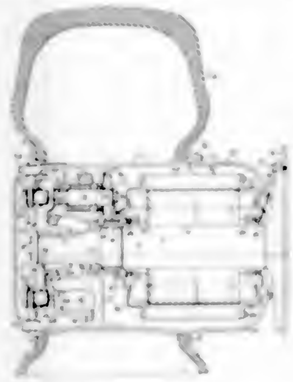


An endless track type tractor which has a radiator mask projected forwardly at the central portion of one side edge of a rectangular plate to form a curved edge and having a central recessed portion continued from the curved edge, said mask being fixed to the front end of a cover forming an engine room.

3,812,928
ELECTRIC POWERED WHEEL
Harvey W. Rockwell, Springfield, Ill., and William L. Ringland, Greendale, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed May 12, 1972, Ser. No. 252,633
Int. Cl. B60k *7/00*
U.S. Cl. 180—65 F **22 Claims**

A compact electric wheel unit using a high torque, moderate speed inside out electric motor and a planetary

speed reducer wherein a friction brake is mounted on a stationary ring gear component of the planetary gearing. In one



embodiment, lubricating and cooling fluid is circulated through the motor, gear train and brake.

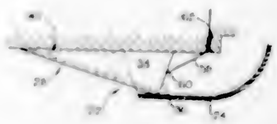
3,812,929
SELF-PROPELLED GOLF CART
Claude Anthony Farque, Fayetteville, Ark., assignor to Citation Manufacturing Company, Inc., Siloam Springs, Ark.
Filed July 26, 1971, Ser. No. 166,051
Int. Cl. B60k *27/06*
U.S. Cl. 180—98 **10 Claims**



A self-propelled, battery powered vehicle adapted to carry golf clubs and the like and including means to automatically follow a golfer carrying a small transmitter as he walks about a golf course. The transmitter generates a signal pattern which magnetically couples the transmitter to a directional antenna system carried by the vehicle. An automatic guidance system in the vehicle provides signals which control the individual speeds of right and left wheel drive motors to affect steering and vehicle speed in response to the position and movement of the golfer's transmitter. The vehicle may be provided with a collapsible control arm which permits manual steering of the vehicle in lieu of the transmitter control.

3,812,930
AIR CUSHION VEHICLE CONTROL DEVICE
John B. Chaplin, New Orleans, La., assignor to Textron Inc., Providence, R.I.
Filed May 31, 1972, Ser. No. 258,394
Int. Cl. B60v *1/00*
U.S. Cl. 180—117 **16 Claims**

An improved valve for controlling discharge of fluid from a flexible discharge conduit of a puff-port system employed in air cushion vehicles. The valve is formed of a flexible material and normally inflated by fluid pressure within the discharge conduit to lie in fluid sealing engagement with its inner surface. Actuation of the valve is effected by deflating same, such



as for instance by use of a tension cable. Deactivation or reinflation of the valve may be assisted by a spring device associated with the valve.

3,812,931
SOUND BARRIER
John B. Hauskins, Jr., Phoenix, Ariz., assignor to Engineering Corporation of America, Phoenix, Ariz.
Filed Oct. 24, 1972, Ser. No. 300,108
Int. Cl. F01n *1/10*
U.S. Cl. 181—33 E **5 Claims**

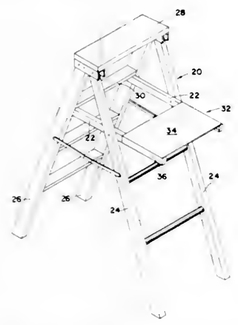


A sound barrier is disclosed for attenuating noise emanating from a traffic area such as a freeway. The barrier borders the traffic area and incorporates a plurality of spaced-apart Helmholtz chambers, each comprising an elongated chamber having openings therein. The chambers may be of triangular cross section with an edge formed by the apex of the triangular cross section facing toward the traffic area. The openings are positioned in the sides of the triangular chambers, the chambers are positioned so that opposing sides of adjacent chambers form inverse-acting acoustic horns focusing the sound energy from the traffic area toward the openings. The openings also act as side-branch filters to assist in the attenuation of the noise.

3,812,932
REMOVABLE LADDER APRON CONSTRUCTION
Richard E. Davis, 1863 Beaumont Rd., Columbus, Ohio 43224
Filed June 19, 1973, Ser. No. 371,403
Int. Cl. E06c *7/14*
U.S. Cl. 182—126 **6 Claims**

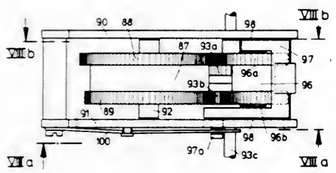
A removably mounted apron for a collapsible type wooden ladder adapted to slideably receive the supporting bars of a

conventional apron in moderate frictional gripping relationship. The removable apron includes sidewalls provided with a



gradual taper which defines the limit of inward travel of the apron upon the supporting bars and which provide the means for frictional gripping of the support arms.

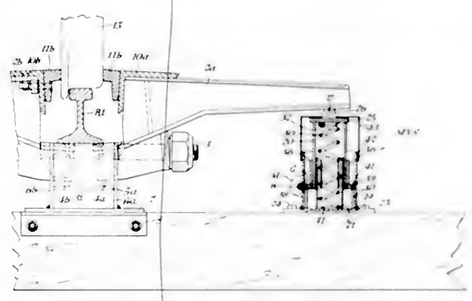
3,812,933
ENERGY STORING DRIVE MEANS
Helmut Darda, Im Tal, 7712 Blumberg, Germany
Filed Apr. 20, 1971, Ser. No. 135,662
Claims priority, application Germany, Apr. 21, 1970, 2019085; Aug. 7, 1970, 2039265
Int. Cl. F03g *1/00*
U.S. Cl. 185—37 **38 Claims**



A first component in a drive is rotatable in one and in an opposite direction. A second component, such as a shaft, is rotatable also, and is connected with energy storing means which stores energy when the second component rotates. A transmission is provided which connects the first and second components to rotate the second when the first rotates. The transmission has a first branch provided with a first device which transmits motion from the first component to the second component only when the first component rotates in one direction but will not transmit such motion when this first component rotates in the opposite direction, and there is further provided in the transmission a second branch having a second device which transmits motion to the second component only when the first component rotates in the opposite direction but will not transmit motion when the first component rotates in the first direction.

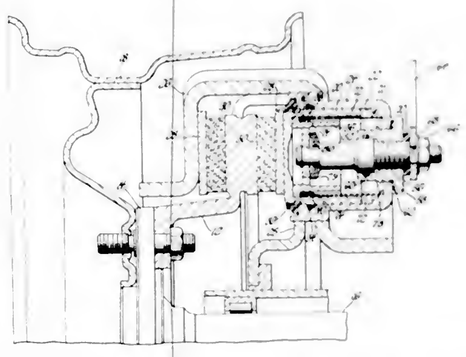
3,812,934
RAILWAY SKATE CAR RETARDER
Peter M. Noble, Valencia, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Jan. 2, 1973, Ser. No. 320,311
Int. Cl. B61k *7/06*
U.S. Cl. 188—62 **10 Claims**

This invention relates to a weight proportional skate car retarder including a plurality of levers pivotally supported on the cross ties and disposed on the respective sides of a track rail. The pivotal levers carry elongated braking elements which are disposed parallel to the track rails and are operable to apply brake pressure to both sides of the rims of the car wheels. Each of the outer levers of the car retarder is normally biased and held in an upper braking position. Each outer lever is rigidly held in its upper braking position by a movable support



having an electromechanical locking apparatus which includes a motor operated latching unit. The release of the latching unit allows the movable support to move which causes the outer levers to collapse under the weight of a car, and thereby causes the braking elements to move the car retarder to its lower nonbraking position.

3,812,935
DISC BRAKE WEAR TAKE UP DEVICE
William L. Pringle, Grosse Pointe Shores, Mich., assignor to United States Steel Corporation, Pittsburgh, Pa.
Filed Jan. 15, 1973, Ser. No. 323,569
Int. Cl. F16d *65/54*
U.S. Cl. 188—71.8 **18 Claims**

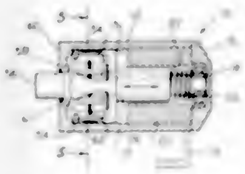


A wear take-up device for a disc brake assembly comprising: friction means for frictionally engaging a rotor, and movable actuator means; the actuator means including first means for engaging the friction means when the actuator means moves in a first direction and second means for disengaging the first means from the friction means when the actuator means moves in a second direction wherein movement in the first direction is toward frictional engagement. The first means comprises wedge means including ramp members and a circumferentially expandable ring member, the ring member being adapted to ride on said ramp members. The second means comprises disabler means having a plurality of arm members for engaging the ring member and proving the same out of engagement with the friction means.

ERRATUM

For Class 188—106 see:
Patent No. 3,812,750

3,812,936
SPRAG SOLENOID BRAKE
Dan H. Dane, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed May 14, 1973, Ser. No. 359,958
Int. Cl. B60t *13/04*, **F16d** *65/34*
U.S. Cl. 188—171 **6 Claims**



An electrically operated brake, including a housing having a cylindrical chamber provided therein. A rotary member is carried within the cylindrical chamber for rotation about a longitudinal axis of the cylindrical chamber. Circumferentially spaced sockets are disposed in the outer surface of the rotary member for accommodating one end of sprags. Spring means urge the sprags in contact with an inner surface of the housing for locking said rotary member relative to said housing. A control member is adapted to be shifted longitudinally by an electrically operated means for forcing the sprags out of engagement with the housing. A spring forces the control member to return to its braking position when the electrically operated means is de-energized.

3,812,937
DAMPING MEDIA FOR ENERGY ABSORBING DEVICES
William J. Abbott, and Malcolm Rankin, both of Bradford, Pa., assignors to Witco Chemical Corporation, New York, N.Y.
Filed Oct. 4, 1972, Ser. No. 295,026
Int. Cl. F16f *9/30*, **C09k** *3/00*
U.S. Cl. 188—266 **8 Claims**

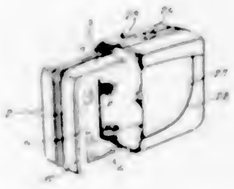
In a hydraulic liquid energy absorbing device for use in low impact bumpers for vehicles, a hydraulic gelled liquid (damping media) comprising a low viscosity petroleum oil, having dispersed therein up to about 20 percent of a modified organophylic montmorillonite (Bentone), and sufficient dispersant such as methanol, said damping media having an unworked penetration of about 225–300 at 77°F. It can contain a small amount of a dispersed polymer such as polybutene, polyisobutene, polybutadiene, polyisoprene, polystyrene, and rubber latex, and the like.

3,812,938
SHOCK ABSORBER
John H. Fader; Johan H. Keijzer, both of Hasselt; Marcel J. R. Graulus, and Roland H. C. Beets, both of St. Truiden, all of Belgium, assignors to Monrol Belgium N.V., St. Truiden, Belgium
Division of Ser. No. 45,867, June 12, 1970, abandoned. This application Mar. 30, 1972, Ser. No. 239,813
Int. Cl. F16f *9/36*
U.S. Cl. 188—322 **8 Claims**

A shock absorber comprising an elongated cylindrical pressure cylinder having a piston reciprocally disposed therewithin and connected to a piston rod extending outwardly from one end thereof, the piston rod carrying a dirt shield which extends coaxially of the pressure cylinder and in partial surrounding relationship therewith. The pressure cylinder is adapted to be filled with preselected quantities of a hydraulic damping fluid and a pressurized gas for damping reciprocal movement of the piston therewithin. The piston is provided with a novel valve arrangement which controls the compression and rebound characteristics of the shock absorber, and one end of the pressure cylinder is provided with a novel rod guide assembly which is designed so as to provide for convenient charging of the cylinder with the aforesaid pressurized gas. The interior of the pressure cylinder is provided with a generally helically shaped baffle arrangement which is compressible axially within the cylinder in response to reciprocal movement of the piston therein and functions to prevent undesirable foaming or aeration of the hydraulic fluid during operation of the shock absorber.



3,812,939
SOFT SIDED HAND LUGGAGE
Simon Pelletier, Levis, Quebec, Canada, assignor to Dionite Luggage Inc., Levis, Quebec, Canada
Filed Dec. 12, 1972, Ser. No. 314,321
Claims priority, application Canada, May 31, 1972, 143800
Int. Cl. A45c *5/04*
U.S. Cl. 190—49 **6 Claims**

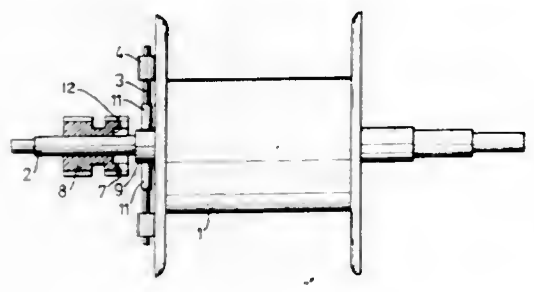


There is disclosed a construction of soft sided traveling case distinguished by the simplicity and ease with which it can be assembled, the construction comprises two shells which are permanently connected, the bottom of each shell having a large window and each shell being lined externally by a covering of flexible cloth or other material which is stretched over and covers the window.

3,812,940
COUPLING DEVICE FOR FISHING REELS
Hugo Ragnvald Svensson, Svangsta, Sweden, assignor to ABU Aktiebolag, Svangsta, Sweden
Filed Nov. 2, 1972, Ser. No. 303,218
Claims priority, application Sweden, Nov. 2, 1971, 13973/71
Int. Cl. F16d *13/76*, **A01k** *89/02*
U.S. Cl. 192—17 **2 Claims**

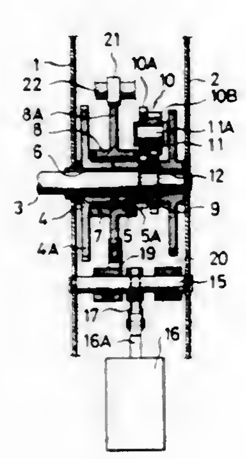
This invention relates to a coupling device for fishing reels in which a gear pinion forming a part of the drive mechanism for the spool is displaceable axially on the spool shaft for

coupling and disengaging the drive mechanism and the spool. In such devices it is known to provide centrifugal brake blocks slidably mounted on a diametral pin fixed onto the spool shaft and displaceable under centrifugal action against a circular braking drum, the one end of the pinion being formed into one part of a claw coupling engageable by a diametral coupling



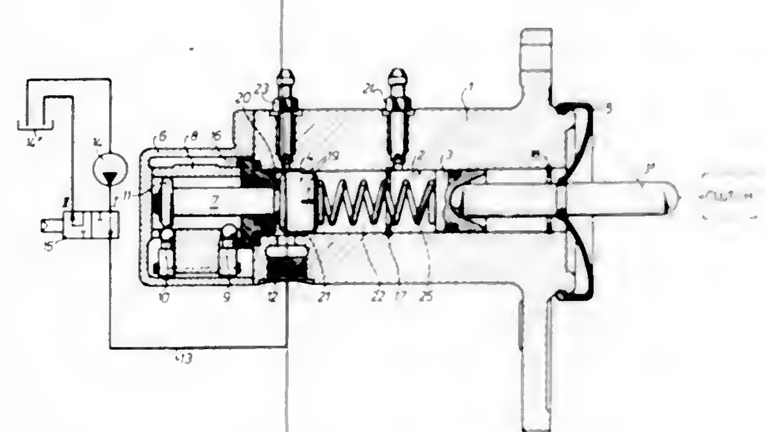
member formed by opposed flattened portions on the shaft. According to the invention the end of the pinion turned towards the spool has an inner bore capable of sliding over the portion of the shaft supporting the guide pin for the brake blocks and a transverse diametral slot for direct engagement with the guide pin.

3,812,941
POWER TRANSMITTING AND ZERO POSITION RESTORING DEVICE
Nobuyuki Yanagawa, Kanagawa, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Division of Ser. No. 170,745, Aug. 1, 1971, Pat. No. 3,764,129. This application Dec. 11, 1972, Ser. No. 313,872
Claims priority, application Japan, Aug. 17, 1970, 45-71431
Int. Cl. F16d *71/00, 13/08*
U.S. Cl. 192—26 **7 Claims**



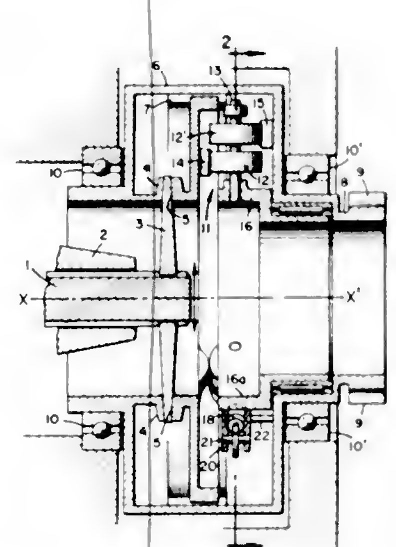
A power transmitting and zero position restoring device for use with a copy sheet feeding apparatus including a magazine with a displaceable bottom plate on which copy sheets are stacked; a rack and pinion arrangement for elevating the bottom plate so that the top sheet of the stack is brought into contact with and removed by a feed roller; an output shaft for operating the elevating pinions; a spring clutch system for communicating a power drive with the output shaft; and a gear system between the spring clutch system and the output shaft for maintaining the bottom plate in the elevated position, when the spring clutch system is disengaged in response to the copy sheet contact with the feed roller, by preventing reverse rotation of the output shaft for a predetermined period.

3,812,942
HYDRAULIC SYSTEM
Helmut Espenschied, Ludwigsburg, and Herbert Weyer, Stuttgart, both of Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed June 12, 1972, Ser. No. 261,938
Claims priority, application Germany, June 12, 1971, 2129292
Int. Cl. F16d *13/14*
U.S. Cl. 192—91 R **6 Claims**



A hydraulic system for operating a friction clutch has a cylinder, in an internal passage of which a first piston is displaceable between a rest position and a working position against the action of a biasing element associated with the friction clutch, which action tends to move the first piston to its rest position. A second piston is also displaceable in the passage in the same sense as the first piston between a starting position and an operated position and defines with the first piston at all times a chamber. Pressure fluid is accommodated in this chamber at all times and the chamber communicates with a non-pressurized space via suitable passage means when the second piston is in its starting position.

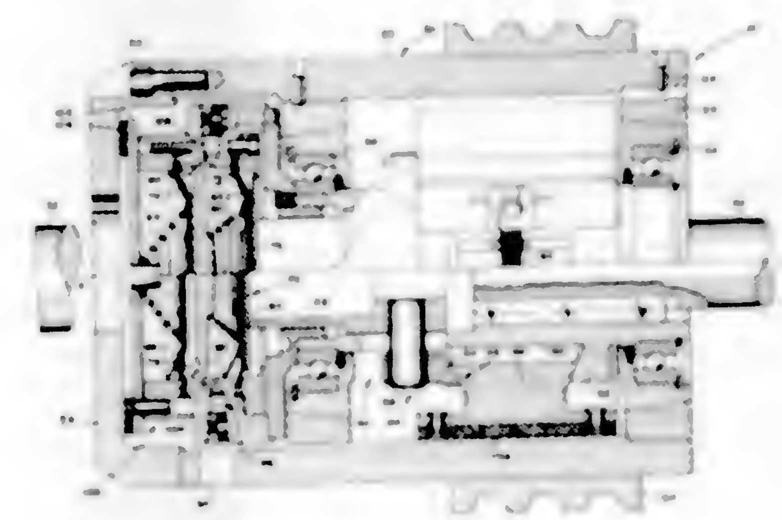
3,812,943
CAM OPERATED FRICTION CLUTCH
Philippe Quemerais, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt (Hauts de Seine) and Automobiles Peugeot, Paris, both of, France
Filed Dec. 27, 1971, Ser. No. 211,955
Claims priority, application France, Jan. 12, 1971, 71.00805
Int. Cl. F16d *25/063*
U.S. Cl. 192—93 A **1 Claim**



Friction-type variable-speed transmission mechanism comprising internally tangent disk and rings, and more particularly at least one disk rigid with the input shaft and interposed between two friction rings rotatably solid with a driven drum, one of said rings being adapted to be moved in its axial

direction under the control of a thrust device carrying reaction members distributed around a circumference external to the contact area between said disks and rings, characterized in that said thrust device comprises a plate carrying at least one shaft on which radially spaced rotary rollers are disposed and adapted rotatably to engage cam faces positioned on said movable ring and in said rotary drum, respectively, said plate being positioned angularly under the combined action of two antagonistic forces.

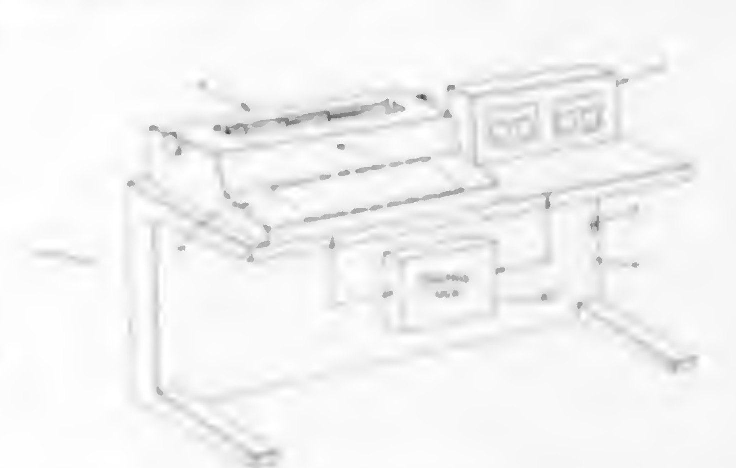
3,812,944
CENTRIFUGAL CLUTCH
Kiritkumar R. Patel, Cleveland, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
Filed June 29, 1972, Ser. No. 267,332
Int. Cl. F16d *43/06*
U.S. Cl. 192—105 B **20 Claims**



A delayed-action centrifugal clutch having a controlled deceleration mechanism for frictionally engaging the driven member to the driving member of the clutch during deceleration or stoppage of the driving member. The clutch is of the type requiring axial movement of a cammed locking member against the time-adjustable bias of a fluid displacing dashpot before radial engagement of the clutch may be obtained. The fluid in the dashpot is displaced, against a bias, from a first chamber to a second chamber whereat the displaced fluid acts against a reaction member to frictionally engage the driven portion of the clutch to the driving portion of the clutch. A variable restriction is provided in the passageway leading from the second chamber to the first chamber, and thus, upon deceleration of the driving member of the clutch, the displaced fluid is retained against the bias for a selectively variable given period of time in the second chamber whereat the displaced fluid acts against the reaction member to frictionally engage the driving member to the driven member.

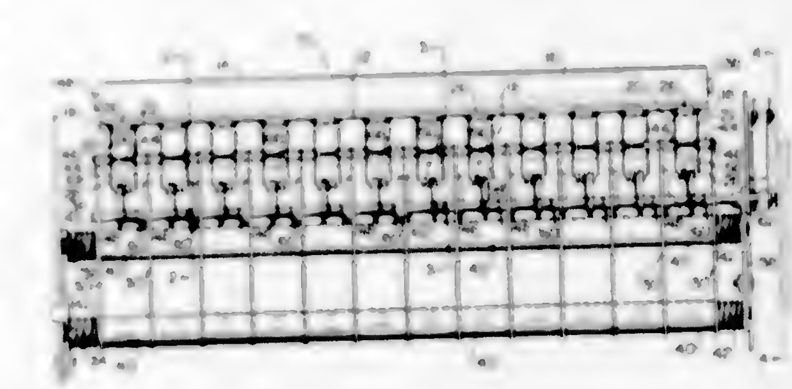
3,812,945
TYPEWRITER SYSTEM
Harold Stanley Koplow, Peabody; Fritz Eberle, Lowell; Shu-Kuang Ho, Chelmsford, and Edward Lesnick, Carlisle, all of Mass., assignors to Wang Laboratories, Inc., Tewksbury, Mass.
Filed Oct. 18, 1972, Ser. No. 298,664
Int. Cl. B41j *5/30*
U.S. Cl. 197—19 **12 Claims**

An editing typewriter system having a typewriter, two magnetic tape cassettes and control logic. Representative of its operational features are its ability to learn a format including margins and tabs, line spacing and number of lines per page, as well as its ability automatically to indent and automatically to tabulate by aligning the decimal points of a column of numbers. During recording, it can be operated to center headings, insert memos, pre-hyphenate, underline and combine symbols. Corrections can be made while recording simply by backspacing and striking over without retyping the remainder of the line, or the entire line can be erased if desired. After recording, it has the ability to search and index to a desired line solely by reference to the initial symbols of that line, after which the system can be operated to print out that line in



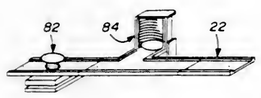
whole or part for revision by inserting or deleting as required. Transfer can be accomplished directly from cassette to cassette for editing so that it is unnecessary to print anything except the revisions. During playback, the right margin may be changed, adjusted within a variable space adjust zone and even justified.

3,812,946
PROGRAMMABLE PLATEN COMPRESSION ROLLS
Joseph J. Terbay, Dayton, and Richard P. Taylor, Xenia, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Jan. 22, 1973, Ser. No. 325,844
Int. Cl. B41j *15/18*
U.S. Cl. 197—129 **6 Claims**



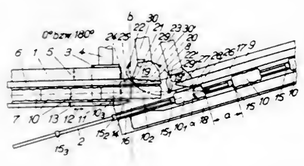
Individually programmable compression rolls for an accounting machine having a rotatable platen which is split into first and second parts, with the rolls being spaced along the platen. Each roll is rotatably mounted on a roll arm which is pivotally mounted on a supporting shaft having a spring thereon to resiliently urge the associated roll against the platen. Each roll arm has first and second actuating arms associated therewith, with the first arm being fixed to rotate with a first actuating shaft but being axially slidable thereon between first and second positions, and with the second arm being fixed to rotate with a second actuating shaft but being axially slidable thereon between first and second positions. In the first position, each actuating arm is out of contact with its associated roll arm, and when selectively axially moved to the second position, the actuating arm is aligned with the associated roll arm enabling the associated actuating shaft (when rotated) to pivot the roll arm and move the associated compression roll away from the platen. Separate actuating linkage is provided for the first and second actuating shafts.

3,812,947
AUTOMATIC SLICE PROCESSING
James L. Nygaard, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Division of Ser. No. 845,733, July 29, 1969. This application Aug. 14, 1972, Ser. No. 280,317
Int. Cl. B23q 5/22; B65g 47/24
U.S. Cl. 198—19 2 Claims



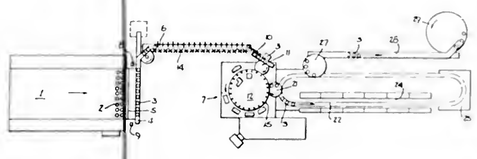
In an electronic component manufacturing system, slices are transported in serial fashion between a plurality of work stations. As the slices move through the system, each work station performs a separate manufacturing operation on each slice. The manufacturing operations are performed in immediate succession and within the same time interval so that the slices are processed rapidly and so that slices do not accumulate between the work stations. The slices are maintained in sequence throughout the system so that the operation of the system is more easily controlled.

3,812,948
DEVICE FOR SEPARATING AND CONVEYING OF ARTICLES, FOR EXAMPLE, CHOCOLATE BARS
Pierre Luginbuhl, Neuhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed May 1, 1972, Ser. No. 249,680
Claims priority, application Switzerland, May 17, 1971, 7284/71
Int. Cl. B65g 47/00
U.S. Cl. 198—20 R 5 Claims



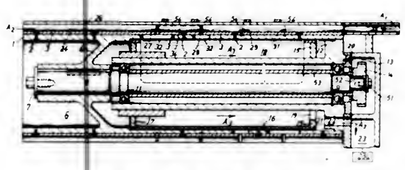
A device for separating and conveying articles, such as chocolate bars, which are moved in engagement with each other by an input conveyor and are transferred by a periodically operating transfer member onto an output conveyor which operates in synchronism with said transfer member which engages the articles during their conveying movement and moves the same with a speed which is greater than the speed of the output conveyor. The transfer member comprises a pusher which is moved along a closed elliptical path which is arranged in a plane which is vertical to a plane containing the axis of the path of the input conveyor and thereby transfers the articles from the path of the input conveyor to the path of the output conveyor in such manner that the articles will be in spaced relation to each other on said output conveyor. Preferably, the input and output conveyors are arranged at a slight angle with respect to each other.

3,812,949
CRACK-OFF APPARATUS FOR GLASS ARTICLES
John S. Lush, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Division of Ser. No. 882,969, Dec. 8, 1969, Pat. No. 3,650,724. This application Dec. 23, 1971, Ser. No. 211,471
U.S. Cl. 198—21 5 Claims



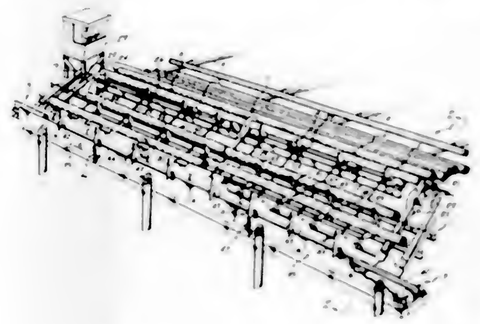
An improved article transfer and feeding apparatus is described for transferring articles such as glass containers or the like from a row conveyor into spaced work stations on a rotating turret as might be used, for example, in a glass tumbler crack-off machine. The improved transfer means includes a narrow conveyor which receives the rows of articles from the row conveyor and which intermittently carries these articles to a transfer wheel which passes them onto a single line article spacing conveyor including spacing wheels. Means are provided at the exit in the spacing conveyor including a second transfer wheel for moving the articles into the spaced work stations on the rotating turret.

3,812,950
METHOD OF TRANSPORTING CIGARETTES OR THE LIKE
Willy Rudszinat, Dassendorf, and Dieter Ludszeweit, Hamburg, both of Germany, assignors to Hauni-Werke Korber & Co. KG., Hamburg-Bergedorf, Germany
Division of Ser. No. 744,995, July 15, 1968, Pat. No. 3,535,003. This application June 16, 1970, Ser. No. 46,623
Claims priority, application England, July 21, 1967, 33791/67
Int. Cl. B65g 29/00, 47/30
U.S. Cl. 198—31 AA 3 Claims



Cigarettes which are discharged lengthwise from the cutoff of a rod cigarette machine are fed into successive flutes of a revolving drum and are arrested and located in predetermined axial positions by forces produced by two or more streams of compressed air and/or suction air. The resultant of forces acting upon a cigarette in predetermined position is zero. A stationary shroud seals from the atmosphere the outer sides of those flutes which receive cigarettes from the cutoff and while the cigarettes in such flutes are acted upon to assume predetermined positions. Each cigarette can be biased against the adjoining surface of the respective flute by atmospheric air which is admitted through openings provided in the shroud.

3,812,951
LOG HANDLING APPARATUS
Altan Vanstone Fullaway, Aberdeen, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed May 16, 1972, Ser. No. 253,747
Int. Cl. B65g 47/26
U.S. Cl. 198—34 6 Claims



A bucking and log handling apparatus has a bucking station where log stems are cut to at least one desirable length. Positioned transversely from the bucking station are at least two axially spaced holding stations with means associated with one holding station to move the log segment axially. The holding stations provide temporary support for the log segments until they are called for downstream at which point the holding function is removed and the log segments fall into the outflow conveyor system. A reject mechanism allows any undesirable log segment to be removed from the system.

3,812,952
ARTICLE CONVEYING APPARATUS
Alan Jones, and John Shaw Bustard, both of Westhoughton, near Bolton, England, assignors to Les Parson & Sons (Engineers) Limited, Burry Port, South Wales, Great Britain
Filed Jan. 30, 1973, Ser. No. 328,027
Int. Cl. B65g 47/18
U.S. Cl. 198—57 7 Claims



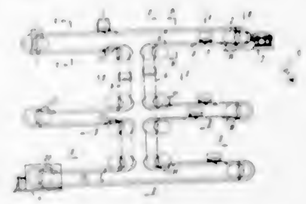
The invention provides an apparatus for feeding onions and other articles from a hopper and two eccentrically mounted rotating rollers between which the articles fall on to two rails along which the onions travel upwardly, the rails being of diminishing height at their upper ends so as to lower the required articles into recesses on a conveyer, while excess onions are lowered on to inverted V-shaped blocks from which they fall into channels that convey them back to the hopper.

3,812,953
DRIVING OR IDLER DRUM FOR ARTICLE FEEDING BELT
Marvin Walter Maschke, Sidney, Ohio, assignor to The Stolle Corporation, Sidney, Ohio
Continuation-in-part of Ser. No. 85,087, Oct. 29, 1970, abandoned. This application Apr. 21, 1972, Ser. No. 246,362
Int. Cl. B65g 15/00
U.S. Cl. 198—131 9 Claims



A driving drum or an idler drum for use with an article feeding belt for intermittently feeding a series of articles along a path so as to present them in succession to a plurality of operating stations where operations are performed on said articles in sequence. The belt is of non-stretch character and has a series of equally spaced article-receiving apertures of a shape to seat said articles. The drum carries on its periphery a series of plugs of a thickness at least equal to the belt thickness. The plugs are configured to fit snugly in the belt apertures when the belt is in a curved condition as it passes around the drum, and the leading and trailing edges of the plugs are profiled to enter and leave the belt apertures without interference. The plugs are secured in recessed flats on the drum periphery, the flats being of a size to accommodate the largest plugs for use with belts having apertures of a size to carry the largest of the articles to be treated. The plugs are easily replaced by smaller plugs for use with belts arranged to carry smaller articles.

3,812,954
CAR CONVEYER
Vladislav Mikhailovich Kaletin, ul. Kirova, 60, kv. 80, and Anatoly Afonasievich Morokin, ul. Kirova, 60, kv. 72, both of Kurgan, U.S.S.R.
Filed Aug. 16, 1972, Ser. No. 281,011
Int. Cl. B41j 13/02
U.S. Cl. 198—138 4 Claims



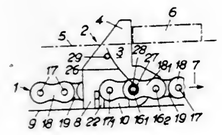
A car conveyer wherein two-axle cars are arranged adjacent to each other on the horizontal sections of the track, for which purpose one axle of each car is pivotably connected through a rod to the right-hand driving chain, and the other axle — to the left-hand driving chain. Each roller mounted on the axle between the car and the rod moves on the guide located along the track.

On the curved section of the track corresponding to the outer side of the sprocket engaged with the chain, the guide is constructed in such a way that it enables the cars to pass freely on that section.

3,812,955
PUSHER DEVICE FOR ATTACHMENT TO A CHAIN CONVEYOR

Georg Kopp, Neuhausen Am Rheinfall, Switzerland, assignor to SIG Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

Filed Jan. 15, 1973, Ser. No. 323,910
Claims priority, application Switzerland, Jan. 25, 1972, 1086/72
Int. Cl. B65g 19/26
U.S. Cl. 198—170 7 Claims

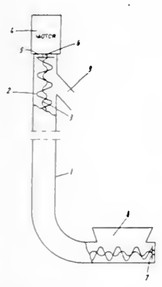


A pusher device adapted to be pivotally attached to a chain conveyor to travel, with it, between a conveying path and a support path, and to move into and out of engagement with objects on the conveying path in dependence on the contour of the support path. Each device has a tooth with object and support path engaging portions and this tooth is pivotally mounted on a pin protruding from a side of the chain, by a separate chain element.

3,812,956
SCREW CONVEYOR

Erich A. Hindermann, Bockumer Str. 99a, Dusseldorf-Wittlaer, Germany

Continuation of Ser. No. 888,349, Dec. 29, 1969, abandoned.
This application Feb. 10, 1972, Ser. No. 225,326
Claims priority, application Germany, July 29, 1969, 1938370
Int. Cl. B65g 33/00
U.S. Cl. 198—213 5 Claims

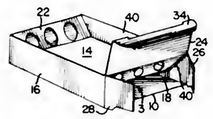


A worm conveyor in which two conveying helices are mounted inside each other in a flexible tube. Both helices have a pitch in the same sense, and both rotate in the same direction. Preferably the pitch of the inner helix is about 10 percent greater than that of the outer helix and it also rotates somewhat faster. When starting, the inner helix is preferably started first, then the outer helix and apparatus for doing this are included.

3,812,957
MULTI-PRODUCT CARTON

Hampton E. Forbes, Jr., Wilmington, Del., assignor to Westvaco Corporation, New York, N.Y.

Division of Ser. No. 136,917, April 23, 1971, Pat. No. 3,744,650. This application Nov. 30, 1972, Ser. No. 310,761
Int. Cl. B65d 5/50
U.S. Cl. 206—45.14 4 Claims

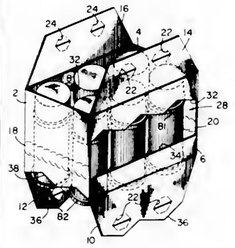


A dual compartmented carton adapted to hold two or more items that might be of different size and shape wherein the carton contains an exposed tray-like upper portion for packaging one or more of the items completely visible to the consumer, and an enclosed lower portion for packaging the other items. The carton is constructed from a one-piece blank of material such as paperboard or the like so that the two portions are isolated from one another by a carton partition element or panel.

3,812,958
CARTON FOR PLURALITY OF CONTAINERS

Rolf A. Samsing, Braintree, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation of Ser. No. 85,437, Oct. 30, 1970, abandoned.
This application Sept. 21, 1972, Ser. No. 290,941
Int. Cl. B65d 25/54, 75/08
U.S. Cl. 206—45.31 14 Claims



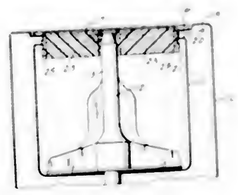
The invention relates to a carton for carrying a plurality of cylindrical cans arranged in parallel rows. The carton is made from an integral blank, suitably cut and scored so that it can be folded into a sleeve to receive a group of cans. The sidewalls of the carton are provided with window openings. The upper edges of the window openings and the edges of the bottom flaps and end walls of the carton are cut in a zig-zag or wave fashion so that the upper edges, bottom flap edges and end wall edges, in loading the cans into the carton, slide down over the beads of the cans without interference.

3,812,959
PACKING BRACE FOR WASHING MACHINES

Francis P. Brennan, 1057 Rolling Dr., Lisle, Ill. 60532

Filed Oct. 2, 1972, Ser. No. 294,025
Int. Cl. B65d 85/06
U.S. Cl. 206—320 5 Claims

Packing brace for automatic washing machines, bracing the agitator, spin basket and casing of the machine from movement relative to each other when moving the machine from one location to another. The brace is made from two or more blocks of resilient plastic material of a length slightly greater than the distance from the rim of the casing and the spin basket to the center post of the agitator and of a depth to contact the rim of the casing, the spin basket and center posts of agitators of varying heights. The blocks are each internally relieved along one or more ends thereof to increase the resiliency thereof and the ease in locating a block in position between

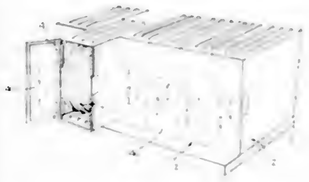


the rim of the casing of the machine and rim of the spin basket and agitator of the machine. The relief is attained by a series of holes in the block extending transversely thereof in the region of the rim of the casing and rim of the spin basket, or by a single hole extending vertically through the block. The holes may be at each end of the block to make the blocks symmetrical so they will always be in their bracing positions regardless of which end of the block is placed in engagement with the rim of the casing and rim of the spin basket.

3,812,960
BOX FOR TAPE REELS

Thomas S. Falletta, Smithtown, and Paul Jones Pugliese, Peekskill, both of N.Y., assignors to Harcourt Brace Jovanovich, Inc., New York, N.Y.

Filed Apr. 14, 1971, Ser. No. 133,998
Int. Cl. B65d 85/67, B65h 55/00
U.S. Cl. 206—387 F 15 Claims



A box for magnetic tape reels, which includes a hollow housing provided with vertically spaced upper and lower walls with an opening between them at one end of the box. Sets of rib pairs are provided within the housing, with each rib pair including an upper rib extending along and downwardly from the upper wall and a lower rib spaced below and aligned with the upper rib, connected to the lower wall. The tape reels are slid into the interior of the housing, so that each tape reel is mounted between one of the rib pairs with the upper and lower ribs entering and passing between the reel flanges to locate the reel within the box.

3,812,961
SCREW PACKAGE

Jim I. Merrick, Alda, Nebr.; Carl J. Carlson, Jr., Minnetonka, Minn., and Donald W. Carlson, Omaha, Nebr., assignors to Triad Fastener Corp., Alda, Nebr.

Filed Apr. 24, 1972, Ser. No. 247,187
Int. Cl. B65d 83/02, 85/24, 85/62
U.S. Cl. 206—338 4 Claims

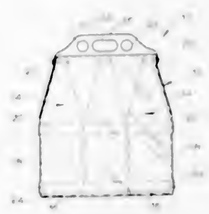
A screw package is disclosed for consecutively feeding screws into a driving position with respect to an automatic driver. The screw package includes a string tubular members sized so as to accept a screw within each member. Each of the tubular members has a plurality of axially extending elongated strips attached to the inside surface of the member. Each of the strips extends downwardly from near the top of the tubular member and terminates in a resilient finger extending downwardly and radially inwardly. When the screws are inserted within the tubular member the strips will axially guide the head of the screw and the fingers will axially guide the screw shank, and when the screw is screwed downwardly within each tubular member the fingers will flex radially outwardly to axially guide the head. In this manner the screw package prevents the screw from going askew during the drilling operation.



3,812,962
CONTAINER PACKAGE

Ernest R. Cunningham, Libertyville, Ill., assignor to Grip-Pak Inc., St. Louis, Mo.

Filed Mar. 31, 1972, Ser. No. 240,039
Int. Cl. B65d 75/00
U.S. Cl. 206—427 5 Claims



A container package for a plurality of containers is disclosed which includes a one-piece multi-packaging device having a stretch mounted wrap-around skirt for engaging the containers, a covering top, and an integral upstanding multiple-thickness handle for transporting the containers.

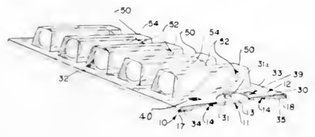
3,812,963
DISPENSING PACKAGE FOR ELONGATED BODIES

Emery J. Zahuranec, Solon; Alfred Bedo, Walton Hills, and Ross E. Barth, Euclid, all of Ohio, assignors to Crawford Fitting Company, Solon, Ohio

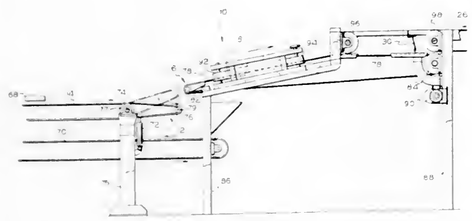
Filed Apr. 1, 1969, Ser. No. 811,735
Int. Cl. B65d 73/00
U.S. Cl. 206—468 6 Claims

A dispensing package for relatively small elongated bodies such as arbor mounted tube fitting ferrules and including a rectangularly shaped base of relatively rigid but resilient material and a clear cover of plastic or the like. The base has suitable locking indentations or apertures along the front and

rear edges to interact with complementary downwardly protruding stops on the cover, thus to limit relative movement of the cover and base. The plastic cover has elongated, transversely disposed blisters above the base which hold and display items therein. The side edges of the cover turn inwardly to form longitudinal grooves which slidably engage the side edges of the base.

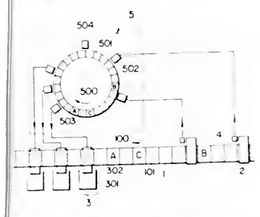


3,812,964
VENEER SORTER AND STACKER
Curtis H. Woodruff, Eugene, Oreg., assignor to Cabax Mills, Eugene, Oreg.
Filed June 27, 1973, Ser. No. 374,095
Int. Cl. B07c
U.S. Cl. 209—73 **18 Claims**



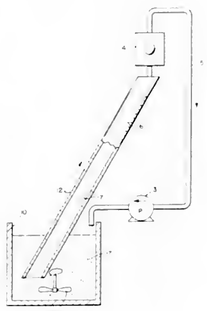
A veneer sorting and stacking machine includes photoelectric apparatus for detecting veneer sheets of greater than a preselected minimum width and an endless belt tipple which elevates to transport sheets of the minimum width into the machine. Moisture detecting means determine if individual sheets are wet or dry. An overhead ribbed belt frictionally engages the top sides of the veneer sheets and transports them along the machine on a pair of guide rails faced with low friction polymer material. Depending on the moisture determination, a given sheet is transported to a selected stacking station where rotatable gates divert it into one of a pair of bins at the station. Each stacking station includes a stacking hoist including pairs of hoist arms disposed in each bin and interconnected by chains for vertical movement with respect to a support. The chains operate to insure that as the hoist arms lower in one bin, those in the other bin are raised. The hoists are gravity operated solely by the weight of the veneer sheets stacked thereon and each hoist includes an air brake for selectively adjusting movement thereof. Electrical circuitry is provided to select the appropriate gate according to the moisture characteristic detected by the moisture detecting apparatus. Such circuitry further reverses the operation of the stacking hoists at each stacking station as a given bin is filled and causes the appropriate gate to close the the gate at the other bin correspondingly to open. Means are also provided automatically to remove the stack of sheets as soon as a bin is filled.

3,812,965
METHOD FOR AUTOMATICALLY SORTING BLOCK-TYPE OBJECTS OF DIFFERENT CATEGORIES AND APPARATUS THEREFOR
Yutaka Kurata, Iwata, and Motoji Iwata, Hamamatsu, both of Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan
Filed Mar. 21, 1972, Ser. No. 236,755
Claims priority, application Japan, Mar. 25, 1971, 46-16841; Mar. 25, 1971, 46-16840
Int. Cl. B07c *3/02*
U.S. Cl. 209—74 M **11 Claims**



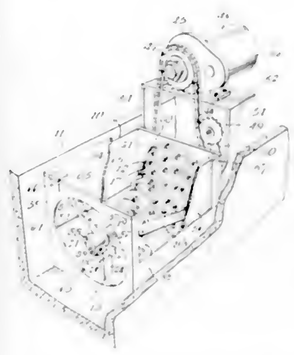
A lumber or like objects sorting apparatus is arranged to be operative so that at the time block-type objects of various different categories are loaded, at different sites, on a single main conveyor in succession without the objects being superposed one upon another, the information of both the categories of the objects to be sorted and the positions at which the objects were loaded on the main conveyor is registered in a memorizer, and that, as the objects are carried along on this conveyor, they are unloaded — at the signal coming from the memorizer — off the main conveyor when these objects arrive at their respective designated positions of removal for the respective categories. Thus, it is possible to automatically deliver the sorted objects at their designated positions of removal, i.e., onto the designated classified individual receptacles.

3,812,966
SETTLING RATE TESTER
William A. Beach, Milltown, and Richard M. Schlauch, Yardville, both of N.J., assignors to Sybron Corporation, Rochester, N.Y.
Filed Mar. 13, 1972, Ser. No. 234,277
Int. Cl. B01d *37/04*
U.S. Cl. 210—70 **6 Claims**



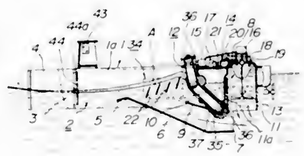
The settling rate of particulate matter in a fluid is determined by passing a mixture of the fluid and the particulate matter through an inclined tube at a known flow rate within the laminar flow range. Sensors may be used to detect the presence of particles at one or more levels in the tube; and the signals from the sensors may be used to control the operation of a separator.

3,812,967
SCREENING AND COMMINUTING DEVICE
Stanley P. Rudzinski, 1156 S. Lombard Ave., Oak Park, Ill. 60304
Filed Feb. 5, 1973, Ser. No. 329,585
Int. Cl. C02c *1/22*
U.S. Cl. 210—174 **18 Claims**



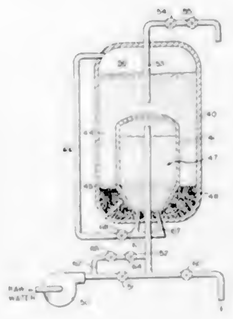
A device for comminuting and screening solids in a stream of fluid material having a conical rotary screen on which cutters are mounted for coaction with stationary cutters and which is formed for circular elements of sequentially increasing diameter and spacing therebetween supported on an axle by precut ribs and on which cam locks hold cutting elements at preset angles to the direction of rotation, the screen being driven at its largest diameter be a flexible belt and supported at both ends in a flow directing enclosure for unitary installation in a flow channel.

3,812,968
DEVICE FOR RECOVERING FLOATING MATTER FROM WATER SURFACE
Kuninori Aramaki, Yokohama; Hiroshi Kawakami, Kamakura, and Yasuharu Kawaguchi, Yokohama, all of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan
Filed June 6, 1973, Ser. No. 367,617
Claims priority, application Japan, June 10, 1972, 47-57321; July 26, 1972, 47-74799
Int. Cl. B01d *35/02*
U.S. Cl. 210—242 **7 Claims**



A ship-like device for recovering pollutant from water surface by forcing the pollutant-carrying water into a downwardly-directed bucket, so that the pollutant floats on calm water surface defined therein and a suction means collects the pollutant therefrom. A whirl-generator may be disposed within the bucket.

3,812,969
APPARATUS FOR FLUID TREATMENT
William J. Maroney, Williston Park, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Filed Oct. 16, 1972, Ser. No. 297,602
Int. Cl. B01d *23/16*
U.S. Cl. 210—274 **7 Claims**

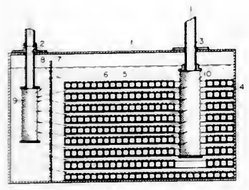


Apparatus for treating fluid in which the fluid is passed through a bed of solid particles, such as filter media or ion exchange resins, is provided with improved means for supporting the bed and improved means for backwashing the bed. The apparatus includes an outer vessel having a closed bottom and an inner vessel having an open bottom. The inner vessel is positioned above the bottom of the outer vessel. Thus, there is an opening between the inner vessel and the bottom of the outer vessel. The bed of solid particles is supported by the bottom of the outer vessel and extends up into at least one of the vessels. The bed covers the opening between the inner vessel and the bottom of the outer vessel. An inlet conduit admits fluid to one of the vessels and the fluid passes down through the bed and through the opening into the other vessel. Since the bed is supported by the outer vessel, expensive support paraphernalia such as underdrains and strainers are not required. Preferably, at least one of the vessels has a closed top, and an outlet conduit communicates with this vessel at an intermediate level. Thus, fluid accumulates in the vessel with the closed top and a pocket of air is trapped above the accumulated fluid. The outlet conduit includes means for restricting the flow of fluid from the vessel so that the trapped air is compressed. The bed is backwashed by reducing pressure on the inlet side of the bed, whereby the compressed air forces the accumulated fluid back through the bed and through a backwash outlet conduit communicating with the other vessel above the bed. During the backwash cycle, air may be withdrawn from the pocket of compressed air and injected into the bed, so that a mixture of air and fluid will pass through the bed and scour the particles.

3,812,970
SEPARATING APPARATUS
Masahiko Yamazaki, 2164-19, Fujitsukaya, Shinohara-cho, Kohoku-ku, Yokohama, Japan
Filed Nov. 2, 1972, Ser. No. 303,111
Claims priority, application Japan, Dec. 28, 1971, 46-2991
Int. Cl. B01d *23/00*
U.S. Cl. 210—316 **5 Claims**

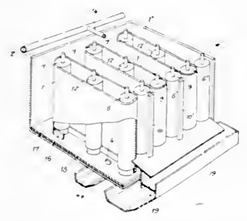
A settler type separating apparatus comprises a tank for holding liquid having inlet and outlet ports; a plurality of horizontally disposed particle-receiving trays superposed parallel on each other at prescribed intervals, each having a

plurality of cavities formed on the upper side; and a screen stretched over the upper open side of the cavities of the tray,



wherein impure particles trapped in said cavities are obstructed from escaping by a boundary layer formed by the screen.

3,812,971
APPARATUS FOR DEHYDRATING A SLURRY
Samuro Yamamoto, Akasaka 6-2-13-506, Minato-ku, Tokyo, Japan
Filed Dec. 27, 1971, Ser. No. 211,930
Claims priority, application Japan, Dec. 28, 1970, 45-120085; Dec. 29, 1970, 45-120775; Sept. 6, 1971, 46-68676
Int. Cl. B01d *33/04*
U.S. Cl. 210—327 **2 Claims**



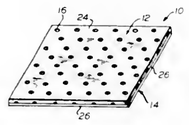
An apparatus for concentration of dilute solid-liquid slurry by passing through a filter-squeeze out vessel which comprises units formed of a vertical endless-filter belt stretched upon a pair of driving rolls extending across the vessel, these units of the endless-filter belt and driving rolls being set in parallel in the vessel with a definite space in between, the endless-filter belts rotating continuously or periodically; filtering the slurry and the draining filtrate from inside of the filter media to the outside of the vessel. Squeezing rolls and driving rolls are set so as to be tightly contacted to form a separating wall on the open side of the vessel. The layer of solids upon the filter surface are squeezed out, and scraped to the outside of the separating wall as a squeezed out cake.

To make the device more effective the filter-squeeze out vessel is assembled with a press device comprising primary and secondary perforated cylinders and a press roll which is wrapped with endless-filter sheet and endless-press sheet. Each cylinder and press roll is arranged in the position so as to form a gradually approaching S-shaped-path, wherein the squeezed out cake is induced and pressed out to obtain the highly concentrated cake in one process step.

3,812,972
LIQUID FILTER AND METHOD FOR FABRICATING SAME
Jesse Rosenblum, 112 Roosevelt St., Closter, N.J.
Filed May 2, 1972, Ser. No. 249,711
Int. Cl. B01d *25/18*
U.S. Cl. 210—489 **12 Claims**

A liquid filter including at least two filter members having continuously contacting opposing surfaces, the members each being fabricated of a non-porous material, wherein at least a segment of a liquid flow path through the filter is defined at the interface of the contacting surfaces.

A method of manufacturing the above filter comprising the steps of forming a groove in at least one of the opposing surfaces of the filter members and then mounting the filter mem-

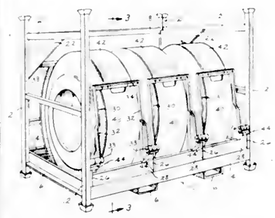


bers together in continuous superimposed contacting relation with the groove lying at the interface and defining at least a segment of a liquid flow path through the filter at said interface. In a preferred embodiment, the forming step includes chemical etching and the mounting step includes diffusion bonding.

3,812,973
COMPOSITION OF MATTER FOR CONTROLLING OIL POLLUTION AND PREFERABLY OIL DISCHARGE IN WATER
Leif Einar Stern, Malmo, Sweden, assignor to Kritbruksbolaget I Malmo AB, Malmo, Sweden
Filed Mar. 22, 1972, Ser. No. 236,964
Claims priority, application Sweden, Apr. 6, 1971, 4441/71
Int. Cl. E02b *15/04*
U.S. Cl. 210—502 **4 Claims**

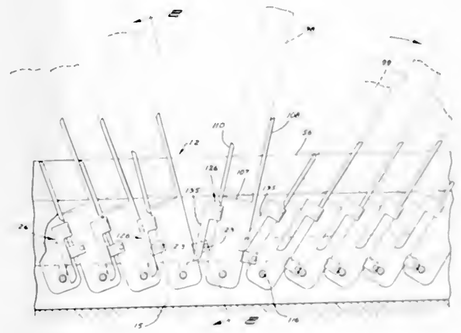
A fibrous composition of matter for controlling oil pollution and preferably oil discharges in water comprises fibers which consist of a mixture of paraffin and polyethylene in a preferred ratio of from about 50:50 to about 60:40 and which have been obtained from a molten mixture of paraffin and polyethylene.

3,812,974
GREEN TIRE SUPPORT
Rowland L. Sylvester, 718 S. Chapin St., South Bend, Ind. 46621
Filed Oct. 6, 1972, Ser. No. 295,702
Int. Cl. A47f *7/04*
U.S. Cl. 221—23 **8 Claims**



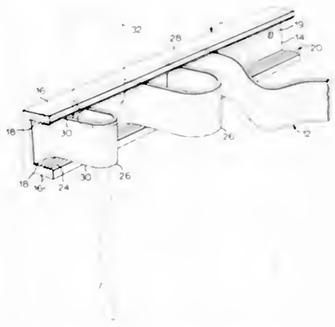
A green tire support which includes a flexible web supported by and having a longitudinal dimension exceeding the spacing between carrier parts. One of the carrier parts includes a pivoted lever which is shiftable between a first position in which the web is formed into a generally U-shaped tire supporting sling and a second position in which the web is formed into a generally L-shaped configuration.

3,812,975
INTER-ACTUATING RECORD HOLDING STRUCTURE
Julian Gutierrez, 6233 Brookview Ave. S., Minneapolis, Minn. 55424
Continuation of Ser. No. 212,053, Dec. 27, 1971. This application Mar. 26, 1973, Ser. No. 344,841
Int. Cl. A47b *81/06*
U.S. Cl. 211—40 **1 Claim**



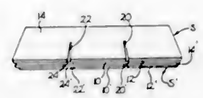
A phonograph record holding apparatus comprising a multiplicity of pivotal record holding members with said members having inter-actuating portions comprising a rearward projecting pair of hooks of one of said holding members egaging a pair of forwardly projected pins of the adjacent holding member rearwardly thereof, said holding members being pivotally balanced whereby the forward tilt of the first of said holding members beyond its dead center point will cause the automatic forward successive tilting of the remainder of said holding members.

3,812,976
RACK
Robert Henry Rempel, Taylor Rd., Bracebridge, Ontario, Canada
Filed Oct. 13, 1972, Ser. No. 297,289
Int. Cl. A47b *81/00*, **A47f** *7/00*
U.S. Cl. 211—60 T **8 Claims**



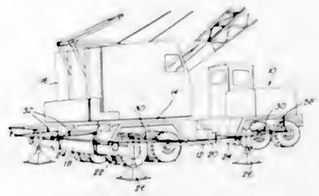
A rack for holding tools or similar objects, which comprises a channel and a transversely flexible ribbon. The flanges of the channel carry a pair of opposed ridges and the ribbon, formed into one or more open loops, is pressed into the channel against the back with each loop wedged between the ridges and projecting from the channel.

3,812,977
STORAGE ASSEMBLY
Terrence A. Glassman, 402 Hapgood, Boulder, Colo.
Filed Apr. 22, 1971, Ser. No. 136,485
Int. Cl. A47f *5/10*
U.S. Cl. 211—177 **8 Claims**



A knock-down storage assembly providing compartmentalized space for the storage and display of a large variety of items, especially books, phonograph records, magazines, newspapers and objects of art. The storage assembly is formed by a pair of collapsible three-sided notched structural elements which interfit with one another. When assembled, the storage assembly can stand in any one of six positions. In addition, two or more storage assemblies may be stacked to form larger storage systems in any of a variety of geometric configurations.

3,812,978
CRANE SAFETY BARRIER
David H. Roland, and Edward D. Hastings, both of Charlotte, N.C., assignors to J. A. Jones Construction Company, Charlotte, N.C.
Filed Nov. 21, 1972, Ser. No. 308,545
Int. Cl. B66c ; E04h *17/00*
U.S. Cl. 212—1 **10 Claims**

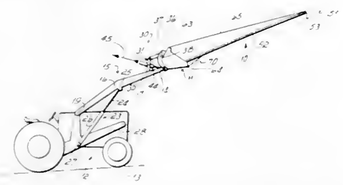


A barrier supported from the base of a crane for movement therewith and shiftable between retracted and horizontally outwardly extended position relative to the base of the crane for enclosing an area about the crane base within which the oscillatable superstructure of the crane is swingable, so as to thereby exclude accidental movement of persons into the area about the base of the crane through which portions of the crane superstructure are swingable.

3,812,979
LIFT BOOM FOR A FRONT LOADER TRACTOR
Joseph Q. Leihgeber, Fayetteville, Ohio, assignor to Leihgeber Bucket Booms, Hillsboro, Ohio
Filed Apr. 12, 1973, Ser. No. 350,343
Int. Cl. B66c *23/54*
U.S. Cl. 212—35 R **8 Claims**

The lift boom is of a generally T-shaped configuration, the stem of the T-boom being provided with a hook to which any suitable load may be attached. The head of the T-boom is seated within a front loader tractor's bucket in the floor/rear wall corner. An upper cable is attached at one end adjacent the hook end of the boom's stem, and is passed over the bucket's top edge and attached at the other end to the bucket.

A lower cable is attached at one end to the boom's stem intermediate the ends thereof, and is passed beneath the bucket's floor and also attached at the other end to the bucket. The lower cable is provided with a turnbuckle assembly. The turnbuckle assembly is adjustable when the boom is seated in the

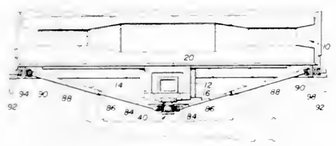


bucket to provide a suitable tension on both the upper and the lower cables, thereby maintaining the T-boom in the initial assembled relation with the bucket no matter what the spatial orientation of the bucket (and, hence, the boom) as set by the tractor, and no matter what the load being carried by the boom.

3,812,980
VALVE MEANS FOR RAILWAY CAR TRAINLINE

John P. Kolb, Stafford, and Richard G. Powell, Houston, both of Tex., assignors to ACF Industries Incorporated, New York, N.Y.

Filed June 1, 1973, Ser. No. 365,887
Int. Cl. B61g 5/06
U.S. Cl. 213—76 6 Claims



A trainline for a railway car has a ball valve structure adjacent the end of the car movable between open and closed positions for controlling the flow of air through the trainline. A ball valve element is mounted within the body of the ball valve structure and is freely floating therein for maintaining a tight seal against the downstream seat when the valve is in closed position. Opposed stems for rotating the ball valve element are mounted on opposed sides of the valve body and extend from the valve body in a generally horizontal direction. An actuating rod is connected to each stem and extends to the adjacent side of the railway car so that the valve may be actuated from either side of the railway car. Actuation of one rod effects simultaneous actuation of the other rod.

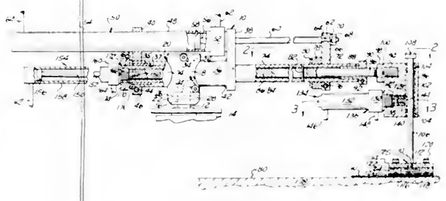
3,812,981
DOUBLE-REACH ATTACHMENT FOR LIFTING AND SWINGING WORK-TRANSFER DEVICE

Donald D. Potter, Waterford, Mich., assignor to Auto-Place, Inc., Troy, Mich.

Filed Aug. 28, 1972, Ser. No. 284,447
Int. Cl. B66c 1/44
U.S. Cl. 214—1 BB 7 Claims

A mounting body containing a socket adapted to be mounted upon the upper end of the vertically-movable and horizontally-rotatable support shaft of a work-transfer device also contains a transverse bore in which is fixedly mounted a horizontal guide sleeve upon the opposite ends of which are mounted parallel supporting brackets for an upper fluid pressure first-reach reciprocatory motor containing a first-reach reciprocable piston with a forwardly-extending upper piston rod. Slidably mounted within the guide sleeve is a tubular outer shaft near the forward end of which is mounted an upwardly-extending cross head connected to the forward end of the upper piston rod.

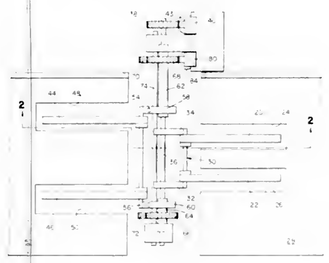
Slidably mounted within the longitudinal bore of the tubular outer shaft is an inner longitudinally-slotted inner shaft to the rearward end of which is connected the piston rod of a lower fluid pressure second-reach reciprocatory motor mounted on the rearward end of the tubular outer shaft for travel horizontally therewith. The tubular outer shaft near its forward end is provided with a cross-pin with the opposite ends seated therein and with its intermediate portion passing through the longitudinal slot in the inner shaft. Mounted on the forward end of the inner shaft is a head containing a vertical bore in which is freely slidably mounted a workpiece gripper including a vertical rod having a knob on its upper end and a frictional workpiece-grasping pad on its lower end. Also mounted on the head parallel to and below the outer and inner piston rods is a fluid pressure reciprocatory braking motor containing a braking piston, the piston rod of which carries a brake shoe selectively movable into and out of braking engagement with the vertical rod.



3,812,982
CASE INVERTER

Roger C. Crandlemire, 159 Washington St., Duxbury, Mass. 02332

Filed Jan. 5, 1973, Ser. No. 321,392
Int. Cl. B65g 7/00
U.S. Cl. 214—1 QA 6 Claims

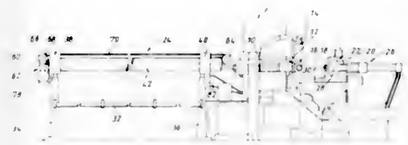


A case inverter has a loading station and a discharging station with parallel sets of case confining arms which are rotated in synchronism from the loading station to the discharging station through an arc of 180° but which are returned through the 180° arc in succession to the case loading station so that the case may be loaded before the arms which confine the loaded case are brought to their overlying position at the loading station.

3,812,983
APPARATUS FOR FEEDING BARS IN AUTOMATIC SINGLE-SPINDLE BAR MACHINES

Max Wanner, Esslingen, and Erich Schaefer, Nabern/Teck, both of Germany, assignors to Index-Werke KG Hahn & Tessky, Esslingen, Germany

Filed Aug. 25, 1972, Ser. No. 283,701
Claims priority, application Germany, Sept. 3, 1971, 2144190
Int. Cl. B65h 5/16
U.S. Cl. 214—1.2 14 Claims

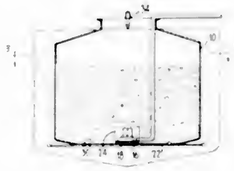


Apparatus for feeding bars into the work spindle of a single spindle automatic has a package of bar-receiving tubes surrounding an elongated channel and being received in a tubular holder which is indexible by a fluid-operated ratchet and pawl mechanism to place selected tubes into register with the work spindle. Each tube has an elongated slot and receives a discrete bar pusher having a projection extending through the respective slot and into the channel. The shifting mechanism for the bar pushers has an endless chain one stretch of which extends lengthwise through the channel and carries a U-shaped entraining device which automatically engages the projection of the bar pusher in that tube which registers with the work spindle. The chain can be moved by a reversible electric motor which can be controlled by the programming system of the automatic, the same as the indexing mechanism.

3,812,984
TRANSPORT OF WOODCHIPS

James David Cladingboel, 6 Regent St., Mount Waverly, Victoria, Australia

Filed May 2, 1972, Ser. No. 249,655
Claims priority, application Australia, May 6, 1971, 28597/71; May 31, 1971, 29476/71
Int. Cl. B63g 53/30
U.S. Cl. 214—15 B 7 Claims

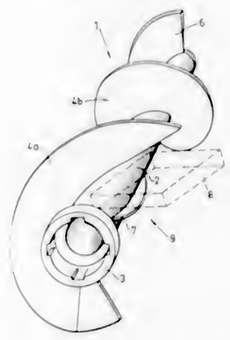


The invention resides in a method of loading and unloading woodchips for transport by marine vessels. The woodchip is mixed with water and pumped to the hold into which it is discharged at high velocity to achieve a degree of compaction. Water is separated simultaneously from beneath the cargo and pumped out of the hold. For unloading the cargo is disturbed and remixed with water at hold floor level and then pumped from the ship.

3,812,985
COMPRESSING FEED SCREW

Georg D. Lindeborg, Blomstermala, Sweden, and Desire Heine, Mulhouse, France, assignors to Norba Aktiebolag, Blomstermala, Sweden

Filed Aug. 12, 1971, Ser. No. 171,218
Int. Cl. B65f 3/00
U.S. Cl. 214—83.32 3 Claims

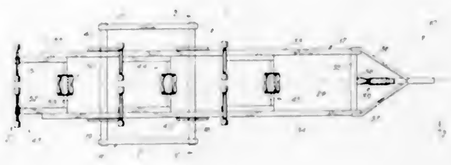


A compressing feed screw, which is particularly intended for feeding in and compressing refuse in a refuse container comprises a tubular shaft and a helical screw blade secured thereto. The screw blade comprises at least two portions which are separated from each other by a gap or an interval.

3,812,986
BOAT TRAILER

Richard L. Rogers, Fort Worth, Tex., assignor to Texas Royal Manufacturing Company, Fort Worth, Tex.

Filed Mar. 19, 1973, Ser. No. 342,415
Int. Cl. B60p 3/10
U.S. Cl. 214—84 8 Claims



An open ended cradle type boat trailer in which firm and continuous support is provided to the keel and sides of a boat over an infinite range of boat hull contours during loading, unloading and over-the-road travel. Shock loads imparted to the trailer from over-the-road travel are minimized by a unique multi-part, yieldably connected frame assembly which acts conjointly with the keel and side support structure to minimize and equalize shock loads.

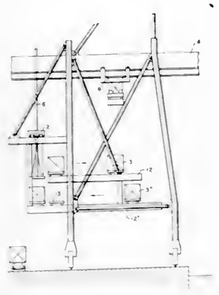
3,812,987
CONTAINER LOADING AND UNLOADING

Minoru Watatani, Tokyo, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 28, 1971, Ser. No. 193,276
Claims priority, application Japan, Dec. 30, 1970, 45-122322
Int. Cl. B63b 27/00
U.S. Cl. 214—87 1 Claim

A container loading and unloading method in which a buffer is provided between a container crane and a rear con-

veyance facility on a container crane so that some of the containers

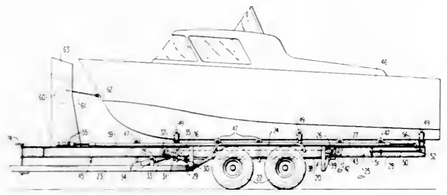


are transferred from the container crane to the container carriage or vice versa.

3,812,988
BOAT TRANSPORTING, LAUNCHING AND RETRIEVING TRAILER

John A. Pyle, Rt. 1, Box 143, Hartly, Del. 19953

Filed Dec. 6, 1972, Ser. No. 312,731
Int. Cl. B60p *3/10*
U.S. Cl. 214—505 18 Claims

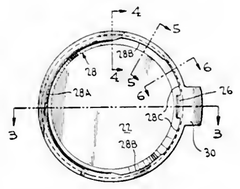


A trailer for transporting, launching and retrieving relatively large boats features a wheeled carriage adapted for coupling to a towing vehicle. A boat supporting bed or frame is both pivotally and longitudinally movably mounted on the wheeled carriage and is tilted and longitudinally extended and retracted relative to the carriage by a pair of fluid pressure operated cylinders which have independent controls. The cylinder which controls the longitudinal extension and retraction of the boat supporting bed pivots with the bed but remains attached to the wheeled carriage and has sliding engagement with support means on the bed so that the cylinder will be properly aligned during the exceptionally long stroke of its piston rod. A third independently controlled cylinder operates boat centering guide arms at the rear of the support bed which are activated during retrieval of the boat from the water. Conveniently located controls for the three cylinders and a boat loading and unloading winch permit an operator to select the correct pivotal and longitudinal movements of the boat supporting bed in conjunction with winch control to meet all variable boat launching and retrieval terrain conditions.

3,812,989
SAFETY CAP

William Horvath, Chatham, N.J., assignor to Diamond International Corporation, New York, N.Y.

Division of Ser. No. 79,192, Oct. 8, 1970, Pat. No. 3,627,160. This application Oct. 4, 1971, Ser. No. 186,519The portion of the term of this patent subsequent to Dec. 14, 1988, has been disclaimed.
Int. Cl. A61j *1/00*; B65d *55/02*
U.S. Cl. 215—9 7 Claims

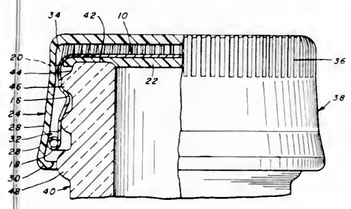


A safety cap of resilient plastic material having a depending skirt within which is formed an annular rib having an anchor portion and a radially inwardly projecting locking lug diametrically opposed to such anchor portion, the rib and the locking portion being of substantial radial extent for positive engagement beneath the locking rib around the container neck to strongly resist removal of the cap. The remainder of the annular rib within the cap skirt is of reduced radial width to function in the manner of a snap rib on the lug side of the skirt. The skirt rib has a continuous annular upwardly presented cam surface for cooperation with the locking rib of the container neck to maintain the end wall of the cap in sealing engagement with the end of the neck. Rotation of the cap to bring the lug into registry with the gap through the locking rib of the container neck permits upward flexing of the lug side of the closure cap and free movement of the lug through the gap, the portions of the skirt rib on either circumferential side of the lug being of sufficiently reduced radial dimension to snap upwardly past the locking lug of the container and during continued removal of the cap to function as pilots for leading the opposite ends of the anchor portion of the container rib upwardly past the locking rib until the cap is removed.

3,812,990
SAFETY CLOSURE ASSEMBLY

Wilburn C. Willis, Hagerstown, Ind., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Aug. 31, 1972, Ser. No. 285,445
Int. Cl. A61j *1/00*; B65d *55/02*
U.S. Cl. 215—9 6 Claims



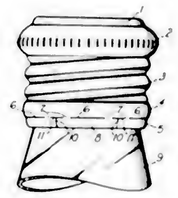
A safety closure assembly is provided which includes an inner cap with threads formed in its skirt for affixation to a container by turning the cap, vertically aligned corrugations in the outer surface of the top portion of the cap skirt and an outwardly projecting bead on the lower edge of the skirt, and further including an outer flexible plastic cap which fits over

the inner cap and which has inwardly projecting, vertically aligned teeth on its inner surface for engagement with the corrugations on the inner cap, an inwardly projecting flange on the bottom edge of the skirt for engagement under the bead on the inner cap to preclude separation of the caps, and an inwardly-upwardly inclined inner surface of the skirt above such flange for engagement against the outer surface of the bead on the inner cap to spring the outer cap upwardly with respect to the inner cap and thereby prevent engagement of the teeth on the outer cap with the corrugation on the inner cap unless substantial downward force is applied against the top of the outer cap.

3,812,991
PILFERPROOF CLOSURE WITH VERTICAL WEAKENING LINES

Wilhelm Wurl, Essen, Germany, assignor to The Coca-Cola Company, Atlanta, Ga.

Filed June 1, 1972, Ser. No. 258,680
Claims priority, application Germany, June 1, 1971, 2127023
Int. Cl. B65d *41/34*
U.S. Cl. 215—252 5 Claims

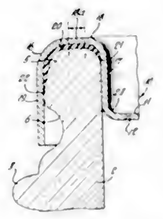


A pilferproof closure for bottles in the form of a thin metal cap with an upper threaded portion engaging the threads of the neck of the bottle and a alower safety ring which engages a counterholding ring provided on the bottle, the lower safety ring connected to the upper threaded portion by bridges separated from one another by peripheral slots and with vertical weakening notches uniformly spaced around the periphery of the lower safety ring. The peripheral slots comprise long and short slots in alternating sequence with the weakening notches being located below the short slots.

3,812,992
INFANT FEEDING PACKAGE

Edward M. Wolf, Cranford, and Stanley J. Koll, Keansburg, both of N.J., assignors to American Flange & Manufacturing Co. Inc., New York, N.Y.

Continuation of Ser. No. 7,780, Feb. 2, 1970, abandoned. This application May 1, 1972, Ser. No. 249,427
Int. Cl. B65d *53/06*
U.S. Cl. 215—253 5 Claims

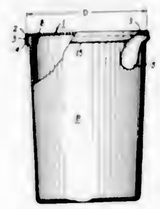


An infant feeding bottle is fitted with a closure seal having a centrally disposed puncture panel recessed within the bottle neck. A nipple and internally threaded retaining member subassembly is placed over the closure seal and threadedly engaged on the bottle neck. The retaining member incorporates puncturing means whereby the seal puncture panel is broken allowing passage of the bottle contents into the nipple upon full tightening of the retaining member down onto the bottle neck.

3,812,993
CONTAINER COVER

Tsuyoshi Yoshioka, and Sumio Nishiyama, both of Sagamihara, Japan, assignors to Daiwa Can Company, Ltd., Tokyo, Japan

Filed Jan. 17, 1972, Ser. No. 218,428
Int. Cl. B65d *43/02*
U.S. Cl. 215—256 1 Claim

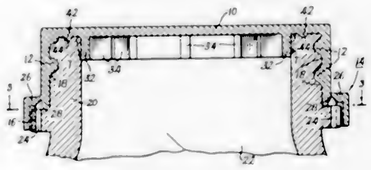


A cover for a container is disclosed having an open top with a flanged or beaded portion. It includes a container covering panel having an encircling skirt portion depending from the periphery thereof, and a tab projecting outwardly from said shirt. A score line is marked on the skirt portion such that when it is desired to open the container, the user has only to grasp the container with one hand and pull the tab away from the container along the score line with the other hand without changing the grasping position of the former hand. The circumferential length of the score line may be from about 185° to 240° of the encircling expanse of the skirt.

3,812,994
TAMPER-PROOF CLOSURE CAP

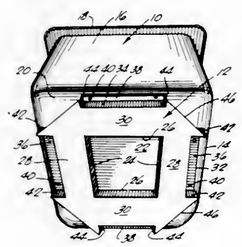
Jerome M. Feldman, Great Neck, N.Y., assignor to Dairy Cap Corporation, Jamaica, N.Y.

Continuation-in-part of Ser. No. 215,562, Jan. 5, 1972, abandoned. This application May 18, 1972, Ser. No. 254,393
Int. Cl. B65d *41/34*
U.S. Cl. 215—256 11 Claims



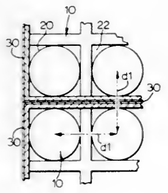
A closure cap for the neck of a bottle or other container, includes a cap body having internal thread means designed to engage external threads on the neck, and a ratchet ring connected to the body by means of a shoulder. A continuous tear line formed at the junction of the body and the shoulder is provided for separating the body and ring, the shoulder and ring being adapted to pivot on the tear line which serves as a hinge to allow the ring to pivot slightly away from the bottle neck while seating the closure on said neck.

3,812,995
COMBINATION CONTAINER AND SKID SUPPORT
Paul E. Lewis, Anaheim, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Feb. 28, 1972, Ser. No. 229,793
Int. Cl. B65d *19/04, 19/18*
U.S. Cl. 220—1.5 3 Claims



A vacuum-formed polyethylene container and skid support for forklift handling wherein the skid support has a four-way forklift entry for expeditious handling and has a self-reinforcing configuration which makes it light but rugged.

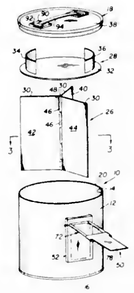
3,812,996
BOTTLE CARRYING CASE
Arthur K. Bunnell, Etobicoke, Ontario, Canada, assignor to Carling O'Keefe Limited, Toronto, Ontario, Canada
Filed June 8, 1972, Ser. No. 260,815
Int. Cl. B65d *1/36*
U.S. Cl. 220—21 4 Claims



Plastic carrying cases for bottles, especially beer bottles, are provided of a structure, in which, when the cases are stacked with bottles therein the tops of the bottles in one case engage the underside of the next upper case so that the load of the stack is supported through the bottles.

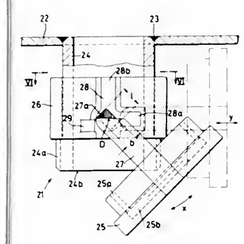
3,812,997
COMBINATION SHIPPING AND COOKING CONTAINER
Violet M. McNally, 14 Fairway Dr., Old Bethpage, N.Y.
Filed Jan. 5, 1972, Ser. No. 215,531
Int. Cl. B65d *25/04, 25/28*
U.S. Cl. 220—22 2 Claims

A container or can for shipping food or the like which is also convertible into a suitable container for cooking the food, said container having a handle that is pivotal from a flush position adjacent the can into a position extending laterally thereof



which facilitates handling and locating the can relative to a fire, stove, etc., as is necessary during cooking service of the can.

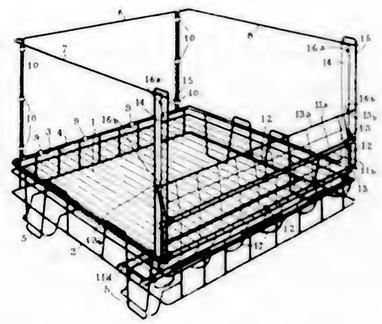
3,812,998
INLET AND OUTLET CLOSURE
Erich Amrogowicz, Prenzlauer Bergstrasse 12, Herten Westphalia, Germany
Filed Oct. 19, 1971, Ser. No. 190,571
Claims priority, application Germany, Feb. 23, 1971, 2108538
Int. Cl. B65d *43/16*
U.S. Cl. 220—30.5 2 Claims



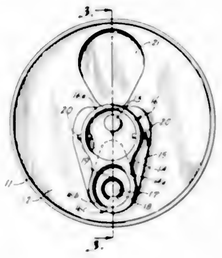
A tubular member, adapted to be a nozzle, is provided in the region of an open end with a closure cap which can be placed over the open end to close it and removed from the open end to expose the same. A connection is established between the closure cap and the tubular member to permit the closure cap to move to a position opening the open end of the tubular member without becoming disconnected from the same. This connection comprises one portion which is axially and rotatably displaceable relative to the tubular member, either in its interior or encircling its exterior, and another portion which is fast with the closure cap and extends from the same to the first-mentioned portion, being either rigid with the same or pivotably connected thereto.

3,812,999
CRATE
Raymond Joseph, Schiltigheim, France, assignor to Ateliers Reunis Societe Anonyme, Schiltigheim (Bas-Rhin), France
Filed June 1, 1971, Ser. No. 148,447
Claims priority, application France, June 11, 1970, 70.21492
Int. Cl. B65d *43/20, 7/20*
U.S. Cl. 220—41 3 Claims

A crate with an openable side has vertically spaced bottoms defining a housing between them. Two vertical runners are disposed one at each side of a side wall opening of the crate. A plurality of horizontal shutters are each coupled to their neighbours by horizontal pivot means and the ends of all of the shutters are slidable in the respective vertical runners. The plurality of shutters constitute a movable wall capable of closing the side wall opening, and of sliding in the runners into a retracted position within the housing. The shutters may be retained at partly retracted positions, by engagement of only the top shutter, or of all of the shutters, with retaining means on the vertical runners



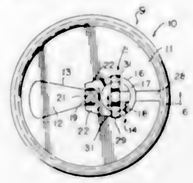
3,813,000
CAN END CONSTRUCTION
Ralph E. Underwood, 8830 S.W. 68th St., Miami, Fla.
Filed Apr. 24, 1972, Ser. No. 246,820
Int. Cl. B65d *17/24*
U.S. Cl. 220—54 6 Claims



A can end has a weakened tear strip therein with a plastic retainer affixed thereto. The retainer is swingably affixed to the center of the can and is likewise permanently attached to a pull ring tear strip opener. When the pull ring opener is operated to remove the tear strip from the can end, both the tear strip and the pull ring remain attached to the plastic retainer and are swingable out of the way of the opened can end but are retained on the can end in said out-of-the-way location.

3,813,001
LATCHING ARRANGEMENT FOR RING PULL TAB OF AN EASY OPENING CONTAINER
Gary A. Hougen, Palatine, and Henry F. Kloc, Plainfield, both of Ill., assignors to Continental Can Company Inc., New York, N.Y.
Filed Aug. 31, 1972, Ser. No. 285,287
Int. Cl. B65d *17/20*
U.S. Cl. 220—54 5 Claims

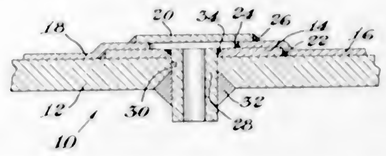
An easy opening container having a pull tab in the form of a ring having a finger opening. The pull tab serves to separate the tear portion from an end closure panel upon upward tilting and pulling on the tab. A wing clip fastened to the end panel and having a pair of wings that are vertically spaced from the end closure panel projects through the finger opening and



overlies the ring to thereby latch the tab against upward tilting. The tab is movable by turning and twisting to a position free of the wings so that it may be tilted to separate the tear portion from the panel

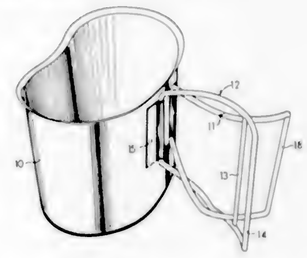
---

3,813,002
WELDED JOINT ASSEMBLY
Peter J. Gurklis, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed Jan. 10, 1972, Ser. No. 216,393
Int. Cl. B65d *25/14*
U.S. Cl. 220—63 R 2 Claims



The invention comprises a joint structure for use in providing metal linings in pressure vessels and tanks. Abutting edges of liner material are sealed (welded, usually) to strips on each side of the abutting edges. A closable tap element is sealed to the strip adjacent to the vessel wall and extends through the wall. If a leak occurs along the inner strip seal, fluid is confined to the space between the inner and outer seal strips, isolated from the vessel wall. Leaking fluid is removed via the tap elements which are suitably located along the joint assembly.

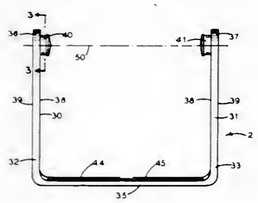
3,813,003
FOLDING WIRE HANDLE FOR CUPS
Richard J. Bernazzani, Roslindale, Mass., assignor to The United States of America as Represented by the Secretary of the Army, Washington, D.C.
Filed Apr. 12, 1972, Ser. No. 243,148
Int. Cl. B65d *25/28*
U.S. Cl. 220—94 R 4 Claims



A folding wire handle for a canteen cup or the like comprising two wire loops which may be swung from a stowage posi-

tion closely abutting the sides of the cup to an extended position to form a handle for the cup, one of the loops having an additional wire member extending from the top to the bottom thereof to provide a stop means to limit movement of the loops relative to one another and to form a triangular gripping handle with the outer portions of the two loops.

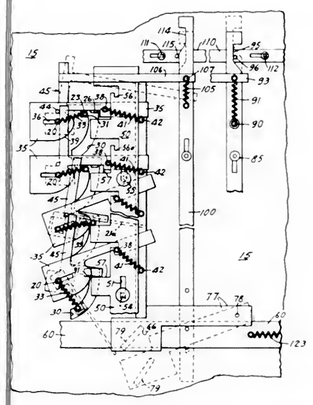
3,813,004
PORTABLE INSTRUMENT
Joseph R. Andreaggi, Short Hills, N.J., assignor to Weston Instruments, Inc., Newark, N.J.
Filed Sept. 13, 1972, Ser. No. 288,608
Int. Cl. B65d *25/28*
U.S. Cl. 220—96 **13 Claims**



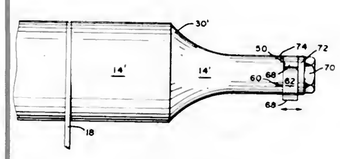
In accordance with one embodiment of the invention, a portable instrument is provided having a housing and a handle coupled thereto for carrying the instrument and supporting the housing in a selected position when the instrument is laid on a supporting surface. The handle has two arms joined by a handle bar at one end thereof and each arm has a deformable journal projecting inwardly adjacent its other end. These journals mount arcuate external projections at their periphery and are rotatively received in two concentric openings in housing side walls defining each opening. Each wall comprises camming lobes separated by arcuate recesses in which the projections of the journals are accommodated to lock the handles in a firm housing-supporting position. When the handle is rotated with respect to the housing, the projections are pressed inwardly by the camming lobes and smap outwardly again when these projections come opposite to a recess to effect locking of the handle.

3,813,005
VENDING MACHINE MODULE
James A. Moe, 503 Carolyn Ln., White Bear Lake, Minn. 55110, and Thomas J. Ross, 1011 Euclid St., St. Paul, Minn. 55119
Filed July 19, 1973, Ser. No. 380,989
Int. Cl. G07f *11/06*
U.S. Cl. 221—90 **10 Claims**

A module for a vending machine wherein two columns of shelves of substantially any conventional height can be operated successively upward through one column and then the other. The shelves are tripped successively by a vertically moving cam member, and as each shelf is tripped the shelf above it is readied for tripping upon subsequent actuation of the cam member. Each shelf has a pivoted support arm which rests on a ledge on the frame. This support arm is dislodged by a follower upon movement of the reciprocating cam member having a plurality of cam surfaces. As the shelf is tripped the follower on the shelf above the tripped shelf is moved to a position for engagement by the subsequent reciprocating of the cam member. A locking bar between parallel reciprocating cam members and a sequencing drive system permits their sequential operation to trip the shelves in one column and then in the next.



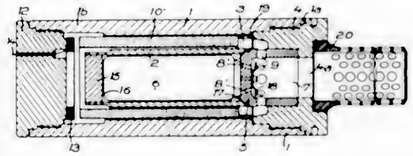
3,813,006
REPLACEABLE WELDING TIP FOR VIBRATORY WELDING APPARATUS
Ernest P. Holze, Jr., Brewster, N.Y., and Donald R. Culp, Danbury, Conn., assignors to Branson Instruments, Incorporated, Stamford, Conn.
Filed Feb. 2, 1973, Ser. No. 329,092
Int. Cl. B23k *5/20*
U.S. Cl. 228—1 **11 Claims**



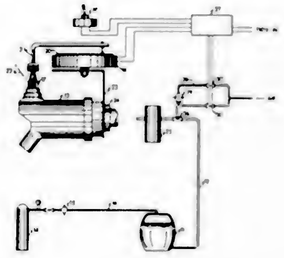
A replaceable welding tip for a vibratory high frequency welding apparatus comprises a sleeve having a plurality of ridges, each ridge including a workpiece engaging surface. The tip is clamp mounted by screw means to an antinodal region of the resonator which provides the vibratory energy to the tip. The axis of vibration of the workpiece engaging surfaces and that of the thread of the screw means are substantially parallel with each other.

3,813,007
GAS GENERATOR WITH COOLANT EXPULSION MEANS
Bernard Doin, and Bernard Plantif, both of Saint-Medard-en-Jalles, France, assignors to Societe Nationale Des Poudres et Exyslosifs, Paris, France
Filed Dec. 10, 1971, Ser. No. 206,662
Claims priority, application France, Dec. 11, 1970, 70.44837; Dec. 11, 1970, 70.44839
Int. Cl. B01j *7/00*; **F17c** *7/00*
U.S. Cl. 222—4 **13 Claims**

This invention relates to a device comprising a reservoir for containing a liquid, a combustion chamber containing a solid propellant with an ignition device therefor, said chamber and said reservoir comprising a separating wall at least partially deformable or movable to effect a decrease in volume of the reservoir under the action of the pressure of the gases resulting from combustion of the propellant, for expelling instantaneously the said liquid from the said reservoir, calibrated orifices also being provided to place said reservoir in communication with an output tube. If desired, other calibrated orifices may be provided to link the combustion chamber with the outlet tube. This device may be used for effecting a large release of gases in a very short time, e.g., for filling an expansible bag or cushion used, for example, as a safety device for protecting the passengers of an automobile vehicle.



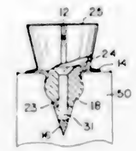
3,813,008
LIQUID DISPENSING APPARATUS
Verne A. Olson, 1924-29th St., S.W., Calgary, Alberta, Canada
Filed Aug. 8, 1969, Ser. No. 848,648The portion of the term of this patent subsequent to May 28, 1990, has been disclaimed.
Int. Cl. B67d *5/08*; **G04c** *23/38*
U.S. Cl. 222—70 **4 Claims**



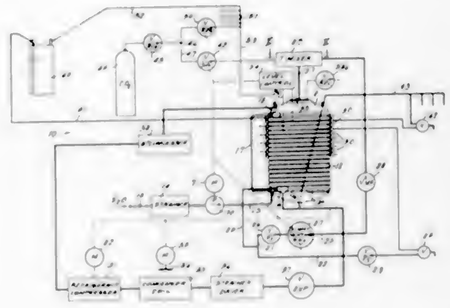
A draft beer circuit for a series of rapidly intermittent pours, in which a flow pressure control valve is introduced between the beer keg and the spigot, adjacent the spigot, to effectively isolate the downstream portion of the beer circuit below the pressure control valve from the upstream portion, except during conditions of flow. The pressure of the fluid at the spigot is thereby maintained at flow pressure rather than spigot pressure, so that all timed pours are of constant volume.

3,813,009
COMBINATION OPENER AND POURING DEVICE FOR CANS AND THE LIKE
Karl Egon Lenz, Auf der Alm, 5271 Niederrengse, Germany
Filed Sept. 30, 1970, Ser. No. 76,770
Claims priority, application Germany, Mar. 28, 1970, 7011612[U]
Int. Cl. B67b *7/26*
U.S. Cl. 222—90 **2 Claims**

A combination opener and pouring device includes a chamber with a spout and pointed stem extending downwardly therefrom for piercing the can top, a flexible collar being provided to seal the chamber against the can edge. The stem includes a bead portion having opposite flat sides for locking the device in the perforation in the can top and a duct system in the stem communicating with the chamber. A cover for the chamber is rotatable therein to seal the chamber when not in use.



3,813,010
BEVERAGE DISPENSER
Davis A. Hassell, Coon Rapids, and John R. McMillin, Maplewood, both of Minn., assignors to The Cornelius Company, Minneapolis, Mich.
Filed Nov. 27, 1972, Ser. No. 309,947
Int. Cl. B67d *5/56*
U.S. Cl. 222—129.1 **12 Claims**

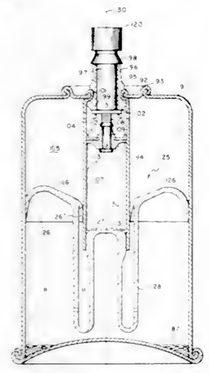


A combined carbonator-dispenser of post-mix beverages includes a storage tank for carbonated water in which a selected pressure of carbon dioxide gas is maintained, and to which still water is added which normally is at line pressure, through a flow control, and to which carbon dioxide gas is added at a still higher pressure. The still water and the carbon dioxide gas are combined in a mixer and the mixture passes through a turbulator enroute to such storage tank. The storage tank is refrigerated by a refrigerant line that encircles the tank in heat-exchange relation therewith, and the water line passes through the bore of the refrigerant line enroute to the mixer. The direction of water flow is counter to that of the refrigerant flow, and a portion of the water line and a portion of the refrigerant line are disposed above the uppermost level of carbonated water. A syrup line encircles the refrigerant line, there being one such syrup line for each flavor to be dispensed. The space above the carbonated water in the storage tank is directly coupled to the space above syrup in the syrup storage tank, so that any tendency for pressure to increase in one of such tanks is absorbed in part by the space above the liquid in the outer tank or tanks.

3,813,011
AEROSOL CAN FOR DISPENSING MATERIALS IN FIXED VOLUMETRIC RATIO

Stanley Harrison, 266A Concord Rd., Bedford 01730, and Jeffrey M. Feldman, 19 Bobolink Rd., Wellesley 02181, both of Mass.

Filed May 11, 1971, Ser. No. 142,330
Int. Cl. B65d *83/14*
U.S. Cl. 222—136 9 Claims

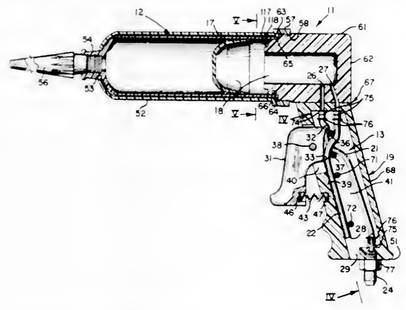


An aerosol can has two concentric compartments that connect to separate valves which in turn lead to a chamber for mixing the materials from the compartments and dispensing the materials mixed. A single unitary piston in the can has different portions which project into or against each of the compartments and a pressurizing fluid in the can drives the piston portions into or against the compartments so that the contents of the compartments are driven through the valves and into the mixing chamber in a fixed volumetric ratio.

3,813,012
AIR POWERED SEALANT DISPENSER, INCLUDING FLEXIBLE TUBULAR CONDUITS AS VALVE MEANS

John E. Laird, Inglewood, Calif., assignor to Products Research & Chemical Corporation, Burbank, Calif.

Filed Mar. 12, 1973, Ser. No. 340,317
Int. Cl. E04f *21/30*
U.S. Cl. 222—326 14 Claims

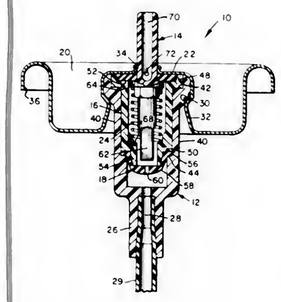


In an air powered gun dispenser for controlled discharge of a flowable sealant material, the dispenser is provided with universal adapters to receive and support various size cylindrical cartridges of the sealant material. These cartridges are of the type having one end formed with a discharge nozzle while the other end is equipped with a dispensing plunger. A supply of pressurized air is received by the dispenser and selectively applied against the cartridge plunger to effect a discharge of the sealant material. To provide manual control over the applied air pressure, a flexible air inlet conduit is arranged to connect the supply of pressurized air to a dispenser chamber communicating with the cartridge plunger. A flexible air exhaust conduit also communicates with such chamber. A manually operable and spring biased trigger actuator provides for selectively discharging or terminating discharge of the sealant material by alternately pinching and thus closing either the inlet or exhaust conduits.

3,813,013
AEROSOL METERING VALVE

Paul M. Kotuby, Naugatuck, and Alvydas Velicka, New Haven, both of Conn., assignors to The Risdon Manufacturing Company, Naugatuck, Conn.

Filed June 27, 1972, Ser. No. 266,656
Int. Cl. B65d *83/00*
U.S. Cl. 222—402.2 7 Claims



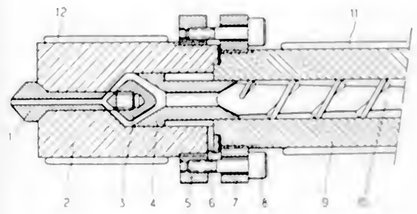
An aerosol metering valve is disclosed which features improvements in design to provide lower operating force requirements, facilitate manufacturing changes in metering capacity, and to insure greater consistency in the metered amounts of fluid dispensed. The valve incorporates an apertured elastic boot in combination with a replaceable metering chamber sleeve, which together fit into a standard type of valve body. A valve stem reciprocates within the metering chamber sleeve, and when depressed obturates the aperture in the boot, preventing further admission of fluid to the metering chamber. Continued travel of the stem beyond such point, permitted by elastic extension of the boot, positions a discharge port of the stem within the metering chamber to allow the measured fluid contents thereof to be discharged through the stem to atmosphere. Provision is made in the design of the boot to facilitate its elongation by the stem, and also to minimize the effect of swelling of the elastomer material of the boot on extended exposure of it to the fluid product.

3,813,014
INJECTION MOULDING MACHINE

Daniel L. G. Guerin, Sartrouville, France, assignor to Vincent Rene Leflaive, Paris, France; Guy Peltier, Seine and Marcel Manceau, Paris, all of, France

Filed Feb. 27, 1973, Ser. No. 336,204
Claims priority, application France, Mar. 1, 1972, 72.06982
Int. Cl. G01f *11/22*
U.S. Cl. 222—413 4 Claims

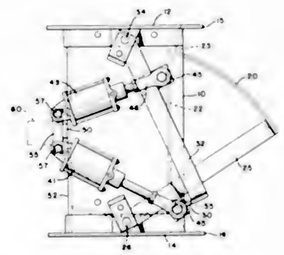
An injection moulding machine of the type incorporating a rotatable and reciprocable screw has on the forward end of the barrel a nozzle portion providing within it a valve cylinder larger than the bore of the barrel. A differential valve plunger having an axial passage extending through it has larger and smaller diameter portions slidably and sealingly engaged in the valve cylinder and the bore of the barrel respectively. The smaller diameter end of the valve plunger can be abutted by the nose of the screw to form a seal preventing flow through the axial passage in the valve plunger and to enable the valve plunger to be driven along the valve cylinder to eject the softened material forwardly from the valve cylinder. A plug is provided which can be operated to open or close off the injection aperture in the valve cylinder. During rotation of the screw softened material passes forwardly through the passage in the valve plunger and by reason of the differential area urges the plunger rearwards towards the screw.



3,813,015
FLOW CONTROL VALVE AND CONTROL SYSTEM THEREFOR

George W. Armstrong, P.O. Box 507, Fairborn, Ohio 45324

Filed Mar. 9, 1973, Ser. No. 339,521
Int. Cl. G01f *11/28*
U.S. Cl. 222—445 7 Claims



An air lock or metering flow control valve for flowable bulk material has a symmetric arrangement of blades and piston motors, and includes a curved upper flow control blade and an independent curved lower flow control blade. Separate symmetrically-arranged pairs of piston motors control the movement of each valve blade.

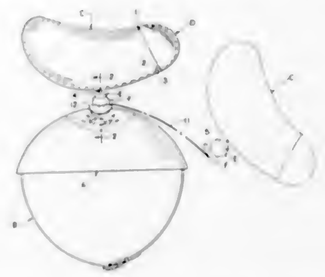
A fluid pressure control circuit is disclosed for operating a pair of movable blades in a conduit by which the upper blade is opened and closed followed by the opening and closing of the lower blade to provide for the controlled flow of a metered amount of material. The control system is responsive to the movement or lack of movement of the blade piston motors rather than to actual positions of the motors, so that the flow control valve cannot be jammed by the stopping of one or the other of the valve blades.

The valve control system includes a pair of flow reversing inlet valves, one for each of the pairs of piston motors operating each blade, to cause the opening and closing movement of the blade. An inlet control valve circuit includes a pair of normally open control valves which are connected to control the inlet valves and which have control end caps connected to respond to an air pressure representing the movement of the other pistons, to prevent shifting of its associated inlet valve as long as the other pistons are either extending or retracting. A four-way valve has its outlet ports connected to the control valves and has its control end caps connected through normally open three-way valves. The three-way valves respond to either of the pairs of piston motors reaching the end of its opening stroke to effect reversal of the application of fluid pressure to the control valves.

3,813,016
CANDY CONTAINER REMOVABLY CONNECTED TO A CHILD'S CAP

Lawson E. Bohannan, 815 Lexington St., Milpitas, Calif. 95035

Filed Feb. 9, 1973, Ser. No. 331,226
Int. Cl. A45f *5/02*
U.S. Cl. 224—5 R 3 Claims

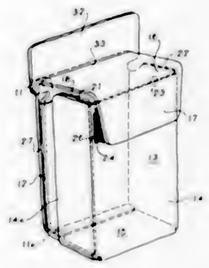


A candy container with a hinged cover, the container being connected to the top of a child's cap by a universal joint that permits the container to be moved into different angular positions with respect to the cap. In addition, the container with its universal joint may be temporarily disconnected from the cap and a cord extends from the universal joint to a spring-biased drum mounted in the cap thus permitting the child while wearing the cap to remove the container with its universal joint from the cap, the cord being unwound from the spring biased roller during this movement so that the child can hold the container in front of him and open the cover for removing candy from the container or adding candy thereto. When this is accomplished, the child can return the container and universal joint to its normal position on the cap, the spring-biased drum winding up the cord.

3,813,017
CAMERA HOLSTER

Joel L. Pimsleur, 2872 Washington St., San Francisco, Calif. 94115

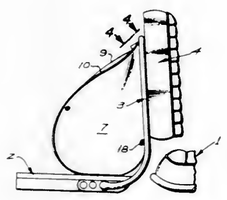
Filed Feb. 22, 1972, Ser. No. 228,203
Int. Cl. A45c *11/38*
U.S. Cl. 224—26 R 2 Claims



A camera holster is described in which the various panels are formed contiguously from a unitary piece of flexible material. A top cover extends over the top of the holster and a

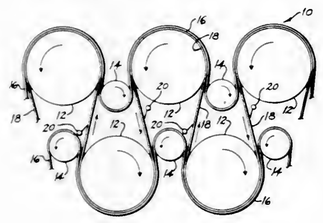
flap foldably extends downwardly from the top cover and releasably attaches to the front panel. Loop means are provided at the back panel for supporting the camera holster on a belt.

3,813,018
COLLAPSIBLE LUGGAGE POUCH FOR MOTORCYCLES
John H. Heltzen, 1435 W. 15th St., Long Beach, Calif. 90813
Filed Feb. 25, 1972, Ser. No. 229,404
Int. Cl. B62j 7/04
U.S. Cl. 224—33 R 5 Claims



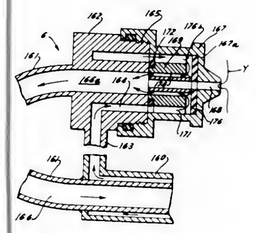
A collapsible luggage pouch including a rigid mounting member arranged for mounting on the back side of the back supporting cushion between the upright bars which support the cushion; a pouch having a closable access opening at its back side and a closure therefor capable of receiving a padlock, the container capable of being extended rearwardly from the seat back to receive luggage such as a motorcyclist's helmet, as well as being folded against the seat back with a portion of the pouch projecting below the seat back; and separable fasteners for securing the container in its folded condition.

3,813,019
WEB STABILIZING DEVICE
Donald McAnespi, Quebec, Canada, and Robert Justin Laliberte, deceased, late of La Salle, Quebec, Canada (by Carolyn Doris Laliberte, executrix), assignors to Midland-Ross Corporation, Cleveland, Ohio
Filed Sept. 8, 1972, Ser. No. 287,528
Claims priority, application Canada, July 24, 1972, 147773
Int. Cl. B65h 17/32
U.S. Cl. 226—97 2 Claims



Means is provided for eliminating web flutter which is associated with the conveyance of a free web at high speeds. The means comprises a plate which is spaced relative to the web forming an acute angle therewith. The presence of the plate causes the air carried by the web to be collected in a small region thereby eliminating the turbulence associated with the free movement of the web.

3,813,020
YARN ASPIRATOR
Harry B. Miller, Hopedale, Mass., assignor to Industrie-Werke Karlsruhe Aktiengesellschaft, Karlsruhe, Germany
Filed May 25, 1973, Ser. No. 364,107
Int. Cl. B65h 17/32
U.S. Cl. 226—97 8 Claims

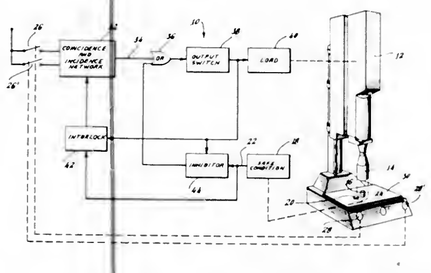


A winder for yarn and the like, having the automatic yarn transfer system of the present invention, includes a drive roll and at least two rotatable chucks each of which is adapted to carry a bobbin tube and is movable into and out of driven engagement with the drive roll. A traversing arrangement traverses a running yarn which is being wound onto one of the chucks, so as to form a yarn package on the latter. A transfer arrangement effects automatic transfer of the running yarn from the one chuck, upon forming of the yarn package thereon, to the other of the chucks. When the yarn package has been formed on the other chuck the running yarn is then automatically transferred again to the first-mentioned chuck.

ERRATUM

For Class 228—1 see:
Patent No. 3,813,006

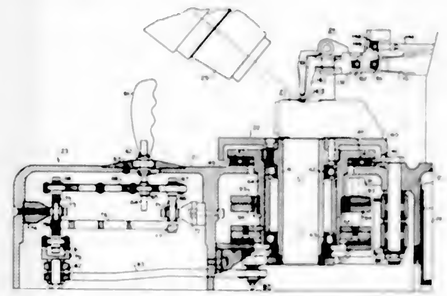
3,813,021
ELECTRONIC SAFETY CONTROL CIRCUIT
George C. Kramer, Danbury, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
Filed Nov. 6, 1972, Ser. No. 304,098
Int. Cl. B23k 27/00
U.S. Cl. 228—1 3 Claims



A safety control circuit for operating equipment such as ultrasonic welders and the like is described whereby control is maintained until the equipment operates in a safe condition. A sensor associated with the equipment produces a control signal indicative of the equipment's safe operational condition and is applied to decouple control from initiators used to commence equipment operation. Incidence and coincidence timing networks are employed to require the operator of the

equipment to actuate separate palm switches at the same time to initiate equipment operation after which the switches must remain energized until the equipment has achieved the safe operational condition.

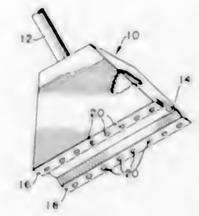
3,813,022
WIRE BONDER APPARATUS
William Radobenko, Scottsdale, Ariz., assignor to Automated Equipment Corporation, Phoenix, Ariz.
Filed June 19, 1972, Ser. No. 264,354
Int. Cl. B23k 21/00
U.S. Cl. 228—3 31 Claims



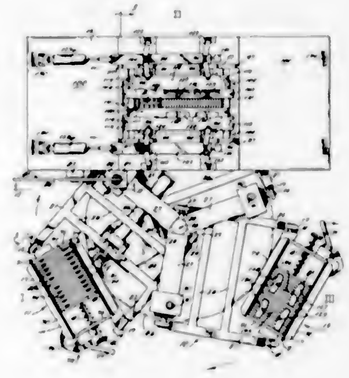
A wire bonder apparatus for bonding a wire to an electrical element at a plurality of bonding points and looping the wire between the points is provided with a bonding tool, which is mounted on an X-Y stage movable in an X-Y coordinate system. This X-Y stage comprises a compound reed assembly including a top frame supported on a first pair of flexible reeds, the first pair of reeds being supported on a second pair of flexible reeds hung from a base support, and a mounting platform mounted on a third pair of flexible reeds, the third pair of reeds being supported on a fourth pair of flexible reeds hung from the top frame. A bonding tool support arm is mounted on the mounting platform, a swing block being mounted on the end of the support arm by a fifth pair of flexible reeds, the bonding tool being mounted on the swing block by a sixth pair of flexible reeds, and means being provided for moving the bonding tool up and down on the swing block. A sub-base assembly supports the electrical element to which the wire is to be bonded, the sub-base assembly being movably supported, and a micromanipulator assembly being coupled to the sub-base assembly for moving it to initially position the electrical element under the bonding tool.

3,813,023
DESOLDERING DEVICE
Didier Henri Clement Auray, 4 Rue Des Tartres, Rueil 92, France; Richard T. Downey, 170 Summer St., Maynard, Mass. 01754, and Robert I. Macomber, 46 Matawanaken Trl., Littleton, Mass. 01460
Filed Dec. 4, 1972, Ser. No. 311,911
Int. Cl. B23k 1/00
U.S. Cl. 228—19 10 Claims

A device for desoldering a plurality of soldered connections on a support member including a heat conductive member provided with a contact surface having one or more openings therein for receiving and simultaneously melting the soldered connections. The contact surface is plated with a material that is non-wettable by solder while the walls of the openings are of a material that is wettable by the solder.



3,813,024
BATTERY ASSEMBLY MACHINE
Walter Carl Kirchberger, Menomonee Falls, Wis., assignor to Globe-Union Inc., Milwaukee, Wis.
Continuation of Ser. No. 192,964, Oct. 27, 1971, abandoned.
This application June 25, 1973, Ser. No. 375,247
Int. Cl. B23k 1/12
U.S. Cl. 228—58 11 Claims

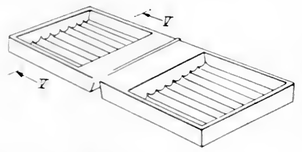


A multistationed battery assembly machine which affords a simultaneous three station operation. At the first station, battery plates and separators are positioned with the lugs extending in an upright position and after initial assembly, the entire unit is rotated to a second station where the unit is raised and the lugs orientated into position by means of comb members. At the burning station, the lugs are melted to form straps and connected to posts whereupon the unit is dropped out of position and moved to a third unloading station. The multistationed assembly machine offers a box assembly at the loading station which can be easily adjusted to receive plates of varying numbers and length. Another unique feature of the box assembly is its pivoting to the assembly machine at opposite corners so as to afford a compound angle which facilitates easy loading.

3,813,025
HINGED CONTAINER

Arieh Solomon, Afeka, Tel Aviv, Israel, assignor to British & Foreign Tobacco Company Limited, London, England

Filed Oct. 1, 1971, Ser. No. 185,510
Claims priority, application Great Britain, Oct. 2, 1970, 46937/70
Int. Cl. B65d 1/00, 5/66
U.S. Cl. 229—2.5 4 Claims

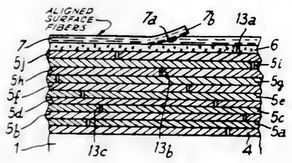


A hinged container which consists essentially of interfitting inner and outer structural components which are coupled together by a hinge line, one of the components being formed so as to accommodate the container content. The invention also relates to methods of forming the constituent components and their assembly to form the container. Essentially the invention relates to a method for the simultaneous assembly of the container and its filling.

3,813,026
ACCURATELY DIMENSIONED SMOOTH-SURFACED MULTI-LAYER CARDBOARD TUBES AND METHOD OF AND APPARATUS FOR MAKING THE SAME

Joseph Biancamaria, Ivry sur Seine, France, assignor to Lhomme (Societe Anonyme), Paris, France

Division of Ser. No. 797,487, Feb. 7, 1969, Pat. No. 3,580,146.
This application Mar. 11, 1971, Ser. No. 123,392
Claims priority, application France, Feb. 7, 1968, 68.139051
Int. Cl. B65d 3/04
U.S. Cl. 229—4.5 7 Claims



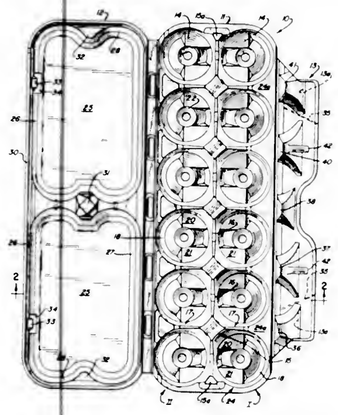
In order to obtain helically wound multi-layer cardboard tubes of accurate diameter and very smooth external surface, the tubes are coated with a thermo-setting resin and forced through the bore of a heated jacket to cause (1) curing of the resin and (2) reduction of the tube diameter to the precise desired dimensions. This reduction is taken up by a radially compressible layer of the tube.

3,813,027
CARTON CONSTRUCTION

Theodore H. Misdom, Jr., Lansing, Ill., and James W. Boyd, Crown Point, Ind., assignors to Packaging Corporation of America, Evanston, Ill.

Filed Oct. 26, 1972, Ser. No. 300,916
Int. Cl. B65d 43/10
U.S. Cl. 229—45 9 Claims

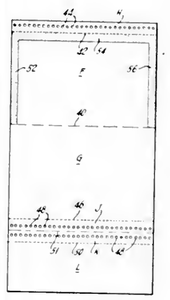
A carton of unitary construction is provided which is adapted to accommodate a plurality of fragile articles such as eggs or the like. The carton includes a tray section with a plurality of cells formed therein. The cells are of like configuration and are arranged in at least two parallel rows. The rows are separated from one another by a plurality of aligned, longitudinally spaced, upwardly extending hollow posts. Each cell has a substantially frusto-conical wall surface interrupted by a pair of annularly spaced segments which are inwardly offset towards the vertical axis of the cell. Each segment has a broad curved surface which is engaged by the accommodated article. The segment surfaces cooperate with a portion of the remainder of the substantially frusto-conical wall surface to provide at least three-point contact with the accommodated article. Each cell is also provided with a raised base portion having a concave central area which is adapted to be engaged by the lower end portion of the accommodated article. The raised base portion is substantially delimited by a depending rib.



3,813,028
CONTINUOUS WEB WITH SEPARABLE SEGMENTED ENVELOPES AND ORDER COUPONS

Craig P. Greason, Lloyd Ln., R.F.D. No. 3, Huntington, N.Y. 11743

Filed Sept. 15, 1969, Ser. No. 857,694
Int. Cl. B65d 27/00
U.S. Cl. 229—70 4 Claims

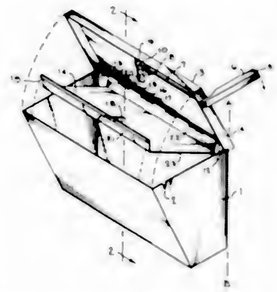


A combination envelope and detachable paper card or coupon in which the paper panels constituting the unit are contiguous, scored, folded and gummed in such a manner that the card may be detached from the unit and the remainder of the panels folded to form an envelope for receiving the card. The entire unit is provided with a line of register holes so that the same may be driven by sprockets at high speed to the paper web of a rotary press for insertion into a publication.

3,813,029
MAIL BOX

Charles R. Ostrom, 5628 Dolores, Houston, Tex. 77027

Filed May 31, 1973, Ser. No. 365,527
Int. Cl. A47g 29/12
U.S. Cl. 232—17 10 Claims

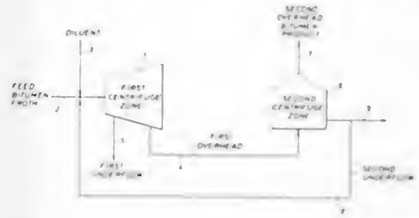


A mail box with mail pick up flag that must be in the up or "pick up" position when there is mail in the letter tray and which will tend to be in the down or "no mail for pick up" position when the letter tray is empty. The letter tray is automatically maintained out of the way when the cover of the box is opened and there is no mail for pick up

3,813,030
METHOD FOR TAR SANDS BITUMEN FROTH TREATMENT

Daniel J. Curtin, Richardson, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed May 24, 1973, Ser. No. 363,403
Int. Cl. B04b 11/02
U.S. Cl. 233—18 3 Claims



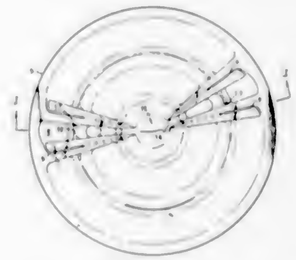
A method for treating tar sands bitumen froth wherein the froth is centrifuged in a first zone to separate coarse mineral particles therefrom, the froth is then treated in a second centrifuge zone to separate fine mineral particles therefrom, and at least part of the fine mineral particle underflow from the second centrifuge zone is treated in the first centrifuge zone to remove additional bitumen associated with the fine mineral particles, and at least part of the thus treated fine mineral particles are removed from the first centrifuge zone along with the coarse mineral particles

3,813,031
ROTOR HAVING SAMPLE HOLDING MEANS

Norman G. Anderson, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 2, 1972, Ser. No. 277,192
Int. Cl. B04b 9/12
U.S. Cl. 233—26 4 Claims

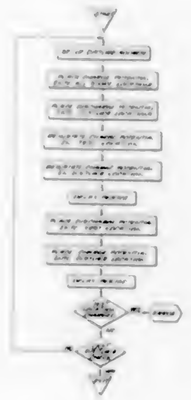
A fast photometric analyzer of the multistation, rotary type is provided which is suitable for performing sample and reagent division, mixing, sedimentation, washing, transfer, and light absorbancy functions. Two sets of cavities are disposed in concentric annular arrays within a disk adapted to rotate about its central axis. The radially outer set of cavities constitutes a rotary system of cuvettes suitable for photometric measurements. Cavities in the radially inner set of cavities, herein designated loading cavities, communicate, on a one-to-one basis, with respective cuvette cavities. A sloping barrier is provided between each loading cavity and corresponding cuvette to allow for centrifugal transfer of fluids from the loading cavity to the cuvette upon rotation of the disk while preventing such transfer or return of fluids under static conditions. An opening is provided through each barrier to enhance mixing in the cuvettes. A vacuum activated drainline extends radially inward from a point adjacent the radial extremity of each cuvette to a vacuum source for removing overlaying liquid from the cuvettes. A central receiving and distribution chamber bordered by segmentation serrations is in fluid communication with each loading cavity to facilitate dynamic or static loading of those cavities.



3,813,032
METHOD FOR TESTING MOS MEMORY STORE DEVICE

James L. King, Phoenix, Ariz., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

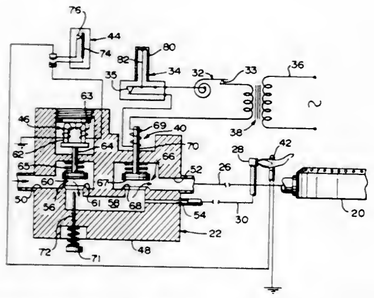
Filed July 30, 1973, Ser. No. 383,930
Int. Cl. G11c 29/00, G06f 11/04
U.S. Cl. 235—153 AC 10 Claims



A method for testing a memory store comprised of metal-oxide semiconductor (MOS) devices by selecting a cell address most likely to affect or disturb a test cell of the MOS memory store. All storage cells are set to a charged condition. The test and disturb cells are charged with opposite charges and then toggled with reversed charges after a period of time.

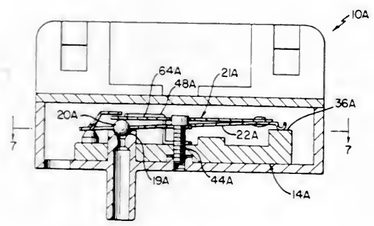
After another period of time, the test cells are then checked for an error condition, a charge picked up by migrating electrons. The procedure may be exercised by a computer program.

3,813,033
HEATING CONTROL SYSTEM
Michael J. Caparone, Arcadia, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Nov. 2, 1972, Ser. No. 303,182
Int. Cl. F23q 9/14; F23n 5/10
U.S. Cl. 236—9 R 7 Claims



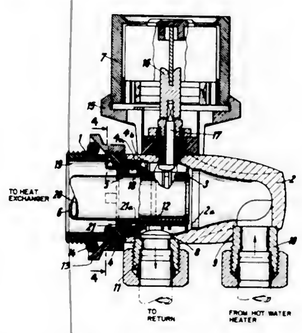
A heating control system including a control device for supplying fuel to burner apparatus and having a pilot safety valve which is closed in response to flame outage at the burner apparatus or a furnace plenum chamber temperature in excess of an abnormal limit temperature, the pilot safety valve not being automatically reopened when the plenum chamber temperature decreases below the abnormal limit temperature to thereby prevent recycling of the heating control system.

3,813,034
TEMPERATURE RESPONSIVE DEVICE AND METHOD OF MAKING THE SAME
Jay L. Lewis, Concord; Louis M. Puster, Knoxville, and Harold G. Brakebill, Concord, all of Tenn., assignors to Robertshaw Controls Company, Richmond, Va.
Filed Nov. 20, 1972, Ser. No. 307,985
Int. Cl. G05b 11/48; G05d 23/275
U.S. Cl. 236—87 24 Claims



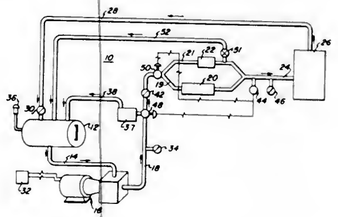
A temperature responsive device having a support frame carrying a valve seat that is adapted to be opened and closed by a ball valve member urged to its closed position by a bimetal member having one of its ends operatively associated with the ball valve member and the other end thereof secured to one end of a lever that has its opposed ends respectively disposed against the support frame and being secured solely thereto by a calibration screw that passes through an opening in a triangularly shaped tongue carved from an itnermediate portion of the lever so that the bend line for the lever machine is intermediate the calibration screw and one of the ends of the lever. The other end of the lever bears against a cam surface which can be made adjustable for temperature selection purposes.

3,813,035
FOUR-WAY VALVE FOR WARM WATER HEATERS
Alberto Bruno Wobig, Luneburg, Germany, assignor to Fa. Alberto Wobig Armaturenfabrik, Luneburg, Germany
Filed Oct. 7, 1971, Ser. No. 187,342
Claims priority, application Germany, Oct. 8, 1970, 2049356; Oct. 8, 1970, 2049355
Int. Cl. G05d 23/08
U.S. Cl. 236—101 4 Claims



A four-way valve for heat exchangers and hot water heaters comprising a valve seating housing which includes a hot water inlet opening at one end and a hot water return opening at the other end thereof; a valve guide integrally formed with the housing and disposed about the hot water return opening; and a plurality of spaced-apart, adjacent apertures disposed in a radial arrangement in said housing between said openings thereof. A valve housing head is mounted on the valve seating housing and couples a plurality of heating supply and drain pipes thereto. A hot water pipe from the hot water heater is disposed within the valve guide in the hot water return opening of the valve seating housing to couple the valve to the heater. Valve seats are disposed in the housing and valve head, and are engaged by end members formed on the end of a valve body slidably disposed on the valve guide. A rotatable adjustment head is coupled to the valve body for controlling the flow of water through the valve.

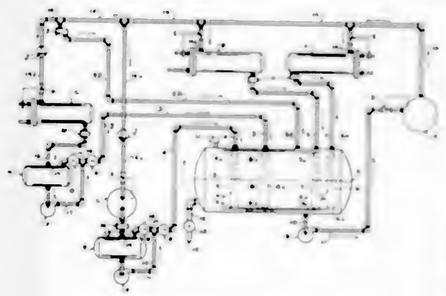
3,813,036
HEATING SYSTEM
George H. Lutz, Binghamton, N.Y.
Filed May 8, 1973, Ser. No. 358,314
Int. Cl. G05d 23/02
U.S. Cl. 237—2 R 4 Claims



A heating system utilizing a closed oil system and a friction element for heating the oil as the oil is forced through the element. The oil's path is from a storage tank through the friction element, then to the radiation units and then is returned to the storage tank. A high temperature path and a low temperature path are provided to improve comfort control.

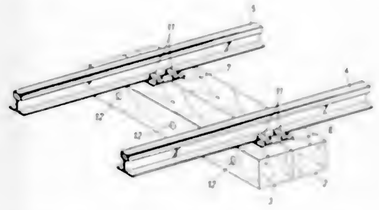
The heating element is formed of woven stainless steel which is compressed in a mold to obtain sufficient strand density to produce a high heat of friction.

3,813,037
CLOSED CONDENSATE SYSTEM
Martin Bekedam, P.O. Box 10266, Orinda, Calif. 94610
Filed June 13, 1972, Ser. No. 262,272
Int. Cl. F24d 1/00
U.S. Cl. 237—9 R 4 Claims



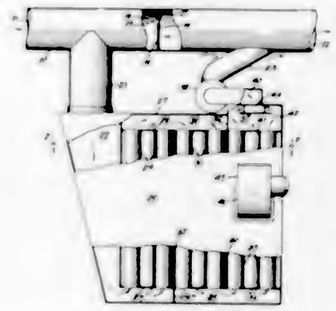
A closed condensate system for steam in which the steam from a boiler is used for hot water heating, air conditioning, laundries, domestic hot water in hospitals and large office buildings, where all of the steam from the boiler is used and all of the condensate from the steam can be returned to the boiler. A closed cycle condensate receiver is used in the system and novel means is used for maintaining a pressure within the receiver so that the temperature of the condensate returned to the receiver will always be lower than the corresponding pressure within the receiver. This assures that the closed condensate system returns the condensate from the heat exchanging elements of the system back to the boiler without flash loss.

3,813,038
RAILROAD TIE
Roy R. Pryor, and Harold A. Pryor, P.O. Box 26, both of Woodville, Tex. 75979
Filed Sept. 13, 1971, Ser. No. 179,719
Int. Cl. E01b 3/10
U.S. Cl. 238—37 14 Claims



An improved railroad tie member is formed of two wooden half-ties which are secured together with one or more reverse threaded bolts arranged in parallel with the tracks. The bolts are preferably inserted in the tie halves whereby the bolts may be turned to resecure the two halves while the tie assembly is installed in the track.

3,813,039
HEAT EXCHANGER
Gilbert J. Wells, 2015 Bronson St., Littleton, N.H. 03561
Filed Mar. 26, 1973, Ser. No. 344,829
Int. Cl. F24b 7/04
U.S. Cl. 237—55 10 Claims



A heat exchanger connected to the smoke pipe of a central heating furnace below the horizontal plane of the smoke pipe and with an induced draft such that upon operation of the induced draft, the smoke pipe is blocked requiring the hot flue gasses to bypass through the heat exchanger and when the furnace operates without operation of the induced draft, the smoke pipe is open for direct flow of hot flue gasses.

ERRATUM

For Class 238—84 see:
Patent No. 3,813,038

3,813,040
PLASTIC RAILWAY CROSSTIE
Ben W. Heinemeyer, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Filed July 5, 1972, Ser. No. 269,106
Int. Cl. E01b 3/10
U.S. Cl. 238—84 3 Claims



A cellular thermoplastic product such as a railway crosstie is produced by an apparatus comprising extrusion means for producing a web of a foamable thermoplastic polymer such as polyethylene, a mold corresponding to the size and shape of the cellular product positioned adjacent the extrusion means to receive the web of foamable thermoplastic polymer, and means for imparting relative reciprocal motion between the mold and the extrusion means in a direction generally normal to one of the surfaces of the web such that the web is deposited in layers within the mold. In producing a cellular thermoplastic product by the method of the invention, the steps include plastifying a thermoplastic polymer such as polyethylene in the presence of an expanding agent to produce a foamable thermoplastic polymer, forming the foamable thermoplastic polymer into a web, depositing the web into a mold, and imparting relative reciprocal motion

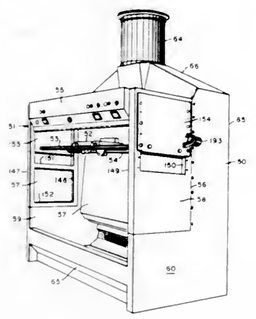
between the web and the mold in a direction normal to at least one surface of the web such that the web is deposited in layers within the mold. The foamable thermoplastic layers in the mold fuse together at their mating surfaces thereby resulting in the cellular thermoplastic product.

3,813,041
APPARATUS FOR STORING A LIQUID FOR ITS DISTRIBUTION IN THE GASEOUS STATE
Jean Jacques Kleine, Letraz-Sevrier, France, assignor to S. T. DuPont, Paris, France
Filed Sept. 12, 1972, Ser. No. 288,396
Claims priority, application France, Sept. 13, 1971, 71.32946; June 6, 1972, 72.20346
Int. Cl. A24f 25/00; A61l 9/04
U.S. Cl. 239—55 **11 Claims**



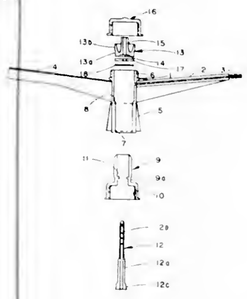
Apparatus for storing liquified gas under pressure in a container from which the liquid is released as a gas into an atmosphere or region at a lower pressure than the storage pressure. This container additionally contains a solid polymer on which the liquid acts like a swelling agent so that the polymer becomes a gel which releases the liquid stored therein as a gas.

3,813,042
SPRAY BOOTH
Harry Szczepanski, 755 Oakleigh N.W., Grand Rapids, Mich.
Filed Oct. 16, 1972, Ser. No. 297,666
Int. Cl. B05b 1/36
U.S. Cl. 239—193 **15 Claims**



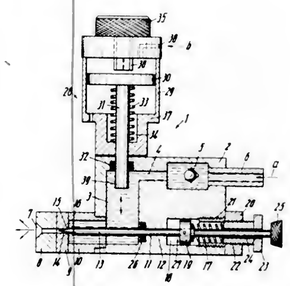
A spray booth is equipped with an air-exhaust system and a high-volume low-pressure water circulating system moving the water from a settling sump to troughs supplying water-curtain panels providing water screens along lines of drainage. The water is pumped by a water lift open to local atmospheric pressure. The configuration of the booth provides for accepting spray gun equipment in the form of replaceable modules. One form of these modules includes a spray gun carriage having a linear path of movement induced by a differential chain drive.

3,813,043
ROTARY WATER SPRINKLER
Avraham Ben Mordehai, Hazait St. 8, Neve Magen, Israel
Filed Mar. 6, 1973, Ser. No. 338,557
Claims priority, application Israel, Mar. 9, 1972, 38942
Int. Cl. B05b 3/06, 1/30
U.S. Cl. 239—204 **8 Claims**



A pressure stabilizing device for use in a water sprinkler comprising outer and inner tubular members which are displaceable relative to each other over a substantial portion of the axial length of said inner member, means for coupling the inner member to a water supply source whilst the outer member is coupled to or is couplable to said spray nozzle(s) said inner tubular member terminating in an elongated outlet conduit having at least one outlet port extending axially along said outlet conduit, a centrally apertured throttle member rigidly secured to said outer member so as to be rotatable therewith, said conduit member extending through said throttle member, biasing means designed to bias said members in a first direction so that said throttle member uncovers said aperture(s), the direction of flow of water from said outlet conduit into said outer tubular member being such as to tend to displace said members in an opposite direction so as progressively to throttle the flow of water out of said outlet port(s) the degree of throttling being a function of the extent of the relative displacement of said members.

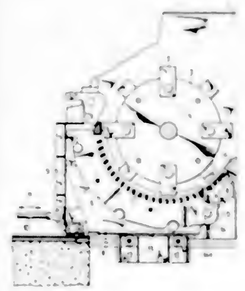
3,813,044
HIGH PRESSURE DOSING APPARATUS, ESPECIALLY FOR GRINDING AND POLISHING MACHINES
Walter Westenberger, Kittelerstrasse 11, D-6051 Laemmerspiel, Germany
Filed Jan. 29, 1973, Ser. No. 327,763
Claims priority, application Germany, Feb. 3, 1972, 2204942; Aug. 26, 1972, 2242030
Int. Cl. B05b 1/30
U.S. Cl. 239—533 **14 Claims**



A high pressure dosing apparatus includes a housing with a chamber for receiving material to be dispensed. A dispensing

output is controlled by a control valve which operates in response to pressure within the chamber so that the outlet is opened only when the pressure within the chamber exceeds a given level. A pressure generating means for controlling pressure within the chamber includes a pressure operated piston having a piston rod extending into the chamber. A pair of stops are provided for limiting the movement of the piston in opposite directions.

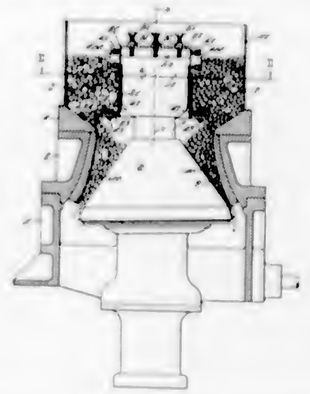
3,813,045
HAMMER CRUSHER
Karl Von Greiffenstern, Ennigerloh, Germany, assignor to Polysius AG, Neubeckum
Filed Sept. 25, 1972, Ser. No. 291,643
Claims priority, application Germany, Nov. 8, 1971, 7142142
Int. Cl. B02c 13/04, 13/26
U.S. Cl. 241—88.4 **7 Claims**



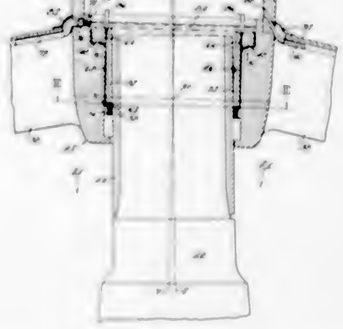
A hammer crusher having a housing within which is journaled one or more rotatable hammer shafts cooperable with an anvil and gratings, each grating including replaceable grating bars. The grating bars are accessible for replacement by being mounted on a carrier movable into and out of the housing along a substantially horizontal path and without requiring appreciable lowering of the carrier to effect its removal from the housing.

3,813,046
GYRATORY CRUSHER WITH CAPACITY REGULATOR
Robert H. Kemnitz, Appleton, and Robert J. Pollak, Wauwatosa, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Nov. 16, 1972, Ser. No. 307,052
Int. Cl. B02c 23/02
U.S. Cl. 241—202 **9 Claims**

A gyratory crusher is described having an upright shaft supporting a generally conical crushing head within a surrounding stationary concave carried by a crusher frame and defining an annular crushing chamber between the concave and the head. A capacity regulator is provided having a cap, and a generally cylindrical member with a vertical central axis. The cylindrical member depends from the cap to provide a lower end coaxial with the cap. an annular shield is connected to the lower end of the depending member to project radially outward therefrom with an outer diameter substantially equal to the outer diameter of the top of the crushing chamber. A regulator support means is carried by the crusher, that projects within the depending member and defines a regulator support surface for carrying the regulator with the annular shield coaxially over the crushing chamber. A vertically jacking mechanism is interposed between the cap of the regulator and the support surface within the depending member of the regulator, operative to raise and lower the annular shield relative to the concave and regulate the crushers capacity to receive and pass stone into the crushing chamber.



3,813,047
SPIDER BEARING ASSEMBLY FOR GYRATORY CRUSHERS
James D. Torrence, and Fred L. Graves, both of Appleton, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 7, 1972, Ser. No. 312,841
Int. Cl. B02c 2/04
U.S. Cl. 241—211 **7 Claims**



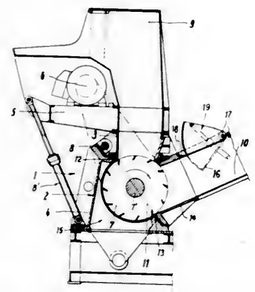
A spider bearing assembly for a gyratory crusher is disclosed in which a flanged bushing has a bearing sleeve projecting downwardly between the top of a gyrating shaft and a spider hub, and the sleeve has a lower edge below a fulcrum point within the hub about which the shaft gyrates. A lubricant seal is arranged between the shaft and the hub, which cooperates with the sleeve edge to define an annular lubricant collecting groove around the shaft. The bushing defines one or more lubricant pressure relief passages from the annular groove to the top of the bushing. A source of lubricant is connected to a reservoir defined by the upper end of the shaft, the top of the bushing, and an inner periphery of the hub to supply

lubricant to a level above the bushing. A generally vertical vent tube is connected to each pressure relief passage and projects upwardly above the reservoir lubricant level to vent lubricant pressure in the annular groove to atmosphere above the reservoir lubricant level, to relieve lubricant pressure on the seal that builds up as a result of pumping action of the crusher shaft gyrating in the bushing. The distance that the lower edge of the bushing sleeve is below the fulcrum point, is preferably substantially less than the distance between the top of the shaft and the fulcrum point, to minimize lubricant pressure acting downwardly on the seal and a pair of relatively small diameter relief passages will usually be sufficient to vent pressure from the annular lubricant collecting groove.

3,813,048
CUTTING MILL

Heinz Lehr, Gelnhausen, Germany, assignor to Condux-Werk, Wolfgang bei Hanau, Germany

Filed June 26, 1972, Ser. No. 266,133
Claims priority, application Germany, July 2, 1971, 2133086
Int. Cl. B02c 4/12
U.S. Cl. 241—224
4 Claims

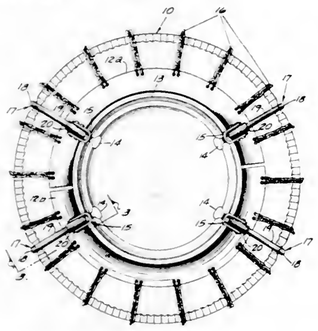


A cutting mill with a horizontally disposed cutting rotor receiving pieces of plastic material from a vertically disposed input chute and pieces of material of a different size and shape from an upwardly inclined charging chamber. This chamber is disposed to extend through a lateral wall of the machine located on an upwardly pivotal part of the machine housing.

3,813,049
TIRE CHAIN

Robert L. Thompson, 9930 Bacamora Ave., Whittier, Calif. 90603

Filed Oct. 20, 1972, Ser. No. 299,409
Int. Cl. B60c 19/00
U.S. Cl. 152—241
11 Claims

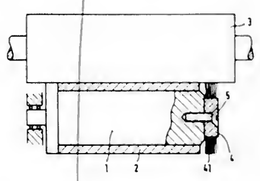


The present invention relates to a tire chain; and more particularly relates to an emergency type tire chain that may be easily installed for adverse driving conditions, provides improved ride characteristics over piror art tire chains, and may be easily removed. The disclosed chain is designed so that high tensile elements thereof are automatically tightened onto the tire without any effort on the part of the auto owner. Once the adverse driving conditions have cleared up, the disclosed tire chain is easily removed.

3,813,050
APPARATUS FOR CONTINUOUSLY WINDING THREAD ONTO BOBBINS

Hans Landwehrkamp, Gerolfing, Germany, assignor to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany

Filed Nov. 29, 1972, Ser. No. 310,223
Claims priority, application Germany, Dec. 27, 1971, 2164784
Int. Cl. B65h 54/02, 65/00
U.S. Cl. 242—18 A
6 Claims

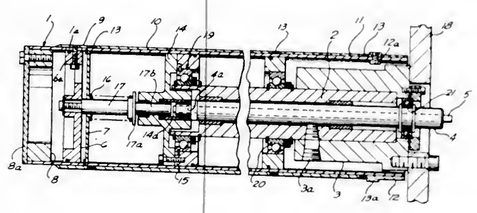


Thread can be wound onto a first bobbin and then, without interruption, onto a second bobbin, by providing a thread-engaging member adjacent to the second bobbin to hold a bight of thread stationary relative to that second bobbin, as it is rotated to begin positive winding of the following continuous thread portion. The thread-engaging member is a ring having a core smaller than the inside diameter of its adjacent hollow core bobbin and a resilient annular portion carried between the ring core having an outside diameter at least as great as the outside diameter of the empty bobbin. The annular portion is deformable for sliding a filled bobbin axially over the resilient portion; and, when the bobbin is removed, such portion resumes its original shape. The resilient annular portion may be flexible bristles for catching a bight of thread pulled across it or may be a perforated hollow ring connected to a suction source.

3,813,051
BOBBIN-SUPPORTING CHUCK

Harry B. Miller, Hopedale, Mass., assignor to Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft, Karlsruhe, Germany

Continuation-in-part of Ser. No. 262,973, June 15, 1972. This application Nov. 6, 1972, Ser. No. 304,254
Int. Cl. B65h 54/54, 75/30, 79/00
U.S. Cl. 242—46.4
6 Claims



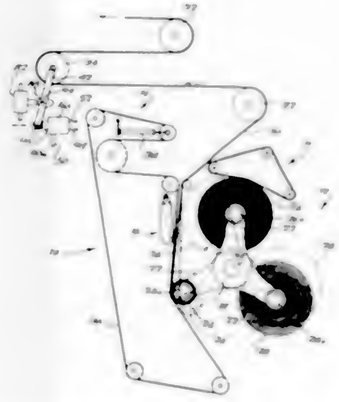
A bobbin-supporting chuck for filament winders has a hollow tubular shaft which is stationarily mounted, and which is

surrounded by a chuck roll, with bearings mounting the latter on the former for rotation. The chuck roll periphery carries axially compressible rings of elastomeric material so that, when compressed, they will project radially and frictionally retain a bobbin mounted on the roll. A slidable rod extends through the hollow shaft and cooperates with an internal arrangement for effecting the compression of the elastomeric rings.

3,813,052
WEB TENSION CONTROL SYSTEM

Clifford Swann, Fort Erie, Ontario, Canada, and Gerald W. Siminski, Buffalo, N.Y., assignors to Arcata Graphics Corporation, Depew, N.Y.

Filed Apr. 13, 1973, Ser. No. 351,098
Int. Cl. B65h 19/00, 21/00
U.S. Cl. 242—58.3
3 Claims



A system for use in controlling the substitution of a replacement roll of paper for an expiring roll of paper, while maintaining essentially uniform tension conditions in the paper web forwarded to a web printing machine. The system utilizes dual web tension responsive controls for controlling web tension during the roll replacement or transition stage, and provides an emergency stop control for arresting rotation of both of the replacement and expiring rolls

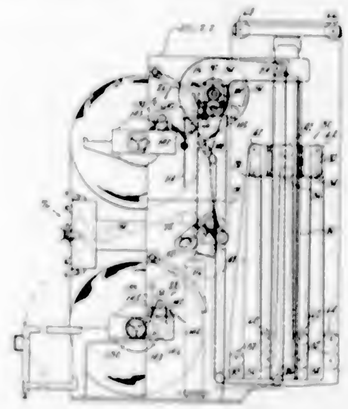
---

3,813,053
WEB WINDING MACHINES

Richard A. Butler, Jr., Brookline, and Joseph F. Bonarrigo, Pembroke, both of Mass., assignors to Butler Automatic, Inc., Canton, Mass.

Continuation of Ser. No. 809,146, March 21, 1969, abandoned. This application Jan. 6, 1972, Ser. No. 215,896
Int. Cl. B65h 19/16
U.S. Cl. 242—58.4
8 Claims

Web winding apparatus has a pair of roll core supports at first and second winding stations, an accumulator upstream from the winding stations for storing web and a splicer in the web path between the winding stations and the accumulator. The splicer includes a pair of nip rolls movable toward and away from one another and means for moving the rolls. A guide guides running web from the accumulator around one of the nip rolls to a core in one of the winding stations while a web leader is retained at the other nip roll, which leader is also attached to the other roll core. The nip rolls are moved together to press the running web and leader into adhering engagement to form a splice while the accumulator stores the running web. The running web is then severed downstream



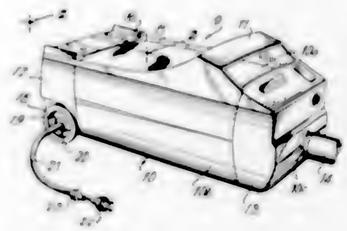
from the splice and the roll core at the second winding station is accelerated up to running speed while the web stored in the accumulator is reduced in preparation for the next splice

---

3,813,054
CORD-WINDING STRUCTURE FOR MOBILE ELECTRICAL APPLIANCE

Christian Staffansson Klingspor, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed May 9, 1972, Ser. No. 251,798
Claims priority, application Sweden, May 10, 1971, 6024/71
Int. Cl. B65h 75/42, 75/48, A47l 9/26
U.S. Cl. 242—86.5 R
10 Claims



A mobile electrical appliance having cord-winding structure therein for an electrical cord which is accessible exteriorly of the appliance and passes through the axis of an apertured supporting wheel rotatably mounted on the appliance at an opening in its side wall

---

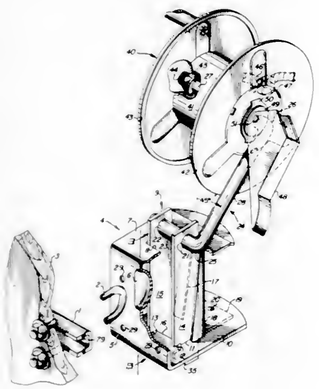
3,813,055
READILY DETACHABLE WATER SKI TOWLINE PAY-OUT AND RETRIEVAL APPARATUS

John W. Pickrell, 4206 N. 68th St., Scottsdale, Ariz. 85251

Filed Feb. 2, 1973, Ser. No. 329,037
Int. Cl. B65h 75/40
U.S. Cl. 242—86.5 A
4 Claims

Water ski towline reel apparatus is disclosed which may be detachably affixed to a semi-permanently fixed bracket disposed at the rear of a towboat. An elongated rod is provided with two right angle bends directed such that the rod ends are parallel to one another. An outer rod end is adapted to receive the reel acting as the shaft therefor. The inner rod

end is welded to a channel member after being inserted through aligned holes in opposite sides and near one end thereof. The channel member is provided with a pair of notches near its other end and is adapted to pass vertically through a pair of apertures in a U-shaped mounting bracket affixed to the rear of a towboat. The length of the channel member is sufficient for the end carrying the reel shaft to clear the upper surface of the upper bracket leg when the notches engage the lower bracket leg. Spring loading means bearing on the side of the channel member urge the notches into such engagement until it is desired to remove the reel apparatus from the bracket. When such removal is to be effected, the channel member is pushed against the spring means to disengage the



notches from the lower bracket arm such that the channel member and reel assembly may be lifted through the apertures in the channel arms for remote storage.

A three position friction brake variably bears against one side of the reel to achieve locking, restraining, and free-running operation as may be required during use of the apparatus. The rope is fed through the channel member beneath the inner rod end in order to provide a safety factor in which a knot in the rope near the attached end is stopped, because of its size, between the rod end and the upper surface of the upper bracket leg. Thus, any sudden strain resulting from complete pay-out of the towline from the reel is taken by the bracket rather than the reel.

3,813,056

MICROFILM CARTRIDGE AND ADAPTER APPARATUS

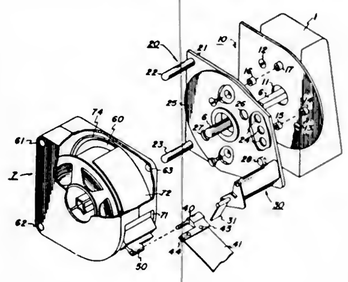
James M. Hagen, Riverside, and Clayton M. Haigh, Covina, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 205,936, Dec. 8, 1971. This application Feb. 20, 1973, Ser. No. 333,577

Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*

U.S. Cl. 242—197 **23 Claims**

Apparatus for allowing a cartridge to be utilized with a variety of film viewers. A cartridge adapter, comprising a stationary plate and a plate rotatably mounted thereto, is attached to a viewer. The rotatable plate includes a clamp and is rotatable to a predetermined angle. The clamp is operative to hold a trailer attached to the take-up reel of the film viewer being utilized. A cartridge, including a variable angle film exit port through which a film leader attached to the film within



the cartridge extends, is mounted to the cartridge adapter in a manner such that the leader is coupled to the trailer held by the adapter clamp.

3,813,057

REEL MOUNT ELEVATING MECHANISM

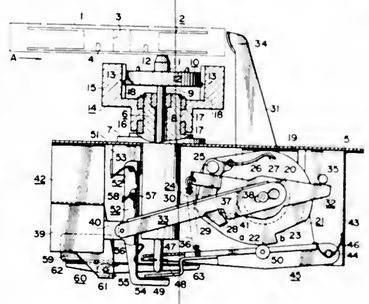
Hideki Sakumoto, Hirakata; Yoshiteru Namoto, Moriguchi; Masaharu Ushihara, Katano; Shizuhiko Tanigawa, Moriguchi, and Shozo Kanda, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 28, 1972, Ser. No. 310,003

Claims priority, application Japan, Dec. 1, 1971, 46-97378; Dec. 23, 1971, 46-503

Int. Cl. G03b *1/04*, **G11b** *15/32, 23/04*

U.S. Cl. 242—198 **5 Claims**



A reel mount elevating mechanism which is so constructed that an energy for elevating a vertically movable reel mount is accumulated incident to the movement of a cartridge inserted in a direction perpendicular to the direction in which said reel mount is movable, and is released when the cartridge has reached a predetermined position relative to said reel mount, whereby said reel mount is elevated by said energy.

3,813,058

CONVEYOR SYSTEM

Robert William George Smith, Gosport; David Michael Arthur Barron, Portsmouth, and Arthur George Wingrove, Newbury, all of England, assignors to Dialled Despatches Limited, Lee-on-Solent, Hampshire, England

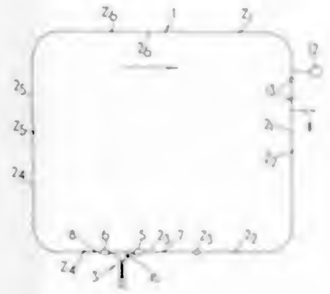
Continuation-in-part of Ser. No. 89,587, Nov. 16, 1970, abandoned. This application July 10, 1972, Ser. No. 270,457

Claims priority, application Great Britain, Nov. 18, 1969, 56417/69

Int. Cl. B65g *51/46*

U.S. Cl. 243—16 R **11 Claims**

A conveyor system including a pneumatic main ring having a number of branch loops accommodating a number of receiver/dispatch stations respectively, diverter means for diverting a carrier into each loop, sensing means or zone switches dividing the main tube into zones, a control unit having a memory for each zone (Z_n) and arranged to receive the address signal from the memory of the preceding zone (Z_{n-1}) to control the passage of the carriers around the ring, the sensing means or zone switches being arranged to sense the passage of a carrier from each zone to the next zone and arranged to move the address signal from the memory of the first



zone into the memory of the second zone and there is a switch located in the main ring upstream from and associated with the diverter means, this switch being controlled by the control unit so that it is in an operable condition only when the memory of the zone in which it is located contains the address signal of a station in the loop controlled by the associated diverter means, this switch being capable, in its operable condition, of sensing the passage of the carrier and operating the associated diverter means to divert the carrier to its destination station

---

3,813,059

AEROFOIL ASSEMBLY

Raymond Jefferson, 84 Park Rd., Rosyth, Fife, England

Filed Aug. 31, 1972, Ser. No. 285,373

Claims priority, application Great Britain, Sept. 15, 1971, 42951/71

Int. Cl. B64c *29/02*

U.S. Cl. 244—12 C **8 Claims**



An aerofoil assembly for rotary wing aircraft, which includes a generally planar annular frame which supports radially inner and outer sets of aerofoil blades. The two sets of blades each lie in the plane of the frame and are each disposed to form an annulus and are supported by the frame for rotation about a common axis. In a preferred embodiment, the inner set of blades has a substantially larger surface area than the outer set and the means diameters of the two sets are such that the two sets of blades produce a balanaced lifting force in operation for equal rotation velocities of the two seats.

3,813,060

AIRPLANE

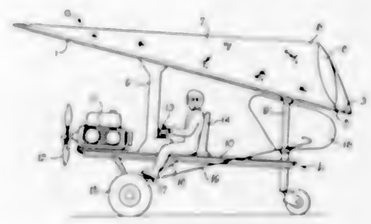
Matsuji Mochizuki, 3391-1 Muramatsu, Shimizu-shi, Japan

Filed Feb. 20, 1973, Ser. No. 333,798

Claims priority, application Japan, May 24, 1972, 47-51347

Int. Cl. B64c *3/00*

U.S. Cl. 244—13 **3 Claims**



An airplane includes a wing on which a sheet of material such as canvas or the like is disposed whereby under flight conditions, the sheet material becomes inflated to provide the required lift to the airplane. An airplane body is supported under the wing and a propellor-driving engine imparts forward motion to the plane so that the on-rushing air passes underneath the wing to inflate the latter and provide the necessary lift for take-off and sustained flight.

3,813,061

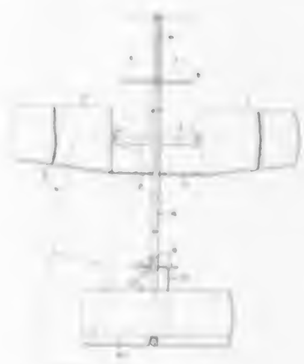
PARACHUTIST'S GLIDER

Howard N. Greenhalgh, East Hanover, N.J.

Filed Apr. 2, 1973, Ser. No. 346,950

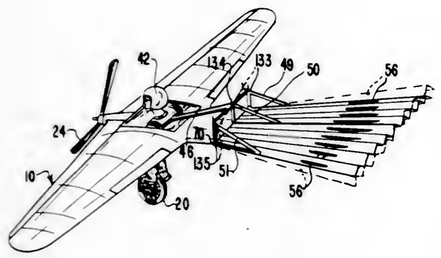
Int. Cl. B64c *31/04*

U.S. Cl. 244—16 **6 Claims**



A glider for use by a parachutist to provide an extended and controllable freefall prior to deployment of the user's parachute. The glider is provided with pivotable wings mounted on the fuselage of the craft and connected by means of hinged rods to a slidable hand operated control member whereby the wings may be moved by the user during flight to vary the glider's wingspan. Adjustable foot pedals for control of the glider's elevators are also provided.

3,813,062
FAN-LIKE TAIL SECTION FOR MAN-POWERED GLIDER AIRCRAFT
Alfred G. B. Prather, P.O. Box 53, Lanham, Md. 20801
Division of Ser. No. 188,289, Oct. 12, 1971, Pat. No. 3,750,981. This application May 9, 1973, Ser. No. 358,520
Int. Cl. B64c 31/04
U.S. Cl. 244—16 2 Claims

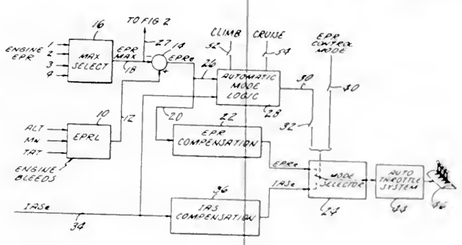


The aircraft wings have means for varying their camber and include a fan-like tail section hinged to the rear of a rigid frame surrounding the pilot's space between the inner ends of the side wing sections, in substantially the same plane therewith, a unicycle being fixed to said rigid frame to provide a seat for the pilot. A collapsible propeller is mounted on a shaft extending forwardly from a bearing on the front of said rigid frame, and is driven by a chain or belt drive from a sprocket or pulley on the wheel of the unicycle, the blades of the propeller being keyed to the propeller shaft through limited annular slot and key connections between adjacent blade bearings, to spread the blades to their proper angular spacing whenever the shaft is driven, and to return them to a common vertical hanging position so as to reduce their drag during gliding operations whenever no power is applied.

The pilot sits on the unicycle seat, drops a yoke harness over his shoulders which is operatively connected to control the inclination and twist of the hinged tail section, whereby the shifting of his body forward, lifts the tail section to cause an increase in the angle of attack of the side wing sections, and by shifting his body rearward the tail section is lowered to decrease the angle of attack, and if he moves his body from side to side he can twist the tail section accordingly. After placing this yoke over his shoulders, the pilot inserts his arms through openings in the inner ends of said wing sections and grasps the handles of the corresponding hand control plates which are operatively connected to control the cambers of the side wing sections, the warping of the outer ends of these sections and the spread of the fan-like tail section.

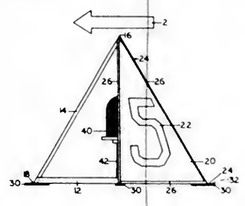
3,813,063
AUTOMATIC AIRCRAFT ENGINE PRESSURE RATIO CONTROL SYSTEM
Anthony N. Martin, Simsbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed July 21, 1972, Ser. No. 274,123
Int. Cl. B64c 15/00
U.S. Cl. 244—77 D 8 Claims

An automatic thrust management system for gas turbine engines in single or multi-engine aircraft is disclosed. An engine pressure ratio limit is automatically calculated using known techniques and compared with the actual engine pressure ratio of the engine having the maximum pressure ratio for the purpose of an automatic control system. In one mode of operation, the throttles for each engine are trimmed to maintain the engine pressure ratio at the limit value. In another mode of operation, each engine is trimmed as necessary to insure that the engine pressure ratio does not exceed the limit value. The automatic thrust management system of this inven-



tion may be incorporated together with existing autothrottle systems in aircraft which control the engine throttles as a function of airspeed error.

3,813,064
VISUAL RUNWAY DISTANCE MARKER
Eugene R. Heyworth, 3705 W. 84 Ave., Anchorage, Alaska 99502
Filed Apr. 21, 1972, Ser. No. 246,254
Int. Cl. B64f 1/18
U.S. Cl. 244—114 R 8 Claims



The remaining distance on a runway is indicated by large numerals indicating hundreds or thousands of feet remaining to the end of the runway. The distance markers inform the pilot taking off of the remaining distance to the end of the runway so that the pilot may know whether an aborted takeoff is possible and so that the pilot of a landing aircraft may calculate necessary braking action to stop the aircraft short of the runway end. The marker is constructed of a readily collapsible aluminum angle frame having a triangular base pyramid form. The apex of the pyramid is positioned directly over a standard runway light. Anchors at vertices of the base provide easy anchoring independent of the lighting system. A translucent plate covers one triangular side and is held in place by a triangular retainer made of angle aluminum pieces which fit over corresponding pieces in the frame. A large opaque number is positioned centrally on the plate.

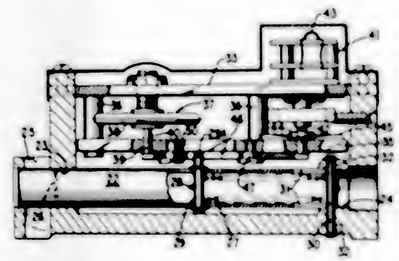
3,813,065
LOCKING MECHANISMS AND ACTUATOR ASSEMBLIES OF COAXIAL LOCKED REMOTELY AT SELECTED LOCATIONS AFTER MOTIONS OF A NEARLY COMPLETE CIRCUMFERENTIAL ONE PIECE CHAMFERED LOCKING RING
Harold W. Hallesy, and Howard C. Revenig, both of Yakima, Wash., assignors to Decoto Aircraft, Inc., Yakima, Wash.
Continuation-in-part of Ser. No. 835,527, June 23, 1969, abandoned. This application Apr. 12, 1972, Ser. No. 243,268
Int. Cl. B64f 1/12
U.S. Cl. 244—115 18 Claims

A locking mechanism for coaxial load carrying members is described, which utilizes a one piece split, chamfered locking ring as a locking member between the load carrying members. Application of predetermined loads to the load carrying mem-



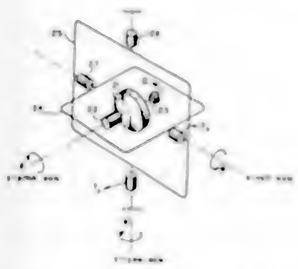
bers releases the locking ring from its locking condition by flexure of the ring.

3,813,066
TIME AND ALTITUDE SENSING RELEASE MECHANISM
Jerry L. Raznov, Philadelphia, Pa., assignor to Ametek, Inc., New York, N.Y.
Filed Sept. 14, 1972, Ser. No. 289,109
Int. Cl. B64d 17/56, 17/58
U.S. Cl. 244—150 5 Claims



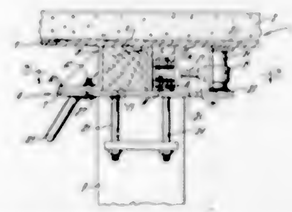
A mechanism for releasing another device or activating the same including a pivoted sear arm holding a spring loaded plunger in cocked position until the sear arm releases the same. The sear arm cannot move until both a timing means and an altitude sensing means release the sear arm. The sear arm, sear surface and its pivot are arranged relative to the plunger so that a moment of force exists to assist in rotation of the sear upon release thereof.

3,813,067
ATTITUDE STABILIZATION SYSTEM
Halbert Louis Mork, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed June 29, 1972, Ser. No. 267,575
Int. Cl. F41g 7/00, B64c 17/06
U.S. Cl. 244—3.22 11 Claims



An attitude stabilization and control system is disclosed for providing accurate control and stabilization of a space vehicle traveling in a circular or near circular orbit relatively to a body such as the earth. A reaction wheel operated at a modulated bias speed is mounted in a gimbal system having two axes of freedom. The speed of the wheel and the gimbal angles are controlled by electronically implemented logic based upon only two-axis attitude error sensing to provide three-axis stabilization and control in the presence of disturbances. Secular disturbances cause growth in the gimbal angles and the wheel speed and are intermittently compensated by actuation of small thrusters or magnetic coils.

3,813,068
CONCRETE FORM VIBRATOR CLAMP UNIT
George H. Binsfeld, Port Washington, Wis., assignor to Construction Forms, Inc., Cedarburg, Wis.
Filed June 2, 1972, Ser. No. 259,149
Int. Cl. F16m 13/00
U.S. Cl. 248—14 9 Claims



A concrete form vibrator clamp includes a flat mounting plate with a first L-shaped clamping wall bolted thereto and a second pivotally mounted to the end of a movable shaft ending in a tubular cam follower. An eccentric cam is pivotally attached to the cam follower. The lever is positioned between a locking position and a release position to selectively move the second wall toward and away from the clamping wall and thereby provide for selective attachment of the clamping unit to the concrete form. A pair of vibrating attachment bolt units are secured to the opposite face of the plate and project outwardly to receive the input of the vibrating apparatus. The bolted wall permits attachment and release of the unit to a two-by-four or four-by-four brace.

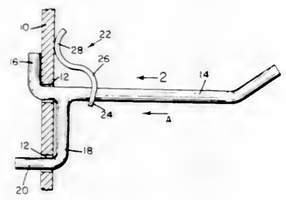
3,813,069
MOUNTING DEVICE FOR FURNITURE
Thomas Sydney Fletcher, Underwood, England, assignor to Fletcher Brothers (Castings) Limited, Ilkeston, Derbyshire, England
Filed Sept. 13, 1972, Ser. No. 288,758
Claims priority, application Great Britain, Sept. 29, 1971, 45329/71
Int. Cl. A47c 1/02
U.S. Cl. 248—188.1 6 Claims



A mounting device for furniture comprising a mounting plate for securing to an article of furniture, a resilient pad

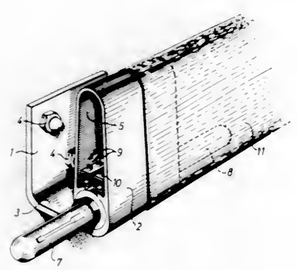
compressibly interposed between the mounting plate and a body, a shaft extending through the body, the pad and mounting plate and means for clamping the mounting plate and the body together.

3,813,070
LOCKING DEVICE FOR HANGERS FOR PERFORATED BOARDS
Henry Lloyd Hanson, 80 Salisbury St., Worcester, Mass. 01609
Filed Nov. 30, 1972, Ser. No. 310,856
Int. Cl. F16m *13/00*
U.S. Cl. 248—223 5 Claims



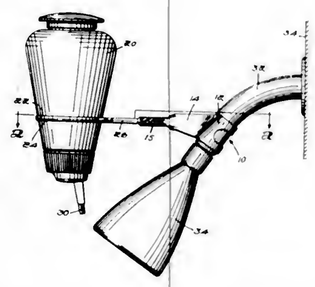
In combination with a peg or hanger pin used as an article hanger with a perforated board, a locking device comprising a key having a compound bend with an opening in one portion receiving the peg, the key being slidable along the peg to a point where another portion of the key contacts the perforated board, locking the peg thereto in the manner of a lockable washer.

3,813,071
FASTENER ASSEMBLY FOR HANDRAILS
Nils Eric Noryd, Bergsgatan 20, Vetlanda, Sweden
Filed Apr. 12, 1972, Ser. No. 243,238
Int. Cl. A47h *1/144*; A47b *97/00*
U.S. Cl. 248—251 1 Claim



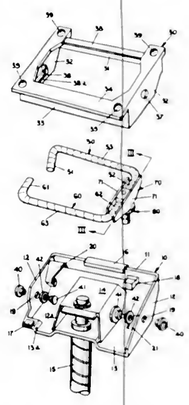
A handrail in the form of a tube longitudinally slotted at its bottom and supported by a fastener assembly having a first vertical solid leg and a second vertical hollow leg interconnected by a horizontal base web. The first leg is adapted to be mounted at a wall surface and the second leg has an outer wall with a cross-section which conforms with the inner wall of the tubular handrail and is snugly surrounded thereby. The internal cavity of the second leg forms an upper compartment housing electrical wiring and connection means, and a lower compartment serving as a fitting for electrical illumination means emitting light through the slot in the bottom of the tubular handrail.

3,813,072
ATTACHING BRACKET WITH RECEPTACLE HOLDER
Francis M. Moore, 11 Patricia Rd., Danvers, Mass. 01923
Filed Nov. 3, 1972, Ser. No. 303,545
Int. Cl. A47c *7/70*
U.S. Cl. 248—313 4 Claims



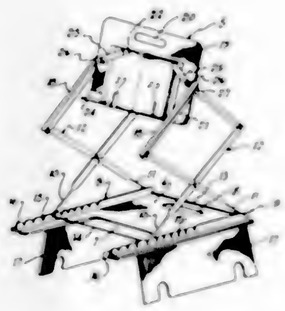
An attaching bracket has a clamp and oppositely disposed arms terminating in tubular portions. A receptacle has an encircling groove in its outer surface that receives a clasp of a holder from which two legs extend outwardly that are adapted to enter said tubular portions. In use said clamp is attached to a water pipe, holding said receptacle adjacent a shower head so that liquid from the receptacle mixes with shower water.

3,813,073
DUAL TORSION BAR CHAIR CONTROL
Robert G. Mohr, Grand Rapids, and Adrian R. Olree, Caledonia, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Filed Apr. 21, 1972, Ser. No. 246,381
Int. Cl. F16m *7/24*
U.S. Cl. 248—373 24 Claims



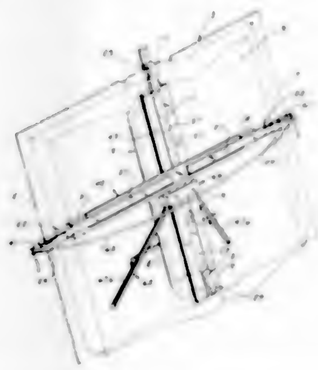
A tiltable platform is tiltably mounted to a stationary platform and its tilting movement is controlled by a dual torsion bar mechanism between the two platforms. The leg of one generally U-shaped torsion bar is received in a pocket in the stationary platform and the corresponding leg of another generally U-shaped torsion bar is received in a like pocket in the tiltable platform. The base portions of the torsion bars project generally parallel to the tilt axis, away from these pockets. The opposite legs of the torsion bars are received in a channel-shaped interconnecting bracket which includes an adjusting mechanism to adjust the pretension on the bars.

3,813,074
BOOK STAND
Charles S. Mulvaney, 2211 Greenleaf Ave., Chicago, Ill. 60645
Filed May 8, 1972, Ser. No. 251,445
Int. Cl. A47b *23/00*
U.S. Cl. 248—452 2 Claims



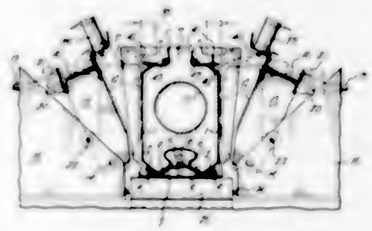
This invention consists of a horizontally disposed rectangular base that is supported above ones lap by means of a rectangular supporting wing that is hingedly secured to the underside of each longitudinal edge of the base. A pantograph type support is swingably secured for vertical adjustment to the upper longitudinal edge of the aforesaid rectangular base. A rectangular book rest is swingably secured between and to the upper point of the two already-mentioned pantograph type supports. The book rest is provided with structure adapted to hold the book or the like in place on the said rest in any desired position for easy reading.

3,813,075
COMBINATION BOOK HOLDER AND BOOK STAND
Keith C. Capper, Eureka, Mo., assignor to Aquarian-Agr-Inventor, Inc., Eureka, Mo.
Filed Apr. 13, 1973, Ser. No. 350,889
Int. Cl. A47b *97/04*
U.S. Cl. 248—461 9 Claims



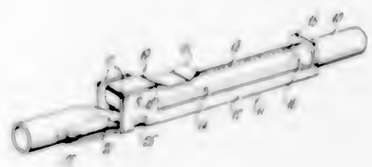
A combination book holder and book stand for use with a conventional, hard cover or soft cover book. The book holder has a hollow handle which may be removably clipped onto the end portions of the spine or the cover of books of various sizes and a support engageable with the front and back covers of the book for holding them open. A holder is provided for holding the pages of a book open to a desired page. Removably secured to the handle are legs for supporting the latter with the book held thereon in an inclined, upright reading position on a supporting surface. The handle has a removable end piece of access into the interior of the handle thus permitting the various parts of the book holder and book stand to be stored in the handle when shipped or when not in use.

3,813,076
CONCRETE PLANK MOLD FOR A MOLDING MACHINE
Roland D. Draughon, 2922 S. Adams, Tacoma, Wash. 98409; Paul D. Jensen, 1011-68th Ave. E., Tacoma, Wash. 98424; and Donald E. Jensen, 1005 Fife Heights Dr. N.E., Tacoma, Wash. 98422
Continuation-in-part of Ser. No. 822,506, May 7, 1969, Pat. No. 3,664,792. This application Apr. 17, 1972, Ser. No. 244,661
Int. Cl. E04g *11/50*
U.S. Cl. 249—50 8 Claims



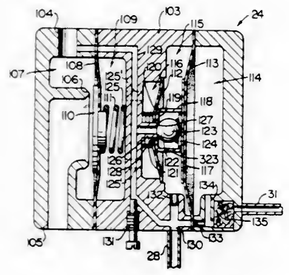
A concrete plank mold including a bottom with a flexible groove-forming strip and sides tiltable relative to the bottom can be moved into and out of a molding machine on rollers. Plates swingable by fluid-pressure jacks at opposite sides of the mold are securable by latch jacks to the mold sides. Tapered mold end plates are held against the ends of the mold sides to confine the material in the mold during swinging of the mold sides to settle the concrete mix.

3,813,077
HOSE CLAMP
Edwin S. Kolic, 544 Knights Ave., Cahanna, Ohio 43230
Filed June 29, 1972, Ser. No. 267,463
Int. Cl. F16k *7/06*
U.S. Cl. 251—9 17 Claims



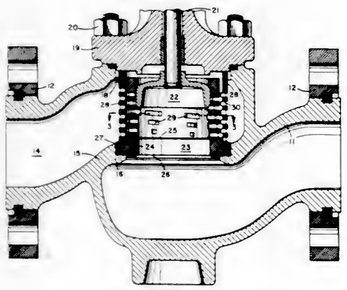
The invention contemplates a hose clamp comprising an elongate channel frame with opposed upstanding side walls from which a compression drum is pivotally suspended. The hose-compression surface of the drum is arcuate and generally cylindrical, and the pivot axis is substantially diametricly opposed to the circumferentially central region of the generally cylindrical surface. An integral handle brings the drum to a dead-center relation in proximity with the channel bottom, at the clamped position, and in a preferred arrangement two corner edges formed in the channel bottom serve to stabilize the clamped position and to effect a double-seal closure of the hose in such position.

3,813,078
OVEN CONTROL SYSTEM AND PARTS THEREFOR ON THE LIKE
Charles D. Branson, Greensburg, and Francis S. Genbauffe, Irwin, both of Pa., assignors to Robertshaw Controls Company, Richmond, Va.
Division of Ser. No. 93,540, Nov. 30, 1970, Pat. No. 3,703,988. This application Sept. 15, 1972, Ser. No. 289,285
Int. Cl. F16k *31/385*
U.S. Cl. 251—28 5 Claims



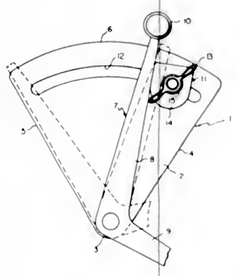
A fuel control system for an oven having a source of fuel and main burner means. A pneumaticaly operated main valve is utilized for interconnecting the source to the burner when the main valve is actuated and for disconnecting the source from the main burner when the main valve is deactuated. A manually settable and thermostatically operated valve is provided for interconnecting a pneumatic control signal to the main valve to actuate the same when a temperature effect of the burner is below a set temperature effect and for disconnecting the pneumatic control signal from the main valve to deactuate the same when the temperature effect of the burner is above the set temperature effect, the thermostatically operated valve having a manually settable construction for controlling the cooking temperature effect of the burner and having a modifying construction for modifying the manually settable construction for controlling a burnoff cleaning temperature effect of the burner.

3,813,079
QUICK CHANGE APPARATUS FOR EFFECTING GAS FLOW PRESSURE REDUCTION WITH LOW NOISE GENERATOR
Hans D. Baumann, Foxboro, and Gareth Allan Keith, Needham, both of Mass., assignors to Masoneilan International Inc., Norwood, Mass.
Filed Dec. 10, 1971, Ser. No. 206,700
Int. Cl. F16k *47/00*
U.S. Cl. 251—127 9 Claims



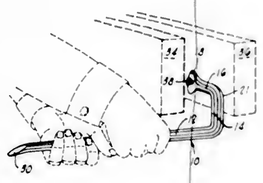
Valve controlling gaseous flow without producing excessive noise. A plurality of multi-perforated, quick change trim cylinders effecting at least two stage pressure reduction. Adjacent of the cylinders having predetermined flow area ratios, and the inner cylinder being invertible to extend, and enclose the valve plug, to either side of the seat.

3,813,080
METHOD AND DEVICE FOR CONTROLLING A MULTI-POSITION VALVE
Kenneth Mathew Rogers, No. 15, Salisbury Dr., Logan Pk., Hatfield, Salisbury, Rhodesia
Filed Oct. 4, 1972, Ser. No. 295,046
Int. Cl. F16k *51/00*; G05g *5/04*
U.S. Cl. 251—285 5 Claims



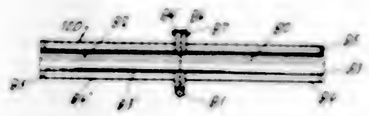
A device and method for controlling a multiposition valve to regulate flow from a spray mechanism, which involves positioning a stop means in the path of movement of a valve actuating lever and which stop means provides two predetermined stop positions of the lever which can be selected alternatively or sequentially.

3,813,081
CARPENTER'S TOOL
Carl E. Alger, Oklahoma City, Okla., assignor to Oklahoma Tool & Supply Company, Oklahoma City, Okla.
Filed Sept. 14, 1970, Ser. No. 71,853
Int. Cl. B66f *3/00*, *15/00*
U.S. Cl. 254—131 1 Claim



A carpenter's tool to be used primarily for pulling nails, wherein the tool is of one-piece construction having an elongated body portion or handle extending in what may be considered a first plane, a first extension on one end of the handle extending at slightly less then 90° from the handle and extending is the same plane as the handle, a second extension on the first extension extending at an angle of between zero and ninety degrees from the first plane, and a wedge-shaped claw portion on the end of the second extension shaped to form a fulcrum at the transition between the claw portion and the second extension, whereby the claw portion may be inserted in virtually unaccessible locations for pulling nails and the desired leverage is provided.

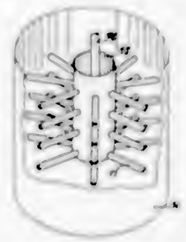
3,813,082
COMBINED MIXER, KNEADER AND PRESSER PARTICULARLY FOR FOOD PROCESSING
Josef Manser, Uzwil, Switzerland, assignor to Gebrueder Buhler AG, Gallen, Switzerland
Filed Nov. 14, 1972, Ser. No. 306,204
Claims priority, application Switzerland, Nov. 18, 1971, 16837/71
Int. Cl. B01f *7/08*
U.S. Cl. 259—6 19 Claims



A combined mixer, kneader and presser for materials particularly for foods such as pasta comprises a housing having a wide diameter mixing portion, a small diameter pressing portion and an intermediate conical kneading portion connected between the mixing portion and the pressing portion. An inlet for the materials to be treated is connected into the mixing portion and the pressing portion has a free end with a discharge which receives a head carrying a press mold through which the material is directed. A driving motor has a driving transmission connected to the free end of the mixing portion of the housing and a single shaft extends through the housing and is connected to the driving transmission and is rotated thereby. The shaft includes a mixing portion having radially extending arms which rotate in the mixing portion of the housing, a kneading portion with a conical core and a kneading screw and a smaller diamter cylindrical pressing portion with a press screw which rotates in the pressing portion of the housing. The pressing portion advantageously comprises a separate shaft element which is received in the hollow interior of the portion making up the mixing shaft and the kneading portion of the shaft. The housing is formed with a door either at the drive end of the mixing portion or at the opposite end adjacent the intermediate conical kneading portion. The door includes a fixed part which is connected to the drive and a movable hinge part which may be swung outwardly from the fixed part. In the one embodiment the swinging part includes all of the housing parts which may be swung openly from a fixed mounting of the housing adjacent the drive end. In the other embodiment the swingable parts include the conical intermediate portion and the pressing portion of the housing. When the door is swung open the individual housing parts are accessible for cleaning and repair.

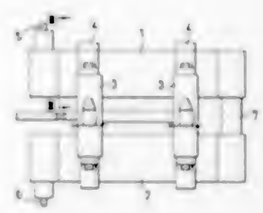
3,813,083
FLUID PROPELLER
Jean Risse, Grand Duchy of Luxembourg, Luxembourg, assignor to Colortex S.A., Luxembourg City, Luxembourg
Filed Mar. 9, 1972, Ser. No. 233,268
Claims priority, application Luxembourg, Mar. 15, 1971, 62793; Oct. 5, 1971, 64009
Int. Cl. B01f *5/10*
U.S. Cl. 259—8 11 Claims

Apparatus for propelling any type of liquids which comprises in a container at least one motor shaft and one essentially central entry constituted by at least one entry collector having the shape of a hollow cylinder including one opening at one side and a bottom essentially closed on the other side, and holes disposed in at least one row concentric to the motor shaft in which are fixed a plurality of conduits preferably individual and closed, except at their extremities. The space or inner volume of one whole single row of conduits occupies a space or volume inferior to 33% of the space or volume comprised between two surfaces located tangentially to and fro of the conduits of the aforesaid row of conduits, and delimited by the peripheral extremities of the latter, excluding the space or volume of said hollow cylinder comprised between two



aforesaid surfaces, and wherein said cylinder occupies a space or volume approximately equal to the space or volume of the row of conduits.

3,813,084
VIBRATING DEVICE WITH A HEAT INSULATED TREATMENT CHAMBER, PARTICULARLY A VIBRATING MILL
Jurgen Langmaack, Niederkassel, and Helmut Haas, Cologne, both of Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany
Filed Dec. 15, 1971, Ser. No. 208,291
Claims priority, application Germany, Dec. 24, 1970, 2063688
Int. Cl. B01f *11/00*
U.S. Cl. 259—72 10 Claims



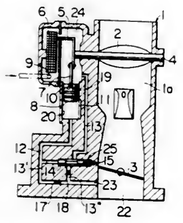
In a vibrating device provided with a treatment chamber surrounded by a heat insulating jacket, the heat insulating material of this jacket is surrounded by a solid outer jacket, for instance made of plastic, and this outer jacket is rigidly connected by solid connecting members with the outer circumference of a tube the interior of which forms said treatment chamber.

The connecting members may comprise radial tongues bent inwardly from said outer jacket or straps wrapped around said tube and attached with their ends to said solid outer jacket or thin discs arranged in the space between the inner wall of said solid outer jacket and the outer wall of said tube. The discs are provided with a plurality of circular series of apertures to reduce the heat conductivity of the discs.

3,813,085
ARRANGEMENT FOR REGULATING A CHOKE VALVE IN A CARBURETOR
Masahiko Nakada, and Hirofumi Matsumoto, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan
Filed Feb. 26, 1973, Ser. No. 335,697
Claims priority, application Japan, May 20, 1972, 47-49545
Int. Cl. F02m *1/10*
U.S. Cl. 261—39 B 8 Claims

In the mixing chamber of a carburetor a choke valve is spaced axially from a throttle valve. The carburetor includes a

hot air chamber to which hot air heated by exhaust gas is admitted. Positioned within the hot air chamber is a bimetallic coil which, in response to the temperature of the hot air heated by exhaust gas, operates the choke valve. Communicating with the hot air chamber is a cylindrically shaped chamber containing a piston which is also displaced by the bimetallic coil as it operates the choke valve. On the opposite side of the piston from the hot air chamber, the cylindrically shaped chamber also communicates with the mixing chamber



adjacent the throttle valve so that a negative pressure within the mixing chamber tends to displace the piston in the same direction that it is moved as the choke valve is opened. The side of the cylindrically shaped chamber in communication with the mixing chamber is connected through a valved passage to the hot air chamber so that differences in pressure on the opposite sides of the piston can be balanced during idling before the engine associated with the carburetor warms up.

3,813,086

DEVICE FOR AERATING LIQUIDS

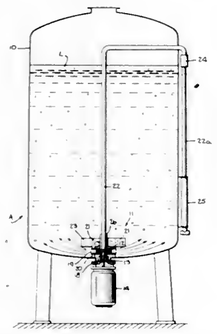
Heinrich Ebner, Bonn-Ippendorf, and Anton Enenkel, Bonn-Roettgen, both of Germany, assignors to Firma Heinrich Frings, Bonn, Germany

Continuation-in-part of Ser. No. 828,695, May 28, 1969, abandoned, which is a continuation-in-part of Ser. No. 640,618, May 23, 1967, abandoned, which is a continuation-in-part of Ser. No. 625,232, March 22, 1967, abandoned. This application June 5, 1972, Ser. No. 259,693

Claims priority, application Austria, Apr. 5, 1966, 3217/66

Int. Cl. B01f *3/04*

U.S. Cl. 261—93 **11 Claims**



A self-aspirating device for the aeration of liquids with atmospheric pressure air, and especially suited for use in tanks or like containers of large diameter and height, is disclosed. The device includes a hollow rotor and a surrounding stator, both mounted in the container near the bottom thereof. The rotor is supported by a relatively short extended motor shaft entering the container through the bottom thereof via a mechanical seal and connected with a high speed motor located directly below the container. The interior of the rotor is in communication with the ambient atmosphere via a stationary air intake pipe extending upwardly from the middle of the rotor and connected thereto in a liquid-tight manner with the aid of a labyrinth packing. The rotor has from 4 to 8 circumferentially spaced lateral vanes which may be rectilinear or curvilinear in outline, each vane being defined by two horizontal top and bottom surfaces and an intermediate vertical surface oriented non-radially away from the direction of rotation of the rotor, so that each vane is closed at its leading side facing in the direction of rotation and provides a vertical air outlet opening at its trailing side facing away from the direction of rotation. The maximum outer diameter of the rotor as measured at the locus of the outer vane edges is between ⅛ and 1/15 of the inner diameter of the container. The stator includes an upper ring and a lower ring both concentric with the rotor and extending laterally outwardly of the latter toward the wall of the container, and from 12 to 36 vertical guide plates disposed between the rings and inclined non-radially of the rotor in the direction of rotation of the latter, the locus of the innermost edges of the guide plates, as well as the inner edges of the stator rings, being at a 0.5 to 3 mm spacing from the locus of the outer edges of the rotor vanes. The aerating device according to this invention is able to aspirate as much as 2,400 to 3,000 cbm of air per hour against the pressure of a 4 m high liquid column with very moderate power consumption, and to provide air bubbles of the finest size uniformly distributed in the liquid so as to lead to an extremely high quality of the aeration. This abstract is not to be taken as a complete exposition or as a limitation of the present invention, however, the full nature and extent of the invention being discernible only by reference to and from the entire disclosure.

3,813,087

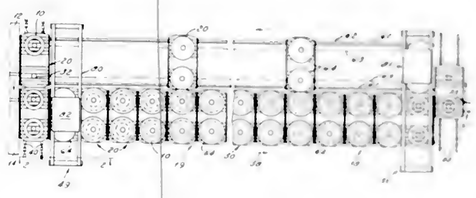
COOLING SYSTEM FOR ROD OR BAR COILS

Walter G. Boehm, Birmingham, and Gordon A. Torrance, Riverview, both of Mich., assignors to Jervis B. Webb Company, Detroit, Mich.

Filed Oct. 2, 1972, Ser. No. 294,359

Int. Cl. C21d *9/52*

U.S. Cl. 266—2 A **20 Claims**



A system for the cooling of annular coils of rod or bar includes a plurality of coil carriers movable by a conveyor between coil loading and unloading stations, each coil carrier having a bed which supports one end of a coil with the axis of the coil annulus extending perpendicular to the bed and which permits the circulation of air through the bed to the central space of a coil annulus during passage of the coil carriers through a cooling zone. A plurality of coil covers are provided, and cover handling apparatus located at coil covering and uncovering stations preceding and following the cooling zone is capable of placing a cover on the other end of a carrier supported coil at the covering station, the cover extending across the central space of the coil annulus, and of removing the cover at the uncovering station. Covers removed are returned to the covering station either on empty coil carriers returning to the loading station or on an auxiliary conveyor having carriers circulating between the covering and uncovering stations.

3,813,088

FURNACE BODY SUPPORTING STRUCTURE FOR BLAST FURNACES

Nobuo Miyajima, 107, Sakurahonmachi, Minama-ku, Nagoya; Kozo Kaneko, 7-1-406, Higashiyamada, Hukishima-cho, Tokai; Iwao Ohnuki, 5-12-102, Miyaru-Shinkaizan, Aguicho, Chita-gun, Aichiken, and Noboru Okubo, 119-44, Aza-Kamiwashibetsu, Noboribetsu-cho, Horobetsugun, Hokkaido, all of Japan

Filed Dec. 27, 1971, Ser. No. 211,923

Int. Cl. C21b *7/00*

U.S. Cl. 266—25 **12 Claims**



A furnace body supporting structure for blast furnaces comprising a plurality of supporting columns arranged along the outer periphery of the furnace body and resilient bodies on the supporting columns or on beams fixed to the supporting columns and interposed between the supporting columns and a ring plate installed on the bottom of a furnace shaft or between beams and brackets installed on the furnace shaft to absorb the weight of the furnace body, and thrust blocks fixed between the ring plate and supporting columns or between the brackets and beams respectively to prevent the horizontal movement of the furnace body.

3,813,089

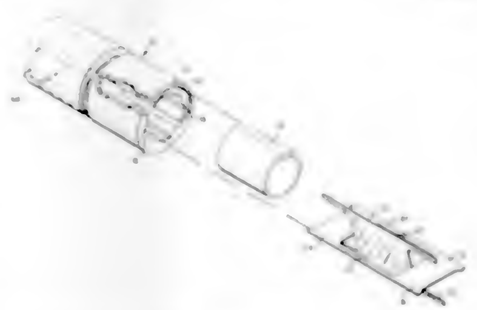
ECCENTRIC FLEXURAL PIVOT

Henry Troeger, Cooperstown, N.Y., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Sept. 8, 1972, Ser. No. 287,299

Int. Cl. F16g *1/22*

U.S. Cl. 267—160 **5 Claims**



A flexural pivot device having first and second housing means arranged on a common axis and being axially spaced from each other, the first housing means having an inwardly projecting arcuate structure disposed eccentric to the common axis, the arcuate structure extending axially into the second housing means and being radially spaced therefrom, a second housing means having inwardly projecting arcuate structure disposed eccentric to the common axis and being diametrically disposed relative to the arcuate structure of the first housing means, the arcuate structure of the second housing means extending axially into said first housing means and being radially spaced therefrom, and cross flat spring means connecting said arcuate structures so that said first and second housing means are rotatable relative to each other on the common axis.

3,813,090

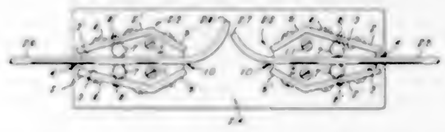
CLAMP

Anthony Merola, Pittsburgh, Pa., assignor to Amerola Products Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 825,369, May 16, 1969, Pat. No. 3,653,708. This application Nov. 10, 1971, Ser. No. 197,225The portion of the term of this patent subsequent to Apr. 4, 1989, has been disclaimed.

Int. Cl. B25b *1/04*, **A44b** *21/00*

U.S. Cl. 269—217 **10 Claims**



A clamp which provides a secure grip upon a workpiece. The clamp has a frame and a pair of spaced plate members which form confronting, converging roller surfaces. Friction rollers, one associated with the roller surface and resiliently secured thereto so that the distance between the rollers may be enlarged to engage the object to be clamped, but will securely hold the object against removal from the grip of the rollers if forces are extended in the direction of convergence of the roller surfaces. The use of two adjacent such clamps, with the roller surfaces of each clamp converging in a different direction provides a junction for wires or other objects, and acts as a splicing unit.

3,813,091

COUCH

Harold M. Metzger, Rt. 4, Box 3, Greenville, Ala. 36037

Filed Sept. 7, 1972, Ser. No. 287,155

Int. Cl. A61g *13/00*

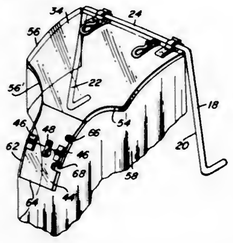
U.S. Cl. 269—322 **8 Claims**



A knock-down couch embodying a pair of elongated upholstered half-sections having coplanar abutting surfaces separably and connectively joined by a pair of parallel male pins telescopingly fitted into oriented female sockets which are provided therefor. The respective half-sections are expressly designed and contoured to provide a comforting and restful couch for a recumbent occupant who, for example, may be called upon to assume changeable postural positions while undergoing a gynecological examination, while receiv-

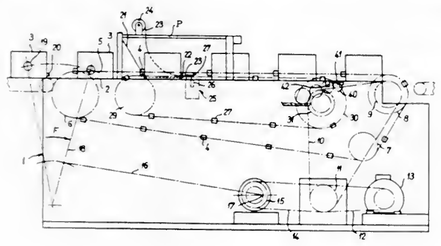
ing a treatment for sterility, for post-operative support in cases requiring elevation of the pelvis, and for body support while consummating an act of marital union.

3,813,092
SHIELD FOR DOWNWARDLY DIVERTING EXHALED GASES FROM ANESTHESIOLOGIST
Beatrice D. Foster, 8191 Colony Dr. Apt. 1., Wyandotte, Mich. 48138
Filed Sept. 12, 1972, Ser. No. 288,341
Int. Cl. A61g *13/00*
U.S. Cl. 269—322 **11 Claims**



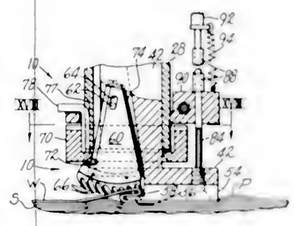
A transparent arcuate panel including anchor structure at one end thereof for attachment to an elevated member extending transversely of the head end portion of an operating table. The other end of the arcuate panel curves downwardly and is engageable with the extendible head piece or rest of an associated operating table. The side edge portions as well as the other end edge of the panel include depending flexible and transparent marginal skirt portions and the panel and skirt portions serve to entrap gases exhaled by children while administering anesthesia to the children with a non-rebreathing valve. The exhaled gases are diverted downwardly by the panel and skirt and thereafter fall to the floor of the operating room.

3,813,093
DEVICE FOR INSERTING BOOKMARKS INTO BOOKS
Jean Marie Taupin, Paris, France, assignor to Rahdener Maschinenfabrik August Kolbus, Rahden, Germany
Filed Feb. 1, 1972, Ser. No. 222,610
Claims priority, application France, Feb. 2, 1971, 71.03430
Int. Cl. B65h *5/30*
U.S. Cl. 270—55 **4 Claims**



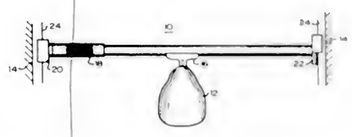
This device for inserting bookmarks into books travelling on a conveyor comprising spaced transverse lugs for driving the books separately is equipped with a blade for opening each book, which is disposed on the path of the travelling books, and, downstream of said blade, a channel delivering ribbon from a supply spool and a cutter disposed also downstream of said blade for severing each bookmark from the ribbon; means are provided in the form of spring-loaded clamps for picking up and pulling the ribbon in synchronism with the book conveyor, said clamps co-acting with cam means disposed on the one hand at the outlet of said channel and on the other hand at a point farther downstream, for opening and reclosing said clamps on the ribbon and release the bookmark in the book after it has been severed from the ribbon, respectively.

3,813,094
MECHANISM FOR TRANSFERING FLEXIBLE WORK PIECES
Richard R. Walton, Boston, and George E. Munchbach, Roslindale, both of Mass., assignors to USM Corporation, Boston, Mass.
Filed June 6, 1972, Ser. No. 260,305
Int. Cl. B65h *3/22*
U.S. Cl. 271—19 **15 Claims**



Machines for feeding fabric sheets singly from a stack. Ply disengaging means float lightly with the top ply, as when the ply is indented by a pressing foot, and move laterally to disengage the ply and to nip the top ply. A cam actuatable pawl construction and a slide construction of pick up devices are shown. Rapid movements are shown to enhance the various steps in the cycle.

3,813,095
PUNCHING BAG AND MOUNT THEREFOR INCLUDING AUTOMATIC SPRING RETURN FOR THE PUNCHING BAG
Leo E. Long, 745 Casita Way, Los Altos, Calif. 94022
Filed Sept. 5, 1972, Ser. No. 286,007
Int. Cl. A63b *69/24*
U.S. Cl. 272—78 **7 Claims**



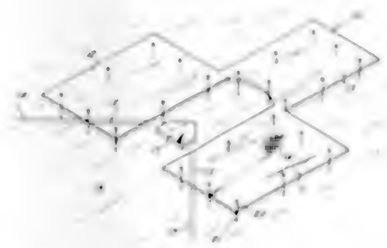
A punching bag is mounted on a support member that is in turn pivotally mounted in a slotted tube and limited to pivotal movement solely about the longitudinal axis of the slotted tube. The support member is spring loaded against a stop portion of the slotted tube so that the punching bag will automatically snap back directly to its normal rest position each time it is struck. A length adjustment member may be coaxially mounted at one end of the slotted tube to adjust the over-all length of the slotted tube so that a pair of door frame engaging members mounted at the outer end of the length adjustment member and at the other end of the slotted tube may be employed to releasably mount the punching bag in a door frame. Alternatively, a pair of brackets may be mounted at opposite ends of the slotted tube so that the punching bag may be fixedly mounted on a wall.

3,813,096
ELASTIC FACIAL EXERCISER
Ralph E. Welch, 914 Winthorne Dr., Apt. D-26, Nashville, Tenn. 37217
Filed Feb. 21, 1973, Ser. No. 334,438
Int. Cl. A63b *23/00, 21/00*
U.S. Cl. 272—82 **4 Claims**



A specialized facial muscle exerciser including a handle and support device having elongated recesses on opposite side of the support device for receiving pivotal members. The support body portion includes semicircular recesses into which semicircular bearings on the pivotal members fit. An elastic band surrounds the two pivotal members, each having a portion designed to be received in the slots in the support body within the elastic band, and members which extend obliquely beyond the distal end of the support body, terminating in relatively broad, flat members adapted to comfortably receive the users lips. When the lip receiving portions are placed in the user's mouth and the muscles of the mouth are contracted to squeeze the members toward each other the opposite ends extend the elastic band, providing a resistive force to exercise the muscles. The pivotal body and the exterior of the support body are provided with ribbing to prevent the elastic band from slipping. The band can be moved longitudinally toward or away from the fulcrum to decrease or increase the effort needed to pivot the members.

3,813,097
BATSMAN BOX FOR A BASEBALL DIAMOND
Lloyd Claude Darby, 5966 Trinity Pl., Philadelphia, Pa. 19143
Filed Oct. 27, 1972, Ser. No. 301,343
Int. Cl. A63b *71/00*
U.S. Cl. 273—25 **9 Claims**



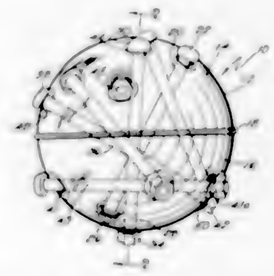
A batsman box surface made of hard automobile tire like black rubber in official sizes is placed flush with the playing surface and staked in place. White foul lines are molded or added to the surface. The whole surface fits into the regulation 26 foot dirt circle when placed in alignment with the baseball field diamond boundaries. The batsman box comprises a pair of spaced apart generally oblong plate portions connected by a catchers plate located generally behind and between the batsman plates, all of the plates being located in a horizontal plane when placed for use on a conventional baseball diamond.

3,813,098
PRESTRESSED ELEMENTS
Herbert Corliss Fischer, and Herbert Corliss Fischer, Jr., both of 3 Sawyer Rd., Wellesley, Mass.
Division of Ser. No. 48,165, June 22, 1970, Pat. No. 3,631,897, which is a continuation-in-part of Ser. No. 856,901, Sept. 4, 1969, Pat. No. 3,533,203, which is a continuation of Ser. No. 617,583, Feb. 21, 1967, abandoned, which is a continuation-in-part of Ser. Nos. 388,416, Aug. 10, 1964, Pat. No. 3,208,838, and Ser. No. 464,309, June 10, 1965, Pat. No. 3,431,687, and Ser. No. 567,540, July 25, 1966, abandoned. This application July 7, 1971, Ser. No. 160,322The portion of the term of this patent subsequent to Oct. 13, 1987, has been disclaimed.
Int. Cl. A63b *59/06, 59/14,* **F16l** *9/14*
U.S. Cl. 273—72 R **11 Claims**



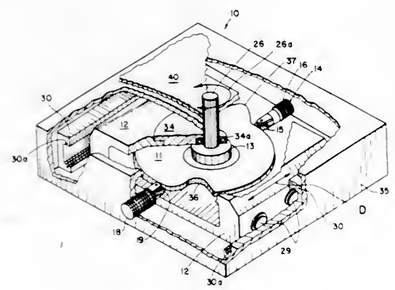
A stressed element having a relatively rigid, imcompressible body combined with one or more internal or external tensioning strands, each comprising a multiplicity of synthetic organic fibers such as nylon, polyester, polypropylene or the like, having a high recoverable stretch, the tensioning strands being maintained in intimate association with the rigid body and in highly elongated tensioned condition to compress the body and so stress the element.

3,813,099
SPHERE AND PINS ASSEMBLY PUZZLE
Gini Scott, 460 35th Ave., San Francisco, Calif. 94121
Filed Dec. 18, 1972, Ser. No. 316,381
Int. Cl. A63f *9/12*
U.S. Cl. 273—156 **4 Claims**



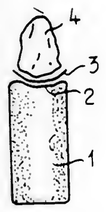
A puzzle game comprising a hollow sphere having a plurality of openings randomly formed therein, each of the openings being alignable with another opening, and a plurality of pins of predetermined dimensions, each of which is selectively inserted by a player through a pair of aligned openings wherein the puzzle is solved when the length of each pin as inserted through the aligned openings generally corresponds to the dimension of the chord line which is extended just beyond the outer surface of the sphere between the aligned openings.

3,813,100
CAM ACTION TANGENTIAL TRACKING TONE ARM PIVOT MECHANISM
Karl Arthur Meyer, 171 N. Atlantic Ave. Apt. 27, Western Springs, Ill. 32931
Filed Mar. 19, 1973, Ser. No. 342,824
Int. Cl. G11b 3/28
U.S. Cl. 274—23 A 5 Claims



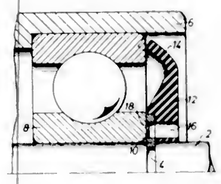
A cam action tangential tracking tone arm pivot assembly and more particularly an improved tangential tracking tone arm pivot assembly for phonographs, working on the principle of simultaneous rotation and linear motion of the pivot point to the correct geometric location. This is accomplished by a cam or camshaft to which the tracking tone arm is mounted and wherein said cam or camshaft is sensitively balanced to the prescribed tracking, by a movable and a fixed cam roller, and on the same plane by bearings or bushings for the least resistance to rotation.

3,813,101
PICKUP NEEDLE
Ernst Benz, Altweg 308, 7450 Andelfingen, Switzerland
Filed May 1, 1972, Ser. No. 249,687
Claims priority, application Switzerland, June 12, 1971, 8605/71
Int. Cl. G11b 3/46
U.S. Cl. 274—38 6 Claims



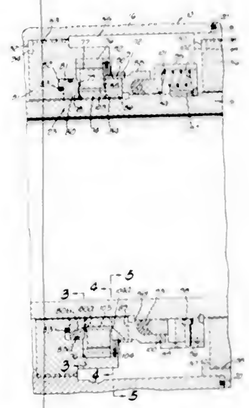
A pickup needle having a diamond tip soldered by a hard solder to a shaft. According to the invention the shaft is formed of a material selected from silicon carbide, boron carbide, corundum, quartz and glass having a melting point exceeding 800°C.

3,813,102
LOCKING AND SEALING RING
Karl Gustav Einar Derman, Partille, Sweden, assignor to Forsheda Ideutveckling AB, Varnamo, Sweden
Filed Mar. 29, 1972, Ser. No. 239,188
Claims priority, application Sweden, Nov. 12, 1971, 14476/71; Mar. 29, 1971, 4026/71
Int. Cl. F16j 15/32; F16c 33/78
U.S. Cl. 277—9 5 Claims



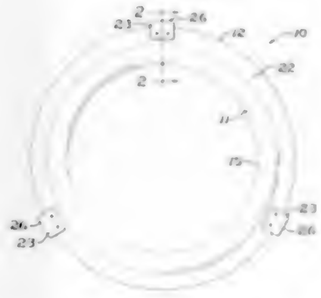
A locking and sealing device, especially for sealing between concentric surfaces while locking a bearing to at least one of the surfaces in which a ring element, preferably of metal, has a sealing element connected thereto with the ring element arranged for locking engagement with a cylindrical surface while the sealing ring sealingly engages the same surface and projects radially therefrom for sealing engagement with the other surface whereby a seal is established between the surfaces while a bearing engaging the cylindrical surface is locked in place by the ring element.

3,813,103
MECHANICAL SEAL WITH IMPROVED LEAKAGE CONTROL
Winfred J. Wiese, Whittier, Calif., assignor to Borg-Warner Corporation, Chicago, Ill.
Filed Apr. 12, 1972, Ser. No. 243,377
Int. Cl. F16j 15/44
U.S. Cl. 277—27 12 Claims



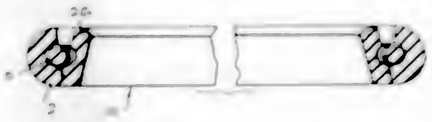
A mechanical seal assembly having a rotary sealing ring and a nonrotatable sealing ring carried by a housing and a rotary shaft and having opposed radial sealing faces. A back-up ring engages the nonrotatable sealing ring and has a marginal portion exposed in a pressure chamber in the housing, and the nonrotatable sealing ring and the back-up ring are ported to allow flow of fluid into the pressure chamber from between the rotary sealing ring and the nonrotatable sealing ring. The rotary sealing ring is notched at circumferentially spaced locations and has radial surfaces between the notches to intermittently open and close the ports in the nonrotatable ring. A number of such seal assemblies are arranged in tandem.

3,813,104
SEALING RING
Dean G. Smith, Troy, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
Filed July 18, 1972, Ser. No. 272,801
Int. Cl. B65d 53/00, F16c 33/78
U.S. Cl. 277—94 6 Claims



A sealing ring having radially extending clips which may be deflected for insertion into a retaining slot in a surrounding supporting member. The clips resiliently urge the sealing ring into sealing contact with the surrounding member and resiliently hold the ring in a concentric position in the retaining slot.

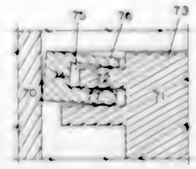
3,813,105
SEAL
Malcolm M. McQueen, 19430 Marilla St., Northridge, Calif. 91324
Filed Apr. 3, 1972, Ser. No. 240,703
Int. Cl. F16j 9/06
U.S. Cl. 277—164 4 Claims



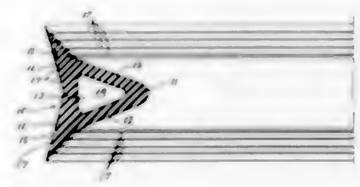
The invention involves a "O" ring seal having embedded or bonded therein a spring or other member made of a material having a lower coefficient of expansion and higher modulus of elasticity than the material of which the seal itself is made, to thereby control and limit circumferential expansion and swelling of the seal when subjected to varying environmental and/or operating conditions.

3,813,106
PISTON RING
Donald C. Hill, St. Louis, Mo., assignor to Eaton Corporation, Cleveland, Ohio
Division of Ser. No. 69,737, Sept. 4, 1970, which is a continuation-in-part of Ser. No. 865,593, Oct. 13, 1969, abandoned. This application June 27, 1972, Ser. No. 266,829
Int. Cl. F16j 9/20
U.S. Cl. 277—173 4 Claims

An internal combustion engine piston having a live headland ring whose cross-section is imbalanced by differentiating it from a circumscribing circle whose diameter equals the maximum diagonal dimension to exterior corner points (which, in the case of a ring having a blunted cover or tapered face, will be the virtual corner point) of the ring when free and unconfined, so that more material is omitted within the inner-upper and outer-lower quadrants than within the inner-lower and outer-upper quadrants, or vice versa depending upon the sense in which torsional twist is desired when the ring is contracted to cylinder diameter.



3,813,107
GASKET SEAL BETWEEN SEWER PIPE AND MANHOLE OPENING
John Ditcher, Langhorne, Pa., assignor to A-LOK Corporation, Trenton, N.J.
Division of Ser. No. 127,520, March 24, 1971. This application Sept. 26, 1972, Ser. No. 292,424
Int. Cl. F16j 15/10, F16l 5/00
U.S. Cl. 277—189 6 Claims

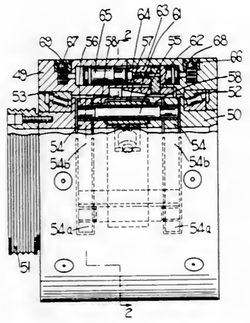


Providing a leakproof seal between the surface of an opening through the wall of a manhole and the outer surface of a pipe which passes through that opening. An extruded gasket strip, of elastomeric material and of "A" section, is rooted, by the splayed legs of the "A," in the concrete of the manhole wall around said opening. The upper portion of the "A" yieldingly spans the distance between the surface of the opening and the surface of the pipe. A shaping element is provided to define the shape and character of the surface of the opening and to securely hold the gasket strip while the concrete is being poured to form the manhole wall, and until it has set.

3,813,108
WORKPIECE HOLDERS
Alfred Ernest Sykes, 329 Leicester Rd., Markfield, England
Division of Ser. No. 31,151, April 23, 1970, Pat. No. 3,685,844. This application May 12, 1972, Ser. No. 252,868
Claims priority, application Great Britain, Apr. 29, 1969, 21846/69
Int. Cl. B23b 31/16
U.S. Cl. 279—4 2 Claims

A workpiece holder in which a rotatable tubular body is positioned within an outer stationary tubular part, with the inner body being of resilient material and having a plurality of workpiece engaging members, a finger integrally connected at one end portion to the body and having an opposite free end portion circumferentially spaced from the end portion connected to the body, the free end portion forming a workpiece engaging member, the free end portion being adapted to flex relative to the body about the end portion of the finger integrally connected to the body for causing movement of the free end portion and workpiece engaging member in generally

radial directions with respect to the axis of rotation of the body, and a pivoted arm connected to the finger and an axially



movable tapered ring cooperable with the arm for effecting pivotal movement of the arm for applying a force to flex the free end portion of the finger.

3,813,109

DEVICE FOR SECURING A BOOT TO A SKI

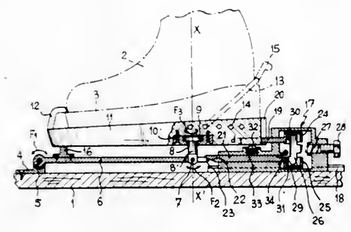
Georges Pierre Joseph Salomon, 34, Ave. de Loverchy, Annecy, France

Filed Mar. 15, 1972, Ser. No. 234,933

Claims priority, application France, Mar. 18, 1971, 71.09519

Int. Cl. A63c *9/08*

U.S. Cl. 280—11.35 Y **15 Claims**



A device for securing a boot to a ski includes a support member disposed between the ski and a sole-element of the boot; one end of the support member is pivotally mounted to the ski to provide a displacement of the boot in a plane perpendicular to the plane of the ski, and the other end of the support member is releasable to allow this displacement. First hinge means connect the support to the sole-element and allows the boot to pivot about an axis perpendicular to the boot. Second hinge means connect the first hinge means to the support member and include a pivot axis transversely extending of the ski, the pivot axis of the first and second hinge means being in constant perpendicularity.

3,813,110

ADJUSTING MECHANISM FOR THE RETAINING SPRINGS OF SAFETY SKI BINDINGS

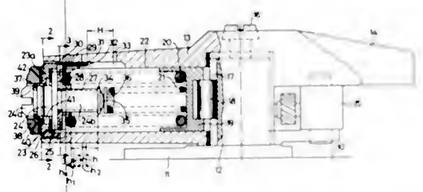
Brigitte Sittmann, Stuttgart, Germany, assignor to Vereinigte Baubeschlagfabriker Gretsch & Co., GmbH, Leonberg, Germany

Filed Jan. 19, 1973, Ser. No. 325,061

Claims priority, application Germany, Jan. 20, 1972, 2202541

Int. Cl. A63c *9/00*

U.S. Cl. 280—11.35 T **29 Claims**



An adjusting mechanism for the retaining springs of safety ski bindings which use a spring abutment adjustable by a rotatable member and include means for changing the adjusting range adjustable by the skier, the rotatable member thereby carries or includes an adjustable abutment member adjustable within an adjusting range limited by counter-abutments relative to a support member while the abutment member together with the rotatable member or a counter-abutment member carrying the counter-abutments together with the support member is adjustable by normally inaccessible, additional adjusting means; the spring abutment secured against rotation relative to the support member is axially displaceably arranged by means of a thread provided on the rotatable member which itself is secured against axial rotation

---

3,813,111

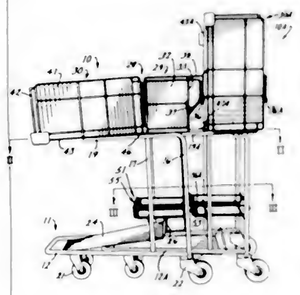
BUMPER CONSTRUCTION FOR SHOPPING CART

Verlyn C. Ruger, Bellevue, Mich., assignor to Roblin Industries, Inc., Battle Creek, Mich.

Filed Aug. 16, 1972, Ser. No. 280,985

Int. Cl. B62b *11/00*

U.S. Cl. 280—33.99 R **10 Claims**



A bumper system for a nestable shopping cart of the type having a wheeled lower frame, members upstanding from the lower frame near the rear end thereof, an upper frame carried by the upstanding members, a handle above and near the rear of the upper frame and a receptacle on the upper frame, the receptacle including a forward portion upwardly and rearwardly pivotable for nesting so that its bottom wall faces forwardly in opposition to the handle of a further similar cart nested in front thereof. The bumper system includes a transverse rear bumper member behind the rearmost of the upstanding members. A front bumper member is spaced forwardly of the upstanding members and has a pair of upstanding legs in forwardly spaced, overlapping relation with the rear bumper member. The spacing of the legs from the rear bumper member exceeds the horizontal spacing of the cart handle from the forwardly facing bottom wall of the receptacle portion positioned for nesting, so that nesting movement of the cart with respect to a further similar cart positioned in front thereof is stopped by contact between the opposed bumper members of the two carts and contact between the handle of the forwardly positioned cart with the forwardly facing bottom wall of the rearwardly positioned cart is prevented so as to avoid damage to such handle.

3,813,112

VEHICLE SHOCK ABSORPTION SYSTEM AND HIGH-PRESSURE GAS PRODUCING DEVICE THEREFOR

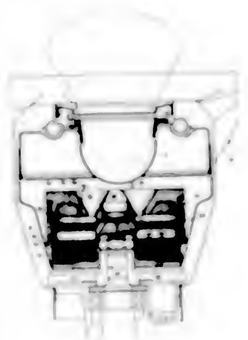
Gunter Hermann, Ottobrunn-Riemerling, Germany, assignor to Messerschmitt-Bolkow-Blohm gesellschaft Mit Beschrankter, Haftung, Germany

Filed Mar. 21, 1972, Ser. No. 236,712

Claims priority, application Germany, Mar. 27, 1971, 2114945

Int. Cl. B60r *21/08*

U.S. Cl. 280—150 AB **6 Claims**



A vehicle shock absorption system includes an inflatable casing which is inflated by a pressure-gas producing device when an accident-sensing device indicates that a collision is about to take place. The high pressure fluid source comprises means for generating high-pressure gases rapidly and for directing them into the casing for inflating it. The gas generating device includes a housing in which there is located an ignitable charge having a rapid combustion rate which is ignited by an accident-sensing device to generate combustion gases which are directed first into association with a solid coolant and then through one or more nozzles for inflating one or more inflatable casings or bags which are adapted to hold a passenger against impact when a collision is likely to occur.

3,813,113

RETRACTION MECHANISM FOR A PROTRUDING PART OF A VEHICLE

Horace James Burnham, Nantwich, England, assignor to The Secretary of State for Defence, London, England

Filed Mar. 12, 1971, Ser. No. 123,754

Int. Cl. B60r *27/00*

U.S. Cl. 280—150 R **7 Claims**

A retraction mechanism for protruding parts of vehicles such for instance as mascots, and comprises a toggle spring or springs connected between the part and the vehicle and arranged to retract the part when the part is struck with a predetermined force, thus avoiding possible damage to pedestrians.



3,813,114

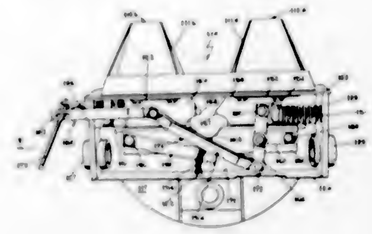
INVERTED FIFTH WHEEL COUPLER

Howard P. Berends, Fruitport, Mich., assignor to Holland Hitch Company, Holland, Mich.

Filed May 30, 1972, Ser. No. 257,590

Int. Cl. B62d *53/12*

U.S. Cl. 280—434 **16 Claims**



A fifth wheel employing a single control handle for unlocking the locking jaws of the fifth wheel and cocking a kingpin tripping mechanism, is mounted in an inverted position on a vehicle to be towed. A kingpin is mounted to a flat surface of a towing vehicle such that the kingpin can be coupled in locked engagement with the inverted fifth wheel.

3,813,115

PLASTIC PIPE THRUST RESISTANT JOINT

David Walter French, Denison, Tex., assignor to Johns-Manville Corporation, Greenwood Village, Colo.

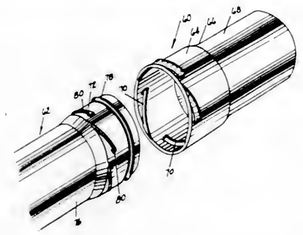
Filed Oct. 27, 1972, Ser. No. 301,552

Int. Cl. F16l *15/00*

U.S. Cl. 285—92 **9 Claims**

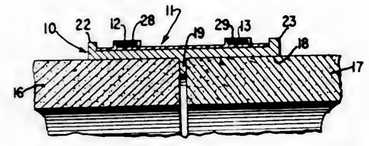
A bell and spigot joint for connecting two pipes together is disclosed herein. The joint, which is especially suitable as a thrust resistant joint, includes a bell end having at least one helical groove or at least partially helical groove integrally formed at least partially around its internal surface and a spigot having at least one outwardly protruding and at least partial helical rib integrally formed around its external surface. The rib is adapted to cooperate with the aforementioned

helical groove for connecting the bell end and spigot together in a reliable threaded fashion. In addition, the bell and spigot



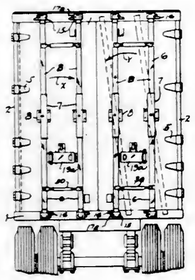
joint includes a locking arrangement for securing the bell end and spigot together once the latter are joined in the aforestated threaded fashion.

3,813,116
COUPLING FOR PLAIN END PIPES
William J. Horsley, La Canada, Calif., assignor to Interspace Corporation, Parsippany, N.J.
Filed Oct. 17, 1972, Ser. No. 298,343
Int. Cl. F16l *21/00*
U.S. Cl. 285—236 **3 Claims**



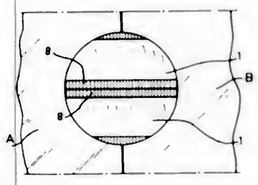
A coupling having a resiliently yieldable sealing sleeve adapted to be pressed into tight engagement with the end portions of aligned pipe sections by separate straps and tightening devices, and a band interposed between the sealing sleeve and the straps for alleviating frictional restraint on the sliding movements of the straps as they are being tightened, the band having channels in its exterior surface for receiving and seating the straps.

3,813,117
TRANSPORT MERCHANDISE CONTAINER
Thomas P. Hackney, Jr., and George B. Kirwan, both of Huntington, W. Va., assignors to Hennessy Products Incorporated, Chambersburg, Pa.
Filed Jan. 3, 1972, Ser. No. 214,690
Int. Cl. E05c *3/04, 7/00, 19/18*
U.S. Cl. 292—54 **5 Claims**



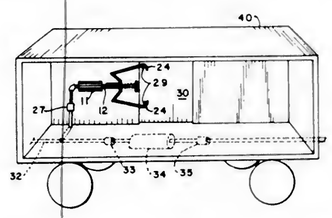
Transport merchandise container end framing, door and associated structure facilitating tight door closing and locking and resisting racking of the container framing by forces to which the container is subjected while being transported or, if a separable structure, when it is lifted onto or off of a barge, truck, railway car or other carrier.

3,813,118
ROTATABLE CATCH
Michel Liber, Paris, France, assignor to Sellib, Paris, France
Filed June 27, 1972, Ser. No. 266,733
Int. Cl. E05c *3/04, 7/04*
U.S. Cl. 292—54 **2 Claims**



The invention makes it possible to reduce the number of parts required for the production of a rotatable catch in which no pivot is provided. A rotatable catch according to the invention comprises at least two semi-circular bolts each carrying at least two semi-circular orthogonal beads and two keeper housings receiving said bolts. It may be used for the closure of boxes, casings, doors, etc., and generally for the locking together of all parts coupled together or in contact side by side.

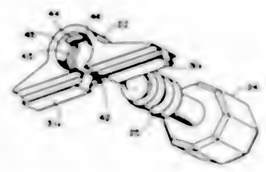
3,813,119
PROTECTION SYSTEM FOR BOX CAR DOORS
James Panici, 3118 W. Hickory Rd., Homewood, Ill. 60430
Filed Feb. 22, 1973, Ser. No. 334,655
Int. Cl. E05b *51/02, 65/14*
U.S. Cl. 292—122 **2 Claims**



A latch system for box car doors comprising a pneumatic cylinder with suitable linkage to two metal arms with hooks formed at end. When air pressure is applied to cylinder, hooks unlatch. As air pressure is released, spring returns cylinder piston to original position, thereby latching doors closed.

3,813,120
SLIDING WINDOW LOCK
Donald V. Kelly, 10642 Helendale, Tujunga, Calif. 91042
Filed Dec. 22, 1972, Ser. No. 317,576
Int. Cl. E05c *5/04*
U.S. Cl. 292—251 **11 Claims**

A lock mechanism for sliding windows including a body portion which engages one track in the mullion of one of a pair of sliding window members and also including a screw member which advances out of the body and into engagement with a recess in the adjacent mullion of a second sliding window. The body and screw member are of preferably resilient plastic material such that the screw and body member may be assembled merely by flexing the body member open. The screw member includes flat faced threads and angular root contours. The flat based threads engage a planar surface of the second mullion and a root surrounds a lip of the second mullion to provide a three point triangular engagement with the second window for secure locking. The body is elongated and includes a substantial length in interlocking relationship with the first mullion.



3,813,121
ARTICLE COLLECTING DEVICE
Stuart R. Marvin, P.O. 36 Winesap Ln., Monsey, N.Y. 10952
Filed Oct. 12, 1972, Ser. No. 296,911
Int. Cl. A47l *13/52*
U.S. Cl. 294—1 R **10 Claims**



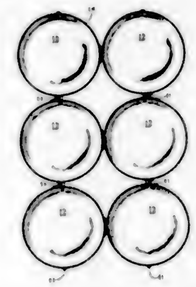
Disclosed is a scissor-like waste disposal device having handles at one end and blades at the other end. The blades have upstanding side walls which form a receptacle for waste upon assuming a closed position. One blade has a finger extending across the engaging blades to prevent waste between the blades from moving out of engagement. A plastic bag is provided secured to the pivot of the scissor and arranged to act as a shield in a first position and, in a second position, to be pulled over and secure therewithin the waste and the blades. To this end a twist wire is affixed within the marginal end of the bag at its opening.

3,813,122
DEVICE FOR PASSING A LINE AROUND AN OBJECT
Anthony Charles Wemyss, 12 Haydn, Purley, England
Filed Nov. 16, 1972, Ser. No. 307,247
Claims priority, application Great Britain, Nov. 16, 1971, 53176/71
Int. Cl. B63b *21/04*
U.S. Cl. 294—19 R **17 Claims**



A device comprising a two-armed fork element and a shuttle element which can pivotally engage both arms and swing about either of them in opposite directions so that a line carried by the shuttle element can be passed around a remote object such as a mooring ring.

3,813,123
EXTRUDED PLASTIC CONTAINER CARRIER
Ronald Charles Owen, Harwood Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed May 11, 1972, Ser. No. 252,172
Int. Cl. B65d *71/00*
U.S. Cl. 294—87.2 **10 Claims**

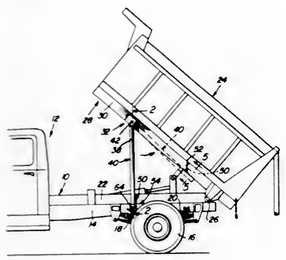


Multiple container carriers comprising ribbons of greater vertical than horizontal measurement being formed of plastic material that has been extruded and fused in the molten or semi-molten state.

ERRATA

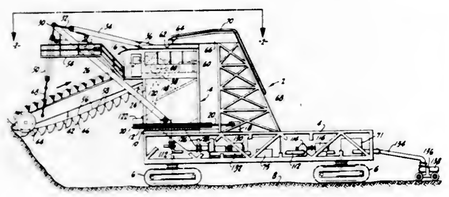
For Classes 297—191, 297—231, 297—335, 297—353 and 297—396 see:
Patents Nos. 3,813,147 thru 3,813,151

3,813,124
SAFETY PROP FOR DUMP TRUCK BODIES
David H. Roland, Charlotte, N.C., assignor to J. A. Jones Construction Company, Charlotte, N.C.
Filed Dec. 27, 1972, Ser. No. 319,010
Int. Cl. B60p *1/04*
U.S. Cl. 298—17 B 7 Claims



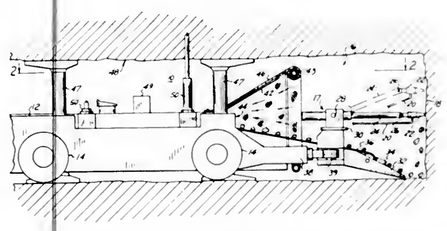
A safety promotion prop for use on a tiltably hinged dump truck body and adapted for use while equipment maintenance and servicing work is being taken care of by a mechanic or workman. It comprises a channel-shaped mounting fixture or bracket which is operatively bolted or otherwise mounted in a prescribed functioning position, that is, on the surface of a member of the underframe of a dump body. The open-bottom of the channel portion of this fixture (or bracket) embodies spaced flanges joined by a web portion. An elongated strut (leg or equivalent support) provides a prop and has an upper end pivotally bolted between the flanges. The other or lower end is free and the median portion carries a suitable chain which is adapted to be hitched to a fixed storing hook. A strut erecting, positioning and seating bracket is fixedly mounted on a prescribed surface of the usual sub-frame of the truck's chassis frame. This bracket has a depending mounting cleat whose upper end is provided with a laterally projecting U-shaped member, herein described as a stirrup, and which serves to receive and retentively seat the coacting end of the strut when serving as a prop.

3,813,125
METHOD AND APPARATUS FOR CONTINUOUSLY EXCAVATING PARTICULATE MATERIAL AND CONVERTING IT TO SLURRY
Wilbert Norman Sims, Alamo, and John A. Miscovich, Orange, both of Calif., assignors to Marcona Corporation, San Francisco, Calif.
Filed Nov. 22, 1972, Ser. No. 308,772
Int. Cl. E02f *3/94*
U.S. Cl. 299—7 8 Claims



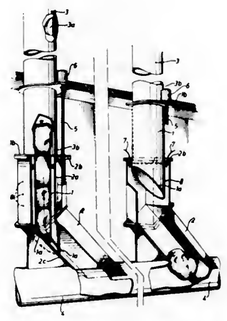
A continuously operating means excavates gravel, ore or a like particulate material from the earth and drops it onto an inclined grate having large openings. The grate retains rocks and other non-pumpable material, and the balance of the particulate material drops into a hopper fitted with a traveling water jet in the bottom thereof that converts the material within its vicinity to a slurry. The slurry flows from the hopper into a sump and is pumped by pump means from the sump through transfer conduits to a point of discharge.

3,813,126
CONTINUOUSLY OPERABLE UNDERGROUND MINING VEHICLE
Conrad O. Rogne, Jr., and Robert A. Grant, both of Ann Arbor, Mich., assignors to The Bendix Corporation, Southfield, Mich.
Filed Oct. 2, 1972, Ser. No. 294,424
Int. Cl. E21c *29/02*, *35/22*
U.S. Cl. 299—33 9 Claims



An underground mining vehicle that includes both tunnel roof supporting and rock cutting apparatus is illustrated herein. Hydraulic jacks are mounted on the main frame of the vehicle to rapidly provide temporary support for the roof of a tunnel over the vehicle. Apparatus for driving support bolts into the roof of the tunnel is disposed between the jacks to provide permanent support for the area over the main frame of the vehicle. A water jet nozzle is movably mounted in front of the vehicle main frame so that roof bolting and mining may be performed simultaneously. A shroud extends toward the tunnel walls and encloses the jet nozzle so that dust, methane, water vapor, and other gases produced during mining are isolated from the vehicle operator and the rest of the tunnel.

3,813,127
APPARATUS FOR THE INTERMITTENT TRANSFERRING OF PACKAGED REFUSE OR LAUNDRY ARTICLES
Sergio De Feudis, Nacka, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden
Filed Apr. 24, 1973, Ser. No. 354,101
Int. Cl. B65g *53/04*
U.S. Cl. 302—27 3 Claims



A system for pneumatically transferring material such as refuse, laundry, etc. which includes a plurality of vertical chutes into which the material is deposited. Means is provided for collecting the material within the chute and periodically discharging the material from the chute. To this end, the lower end portion of the chute is formed as a valve cooperable with the main suction line, the end portion being vertically displaceable and having a beveled bottom end cooperating with a sloping wall forming an inlet into the main suction system. When the vertical chute is closed, the beveled end bears against the wall and retains the material within the chute. When the lower end portion is elevated, the material may discharge from the chute. To assist in the discharge of the material from the chute into the main suction channel, the inlet has a socket surrounding the end portion which is enlarged relative to the end portion of the chute so that when the chute bottom disengages the sloping wall, atmospheric air is permitted to flow into the inlet portion and assist the discharge of the material into the main suction duct. When the chute is closed by downward displacement of the bottom portion, a valving projection on the end portion operates to close the atmospheric opening into the inlet portion. The end portion of the chute is preferably operated periodically

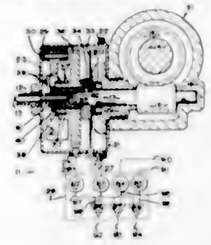
3,813,128
GARBAGE DISPOSAL SYSTEM
Per-Olof Ekstrom, Johanneshov, Sweden, assignor to AB Centralsug, Solna, Sweden
Filed Mar. 20, 1972, Ser. No. 236,479
Claims priority, application Sweden, Mar. 25, 1971, 3938/71
Int. Cl. B65g *53/40*
U.S. Cl. 302—39 4 Claims



An improved garbage disposal system for multi-story high rise apartment buildings and the like comprising a vertically disposed branch conduit extending through substantially the height of the building and dependently connected to a main conveying conduit for delivery of garbage thereto for transport to a remote location and a plurality of vertical garbage disposal chutes of limited extend each selectively serving a plurality of floors and including a selectively operable valve assembly at the dependent end thereof for effecting temporary accumulation of garbage therein and the selectively induced release and introduction thereof into the branch conduit.

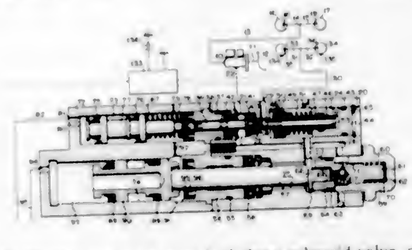
3,813,129
ANTISKID CONTROL SYSTEM
Samuel Shiber, P.O. 302, Des Plaines, Ill. 60018
Filed July 11, 1972, Ser. No. 270,710
Int. Cl. B60t *8/08*
U.S. Cl. 303—21 B 5 Claims

A vehicular antiskid control system comprising an inertia wheel whose rotational speed represents a computed vehicle speed, driven by a shaft coupled to at least one of vehicle's wheels, through a one-way clutch, braking device to decelerate the inertia wheel in a deceleration which corresponds to vehicle's deceleration and device to divide the



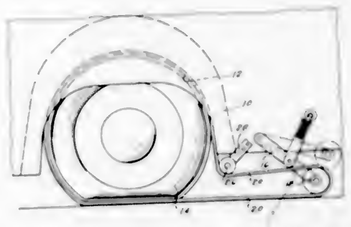
shaft's rotational speed by the rotational speed of said inertia wheel and issues a command when the quotient is below a certain numerical value.

3,813,130
ANTISKID CONTROL SYSTEM
Masami Inada, Toyoake, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan
Filed Nov. 20, 1972, Ser. No. 307,761
Claims priority, application Japan, Dec. 27, 1971, 47/3535; Nov. 18, 1971, 46/92542
Int. Cl. B60t *8/06*
U.S. Cl. 303—21 F 6 Claims



An antiskid control system includes a solenoid valve, computer and hydraulic pressure control means having a variable volume chamber defined by a piston and introduced with braking pressure fluid. Upon the suitable locking condition, the computer generates a signal to operate the solenoid valve, so that the piston is moved to cause the volume of the chamber to be large thereby releasing the locking condition.

3,813,131
SNOW TRACTION DEVICE FOR MOTOR VEHICLES
Henry J. Suchcicki, 1202 Hollywood Dr., Reading, Pa. 19606
Filed Nov. 10, 1972, Ser. No. 305,442
Int. Cl. B62d *55/04*
U.S. Cl. 305—29 1 Claim

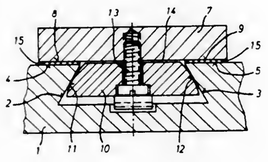


A pair of vehicle rear guide wheels is coupled by a pair of linkages to a corresponding rear side member extension. Each

linkage which is spring loaded and makes use of a shock absorber. A pair of endless cleated belts extend around and between each rear wheel guide wheel pair.

3,813,132
DOVETAIL GUIDE

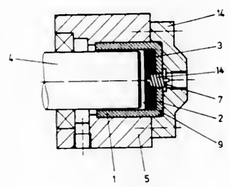
Will KC, Naubonn, Germany
Filed Dec. 8, 1971, Ser. No. 205,885
Claims priority, application Germany, May 15, 1971, 2124228
Int. Cl. F16c 29/00
U.S. Cl. 308—3 A
3 Claims



A metallic dovetail guide slideably receives a slide member made of a synthetic plastic material. The slide member is connected by a screw to an outer member so as to define an air gap therebetween and the slide member is sufficiently resilient to exhibit a pretensioning effect on the guide surfaces of the dovetail guide.

3,813,133
AXIAL THRUST BEARING

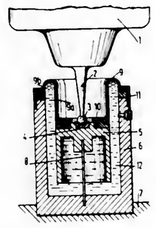
Lothar Walter, Schweinfurt, and Rainer Schurger, Arnstein, both of Germany, assignors to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands
Filed Aug. 4, 1972, Ser. No. 277,984
Claims priority, application Germany, Aug. 9, 1971, 2139768
Int. Cl. F16c 17/16
U.S. Cl. 308—9
10 Claims



A thrust bearing comprising a bushing having a bottom, a cylindrical axially extending wall in which a shaft is received. The bushing is provided with an opening for pressurized fluid to bear on the frontal end of the shaft to form a pressure cushion. The wall of the bushing has a diameter larger than the shaft to provide an annular clearance over the length of the wall to increase the effective pressure cushion area.

3,813,134
VIBRATION DAMPERS

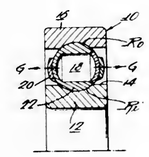
Petrus Leo Clemens Wijnant, Hertogenbosch, and Richardus Theodorus Gerardus Louwaard, Alkmaar, both of Netherlands, assignors to Reactor Centrum Nederland (Stichting), The Hague, Netherlands
Filed June 23, 1972, Ser. No. 265,506
[illegible] June 25, 1971
7108778
Int. Cl. F16c 17/08
U.S. Cl. 308—156
5 Claims



A vibration damper for a fast spinning body of revolution rotating about a vertical axis, said vibration damper comprising a vessel filled with damping liquid, a radially movable damping member contained in said vessel and immersed in said liquid and a curling membrane forming an end wall of said vessel and attached with its one end portion to said vessel and with its other end portion to said damping member.

3,813,135
SELF ORIENTING CONTOURED HOLLOW BALL FOR HIGH SPEED BEARING

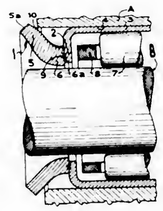
Howard M. Martinie, King of Prussia, Pa., assignor to SKF Industries, Inc., King of Prussia, Pa.
Filed Feb. 27, 1973, Ser. No. 336,238
Int. Cl. F16c 33/64
U.S. Cl. 308—188
6 Claims



For a rolling bearing assembly comprising inner and outer rings having spaced apart raceways, a plurality of ball elements for the annular space between the raceways, at least one of said ball elements being hollow and including a circumferentially extending heavy wall zone section having a maximum wall thickness greater than the maximum wall thickness of diametrically opposed thin wall zone sections whereby upon operation of the bearing the ball element rotates about a predetermined fixed axis and the heavy wall zone section confronts the raceways at the point of maximum loading.

3,813,136
RADIAL NEEDLE BEARING ASSEMBLY

Alfred Pitner, Paris, France, assignor to Nadella, Malmaison, France, a part interest
Filed Aug. 11, 1972, Ser. No. 280,065
Claims priority, application France, Sept. 1, 1971, 71.31582
Int. Cl. F16c 33/00
U.S. Cl. 308—213
15 Claims

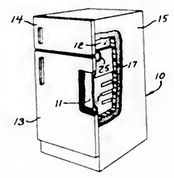


An assembly comprising a radial needle bearing having a cold-formed sheet metal outer bearing ring including a radial flange for axially retaining the bearing needles and an annular member which is integral with said radial flange and extends radially outwardly and covers and shields said radial flange.

One portion of the annular member may be arranged to bear against a surface of a support which defines a bore in which said bearing is fitted so that the annular member also axially retains said bearing in said bore.

3,813,137
REFRIGERATOR CABINET

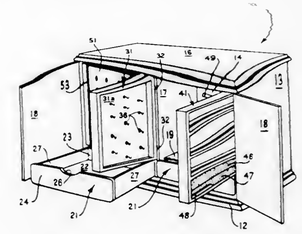
Charles G. Fellwock; Kenneth L. Hortin, and Harry L. Tillman, all of Evansville, Ind., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Dec. 27, 1972, Ser. No. 318,865
Int. Cl. A47b 81/00
U.S. Cl. 312—214
9 Claims



A refrigerator cabinet construction having an outer sheet metal shell for strength and rigidity, a thin relatively fragile liner body spaced therefrom to provide an insulation space and an adherent solid foam filling the space and adhered to the outer shell and, at spaced areas, to the liner body. The cabinet including the liner body is subject to extremes of thermal stress at localized areas which tend to rupture the fragile liner body but with these areas each having a layer of a parting agent such as a sheet of polymeric material between the liner body and the foam so that the foam does not adhere to the liner body and adheres only sparingly or not at all to the layers of parting agent with the result that extremes of stress at these localized areas are not applied to the liner body but to the yieldable layers of parting agent. The parting agent allows the foam insulation and the liner body to free themselves from each other if necessary because of expansion or contraction and to shrink or move independently, rather than be held tightly with a possible stress crack failure of the liner body.

3,813,138
JEWELRY ORGANIZING CABINET

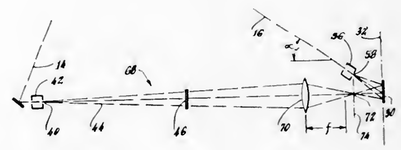
Majorie T. Doohan, Windsor, Calif.
Filed Aug. 31, 1972, Ser. No. 285,212
Int. Cl. A47b 88/00
U.S. Cl. 312—309
2 Claims



A cabinet, preferably matching bedroom furniture, has a pair of center-opening doors each opening a half cabinet, divided from the other by a vertical partition. On the bottom of each half is a drawer for certain items. Partitions which swing on vertical-axis hinges are provided on one or both sides with hooks, trays or apertures to hold various items of jewelry. The inside of the back of the cabinet has pegs to hang other items. Thus, each of the common types of jewelry is accommodated in a separate location which is easily accessible and readily visible and tangling of different items is avoided. Many items can be stored in an organized fashion in very little space.

3,813,139
IMAGE-PLANE CARRIER HOLOGRAM RECORDING SYSTEM USING SPHERICAL WAVEFRONTS

W. John Carlsen, New York, N.Y., assignor to General Telephone & Electronics Laboratories Incorporated, New York, N.Y.
Filed May 1, 1972, Ser. No. 248,956
Int. Cl. G02b 27/00
U.S. Cl. 350—3.5
1 Claim

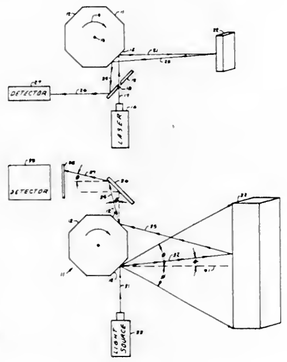


An image-plane carrier hologram recording apparatus utilizing coherent object and reference light beams having spherical wavefronts is described. In one embodiment, a pair of lenses is employed. One of the lenses images the object beam on a recording plane for interference with the spherical wavefront of the reference beam. The other lens focuses the object beam into a small point of divergence in a plane which also includes the point of divergence of the reference beam to effect cancellation of spherical components at the recording plane. In another embodiment a single lens image-plane hologram recording apparatus is described.

3,813,140
ROTATING PRISM SCANNING SYSTEM HAVING RANGE COMPENSATION

Ronald P. Knockeart, Walled Lake, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Dec. 13, 1971, Ser. No. 207,036
Int. Cl. G02b 17/00
U.S. Cl. 350—7 6 Claims

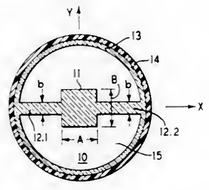


A scanning mechanism including a rotating prism and having a relatively flat response irrespective of range variations between the scanning system and the object scanned is described. The inventive system is also free of scanning radiation scatter problems and is easily aligned. These advantages are obtained by utilizing an interference filter in the detection path of the reflected energy and also by detecting reflected energy from a surface of the prism which is different from the transmitting surface.

3,813,141
SINGLE MATERIAL OPTICAL FIBER STRUCTURES INCLUDING THIN FILM SUPPORTING MEMBERS

Stewart Edward Miller, Locust, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 22, 1972, Ser. No. 308,833
Int. Cl. G02b 5/14
U.S. Cl. 350—96 WG 10 Claims

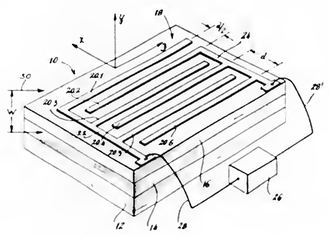


Optical fibers, for propagating optical radiation in guided modes, are fabricated in an integral structure. Advantageously, the fiber structure is made of a single filamentary material, such as fused silica, with a relatively large cross section at the central portion of the fiber and with a relatively thin film portion at the extremities of the fiber. The thin film portion serves as a supporting member for the central portion of the fiber. Such optical fiber structures are capable of propagating either single mode or multimode guided optical waves. In addition, the exposed surface of the central portion (which is not contacted by the thin film supporting member portion) can be contacted with an optically nonlinear material, in order to provide suitable interactions with the propagating signal wave energy and thereby to produce electrooptic effects such as amplification, modulation, or laser action.

3,813,142
ELECTRO-OPTIC VARIABLE PHASE DIFFRACTION GRATING AND MODULATOR

Carl F. Buhrer, Framingham, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Dec. 4, 1972, Ser. No. 312,071
Int. Cl. G02b 5/14; G02f 1/16
U.S. Cl. 350—96 WG 2 Claims

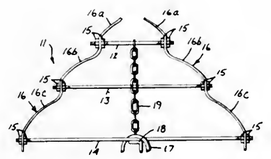


An electro-optic variable phase diffraction device is described for varying a phase diffraction grating and modulating an optical wave. A layer of electro-optic material whose index of refraction may be varied with an electric field is placed in interacting relationship with an optical wave passing through a thin-film optical waveguide. An array of parallel spaced electrodes whose widths are substantially more narrow than the width of the optical wave are so located over the optical waveguide to form longitudinal segments in the electro-optical material for interaction with different adjacent components of the optical wave. A controlled electrical energization of the electrodes causes a corresponding change of refractive index of underlying interacting segments to form a diffracted output optical wave whose intensity is modulated in correspondence with the electrical energization. Various embodiments and methods of modulation are described.

3,813,143
REFLECTIVE DEER WARNING DEVICE

Kenneth R. Hubbs, Rt. 1, Gary, S. Dak.

Filed Nov. 15, 1972, Ser. No. 306,520
Int. Cl. G02b 5/12
U.S. Cl. 350—97 12 Claims

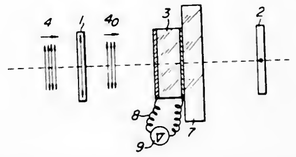


A light reflecting device for use adjacent highways and roadways to reflect the headlights of oncoming automobiles transversely away from the highway and thereby warn wild animals. The device includes a reflecting plate which is curvably bendable to distort light as it is reflected. Means are also included to variably bend the plate to control the light reflecting direction as well as the degree of distortion. The device is adapted for mounting on a fence post or the like in a position elevated sufficiently from the ground to be struck by such oncoming headlights.

3,813,144
METHOD AND DEVICE FOR COLOR MODULATION

Akio Kumada, Kodaire; Sakichi Ashida, Fuchu; Keiichiro Aizu, Tokyo, and Masaahi Koga, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 810,162, March 25, 1969, abandoned. This application Apr. 4, 1972, Ser. No. 241,073
Claims priority, application Japan, Mar. 30, 1968, 43-20814; Sept. 13, 1968, 43-65582; Oct. 5, 1968, 43-72476
Int. Cl. G02b 22/28; G02f 1/26
U.S. Cl. 350—150 31 Claims

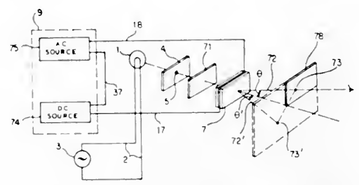


A method and a device for color modulation in which an irregular ferroelectric material is used as a color modulator, on which an electric field higher than the threshold field of the monocrystal of said material is imposed to cause the spontaneous polarization to be reversed, the change in the biaxial birefringence of said irregular ferroelectric material caused by the polarization reversal being utilized to vary the retardation of one of the two refracted rays from the other in the course of transmission through said color modulator and thereby to vary the interference color.

3,813,145
VOLTAGE-CONTROLLED LIQUID CRYSTAL X-Y DISPLAY DEVICE

Clarence L. Hedman, Jr., Campbell, and Perry H. Vartanian, Jr., Woodside, both of Calif., assignors to SCM Corporation, New York, N.Y.

Division of Ser. No. 242,709, April 10, 1972, Pat. No. 3,758,195. This application Aug. 22, 1973, Ser. No. 390,459
Int. Cl. G02s 3/16
U.S. Cl. 350—160 LC 5 Claims



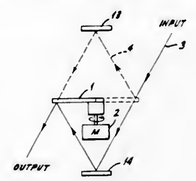
Light produced by using as a "diffraction grating" a cell containing a liquid crystal material is used in a two-dimensional (X–Y) beam deflector. Independently variable AC and DC fields simultaneously applied across the cell present the beam at selectable positions of a viewing station.

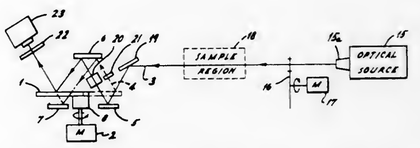
3,813,146
LIGHT BEAM ALTERNATOR HAVING A SINGLE ROTATING MIRROR

Darrell E. Burch, Orange City; Francis J. Gates, Costa Mesa; David A. Gryvnak, Orange City, and John D. Pembrook, Costa Mesa, all of Calif., assignors to Philco-Ford Corporation, Blue Bell, Pa.

Filed May 4, 1973, Ser. No. 357,217
Int. Cl. G02f 1/34
U.S. Cl. 350—285 9 Claims

A single rotating mirror is combined with a plurality of fixed mirrors to provide an alternating optical path. The entrance and exit beams can be made quite narrow and are not varied as the device switches between two alternate equal-length internal paths. Such an alternator has application in optical measurement systems where it may be desired alternately to illuminate a pair of reference light absorption cells.

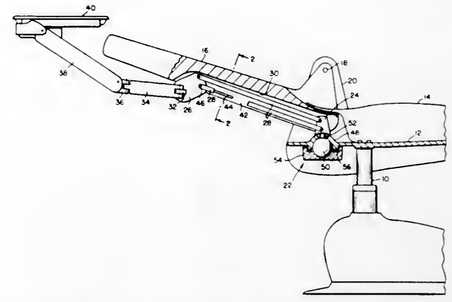




3,813,147
DENTAL APPARATUS

Michael Edward Rick, Rochester, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Oct. 10, 1972, Ser. No. 296,094
Int. Cl. A47c 1/04, 7/62
U.S. Cl. 297—191 8 Claims



Disclosed is a dental apparatus comprising a chair-instrument tray combination, wherein the instrument tray is attached to the articulating backrest of the dental chair so that the tray follows the movement of the backrest. The support of the tray includes a parallelogram linkage which maintains the tray horizontally oriented as the backrest is moved between an upright and a reclined position. The tray support also includes a leveling mechanism for initially leveling the tray and adjusting it parallel to the true horizontal independent of the chair itself. This is to compensate for situations where the floor on which the chair rests is not level.

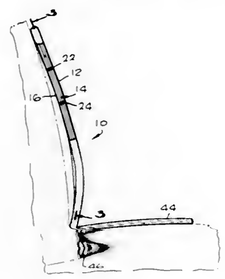
3,813,148
ADJUSTABLE BACK SUPPORT

Henry Kraus, 15984 Tobin Way, Sherman Oaks, Calif. 91403

Filed Apr. 17, 1972, Ser. No. 244,703
Int. Cl. A47c 7/46
U.S. Cl. 297—231 4 Claims

Adjustable back support having a resilient cushion with metal stiffener bars therein, the metal stiffener bars are

resilient when bent below the elastic limit, and malleable when bent thereabove so that the metal stiffener bars can be bent to a desired shape to shape the cushion. In this way the adjusta-

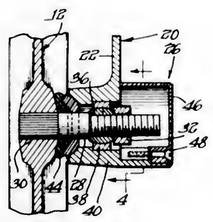


ble back support can be contoured to the desires of the particular user, and fitted to a particular back condition and particular support requirement.

3,813,149
PIVOTAL MOUNTING DEVICE FOR STADIUM SEATS AND THE LIKE

Edwin F. Lawrence, III, Sterling, and Delmar D. McNinch, Rock Falls, both of Ill., assignors to Lawrence Brothers, Inc., Sterling, Ill.

Filed Dec. 23, 1971, Ser. No. 211,587
Int. Cl. A47c *1/02, 1/06, 1/12*
U.S. Cl. 297—335 **5 Claims**



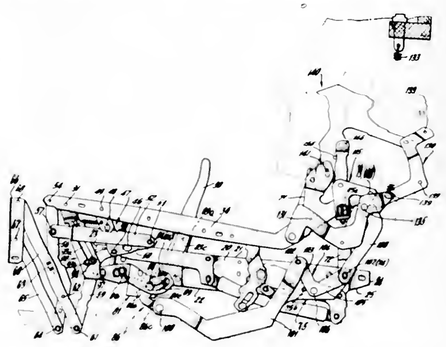
The present invention relates generally to improvements in pivotal mounting devices for stadium seats and the like and more particularly to novel and practical pivotal mounting arrangements which will assure maintenance of stadium seats and the like in an upright position and also enable a user conveniently to shift the seat from upright to its normal position for occupancy. The mounting device disclosed herein comprises a stub shaft, one extremity of which is peripherally splined for attachment to a fixed frame member, the opposite extremity being threaded to accommodate a clamping nut member. Interposed between the splined extremity and the clamping nut is a spherical bearing arrangement to compensate for variations in seat installations. Friction means encircling the stub shaft seals the mounting from moisture and assures maintenance of a seat member in upright position when not in use.

3,813,150
CHAIR WITH BACKREST MOVABLE UP AND DOWN AND HARDWARE THEREFOR

Alex J. Katz, West Orange, and Robert J. Caldwell, Bayoone, both of N.J., assignors to Moharcs Industries, Inc., Amsterdam, N.Y.

Filed Aug. 22, 1972, Ser. No. 282,847
Int. Cl. A47c *1/02, 3/02;* **A61g** *15/00*
U.S. Cl. 297—353 **27 Claims**

This chair has a backrest which can be moved up and down between raised and lowered positions; and can be reclined to T.V. and fully-reclined positions. A retractable footrest is also provided to be projected to T.V. position, and moved to fully reclined position. The raising and lowering of the backrest can only take place when the seat is in upright position under control of a handle operated by the person sitting in the chair, who must lean forward to get at the handle and thus move away from the backrest before the backrest is moved up or down. The backrest is locked down in the upright position, with the footrest retracted. Means is provided to lock the backrest in its up position. Also means is provided to lock the

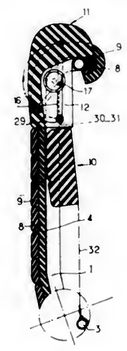


footrest mechanism in retracted position. Spring means is provided to assist in lifting the backrest. Means is provided to releasably lock the backrest in "up" position throughout the recline cycle. Means is provided to keep the handle from being operated to lower the backrest, when the backrest is in T.V. or fully reclined positions. The backrest and footrest are supported by mechanism disposed on both sides of the chair, such mechanism being controlled by handle controlled means on one side only of the chair.

3,813,151
SEATS HAVING HEAD-RESTS

Jean G. Cadiou, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France

Filed Sept. 25, 1972, Ser. No. 292,250
Claims priority, application France, Sept. 28, 1971, 71.35577
Int. Cl. A47c *7/36;* **B60n** *1/06*
U.S. Cl. 297—396 **7 Claims**

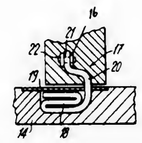


The back part of a vehicle seat includes a retractable head rest located in an opening in the upper portion of the back part. When the head rest is in its raised position, an auxiliary cushion covers the opening.

3,813,152
EYEGLASS FRAME

Gerald Hampel, Aussichtsweg 9, A Vienna 19, Austria

Filed Jan. 22, 1973, Ser. No. 326,659
Claims priority, application Austria, Jan. 21, 1972, 960/72
Int. Cl. G02c *5/22, 5/16;* **E05d** *1/00*
U.S. Cl. 351—153 **8 Claims**

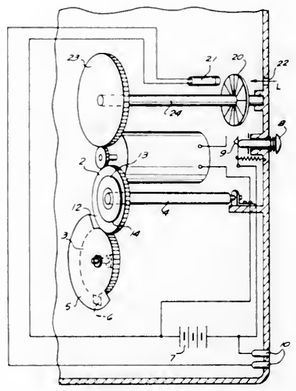


A main frame portion for the lenses has spaced first end sections, and a pair of earpieces each have a second end section. A pair of hinges each connect one of the earpieces to the main frame portion so that the earpiece can be displaced between a folded and an open position. Each of the hinges includes a first hinge component of piano wire having one end embedded in one of the end sections of the main frame portion and another end extending outwardly beyond the latter, and a second hinge component is hingedly connected with the other end and is mounted on an end section of the associated earpiece. The hinges connect the earpieces with the main frame portion in such a manner that the end sections of the earpieces do not contact the main frame portion when the earpieces are in open position except if the earpieces are displaced past the open position, in which case contact can occur only after the outwardly extending end portion of the first hinge component has undergone elastic deformation.

3,813,153
MOTION-PICTURE APPARATUS CAPABLE OF GENERATING AN ELECTRICAL SYNCHRONIZING SIGNAL FOR THE SYNCHRONIZATION OF A SOUND TRACK

Johann Roth, Schwabhausen, Germany, assignor to Braun Aktiengesellschaft, Frankfurt Main, Germany

Filed Oct. 13, 1972, Ser. No. 297,375
Int. Cl. G03b *3/04*
U.S. Cl. 352—12 **4 Claims**

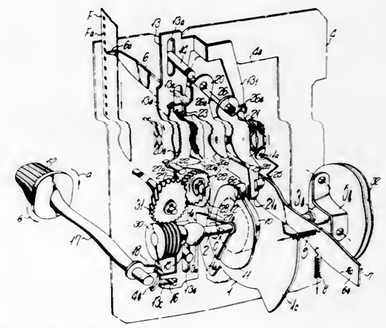


A motion-picture apparatus includes a film transport arrangement, a first unit for generating a first periodic signal in response to operation of the film transport arrangement, and a second unit including a semiconductor element responsive to the first signal and operative for generating an at least approximately sinusoidal second signal whose frequency is directly proportional to the speed of film transport.

3,813,154
STILL AND SLOW MOTION CONTROL UNIT FOR A PROJECTOR

Sadao Fujishige, Chino, Japan

Filed Aug. 6, 1973, Ser. No. 386,161
Claims priority, application Japan, Aug. 7, 1972, 47-92732
Int. Cl. G03b *21/38*
U.S. Cl. 352—169 **6 Claims**

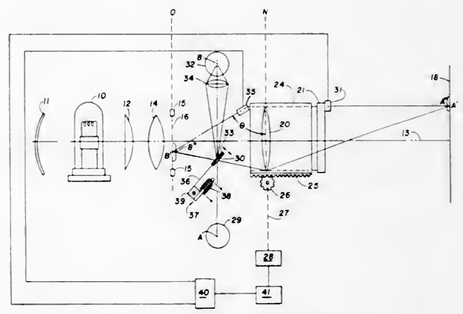


A control unit for a projector is provided which permits a single control member to be moved to each of normal projection position, still projection position and slow motion projection position by a manual operation which takes place externally of the projector. When the control member is moved to a still projection position, a first rockable arm is actuated to retract a film feed pawl to disable film transport. When the control member is moved to the slow motion projection position, the first rockable arm is held in its operative position while a slow motion cam interlocked with the shutter shaft is operated to actuate the first rockable arm intermittently through a second rockable arm to thereby drive the film feed pawl.

3,813,155
AUTOMATIC FOCUSING SYSTEM FOR PROJECTORS AND THE LIKE

Oleg Szymber, Elk Grove, and Norman Shim, Glenview, both of Ill., assignors to GAF Corporation, New York, N.Y.

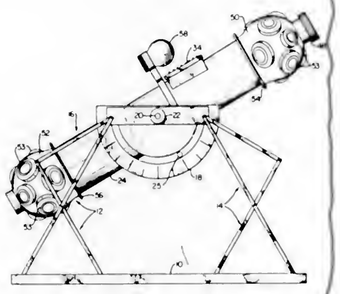
Continuation-in-part of Ser. No. 72,076, Sept. 14, 1970, Pat. No. 3,672,757. This application May 15, 1972, Ser. No. 253,497
Int. Cl. G03b *3/10*
U.S. Cl. 353—101 **17 Claims**



In a first appraisal subsystem wave energy from a first source is directed to a first detection means along paths which include the wave energy being reflected by a remote screen to sense variations in the distance between the projector objec-

tive lens and the screen. In a second appraisal subsystem wave energy from a second source is directed to a second detection means by reflecting the same from a transparency to sense buckling of the transparency. Displacement of the screen, objective lens or the transparency causes the first and second detection means to generate electrical pulses which are out of time phase with respect to each other. A control circuit receives the electrical pulses from the first and second detection means and produces a control signal representing the time differential therebetween. Motive means operated by the control circuit and responsive to the control signal axially moves the objective lens to establish focus of the screen image and bring the pulses from the two detection means into phase.

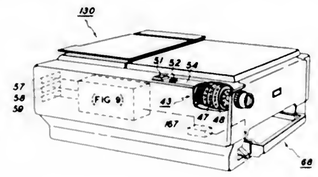
3,813,156
SIMULATED PLANETARIUM PROJECTOR
Arthur Davis, 3348 Canton Way, Studio City, Calif. 91604
Filed July 27, 1972, Ser. No. 275,811
Int. Cl. G03b *29/00, 21/14*
U.S. Cl. 353—119 **1 Claim**



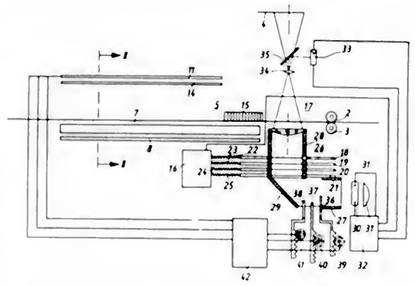
Miniature projector which simulates the appearance of an actual planetarium projector which, when not in use, provides an object of visual interest. It incorporates a projector, having a conventional optical system, which, when in use, projects the subject matter contained on a conventional film strip, onto a screen or wall, as distinguished from an actual planetarium projector which projects spots of light onto a hemispherical screen which produces an artificial sky containing the various stars, planets, satellites, etc. It thus combines the visual interest of an actual planetarium projector and the utility of a conventional slide projector. It differs from the latter, however, in that its range of angular adjustment is considerably more, permitting the slide to be projected, not only onto a conventional vertical screen or wall, but also onto the ceiling of a room, whereby pictures and the like may be viewed by the user while lying in bed. It is of particular interest to children as a toy but has the utility of a conventional slide projector.

3,813,157
CONTROL LOGIC FOR TROUBLE DETECTION AND RECOVERY
Louis J. Fantozzi, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Apr. 6, 1973, Ser. No. 348,828
Int. Cl. G03g *15/00*
U.S. Cl. 355—14 **11 Claims**

In a copier/duplicator machine, an improved control circuitry is provided for handling the situations involving the interruption of the machine operation. The circuitry includes means for detecting abnormal conditions such as jamming, or paper supply run out conditions during a copy run for a predetermined number of copies and means for maintaining the integrity of the counts of the copies being made according to a differentiated billing schedule notwithstanding the interruptions of the machine operation during the copy run. In addition, the circuitry includes means for detecting paper run out conditions artificially induced to tamper with the differential billing meters and means to stop the machine and condition the billing meters so that they are returned to higher billing mode.



3,813,158
COLOR PRINTER USING LIGHT FLASH TUBES
Wolfgang Zahn; Berthold Fergg, and Walter Knapp, all of Muenchen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sept. 29, 1971, Ser. No. 184,796
Claims priority, application Germany, Oct. 2, 1970, 2048606
Int. Cl. G03b *27/76*
U.S. Cl. 355—38 **20 Claims**

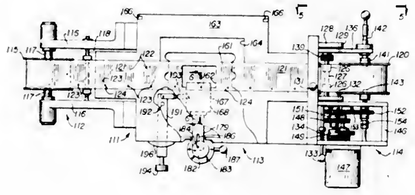


The average color content over a plurality of negatives in each of three primary colors is measured prior to printing of any of these negatives. In case of excess of any color, subtractive filters are inserted in the light path between the flash gun and the original. The average density and density distribution of an individual negative is measured prior to printing and the total amount of light emitted by the flash gun controlled accordingly.

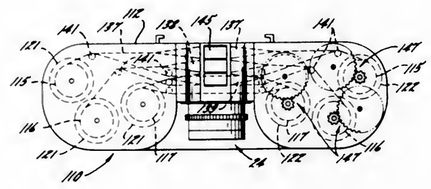
3,813,159
PHOTO COMPOSING MACHINE AND METHOD FOR MAKING PLATES FROM MICROFILM
P. L. Schlegel, Jr., Whittier, Calif., assignor to George Lithograph Company, San Francisco, Calif.
Filed Apr. 24, 1972, Ser. No. 246,805
Int. Cl. G03b *27/42, 27/46*
U.S. Cl. 355—53 **4 Claims**

A commercially available machine for making offset printing plates is controlled by digital data read from punched tape (or other medium) to move a vacuum board which holds the unexposed plate longitudinally and to move a chase transversely in steps. According to the present invention, the film holder conventionally used for platemaker use, located on the chase, is replaced by a photographic enlarger having a microfilm feeder preferably controlled to expose only certain

frames. The feeder accurately centers selected frames relative to the axis of the lens of the enlarger, preferably using marks adjacent an edge of the film and one or more photocells which control the driving motor of the feeder. Several channels of marks may be used.



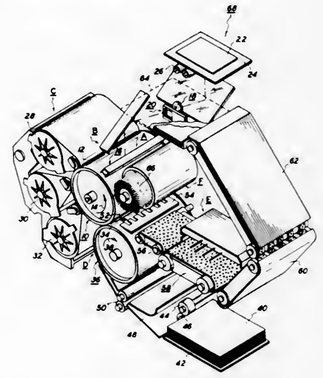
3,813,160
PHOTOGRAPHIC PROJECTION DEVICE
George R. Nowak, 423 Engle Blvd., Park Ridge, Ill. 60068
Continuation-in-part of Ser. No. 819,499, April 25, 1969, abandoned. This application Sept. 5, 1972, Ser. No. 286,227
Int. Cl. G03b *27/76*
U.S. Cl. 355—71 **14 Claims**



A photographic projection device suitable for providing custom illumination in the printing of uneven negatives. The projection device includes a flexible reflector operatively mounted and aligned within a lamphouse for reflecting light from a variable intensity source through the projection opening of the lamphouse. In addition, the projection device further includes both base mounted adjustment controls for selectively varying the lamphouse height and the lens focus, and a spool mounted filter assembly for selectively super-imposing correction filters over the lamphouse projection opening.

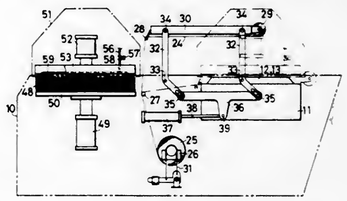
3,813,161
PLATEN COVER
David M. Curtis, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Mar. 12, 1973, Ser. No. 340,156
Int. Cl. G03b *27/62*
U.S. Cl. 355—75 **11 Claims**

A closure device which is mounted movably on a support member for substantially covering an article disposed thereon. The closure device includes a resilient pad and a sheet member coterminous therewith throughout the contact area therebetween. In the contact area, the sheet member substantially fills the interstices of the resilient pad.



The foregoing abstract is neither intended to define the invention disclosed in the specification, nor is it intended to be limiting as to the scope of the invention in any way.

3,813,162
APPARATUS FOR FORMING RELIEF PRINTING PLATE FROM LIQUID PHOTO-SENSITIVE RESIN
Kaname Watabe, Osaka; Kosuke Arai, Tokyo; Yasuo Taneda, Tokyo, and Kiyomi Naka, Tokyo, all of Japan, assignors to Teijin Limited, Osaka, Japan
Filed Apr. 27, 1973, Ser. No. 355,282
Claims priority, application Japan, May 11, 1972, 47-45932
Int. Cl. G03b *27/04*
U.S. Cl. 355—85 **6 Claims**

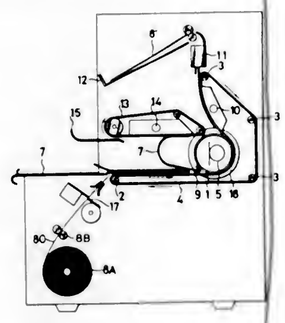


Apparatus for forming a relief printing plate has a spacer frame removably and closely fitted on a hollow structure to hold a transparent cover film therebetween. The hollow structure has a source of ultraviolet rays therein and is closed at its upper portion with a transparent glass plate on which an image bearing negative and the transparent cover film are laminated in that order. The spacer frame has three frame sides for guiding the liquid photo-sensitive resin upon the cover film and one remaining frame side for discharging superfluous resin. The liquid photo-sensitive resin is supplied through the middle side frame of the three frame sides.

3,813,163
COPYING MACHINE OF THE PENETRATION PRINTING TYPE
Yugoro Kobayashi, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Filed Nov. 6, 1972, Ser. No. 303,864
Claims priority, application Japan, Nov. 17, 1971, 46-91456
Int. Cl. G03b *27/12*
U.S. Cl. 355—109 **7 Claims**

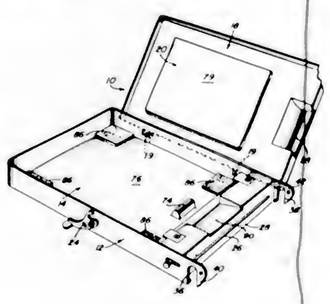
In a copying machine wherein an original sheet to be copied and a photosensitive copy sheet are carried in superposed

relation on the surface of a transparent rotating cylinder, teeth for gripping the leading edge of the original sheet to prevent dislocation thereof are mounted for rotation adjacent to, and in synchronism with rotation of, the cylinder surface. Signal-responsive means for selectively opening and closing the teeth are disposed at spaced localities around the cylinder to control engagement and release of the original sheet by the teeth. The teeth are rotated by means that arrest them at the end of each



complete revolution until a sensor detects passage of the trailing end of the original in the path of sheet advance. The machine is operable to conduct an original through a predetermined number of successive revolutions before releasing it, for production of a corresponding number of copies; initiation of each successive revolution of the original begins only when the trailing edge of the original has passed a point at which the original has been fully copied.

3,813,164
FILM HOLDER FOR MAKING PRINTS
Carl S. Skowron, Damascus Rd., and William A. Kolozsi, 832 Highland Ave., both of Salem, Ohio 44460
Filed Aug. 16, 1972, Ser. No. 281,022
Int. Cl. G03b *17/50*
U.S. Cl. 355—44 **28 Claims**

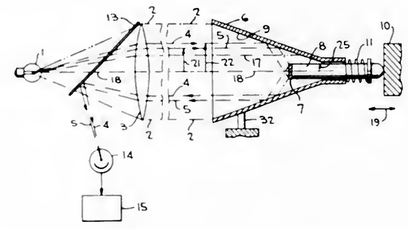


A device especially for making prints from transparencies has a housing provided with a cavity forming a receptacle for selectively receiving a packet of stacked, interconnected sheets of photosensitive film, and a planar surface provided in a cover portion of the housing and arrangeable substantially parallel and adjacent the film sheets for forming a screen for focusing a projected image thereon. A pair of rollers are resiliently mounted on the housing for resilient movement of their peripheral surfaces toward one another, and are arranged parallel and adjacent to one another and to a slot provided in the housing such that a plane passing between the rollers passes through the slot. These rollers are arranged for breaking a developing chemical packet associated with a film sheet as the sheet is passed through the slot and between the rollers, and for spreading the chemical about the sheet for developing same. A crossed elastic band may be adjustably arranged about adjacent end portions of the rollers to provide their resilient mounting, and also rotate one roller in a direction opposite the rotation of the other for advancing the film sheet as it passes between the rollers. A projection is provided on the housing and arranged extending into the cavity from a wall of the housing opposite the planar surface for biasing the film sheets toward the planar surface. Tabs are also provided on the housing and arranged extending into the cavity for engaging an edge of a holder in which the film sheets are arranged and biasing the holder about the projection for maintaining the holder and film sheets parallel to the planar surface. Further, at least one pad constructed from a compressible material is arranged in the cavity on the housing wall opposite the planar surface for biasing the film sheet holder toward the planar surface and positioning the film sheet adjacent the planar surface in the plane of the planar surface when the cover portion is in a position permitting access to the cavity.

3,813,165
DIGITAL DISTANCE MEASURING APPARATUS EMPLOYING MODULATED LIGHT BEAM
Robin H. Hines; William L. Hollinshead, both of Tullahoma, and John K. Forester, Manchester, all of Tenn., assignors to Laser Systems & Electronics Inc., Tullahoma, Tenn.
Filed Sept. 20, 1971, Ser. No. 181,759
Int. Cl. G01c *3/08*
U.S. Cl. 356—5 **11 Claims**

An improved distance measuring apparatus of the type that automatically calculates distance to a remote reflection target based upon a measured phase difference between a modulated transmitted light beam and a reflected return beam from the remote target incorporates means for ensuring that phase difference measurements are made only when the amplitude of the demodulated return signal is within predetermined limits and therefore that the desired degree of accuracy for the resulting distance calculation is obtained. Additionallly, means are included for ensuring that successive phase different measurements are taken from time-spaced return signals in order that an average of several measurements are obtained from spaced packets or bunches of reflections ordinarily resulting from scintillations due to changing atmospheric conditions over the beam path length, and that the resultant average measurement more accurately represents the true distance to the remote target site.

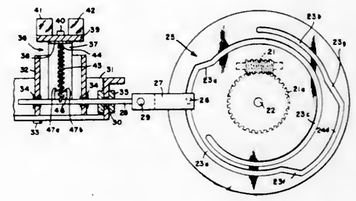
3,813,166
OPTICAL DISPLACEMENT INDICATOR
Donald J. Mary, New Carrolton, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Mar. 7, 1973, Ser. No. 338,795
Int. Cl. G01p *3/36*
U.S. Cl. 356—28 **9 Claims**



An optical device for measuring the displacement of a remote object. In a preferred embodiment, the device consists of two major subassemblies. One assembly consists of a light source which projects a collimated light beam towards the object whose displacement is to be measured. Associated with the light source is a beamsplitter which diverts any light reflected back from the direction of the object onto a photoelectric cell. The other assembly is located near the object and in the path of the collimated light beam. This assembly consists of a hollow cone whose inside surface is specularly reflective. A plunger is fixed to slide along the axis of the cone. The plunger protrudes through a hole cut into the apex of the cone. A small flat mirror is fastened to the end of the plunger that projects inside the cone. The other end of the plunger rests against the object. The plunger is spring loaded to maintain contact with the object. The light in the collimated beam that enters the open end of the cone is reflected by the inner surface of the cone in such a manner that all the rays of light cross the axis of the cone. The apex angle of the cone is chosen so that, even by multiple reflections within the cone, any rays emerging from the mouth of the cone do not find their way back to the photocell; that is, the cone alone is not a retroreflector. The small mirror on the end of the plunger, however, intercepts a portion of the light rays as they cross the cone axis and redirects them so that, upon reflection from the opposite wall of the cone, the light rays emerge travelling in the direction of the photocell. As the object moves, the plunger slides along the axis of the cone (the cone being stationary) and the amount of light reflected back to the photocell changes. Furthermore, the amount of light reflected back to the photocell is a linear function of the position of the plunger and, hence, of the position of the object. The photocell current is measured by a meter whose scale is calibrated in units of length.

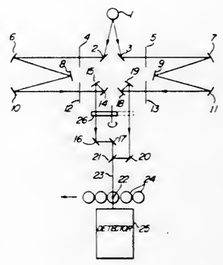
3,813,167
LIGHT FILTER UNIT HAVING SNAP-ACTION DEVICE FOR SHIFTING FILTER MEANS INTO AND OUT OF OPERATIVE POSITION
Edgar G. Johnson, Jr., 7724 Mallard Rd., Huntsville 35802; and James J. Cornelison, Rt. 1 Box 118, Gurley 35748; both of Ala.
Filed Feb. 26, 1973, Ser. No. 335,603
Int. Cl. G01j *3/00, 3/12*
U.S. Cl. 356—74 **9 Claims**

The invention described herein concerns a system for alternately shifting one or more filters into and out of the path of a light beam in an optical instrument using a light beam, such as a spectrophotometer in correlation with the wave length of



the light in the beam. It also concerns a mounting means that comprises a spring under tension to shift the filter support with rapid "snap-action".

3,813,168
TWO-WAVELENGTH SPECTROPHOTOMETER
Tadashi Honkawa, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 14, 1972, Ser. No. 234,584
Claims priority, application Japan, Mar. 19, 1971, 46-15112
Int. Cl. G01j *3/42*
U.S. Cl. 356—97 **10 Claims**

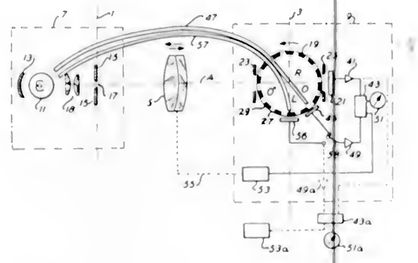


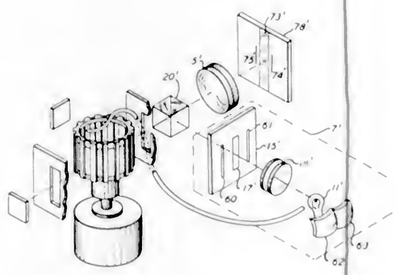
A plurality of test tubes containing specimens are passed successively through a predetermined position. Two monochromatic beams are transmitted alternately along a single path through said predetermined position and through each of the test tubes passing through said predetermined position. The characteristics of the two beams are such that one of them is capable of being absorbed by the specimen and the other substantially incapable of being absorbed. Thus it is possible to obtain an electric signal representing the ratio or difference between electric signals corresponding to said two monochromatic beams.

3,813,169
DEVICE FOR DETERMINING POSITION AND FOCUS OF AN OPTICAL MEMBER
Paul T. Kaestner, 246 Bay Ave., Huntington, N.Y.
Filed Jan. 2, 1973, Ser. No. 320,315
Int. Cl. G01b *9/00*
U.S. Cl. 356—127 **19 Claims**

Apparatus for determining the alignment in the direction transverse of the optical axis of a lens and/or its focus. The apparatus includes a light beam generating means and means for providing output signals which indicate lateral or angular displacement of the optical axis of the lens with respect to the op-

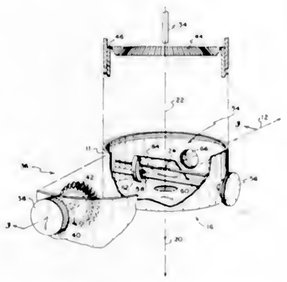
timum axis or the axis of the apparatus and the focus or relation to the position of optimum focus of the lens. Another con-



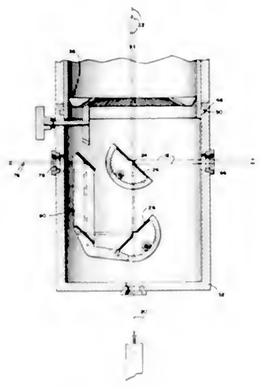


figuration provides means for accurately determining the magnification of an image produced by an optical system in addition to determination of optimum focus.

3,813,170
ALIGNMENT OF A DATUM LINE SOURCE
Edward G. Sears, Houston, Tex., assignor to Paul J. Charrin, Houston, Tex.
Filed June 28, 1972, Ser. No. 266,972
Int. Cl. G02b 7/14; G01b 11/26
U.S. Cl. 356—138 **8 Claims**

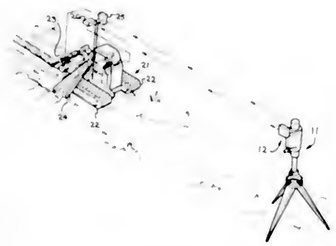


A method and means are provided for aligning a datum line source useful in performing precise surveying or construction operations relative to a predetermined reference point. The datum line source utilizes a laser beam generator and may be precisely aligned with a predetermined reference point without the aid of a plummet. A portion of a downwardly directed laser beam passes though an aperture in a reflecting surface disposed in the path of the laser beam to enable



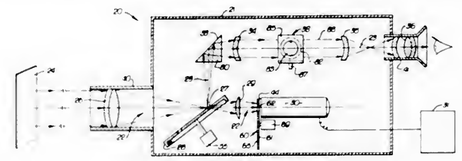
precise alignment with a predetermined reference point. The other portion of the laser beam is directed by the reflecting surface for use as a datum line.

3,813,171
LASER BEAM SURVEY METHOD AND APPARATUS
Ted L. Teach, Springfield, Ohio, and James D. Ramsay, Los Altos, Calif., assignors to Laserplane Corporation, Dayton, Ohio
Filed Jan. 11, 1973, Ser. No. 322,864
Int. Cl. G01b 11/26
U.S. Cl. 356—152 **8 Claims**



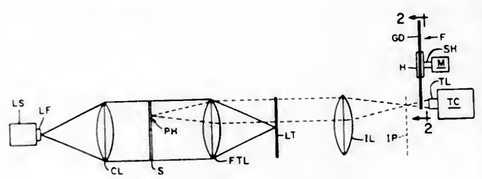
Laser beam survey method and apparatus utilizing a single laser beam source to establish both horizontal and vertical surveying reference planes. Such method and apparatus can be utilized, for example, to simultaneously automatically control tool height adjustment and steering adjustment mechanisms in a mobile ditch or trench digging machine.

3,813,172
PHOTOMETRIC DEVICE WITH A PLURALITY OF MEASURING FIELDS
Richard A. Walker, Woodland Hills, and Ralph M. Weisner, Canoga Park, both of Calif., assignors to Kollmorgen Corporation, Holyoke, Mass.
Filed Jan. 3, 1972, Ser. No. 214,588
Int. Cl. G01j 1/42
U.S. Cl. 356—225 **10 Claims**



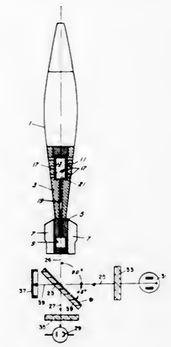
An optical system for a photometer including a light-measuring path provided with means for accurately defining a plurality of areas from which light is to be measured within a larger field of view.

3,813,173
DEFECT SENSING APPARATUS AND METHOD
Michael P. Teter, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Feb. 22, 1972, Ser. No. 228,170
Int. Cl. G01c 1/06
U.S. Cl. 356—239 **15 Claims**



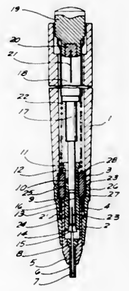
Apparatus for and method of sensing or detecting defects such as so-called pin holes in transparent thin films which are deposited on a surface of a transparent substrate either originally in the form of a thin film microcircuit pattern or for the subsequent purpose of making a microcircuit pattern out of a deposited film covering the entire surface of the substrate. The substrate and its film are illuminated by a collimated source of white or suitably filtered light and are imaged or focused through a first lens system or Fourier transform lens at a point on one side of a light trap or dark field stop. When the thin film is in the form of a microcircuit pattern, a negative of a Fourier transform of a defect-free microcircuit identical in pattern to the pattern imaged through the transform lens is required to be used as the light trap or dark field stop. However, when the thin film covers the entire surface of the substrate a conventional or basic form of light trap may be used. A defect such as a pin hole in the illuminated film diffracts the light rays passing through the pin hole and these rays are imaged or focused through a second lens system at a point in an image plane in advance of the lens of a vidicon tube or television camera. A rotating filter preferably comprising a transparent disk having on selected alternate segments of one face thereof a thin film of the same material as the film on the substrate, or a film of similar light absorbing characteristics, is disposed between the image plane and the camera lens. The arrangement causes flashing on and off of the images of pin holes in the thin film on the substrate while images of other defects such as dust or finger prints on the substrate remain steadily on. Various modifications of the rotating filter are possible or practicable.

3,813,174
OPTICAL AMMUNITION INSPECTION SYSTEM AND METHOD
Matthew Nowak, Passic, and Gus George Tirellis, Scranton, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Mar. 30, 1973, Ser. No. 346,506
Int. Cl. G01n 21/16, 21/32
U.S. Cl. 356—241 **11 Claims**



A mortar projectile, having a long narrow flash passage leading to an ignition cartridge, is inspected for obstructions at the junction between the cartridge and the passage by reflecting an ultraviolet beam, by means of a dichroic beamslitter, through the flash passage to a photo-luminescent coating on the adjacent end of the cartridge. The ultraviolet beam excites the coating to produce visible light which passes back through the flash passage and the same beamsplitter to a detector, such as a photocell or photomultiplier tube. The ultraviolet radiation source includes a broad-band glow lamp or xenon flash tube and an ultraviolet filter and a second dichroic beamsplitter for filtering out most of the visible light. The inspection apparatus also includes a converging quartz lens and a plurality of lens stop apertures for focusing and collimating the ultraviolet beam to a small diameter at the photo-luminescent coating, a green light filter in front of the photomultiplier, and an automatic shutter for shielding the photomultiplier when not in use.

3,813,175
MECHANICAL PENCIL
Otto Katz, Schwbach, Germany, assignor to A. W. Faber-Castell, Nuernberg, Germany
Filed Dec. 4, 1972, Ser. No. 312,117
Claims priority, application Germany, Dec. 4, 1971, 2160306
Int. Cl. B43k 21/16, 21/22
U.S. Cl. 401—65 **8 Claims**



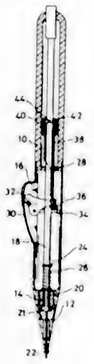
A mechanical pencil, especially for thin leads, wherein a lead supported in a small diameter lead support tube carried

by a slide member axially movable in a front part of a tubular housing may be advanced by axial pressure on an actuating member projecting from the rear end of the housing and actuating a collet engaging a rear portion of the lead.

3,813,176
EVER-SHARP PENCIL

Mitsunori Kamo, Hiroshima, Japan, assignor to Mitsubishi Pencil Co., Ltd., Tokyo, Japan

Filed Apr. 2, 1973, Ser. No. 346,925
Int. Cl. B43k 21/22
U.S. Cl. 401—94 3 Claims

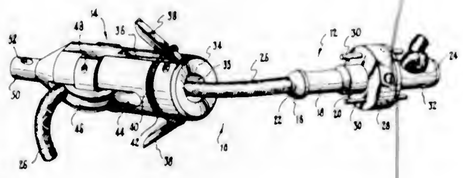


In an automatic lead storage pencil lead is extensible by means of a force translating means operatively arranged in a side portion of a body casing. The force translating means comprises an actuator means operated by radially directed forces and a camming means which translates the radially directed forces into axially directed forces thereby to urge a lead tube of the pencil downwardly extend and thus lead is extended beyond a cap nozzle of the pencil.

3,813,177
RECOVERY CABLE CONNECTOR FOR DIVER-SWIMMER

Howard Cartwright, Quarters A, Naveodfac, Indian Head, Md. 20649

Filed Dec. 30, 1971, Ser. No. 213,900
Int. Cl. F16b 21/07
U.S. Cl. 403—27 3 Claims

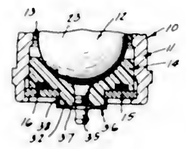


A cable connector suited for underwater salvage operations by diver-swimmers having an engagable male and a female part. The male member is attached to a hoisting line and flotation gear and the female part is attached to the load. A hauling line attached to the male member, leads away from the head, threads into the central barrel and over a sheave in the female part. Pulling on the hauling line brings the two parts into locking engagement. Spring-loaded cammable latches on the female part engage the head of the male member for a swivel connection.

3,813,178
WEAR INDICATING JOINT

Edward J. Herbenar, Detroit, and Kenneth R. Pozolo, Roseville, both of Mich., assignors to TRW, Inc., Cleveland, Ohio

Filed Aug. 10, 1972, Ser. No. 279,481
Int. Cl. F16c 11/06
U.S. Cl. 403—27 4 Claims

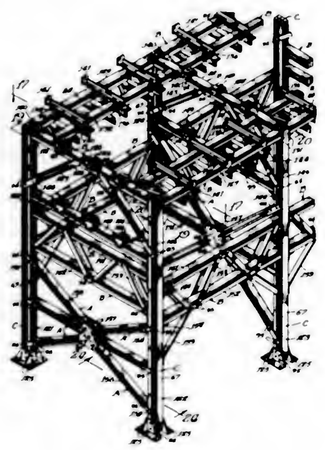


A ball and socket joint for automotive wheel suspensions and steering linkages having an externally visible indicator showing wear of the joint components to facilitate inspection for determining when the joint should be replaced.

3,813,179
STRUCTURES FORMED FROM STRUCTURAL MEMBERS

Charles E. Priest, Angola, Ind., assignor to Alum-Elec Structures, Inc., Angola, Ind.

Continuation of Ser. No. 42,436, June 1, 1970, abandoned, which is a continuation of Ser. No. 751,254, Aug. 8, 1968, abandoned. This application Apr. 20, 1972, Ser. No. 246,066
Int. Cl. F16b 39/00
U.S. Cl. 403—348 4 Claims

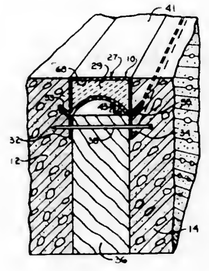


An extruded structural member having co-planar flanges with the distal edges of said flanges being in spaced relation and each such edge having an integral re-entrant flange, the re-entrant flanges being in spaced confronting parallel relation and defining therebetween a longitudinally extending slot. A T-bolt has a head having a groove V-shaped in transverse cross-section and double V-shaped in plan. The head is adapted to pass inwardly through the slot and to be rotated to engage the groove with the edges of the re-entrant flanges, the flanges being deformed by said groove when the T-bolt is tightened.

3,813,180
FRANGIBLE CONCRETE-JOINT SEALANT PACKAGE

Robert O'Brill, 5315 W. Madison, Skokie, Ill. 60076

Filed Nov. 16, 1972, Ser. No. 307,037
Int. Cl. B65d 83/00
U.S. Cl. 404—48 9 Claims



A frangible package containing sealant for sealing joints between adjacent construction panels or slabs composed of such materials as concrete, masonry units and curtain wall, includes an elongated tube-like bar having a pair of continuous lines of weakness extending longitudinally along its entire length on opposite sides thereof to enable the bar to be broken apart longitudinally along the lines and thus to release the joint sealant disposed within the hollow interior of the bar, and a pair of end walls for sealing the sealant within the bar. The bar is adapted to be fastened to and extend along the top edge of an expansion joint filler strip, and a pair of external upturned flanges extending from opposite sides of the bottom portion of the package anchor it to the adjacent slabs after they are positioned on opposite sides of the package and strip so that the top portion of the package may be pulled away readily from its bottom portion leaving it in place to help support the sealant. A bottom wall of the bar is bowed inwardly throughout its length to cause the sealant to assume a complementary shape so that its advantageous shape facilitates its expansion and contraction. When the top portion of the package is separated from its bottom portion, the sealant flows into sealing engagement with the adjacent side edges of the slabs to seal the joint therebetween. When used to seal concrete joints, the top wall of the bar has an external flat surface to serve as a screed when finishing the adjacent concrete surfaces.

3,813,181
FINE GRADE INDICATING SYSTEM

John I. Barnes, III, 621 N. Main St., Louisburg, N.C. 27549

Filed Apr. 21, 1972, Ser. No. 246,370
Int. Cl. E01c 23/00
U.S. Cl. 404—84 6 Claims

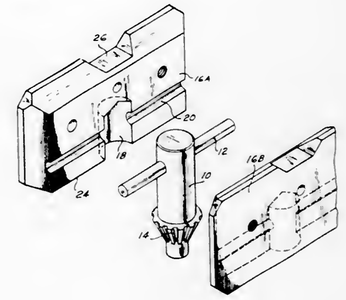


In abstract, a preferred embodiment of this invention is a fine grade indicating device for attachment to highway fine grading machines so that either the operator of the machine or the highway inspector can determine at a glance the accuracy of the grade being prepared.

3,813,182
DEVICE FOR HOLDING CHUCK KEY AND FOR DRILLING STRAIGHT AND PERPENDICULAR HOLES

Walter H. Brach, Somerville, N.J., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Aug. 18, 1972, Ser. No. 281,829
Int. Cl. B23b 49/00
U.S. Cl. 408—72 1 Claim

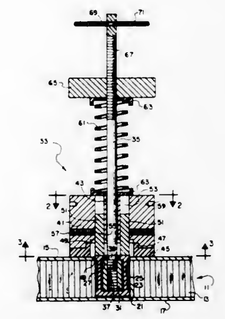


A device for supporting a drill chuck key and for use in enabling straight and perpendicular holes to be drilled with a portable electric drill powered bit comprising a rectangular flat member provided with a socket for supporting the key, the member having one flat edge and three other edges which are either perpendicular or parallel to the flat edge, each other edge having a longitudinal groove in cross section defining a V.

3,813,183
INSERT FACING TOOL

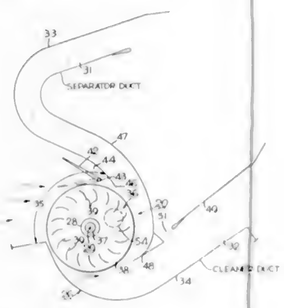
William J. Abernathy, and Lowell G. Snoddy, both of Huntsville, Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 2, 1972, Ser. No. 277,436
Int. Cl. B23b 41/00, 1/20
U.S. Cl. 408—80 6 Claims



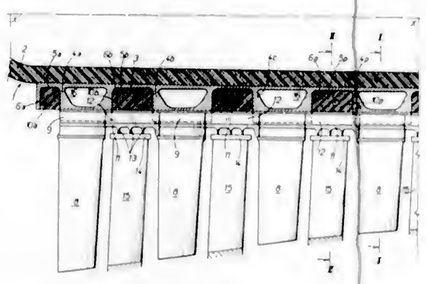
A manually actuated tool for facing the exposed end of an insert installed in a honeycomb panel so that the open end of the insert will be flush with or slightly undercut from the outer surface of the panel comprising a rotatable axial stud having a threaded end adapted to screw into an internally threaded sleeve of the insert. A plurality of cutting bits are held in a round body portion that is manually rotated around the stud so that the cutting bits continuously engage the end of the insert in a cutting action. Pressure is adjustably applied through a spring against the body portion, and thus the bits, by a pressure nut threaded on the stud.

3,813,184
INLET CHOKE VANE FOR TRANSVERSE BLOWER
William F. Temple, Independence, and David K. Johnston, Blue Springs, both of Mo., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 1, 1972, Ser. No. 311,340
Int. Cl. F04d *5/00, 27/00*
U.S. Cl. 415—54 8 Claims



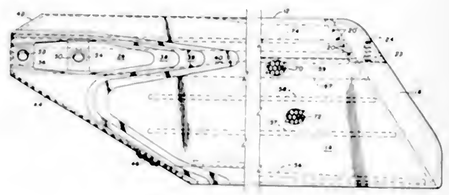
A transverse fan for use in the cleaning and separating system of a combine harvester and wherein such transverse fan is provided with a choke vane mechanism positioned in the air inlet of the aforesaid fan and with such choke vane mechanism adjustable for varying the quantity of air being supplied to a separator and the cleaner without varying the ratio of air being supplied to such separator and such cleaner.

3,813,185
SUPPORT STRUCTURE FOR ROTOR BLADES OF TURBO-MACHINES
Jean Georges Bouiller, Brunoy; Michel Roland Gobin, Dammarie-le-Lys; Armand Jean-Baptiste La Croix, Itteville, all of France; Louis Jules Bauger, deceased, late of Vanves, France (by Madeleine Henriette Aimee Bauger, administratrix), and by Jeanne Denise Olivier, administratrix, La Ferte-Bernard, France, assignors to Societe Nationale D'Etude et de Construction de Moteurs d'Aviation, Paris, France
Filed June 28, 1972, Ser. No. 267,183
Claims priority, application France, June 29, 1971, 71.23689
Int. Cl. F01d *5/32*
U.S. Cl. 416—198 8 Claims



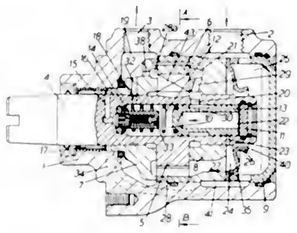
A support structure for rotor blades of a turbo-machine comprises a substantially cylindrical or conical hollow drum of fibrous material and a plurality of blade-carrier bars of metal attached side by side on the outer surface of the blades.

3,813,186
ROTOR BLADE SHEAR REINFORCEMENT
Charles V. Palachek, Smithfield, and William K. Underhill, Jr., Bedford, both of Tex., assignors to Textron Incorporated, Providence, R.I.
Filed Oct. 10, 1972, Ser. No. 295,887
Int. Cl. B64c *27/46, 27/00, 11/24*
U.S. Cl. 416—226 10 Claims



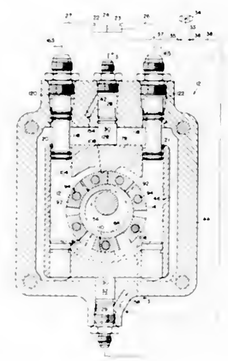
Stiffness and shear resistance necessary for a helicopter rotor blade is provided by a first honeycomb cellular structure whose cells extend across the blade thickness and which structure spans at least that portion of the blade chord which includes the longitudinal boundary between a leading edge spar and a trailing edge skin section and a second honeycomb cellular structure joined to the trailing edge of the first structure of density less than the density of the first cellular structure. The front leading edge spar is joined to an upper trailing skin and a lower trailing skin which join at a trailing edge seam. The honeycomb sections are enclosed within the leading edge spar and a tapering chamber formed by the upper and lower skins.

3,813,187
VANE-TYPE HYDRAULIC PUMP
Klaus Winter, Julius-Brecht-Str., Germany, assignor to International Telephone and Telegraph Industries, Inc., New York, N.Y.
Filed Apr. 23, 1973, Ser. No. 353,228
Claims priority, application Germany, Apr. 21, 1972, 2219587
Int. Cl. F04b *23/12, 39/00*
U.S. Cl. 417—79 2 Claims



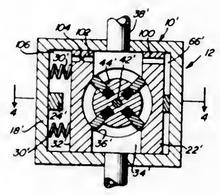
A vane-type hydraulic pump is disclosed which employs a variable working chamber. It employs a by-pass regulator formed to include a flow-control valve and a pilot pressure relief valve which are formed as part of the pump shaft, thereby providing a reduction in pump size and weight.

3,813,188
PUMP ASSEMBLY FOR POWER STEERING SYSTEM
Roger John Nelson, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.
Division of Ser. No. 166,202, July 26, 1971, Pat. No. 3,705,493. This application Sept. 14, 1972, Ser. No. 288,896
Int. Cl. F04b *23/10*
U.S. Cl. 417—202 3 Claims



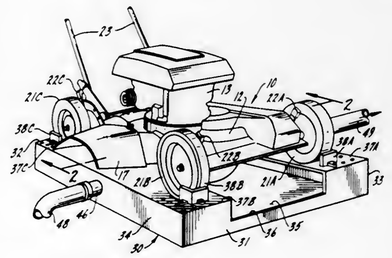
A hydraulic power steering system includes a main pump assembly which consists of two variable displacement reversible pumps of different sizes. These pumps are coupled to a common drive shaft so that they turn together and their displacements are controlled so that the output of the smaller is always a fixed proportion of the larger. A small fixed displacement hand pump is operated through means of the steering wheel and provides a flow to control the displacements of the two variable displacement pumps to place the latter in stroke. Output flow from the larger pump is connected to and provides the operating fluid for the steering motor. Output flow from the smaller pump is fed back to counteract the effects of the hand pump and return the two variable displacement pumps to their zero displacement positions once the turning of the steering wheel ceases. The amount of fluid pumped to the steering motor is thus proportional to the amount of fluid delivered by the hand pump.

3,813,189
LOW FLUID FLUID MOTOR
Leo L. Tompkins, 127 Wacaster, Jackson, Mich.
Filed May 24, 1972, Ser. No. 256,561
Int. Cl. F04b *49/00*; F01b *25/00*
U.S. Cl. 417—220 7 Claims



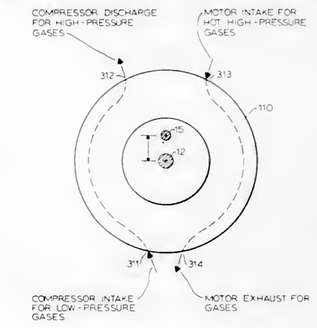
A sliding vane rotary fluid motor including a rotor cylinder shiftable laterally of the axis of rotation of the rotor between a first position generally concentric with the rotor axis and a second position eccentrically disposed relative to the rotor axis. Structure is provided for yieldingly biasing the cylinder toward its limit position concentric with the axis of rotation of the rotor and the cylinder defines a sliding partition within the housing of the motor with the partition closing one side of a fluid chamber within the motor housing. Rotor speed responsive fluid delivery structure is provided for ducting fluid under pressure from the intake of the motor into the chamber in response to a reduction in rotor speed to thereby overcome the biasing action acting upon the cylinder and shift the latter from its position concentric with the rotor axis toward its limit position of movement eccentrically disposed relative to the rotor axis.

3,813,190
EMERGENCY PUMP SYSTEM POWERED BY LAWNMOWER
Francis J. Keating, 44 E. North Ave., Lake Forest, Ill. 60045
Filed Dec. 4, 1972, Ser. No. 311,793
Int. Cl. F04b *17/00*
U.S. Cl. 417—236 7 Claims



A high-volume pump system for emergency use (flooded basements, etc.) powered by a rotary lawnmower; the pump system comprises a base for supporting a lawnmower and a high-volume rotary pump mounted in the base below the lawnmower. A coupling adapter is included in the system and is fastened to the lawnmower blade; the coupling adapter connects the lawnmower to the pump to afford a short, direct driving connection for operating the pump.

3,813,191
ROTARY VANE DEVICE FOR COMPRESSOR, MOTOR OR ENGINE
Berry W. Foster, 2415 Thomas Ave., Redondo Beach, Calif. 90278
Continuation-in-part of Ser. No. 268,866, May 1, 1972, Pat. No. 3,747,573, which is a continuation of Ser. No. 41,008, May 22, 1970. This application Apr. 12, 1973, Ser. No. 350,632
Int. Cl. F04b *17/00*
U.S. Cl. 417—406 2 Claims



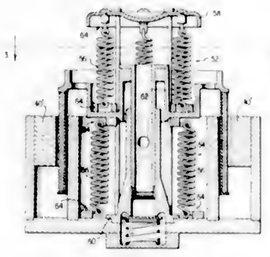
An integral vane compressor and vane motor. At least three vanes are pinned to a central hub and extend through respec-

3,813,196
DEVICE FOR MANUFACTURE OF A POWDER BY

preloaded load-carrying section are provided. The apparatus

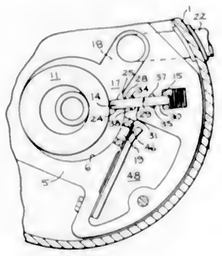
tive slots in a generally cylindrical drum with its axis parallel to and displaced radially from that of said hub, the slots guiding the radial position of the vanes. Synchronizing means, such as a gear train, cause the hub and drum to rotate in the same direction and at the same speed, with the vanes reciprocating and oscillating in the guide slots. A housing encloses the vanes and cooperates with them and the drum to provide a series of working spaces, one for each vane to compress or expand a fluid. Intake and exhaust ports lead fluid into and from the working spaces.

3,813,192
CENTERING SPRING ARRANGEMENT FOR OSCILLATORY COMPRESSORS
Glen O. Adams, and Owen H. Scheldorf, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.
Filed Dec. 7, 1972, Ser. No. 313,153
Int. Cl. F04b *17/04*
U.S. Cl. 417—416 **3 Claims**



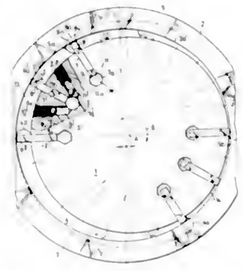
Those transverse loading forces deriving from the usual compression springs used to center the armature and piston of an oscillatory compressor are ameliorated, and in some cases eliminated, by the substitution of constantly tensioned, tension springs for the conventional compression springs.

3,813,193
ROTARY COMPRESSOR INCLUDING MEANS FOR REDUCING VANE SLOT WEAR
Dean C. Rinehart, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.
Filed July 31, 1972, Ser. No. 276,724
Int. Cl. F01c *1/02*; **F04c** *1/02, 17/02*
U.S. Cl. 418—63 **3 Claims**



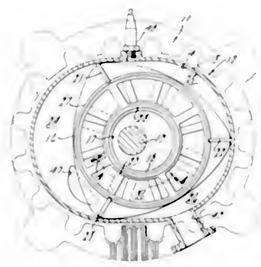
A hermetically sealed rotary refrigerant compressor comprising a compression cylinder, a rotor eccentrically rotatable in the cylinder, and a vane slidably mounted in a slot in the cylindrical wall of the cylinder includes means for introducing high pressure refrigerant into the vane slot at wall areas of maximum slot wear and connecting wall areas opposite the areas of maximum wear to low pressure.

3,813,194
HYDRAULIC VANE MACHINE WITH CONTROLLED VANES
Joerg Scholz, Lohr, Germany, assignor to G. L. Rexroth GmbH, Lohr/Main, Germany
Filed Nov. 3, 1972, Ser. No. 303,633
Claims priority, application Germany, Nov. 20, 1971, 2157637
Int. Cl. F01c *21/00*
U.S. Cl. 418—82 **9 Claims**



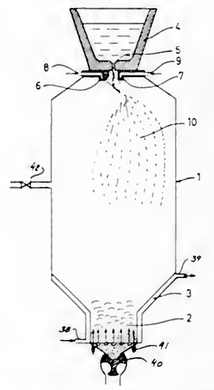
The rotor of a vane pump or hydraulic motor, has vane slots in which the inner ends of vanes form bottom chambers, while the outer ends project from the rotor and form intervane space with the inner surface of a surrounding cam ring. Two throttles are mounted in the rotor on opposite sides of each vane slot and have inner ends communicating with the respective bottom chamber and outer ends communicating with two adjacent intervane chambers. When a vane passes through a flow reversing zone, different pressures prevail in the respective pair of leading and trailing intervane spaces so that fluid flows through the respective throttles and bottom chamber. In this manner, an intermediate gradually changing pressure acts in the respective bottom chamber to urge the vane outward to engage the cam ring.

3,813,195
INDUCTION SYSTEM FOR ROTARY MECHANISM
Robert W. King, Sidney, Ohio, assignor to Copeland Corporation, Sidney, Ohio
Filed Mar. 6, 1972, Ser. No. 231,863
Int. Cl. F01c *21/06*; **F02b** *55/06*
U.S. Cl. 418—86 **4 Claims**



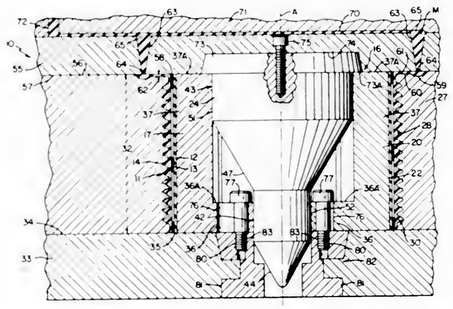
An induction system for a rotary piston machine in which a portion of the induction charge is passed through the rotary piston before induction into the chambers. The remainder of the intake charge is inducted directly into the chamber. This split induction system cools the rotary piston without undue heating of the total intake charge.

3,813,196
DEVICE FOR MANUFACTURE OF A POWDER BY ATOMIZING A STREAM OF MOLTEN METAL
Sven Hjalmar Backstrom, Borlange, and Per Hellman, Soderfors, both of Sweden, assignors to Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden
Division of Ser. No. 94,148, Dec. 1, 1970, abandoned. This application Jan. 18, 1973, Ser. No. 324,835
Claims priority, application Sweden, Dec. 3, 1969, 16675/69
Int. Cl. B22d *23/08*
U.S. Cl. 425—7 **5 Claims**



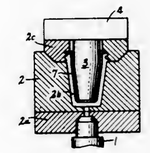
A device is provided for atomizing a molten metal stream whereby a first jet of an atomizing fluid is directed to a molten metal and a second jet is directed to the combined stream of the molten metal and first jet of atomizing fluid; the second jet impinges the combined stream at a certain angular relationship to the molten metal stream; as a result of the specific arrangement of the jets embodied in particular nozzles and their orientation, a fine, very uniform powder is obtained which consists of smooth, substantially spherical particles; the device is operational without any substantial splash-back and the amount of molten metal which may be atomized on basis of the fluid for operating of the jets constitutes an advantageous aspect of the device.

3,813,197
APPARATUS FOR MAKING AN ENDLESS POWER TRANSMISSION BELT
Robert L. Ray; William J. Champeau, and Kerry D. McAtee, all of Springfield, Mo., assignors to Dayco Corporation, Dayton, Ohio
Filed May 30, 1972, Ser. No. 257,496
Int. Cl. B29h *7/22, 3/08*
U.S. Cl. 425—111 **8 Claims**



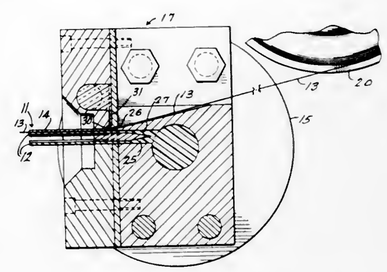
A molding apparatus and method for making an endless belt construction in an inverted position and having a precisely preloaded load-carrying section are provided. The apparatus employs a mold core defined by a plurality of movable L-shaped segments and means for applying radial forces against the segments in a plurality of spaced parallel planes perpendicular to a central axis therethrough to thereby move the segments radially outwardly and precisely position and hold such segments at a tension-applying location where their outer surfaces define a right circular cylindrical surface and the desired preloading on the load-carrying section.

3,813,198
APPARATUS FOR MAKING COMPOSITE PLASTIC ARTICLES
Emery I. Valyi, 5200 Sycomore Ave., Riverdale, N.Y.
Division of Ser. No. 211,289, Dec. 23, 1971, Pat. No. 3,737,259. This application Jan. 29, 1973, Ser. No. 327,626
Int. Cl. B29d *23/03*
U.S. Cl. 425—112 **7 Claims**



Apparatus for making pressure molded composite parisons and blown articles therefrom wherein preformed sleeves are placed mechanically over the blow cores used for molding the parisons.

3,813,199
APPARATUS FOR PRODUCING TRIM STRIP ASSEMBLY
Charles E. Friesner, Pemberville, Ohio, assignor to Industrial Plastic Specialties Company, Chelsea, Mich.
Division of Ser. No. 127,168, March 23, 1971, Pat. No. 3,780,152. This application Sept. 20, 1973, Ser. No. 398,988
Int. Cl. B29f *3/00*
U.S. Cl. 425—113 **16 Claims**

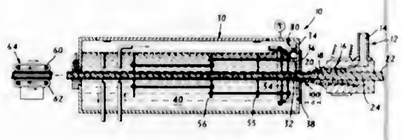


Apparatus for producing a trim strip assembly is disclosed. The trim strip includes a thermoplastic base member, a superimposed strip, and a plastic top coating. The superimposed strip may be of plastic, metal or foil. The apparatus includes extruders and a die having three passageways. A first passageway receives the extruded base member, a second passageway intersects the first passageway and receives the superimposed strip, and a third passageway intersects the second passageway a predetermined distance from the intersection of the first and second passageways.

3,813,200
JAM PREVENTION UNIT FOR EXTRUSION PROCESS APPARATUS

Alex S. Gergely, Richmond, Va., assignor to Phillip Morris Incorporated, New York, N.Y.

Filed Jan. 22, 1973, Ser. No. 325,595
Int. Cl. B29f 3/08
U.S. Cl. 425—140 10 Claims

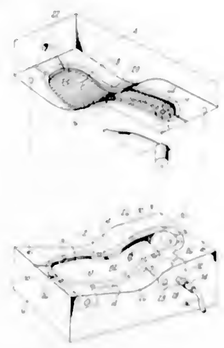


A device which can be used to prevent a jam of the sizing aperture in the cooling chamber of extrusion process apparatus is disclosed. The device includes a cutter blade which, when an outsized extrudate that would cause a jam of the sizing aperture is detected, operates to sever the extrudate entering the cooling chamber from that already present therein to prevent the outsized extrudate being drawn into the sizing apparatus or being pushed into the same by the extruder pressure. The device also functions to close off the aperture to prevent loss of the liquid coolant in the event of a jam.

3,813,201
SHOE MOLDS

Eugene G. Frederick; Albert I. Morse, Beverly, and Robert C. Simmonds, Jr., Topsfield, all of Mass., assignors to USM Corporation, Fleming, N.J.

Filed May 1, 1972, Ser. No. 249,130
Int. Cl. B29f 1/06
U.S. Cl. 425—242 7 Claims

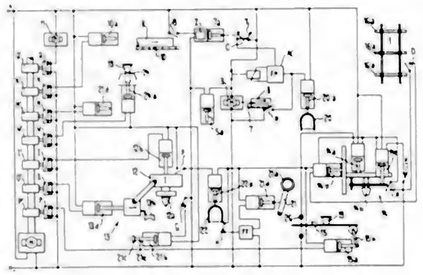


A mold for forming an article having a complex shape such as the unitary sole and heel tread member of a woman's shoe and the method of making same wherein the article to be cast is of a material which is injected into said mold in a liquid form. The mold for such articles is formed of first and second mold members defining a molding cavity therein, and at least one of the mold members in the cavity region has a portion which is formed of a heat-resistant rubbery elastic material such as silicone rubber. When the members are operatively assembled together for molding and one of the mold members may be adapted with a sprue for filling said cavity with the material for casting and conduit means disposed in at least one of said mold members extending from the opening in said cavity region through the mold member to the outside thereof. In preferred embodiments, said conduit means is adapted to be coupled to pressurized, fluid supply means.

3,813,202
AUTOMATIC PRODUCTION PLANT FOR FORMING WORKPIECES

Willi Rossler, Ersigen, Switzerland, assignor to Tonwarem-und Porzellanfabrik Rossler A.G., Ersigen, Canton of Berne, Switzerland

Filed Dec. 13, 1972, Ser. No. 314,501
Claims priority, application Switzerland, Dec. 27, 1971, 18952/71
Int. Cl. B28b 11/00
U.S. Cl. 425—404 3 Claims

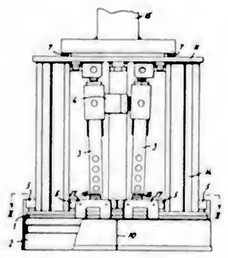


A production plant for manufacturing workpieces, preferably hollow work pieces of ceramics or other material comprising an automatically fed centrifugal mixer, an automatic feeding device consisting of a conveyor-band in feeding relation with said centrifugal mixer, at least one extruder-press with an associated storage bunker, an automatic press-charging equipment following said extruder-press, a press after said press-charging equipment to receive a blank from said equipment and to form the completed workpiece, a sequence-controlled delivery device following said press, a rocker-drier, an automatically controlled transfer station between said press and said delivery device arranged to bring the formed workpieces form said press to said rocker-drier, the improvement of providing means to render the production entirely automatic from the feed of the raw material up to the finished product.

3,813,203
DEVICE FOR MOLDING PIPE HAVING A SPIGOT END

Jens Erik Fisker, and Per Sondergaard, both of Brondersiev, Denmark, assignors to Pedershaab Maskinfabrik A/S, Brondersiev, Denmark

Filed May 24, 1972, Ser. No. 256,540
Claims priority, application Denmark, June 8, 1971, 2784/71
Int. Cl. B28b 11/08
U.S. Cl. 425—441 2 Claims

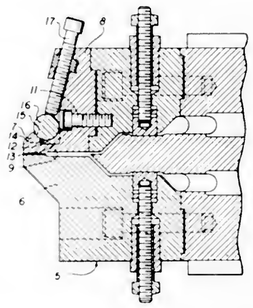


A spigot-end shaper has an inner ring and a concentric outer ring that is slotted and is radially expandable. In molding, the inner ring shapes the end face of the spigot and the outer ring shapes the spigot's outer wall, being clamped around the inner ring. In a mold-removing position, the outer ring is freely axially displacable away from the spigot end.

3,813,204
LIP ADJUSTMENT FOR EXTRUSION DIE

Robert B. Gregory, Flemington, N.J., assignor to G.K. Systems, Inc., Flemington, N.J.

Filed Feb. 28, 1973, Ser. No. 336,422
Int. Cl. B29f 3/00
U.S. Cl. 425—466 5 Claims



This invention is directed to an extrusion die having an adjustable lip provided across its outer face with a slot of generally J-shaped cross-section with an inner wall normal to the plane of extrusion and a planar angularly disposed outer wall. A rod of circular cross-section fits freely within the slot and rests against the inner and outer slot walls. Cap screws threadably carried by the inner supporting portion of the adjustable lip are provided to selectively apply point loading to the rod which in turn applies corresponding linear loading to the adjustable lip.

3,813,205
ULTRASONICALLY ETCHED PHOTOFLASH LAMP

Edward M. Clausen, Eastlake, Ohio, and Robert G. Clemmer, Madison, Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 21, 1972, Ser. No. 308,425
Int. Cl. F21k 5/02
U.S. Cl. 431—94 9 Claims

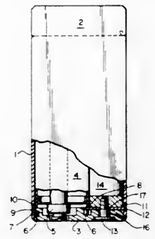
A miniature photoflash lamp is provided having a hermetically sealed glass envelope which has been given a liquid etching treatment on the exterior surface to reduce thermal failure of the lamp by fracture of the glass envelope when the lamp is flashed. The present lamps can be further characterized as having a light output of at least about 12,500 lumen-seconds per cubic centimeter of internal lamp volume with better containment of the photoflash reaction than can be obtained with prior art construction of such lamps. A novel method of the liquid etching treatment is also described which utilizes ultrasonic energy to improve the treatment process.

3,813,206
CIGARETTE LIGHTER

Nobuyoshi Moriya, Urawa, Japan, assignor to Mansei Kogyo Kabushiki Kaisha, Kawaguchi-shi, Saitoma, Japan

Filed Aug. 16, 1972, Ser. No. 280,993
Claims priority, application Japan, Oct. 5, 1971, 46-91379; July 25, 1972, 47-87732
Int. Cl. F23q 2/00
U.S. Cl. 431—143 9 Claims

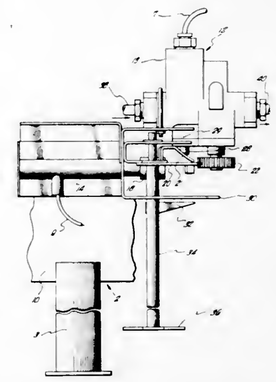
A cigarette lighter, including a casing; an ignition mechanism; a fuel tank having an extension at its lower end; at least one through-bore formed in the extension of the fuel tank; and a fastening plate one end of which penetrates the throughbore. The fastening plate is fixed to a bottom plate of the casing by a screw member which is screwed through the bottom plate and the fastening plate into a female screw member disposed on the fastening plate.



3,813,207
GAS FIRED PATIO HEATER WITH A MANUAL IGNITER

Robert M. Ramey, North Hollywood, Calif., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Jan. 22, 1973, Ser. No. 325,422
Int. Cl. F23m 5/10
U.S. Cl. 431—255 10 Claims



A patio gas fired heater includes a burner element for supporting a gas flame and a manual igniter device for igniting the gas. A monitoring thermocouple element controls a valve so that the gas flow will be interrupted when the flame is extinguished. A manual override device on the valve is provided for superceding the monitoring device. A cam member controls both the manual override device and the igniter device to permit the cam member to activate both the igniter device and the manual override device while insuring the flow of gas to the burner element.

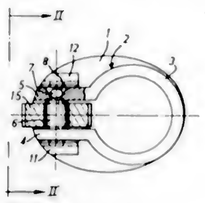
3,813,208
FLINT LIGHTERS WITH A ROTARY KNURLED WHEEL

Jean Gaston Malamoud, Annecy, France, assignor to S. T. Dupont, Paris, France

Filed Sept. 12, 1972, Ser. No. 291,831
Claims priority, application France, Sept. 13, 1971, 71.32945
Int. Cl. F23q 1/02
U.S. Cl. 431—277 7 Claims

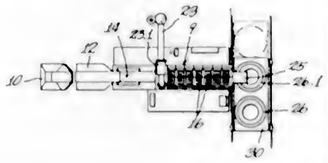
In a flint lighter of the disposable type the rotary knurled wheel has a central bore by which it is mounted on a spindle or

elongated boss between a pair of deformable plastic holdfasts. One end of the boss is formed integrally with one holdfast and the other end is ball shaped and inserted into an opening in the other holdfast after the knurled wheel is placed on the boss.



Alternatively, the holdfasts can each be provided with a facing boss, each located in an opposite end of the bore, or the wheel may have a central boss projecting from each side and located in openings in the holdfasts.

3,813,209
PREHEATING OF METAL SCRAP
Henry J. Venetta, 96 Howland Springs Rd., Warren, Ohio 44484
Filed Feb. 26, 1973, Ser. No. 336,032
Int. Cl. F27b *3/06*
U.S. Cl. 432—11 **14 Claims**

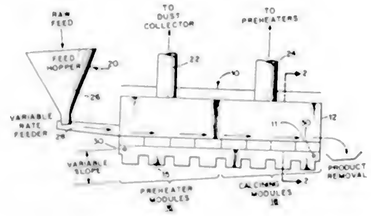


Metal scrap is deposited in a predetermined amount and in a generally uniform bed on the receiving end of a conveyor. The bed of scrap is moved into a tunnel furnace for preheating. A plurality of burners are supported on the top wall of the furnace, each burner mixing fuel, such as gas or oil, with air, and the mixture is ignited. The burner products, at high heat, jet from the respective burner at high velocity and down onto the scrap and penetrate the latter so as to quickly heat the scrap to required temperature. Smoke and fumes issuing from heated scrap are entrained by the jetting burner products and are largely consumed thereby.

The improved apparatus, and the method of operating the same, result in economies in capital investment, operating costs and plant space required, since the scrap is so quickly preheated that successive batches may be preheated and deposited into a charging bucket and subsequently delivered to a melt furnace, without any appreciable heat loss.

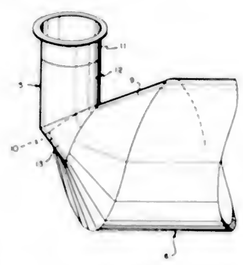
3,813,210
CEMENT KILN AND METHOD
Gabor Miskolczy, Carlisle; Paul K. Shefsiek, Acton, and Pierre J. Brosens, Belmont, all of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.
Filed July 26, 1972, Ser. No. 275,339
Int. Cl. F27b *15/00*
U.S. Cl. 432—15 **15 Claims**

A cement kiln incorporates a perforated floor for supporting an overburden of finely divided particulate material and preventing passage of the overburden through the perforations. Submerged beneath the particulate material, beneath the perforated floor, is a burner for directing products of combustion as jets through the mix. The cement kiln may be in the form of a rotary drum or an inclined stationary trough. In the



inclined stationary trough, the jets of combustion products at least partially fluidize the overburden and cause it to flow down the incline.

3,813,211
COOLER TUBES FOR ROTARY KILN
Hans Gommesen, Copenhagen, Denmark, assignor to S. L. Smith & Co., Cresskill, N.J.
Filed Sept. 13, 1972, Ser. No. 288,490
Claims priority, application Great Britain, Sept. 20, 1971, 43766/71
Int. Cl. F27b *7/20*
U.S. Cl. 432—80 **3 Claims**

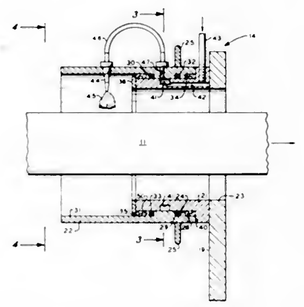


An improved cooler tube construction for rotary kilns is disclosed which includes a conical internal surface located at the inlet end of each cooler tube. This conical surface acts to prevent back-spill and to advance material through the cooler tube.

3,813,212
ROTATING FLAME TREATER
Don L. Shofner, and Doyle L. Alexander, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Apr. 23, 1973, Ser. No. 353,506
Int. Cl. F27b *9/24*
U.S. Cl. 432—183 **10 Claims**

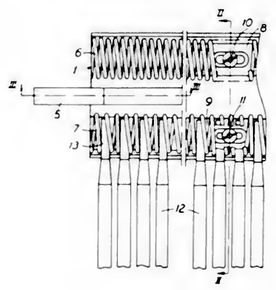
An elongated article, such as pipe, is moved through first and second concentrically mounted cylindrical sleeves. The inner sleeve is secured to a support frame while the second

sleeve is rotatably mounted on the inner sleeve and extends beyond the inner sleeve to support a gas burner for flame treating the exterior surface of the article. The inner sleeve is provided with an annular groove while the outer sleeve has a



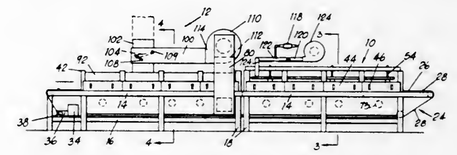
mating passageway. The inner sleeve has a passageway connecting the annular groove to a gas supply conduit. The outer sleeve is provided with a conduit connecting the mating passageway to the gas burner. Means can be provided to extrude, flame treat and print the article in a continuous process.

3,813,213
FURNACE PLANT FOR THE DRYING OR BAKING OF COATED ARC WELDING RODS
Karl Oskar Inge Jorneskog, Perstorp, Sweden, assignor to Elektriska Svetsningsaktiebolaget, Gothenburg, Sweden
Filed Mar. 19, 1973, Ser. No. 342,405
Claims priority, application Sweden, Mar. 30, 1972, 4244/72
Int. Cl. F27b *9/14*
U.S. Cl. 432—121 **9 Claims**



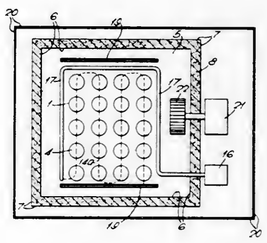
A tunnel furnace plant for the drying or baking of coated arc welding rods in which the welding rods are suspended freely from straight carriers extending transversely to the direction of advancement through the furnace, each of said carriers carrying a row of welding rods. The plant also includes automatic equipment for fitting the welding rods to the carriers.

3,813,214
DRYING OVEN FOR LEAD BATTERY PLATES
Charles H. McAlpine, Coloma, Mich., assignor to Mac Engineering & Equipment Company, Inc., Benton Harber, Mich.
Filed May 14, 1973, Ser. No. 359,859
Int. Cl. F27b *9/28*
U.S. Cl. 432—144 **6 Claims**



A conveyor advances newly formed battery plates with wet pellets of lead oxide and sulphuric acid in flatwise relation through an enclosure. Gas fired radiant heaters in the first half of the enclosure heat the upper surface of the plates to around 350° F. Air drawn from around the burners and the heated plates is drawn from the first half of the enclosure at about 275°F. This air is tempered or cooled to about 250°F by air drawn from the second half of the enclosure and recirculated into the second half of the enclosure where it is distributed over the surface of the heated plates. The output of the blower which circulates the air delivers to a regulating damper which exhausts about one-third the output of the blower and directs the remaining two-thirds to the recirculating circuit.

3,813,215
SUBJECTING SAMPLES TO ELEVATED TEMPERATURE
Henry Arthur John Ward, Essex, England, assignor to Electrothermal Engineering Limited, London, England
Filed July 30, 1973, Ser. No. 383,682
Claims priority, application Great Britain, Aug. 7, 1972, 36846/72
Int. Cl. F27b *5/02*
U.S. Cl. 432—226 **8 Claims**



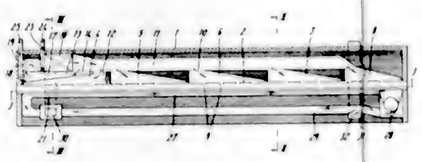
There is disclosed apparatus for use in subjecting samples to elevated temperature. The apparatus includes first chambers for receiving samples, part of each of the first chambers being within a second chamber which is out of communication with the first chambers and there being a third chamber which communicates by way of entrance openings with the first chambers, each first chamber having an exit opening, there being air in all the first, second and third chambers, an air inlet to the third chamber and means for heating the air. In use of the apparatus, heated air passes from the third chamber by way of the entrance openings into the first chambers, past the samples and out of the first chambers by way of the exit openings and heated air in the second chamber is in contact with the walls of the first chambers and heats them.

3,813,216

CONTINUOUS TUNNEL OVEN FOR BAKING AND/OR DRYING

Hellmuth Baur, and Horst Schraft, Stuttgart, both of Germany, assignors to Firma Werner & Pfleiderer, Stuttgart, Germany

Filed Sept. 25, 1972, Ser. No. 291,530
Claims priority, application Germany, Oct. 8, 1971, 2150191
Int. Cl. F27b 9/20
U.S. Cl. 432—230 7 Claims



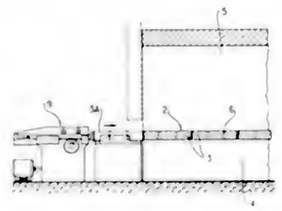
A continuous tunnel oven for baking and/or drying with a continuous baking belt heated from above and below, and with radiant heating provided exclusively below the baking belt, including heating-gas nozzles provided along the length of the baking chamber to blow the heating gas down vertically on the baked products. Heating of the baking belt from below is accomplished exclusively by means of radiant heating.

3,813,217

FURNACE FOR THE THERMIC TREATMENT OF PRODUCTS SUPPORTED BY A GAS CUSHION

Jean Moussou, Pouzac, France, assignor to Ceraver, Paris, France

Filed Mar. 2, 1972, Ser. No. 231,142
Claims priority, application France, Mar. 9, 1971, 71.08072
Int. Cl. F27b 3/12, 9/14
U.S. Cl. 432—258 3 Claims



Thermal treatment oven for products supported by a gas cushion, comprising a hearth provided with passages for the supporting gases, said hearth consisting of contiguous elements assembled longitudinally; the oven comprises, for example, a pushing device, giving the elements of the hearth a slow linear movement along its longitudinal axis.

CHEMICAL

3,813,218

TEMPORARY SUPPORTS, THEIR PREPARATION AND THEIR USE IN DRY DYEING AND IN DRY PRINTING BY HOT TRANSFER

Noel de Plasse, Croix, France, assignor to Sublistatic Holding S.A., Glaris, Switzerland

No Drawing. Filed Mar. 7, 1972, Ser. No. 232,507
Claims priority, application Switzerland, Mar. 10, 1971, 3,491/71; Feb. 2, 1972, 1,690/72
Int. Cl. B32b 15/10; D06p 3/00
U.S. Cl. 8—2.5 17 Claims

Strips, sheets or tapes of flexible, heat-stable material, preferably of paper or of paper backed with an aluminium foil, and characterized in that one of their faces is completely or partially covered in any order with at least two thin layers of organic materials, one, called the colored layer and consisting essentially of dyestuffs and/or optical bluing agents which pass in to the vapor state at between 160 and 220° C. at atmospheric pressure, and of binders which are stable in this temperature range and soluble in the organic solvents present in the inks used to form the colored layer, and the other layer consisting of an albuminoid material which is stable to heat in this temperature range, which can be sensitized to light when it is upon a colored layer and which is preferably non hardened when it is between the surface of the paper and a colored layer, and a process for dry dyeing synthetic materials, characterized in that said supports are applied to the material to be dyed or printed and in that the whole is heated at between 180 and 210° C.

3,813,219

PROCESS FOR THE THERMAL STABILIZATION OF POLYACRYLONITRILE FIBERS AND FILMS

Andrew H. Di Edwardo, Parsippany, and Klaus H. Gump, Gillette, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Apr. 28, 1972, Ser. No. 248,371
Int. Cl. C01b 31/07; D06c 7/04
U.S. Cl. 8—115.5 19 Claims

An improved process is provided for the production of stabilized acrylic fibers and films. Stannous chloride is incorporated in a solution of an acrylic polymer prior to forming from said solution a fibrous material or film wherein the pendant nitrile groups present in the acrylic polymer are substantially uncyclized, and the acrylic fibrous material or film having 0.5 to 10 percent by weight stannous chloride incorporated therein is heated in a gaseous atmosphere contining 30 to 100 percent by weight molecular oxygen until a stabilized fibrous material or film is formed. The presence of the stannous chloride in combination with the gaseous atmosphere containing more than the usual concentration of molecular oxygen (e.g. 10 to about 20 percent by weight) has been found to result in a substantially improved process. More specifically, the resulting stabilized acrylic fibrous materials and films exhibit enhanced physical properties (i.e. strength and modulus), and the stabilization reaction is accelerated in a controlled manner in the substantial absence of undesirable fiber coalescence. The resulting stabilized fibrous material or film is non-burning, and may be utilized as a fire resistant fiber, fabric, or film, or optionally carbonized or carbonized and graphitized to form a carbonaceous fibrous material or film.

3,813,220

PROCESS FOR MODIFYING KERATINOUS MATERIAL, COMPOSITION USEFUL THEREIN, AND KERATINOUS MATERIAL BEARING THEREON SAID COMPOSITION

Ladislav Benisek, Burley-in-Wharfedale, Kenneth Winterbottom, Whittlesford, Trevor Shaw, Ilkley, and Gerald Keith Edmondson, Bradford, England, assignors to I.W.S. Nominee Company Limited, London, England, and Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,554
Claims priority, application Great Britain, Dec. 14, 1970, 59,356/70
Int. Cl. D06m 3/02, 3/06, 13/28
U.S. Cl. 8—127.6 22 Claims

The present invention relates to a process for modifying keratinous fibres, and in particular, to a process for rendering keratinous textile materials resistant to shrinkage and to a process for imparting durable press characteristics to such materials.

This process comprises heating the material with a polythiol and an aliphatic polyamine-epichlorohydrin resin, and curing the polythiol on the material. The present invention also relates to (1) a composition useful in said process, which composition consists essentially of a polythiol and an aliphatic polyamine-epichlorohydrin resin, and (2) keratinous material bearing thereon a polythiol, in the cured or still curable state, and an aliphatic polyamine-epichlorohydrin resin.

3,813,221

DRY CLEANING METHOD

Marcella C. Stubits, St. Louis, Mo., assignor to Anheuser-Busch, Incorporated, St. Louis, Mo.

No Drawing. Filed Jan. 24, 1972, Ser. No. 220,451
Int. Cl. D06l 1/22
U.S. Cl. 8—142 2 Claims

This disclosure relates to a method of cleaning rugs, furniture, fabrics, etc., in which granules of carbohydrate fatty acid esters, preferably cellulose laurate, are treated with a hydrocarbon solvent cleaning fluid, applied to the article to be cleaned so that the solvent from the granules loosens and dissolves the stain which is picked up by the granules (which also re-absorb the solvent) and both the stain and solvent are removed from the article with the granules.

3,813,222

METHOD OF DETERMINING OVULATION TIME IN URINE AND FERTILITY IN FEMALES

J. R. La Vietes, Belle Harbor, N.Y., assignor to La Mar Laboratories, Inc.

Filed Oct. 14, 1971, Ser. No. 189,249
Int. Cl. G01n 31/22, 33/16; G07c 87/48
U.S. Cl. 23—230 B 10 Claims

The presence of anterior pituitary hormone in mammalian urine, blood, serum or plasma is determined by mixing with the urine, blood, serum or plasma a test quantity of a stable solution of 2-4, dinitrophenylhydrazine and an aqueous solution of an alkali metal hydroxide and then comparing the color of the solution with a control color.

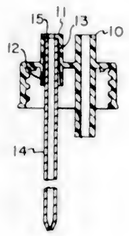
3,813,223
SCREW-ON TYPE CLOSURE FOR A BUBBLER TUBE

Elmer E. Fleck, Gibsonia, Pa., assignor to Chemed Corporation, Cincinnati, Ohio

Filed May 7, 1973, Ser. No. 357,860

Int. Cl. B01l *3/14;* **B65d** *47/32*

U.S. Cl. 23—259 **7 Claims**



A screw-on type closure for a bubbler tube having integral inlet and outlet tubes. An elongated tubing is seated in one of the inlet and outlet tubes and extends into the body of the bubbler tube.

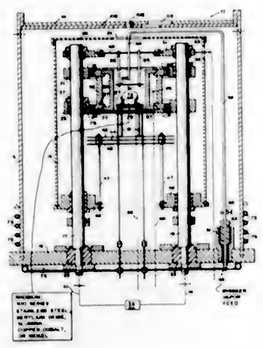
3,813,224
WHISKER OVEN AND METHOD

Edward F. Hollander, Jr., Broomall, Pa., assignor to John P. Glass, trading as Cava Industries, Essington, Pa.

Original application July 17, 1969, Ser. No. 842,560, now Patent No. 3,664,813. Divided and this application Dec. 27, 1971, Ser. No. 212,353

Int. Cl. B01j *17/28*

U.S. Cl. 23—273 SP **13 Claims**



An oven for making whiskers from a vapor comprising a housing containing a chilled base plate, a first and second support post extending upwardly from the base plate, an upper and lower support plate mounted on the posts, a hollow heating element mounted between the support plates, and a stage within the heating element for supporting a substrate on which whiskers are grown. The substrate is covered with rhodium, and may be made of a material selected from the group consisting of stainless steel, beryllium oxide, alumina, copper, cobalt, and nickel. The method includes placing a substrate in a whisker deposition zone of whisker vapor, and depositing and growing whiskers on the substrate. The method also includes cooling the bottom of the whisker deposition zone to form convection currents of vapor passing upwardly through the zone, and feeding the vapor downwardly into the whisker deposition zone to clash with the upwardly flowing vapor convection currents and form a turbulence in the whisker deposition zone. A rotatable drum positioned below a nucleating zone in the oven and having a pocket that receives the substrate. A rack gear operated by a motor with a clutch moves the substrate from the nucleating zone to the drum pocket, and a motor gear system rotates the drum to wind the whiskers in the form of a roving onto the drum so that courses of a succeeding layer of roving lie between courses of the next preceding layer having courses running in the same direction.

3,813,225
FLUIDIZED SOLIDS REACTOR WITH REFRACTORY LINING

Richard S. Cook, New Martinsville, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Original application Mar. 10, 1969, Ser. No. 805,822, now abandoned. Divided and this application Sept. 20, 1971, Ser. No. 182,138

Int. Cl. B01j *1/20*

U.S. Cl. 23—284 **10 Claims**

Fluidized solids reactor, e.g., a fluid bed chlorinator having a refractory brick lining that utilizes finely-divided refractory metal oxide powder to fill the joints between bricks is described. Optionally, the hidden faces of the brick have a coating of the refractory metal oxide powder.

3,813,226
THERMO REGULATED CATALYTIC CLEANER FOR EXHAUST GAS

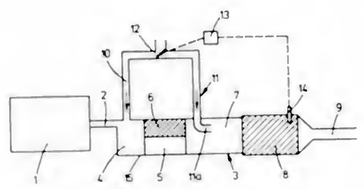
Herbert Heitland and Peter Manderscheid, Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed June 12, 1972, Ser. No. 262,005

Claims priority, application Germany, June 11, 1971, P 21 28 989.4

Int. Cl. B01j *9/04;* **F01n** *3/14*

U.S. Cl. 23—288 F **6 Claims**



Arrangement for cleaning exhaust gas comprising, an input conduit for coupling the cleaning arrangement to the combustion engine and passing the exhaust gas from the engine to the cleaning arrangement which includes in the flow direction of the exhaust gas an ante-chamber in which the input conduit terminates, a thermal reactor for oxidation of the exhaust gas placed downstream with respect to the flow of exhaust gas coming from the input conduit, a first catalysator for the reduction of the components of the exhaust gas and placed parallel with the thermal reactor with respect to the direction of flow of the exhaust gas, a second chamber following adjacent the first catalysator and thermal reactor in the downstream direction, a second catalysator operating at high temperatures and following the second ante-chamber in the downstream direction and having an output emitting the exhaust gas in cleaned condition to the atmosphere, a source of secondary or control air having a first input conduit and a second input conduit, a device selectively controlling the flow of the secondary air to the first input conduit and to the second input conduit, the first input conduit being coupled to the ante-chamber at a region such that when the secondary air is flowing therethrough the secondary air diverting flow of the exhaust gas to the thermal reactor placed offset with respect to the location of the exhaust gas input conduit the exhaust gas flows to the first catalysator substantially lying in the input direction of the exhaust gas when the first input conduit is closed by the selectively controlling device, a sensor for sensing the temperature of the second catalysator and when a predetermined operating temperature is sensed producing a signal causing operating device of the controlling means for diverting the secondary air flow to the second input conduit and thereby causing an acceleration of the air through the first catalysator to the second catalysator.

3,813,227
HARD, SINTERED GOLD-COLORED ALLOY OF TIN CEMENTED WITH Ti, Al, Cr AND Fe ALLOY BINDER

Chuji Tomita, Suwa, Kazutomo Kasai, Shimosuwa-machi, and Itaru Okonogi, Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

No Drawing. Filed Nov. 13, 1972, Ser. No. 305,759

Claims priority, application Japan, Nov. 12, 1971, 46/89,956

Int. Cl. C22c *29/00*

U.S. Cl. 29—182.5 **6 Claims**

A hard, sintered gold-colored alloy especially useful for costume jewelry and items which must withstand accidental abrasion is composed of TiN and an alloy of Ti, Al, Cr and Fe. The sintered material can be ground and polished to a higher luster and is exremely scratch-resistant.

3,813,228
LUBRICATING OIL COMPOSITION

Edward M. Geiser, Downers Grove, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed July 17, 1972, Ser. No. 272,585

Int. Cl. C10l *1/10*

U.S. Cl. 44—58 **10 Claims**

Lubricating oil for two-cycle or rotary engines which employ a lubricating oil-fuel mixture, containing the polymeric reaction product of an aliphatic amine and an epihalohydrin compound.

3,813,229
PROCESS FOR THE PRODUCTION OF A REDUCING GAS FOR BLAST FURNACE

Giorgio Pagani, Milan, Italy, assignor to Snam Progetti, S.p.A., San Donato Milanese, Italy

Filed Sept. 3, 1971, Ser. No. 177,630

Claims priority, application Italy, Sept. 3, 1970, 29,300/70

Int. Cl. C01b *2/14*

U.S. Cl. 48—196 R **7 Claims**

This invention relates to a process for the production of a reducing gas for use in a blast furnace said process comprising separately preheating a hydrocarbon fuel and separately preheating the supporter of combustion to be used in the partial combustion furnace where the reducing gas is produced to a temperature in the range of 800°–1500° C.; feeding the preheated supporter of combustion to the partial combustion furnace together with the fuel which has been preheated to at least 600° C.; cooling, if necessary, the obtained gases to a temperature suitable for introduction into the blast furnace and; feeding the gases to the blast furnace.

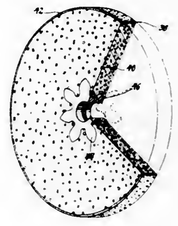
3,813,230
METHOD OF MAKING A POROUS LAMINATED METAL-BONDED CUTTING WHEEL

Harold W. Ferchland, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Application July 31, 1969, Ser. No. 850,314, now Patent No. 3,641,718, which is a continuation of abandoned application Ser. No. 751,479, Aug. 9, 1968. Divided and this application Oct. 27, 1971, Ser. No. 193,226

Int. Cl. B24d *7/10*

U.S. Cl. 51—297 **2 Claims**



A cool running abrasive cutting tool having a working surface comprising a layer of diamond particles included in a heat-conductive matrix and a heat-dissipating region immediately subjacent the working surface. The heat-dissipating region is comprised of a highly porous material having a macro-porosity profile, an extended internal heat transfer surface area and preferably is formed from a metal having a thermal conductivity coefficient of at least about 0.05 g.-cal./(sec.)(cm.²)(° C./cm.). A particular electroplated diamond peripheral wheel is disclosed.

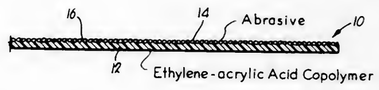
3,813,231
SANDPAPER

Ronald Edward Gilbert, Orange, Tex., and Richard Leo Monley, Jr., Kansas City, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed July 31, 1972, Ser. No. 276,574

Int. Cl. B24b *37/00*

U.S. Cl. 51—298 **4 Claims**



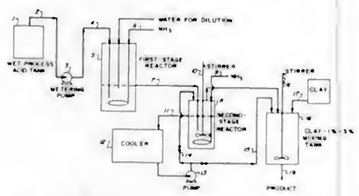
An improved flexible abrasive sheet and a process for producing the same is disclosed. The flexible abrasive sheet includes a backing of a copolymer of ethylene and acrylic acid having a melt index as determined by ASTM Test No. D1238–57T of from about 10 up to about 50 and contains from about 15 up to about 20 percent polymerized acrylic acid based on the weight of the co-

polymer, and an abrasive grit partially embedded in the ethylene-acrylic acid copolymer backing. The flexible abrasive sheet is free of any adhesive or bonding agent between the backing and the abrasive grit.

3,813,232
PROCESS FOR MAKING CARBON-CONTAINING GLASSES
Ray B. Forker, Jr., Horseheads, and Joseph N. Panzarino, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.
No Drawing. Filed Nov. 17, 1972, Ser. No. 307,464
Int. Cl. C03c *3/04, 15/09;* **H01b** *1/06*
U.S. Cl. 65—23 **9 Claims**

A process for making carbon-containing glasses from porous high-silica glass comprising the impregnation of the porous glass with acetophenone and sulfuric acid followed by a firing treatment to decompose the acetophenone to carbon and to consolidate the glass is disclosed. The process produces consolidated high-silica glass having a continuous carbon phase therein which is particularly useful for its uniform electrical properties, but is also characterized by high strength and improved refractoriness.

3,813,233
PRODUCTION OF SUSPENSION FERTILIZERS FROM WET-PROCESS ORTHOPHOSPHORIC ACIDS
Lucian A. Kendrick, Jr., Florence, Ala., assignor to Tennessee Valley Authority
Continuation-in-part of application Ser. No. 284,155, Aug. 28, 1972, now Defensive Publication T912,015, dated July 24, 1973. This application Apr. 23, 1973, Ser. No. 353,576
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 **11 Claims**



A process for preparing concentrated, high-grade $N—P_2O_5$ (e.g. 12–40–0) and mixed $N—P_2O_5—K_2O$ (e.g. 14–14–14) suspension fertilizers with exceptionally satisfactory long-term storage properties from merchant-grade (50–54 percent P_2O_5) wet-process phosphoric acid or other impure phosphoric acids. The process involves ammoniation of the acid in two or more steps to reduce precipitation of amorphous materials derived from the impurities which have gel-like properties that destroy fluidity of the fertilizer products. Other factors important to successful operation of the process are pH, reaction temperature, and retention time in each step or stage.

3,813,234
ORTHO-TOLUIDINE PLANT REGULANTS
Robert K. Howe, Bridgeton, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Dec. 30, 1971, Ser. No. 214,463
Int. Cl. A01n *9/20*
U.S. Cl. 71—76 **9 Claims**

Effective plant regulation is obtained by the application of a class of *o*-toluidines to plants.

3,813,235
HERBICIDAL ALIPHATIC OXAALKYL-2,4,5-TRIHALOGENO-IMIDAZOLES
Hans Rutz, Basel, and Kurt Gubler, Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Original application Apr. 24, 1968, Ser. No. 723,903, now Patent No. 3,625,953. Divided and this application Apr. 5, 1971, Ser. No. 131,448
Claims priority, application Switzerland, Apr. 26, 1967, 5,960/67
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **2 Claims**

2,4,5,-trihalogeno-imidazoles substituted in 1-position at the imidazol nucleus by a group of the formula R—O—A— wherein R represents an optionally substituted aliphatic hydrocarbon radical and A represents an alkylene group, are described, which imidazoles are herbicidally active and useful in the control of weeds and the like undesirable plant growth; herbicidal compositions containing such imidazoles as active ingredients, and method of controlling undesirable plant growth with the aid of such compounds are also disclosed.

3,813,236
SUSTAINED RELEASE PESTICIDE COMPOSITIONS AND METHOD OF USING
George Graham Allan, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
No Drawing. Continuation of application Ser. No. 832,464, June 11, 1969, which is a continuation-in-part of application Ser. No. 593,707, Nov. 14, 1966, both now abandoned. This application Dec. 28, 1970, Ser. No. 102,177
Int. Cl. A01n *9/08, 9/22*
U.S. Cl. 71—94 **20 Claims**

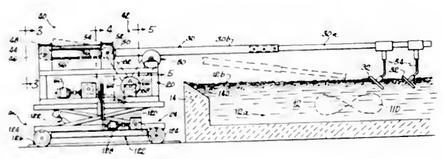
Organic pesticides are chemically combined with an inert natural polymer substrate such as a lignin or lignin containing material, tree bark, cellulose or proteinaceous material. When exposed to environmental conditions the chemical bond between the polymer and the pesticide is broken by hydrolysis to yield a pesticidal amount of the free pesticide over an extended period of time.

3,813,237
HERBICIDE
Adolf Fischer, Mutterstadt, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed July 9, 1970, Ser. No. 53,661
Claims priority, application Germany, July 17, 1969, P 19 36 341.8
Int. Cl. A01n *9/24*
U.S. Cl. 71—117 **4 Claims**

A mixture of a phenoxycarboxylic acid derivative and a biscarbamate or an acid anilide which has a good herbicidal action and a process for controlling unwanted plants in preemergence treatment with this mixture.

3,813,238
MECHANICAL PUDDLER
David Salmon, Frankfort, and Edward J. Wierzbicki, Lansing, Ill., Benny Langston, Crown Point, Ind., and Donald W. Beegle, Russellville, Ala., assignors to U.S. Reduction Company
Original application Oct. 9, 1970, Ser. No. 79,561, now Patent No. 3,703,340. Divided and this application May 24, 1972, Ser. No. 256,611
Int. Cl. C22b
U.S. Cl. 75—93 R **2 Claims**

A mechanical puddler for stirring a melt within a furnace and including an elongated member carried by a frame and having a stirring mechanism connected to a free end thereof with drive means cooperating with the member for moving the paddle in a closed loop having a figure eight configuration. The frame is capable of being raised and lowered relative to the upper surface of the

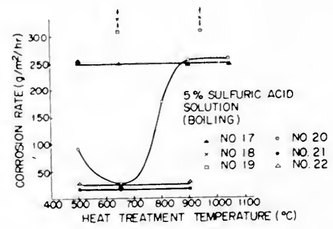


melt and moved parallel to the surface to act as a mechanical skimmer.

3,813,239
CORROSION-RESISTANT NICKEL-IRON ALLOY
George Norman Flint and Thomas Ernest Evans, Solihull, and Anthony Christopher Hart, Sedgley, England, assignors to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Filed Feb. 7, 1973, Ser. No. 330,250
Claims priority, application Great Britain, Feb. 16, 1972, 7,064/72
Int. Cl. C22c *37/00*
U.S. Cl. 75—122 **10 Claims**

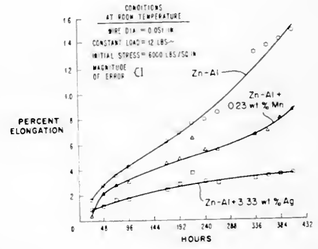
Alloy containing specially proportioned amounts of nickel, chromium, copper and molybdenum, and optionally niobium, along with iron is characterized by desirable combination of workability, resistance to crevice corrosion in chloride media and resistance to corrosion in acids.

3,813,240
CORROSION-RESISTING STEEL
Yoshihiko Abe, Tokyo, Japan, assignor to Mitsubishi Seiko Kabushiki Kaisha, Tokyo, Japan
Filed June 21, 1972, Ser. No. 264,985
Claims priority, application Japan, Mar. 3, 1972, 47/21,554
Int. Cl. C22c *37/10, 39/14*
U.S. Cl. 75—126 D **2 Claims**



The corrosion-resisting steel with superb resistance to pitting corrosion is manufactured of a microstructural stainless steel composed mainly of chromium or chromium added with at least one of nickel and manganese still containing 10 to 30 percent by weight of chromium and further having 2 to 10 percent by weight of one or more carbonitrides selected from the group of titanium, zirconium, niobium, tantalum and vanadium uniformly and finely dispersed therein.

3,813,241
CREEP RESISTANT SUPERPLASTIC ALLOYS
Praveen Chaudhari, Briarcliff Manor, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of abandoned application Ser. No. 837,822, June 30, 1969. This application Dec. 3, 1971, Ser. No. 204,742
Int. Cl. C22c *17/00*
U.S. Cl. 75—178 A **6 Claims**



This disclosure provides creep resistant superplastic alloys by fabricating a primary superplastic alloy system and including therewith alloying additions which do not effectively alter the superplastic properties of the system at elevated temperatures and effectively reduce the creep rate at lower operational temperatures by precipitation of the alloying additions in the material. Illustrative examples of alloying additions for the Zn-Al superplastic alloy are the elements Ag and Mn. This alloy has superplasticity near 250° C. and has enhanced creep resistance at room temperature, e.g., 20° C.

3,813,242
PROCESS FOR IMPROVING A PHOTOSENSITIVITY OF AN ELECTROPHOTOGRAPHIC ELEMENT
Mitsusuke Ikeda, Hirakata, Hisanao Sato, Ibaragi, Etsuko Torii, Kyoto, Kazuhisa Morimoto, Settsu, and Yo Hasegawa, Suita, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan
Filed Oct. 1, 1971, Ser. No. 185,660
Claims priority, application Japan, Oct. 7, 1970, 45/88,434; Oct. 13, 1970, 45/90,354, 45/90,355
Int. Cl. G03g *13/22*
U.S. Cl. 96—1 R **3 Claims**

A process for improving the photosensitivity of an electrophotographic element which is comprised of conductive base, an organic photoconductive layer, and an organic sensitizer layer. The process comprises exposing the element to more than 10 lux seconds of visible light and uniformly charging the element to a negative potential of 200 to 1800 volts prior to charging the element with a positive charge and then exposing it to an image. The charging to a negative potential can be carried out prior to, simultaneously with, or subsequent to the step of exposing the element to the visible light.

3,813,243
ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER
Nobuo Kitajima and Tatsuo Masaki, Tokyo, and Hideyo Kondo, Ibaragi-ken, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed July 10, 1972, Ser. No. 270,194
Claims priority, application Japan, July 12, 1971, 46/51,617
Int. Cl. G03g *5/00, 5/04*
U.S. Cl. 96—1.5 **1 Claim**

An electrophotographic photosensitive member is composed essentially of a support, a photoconductive layer and an insulating layer, and the photoconductive layer

being composed of a selenium layer at the support side and a selenium-tellurium layer at the insulating layer side.

3,813,244

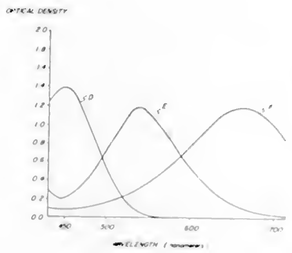
'ONIUM INDO-N-ARYLSULFOANILINE

George Villard, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 24, 1972, Ser. No. 274,719

Int. Cl. G03c *7/00, 7/16, 5/54, 5/24, 1/76, 1/40*

U.S. Cl. 96—3 **20 Claims**



'Onium indo-N-arylsulfoaniline compounds and processes of preparing them are disclosed. In one embodiment, improved photographic processes are described for forming indo-N-arylsulfoaniline dye images in photographic elements. Another embodiment relates to improved photographic elements containing 'onium indo-N-arylsulfoaniline image dyes. In yet other embodiment, image transfer systems and processes are disclosed wherein an 'onium-N-arylsulfoaniline image dye is formed during processing after imagewise exposure or wherein an o- or p-sulfonamidoaniline group is used to form the dye moiety, or dye precursor moiety of an image dye providing compound used in an image transfer system.

3,813,245

PHOTOCHROMIC COMPOSITION CONTAINING POLYHALOGENATED COMPOUND, SPIROPYRAN COMPOUND AND SENSITIZER AND THE USE THEREOF

Urbain Leopold Laridon, Wilrijk, and Jozef Willy van den Houte, Grimbergen, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,114

Claims priority, application Great Britain, Sept. 1, 1970, 41,749/70

Int. Cl. G03c *1/52, 5/24*

U.S. Cl. 96—48 R **21 Claims**

A photographic process wherein a visible image is formed by print-out or optical development in a recording material comprising in intimate admixture a spiropyran compound, an ultra-violet light-sensitive compound capable of producing on exposure with ultra-violet light with the spiropyran a dye salt and as sensitizing agent a compound selected from the group comprising:

(A) organic compounds containing two radicals of different electron-affinity including groups or atoms of different electron-affinity linked to each other through a conjugated system,

(B) organic compounds containing an aromatic nucleus or aromatic ring system in which two adjacent carbon atoms are common to said nucleus or ring system and to an adjacent ring which has no conjugated character and which at one end is linked to the aromatic nucleus or ring system through a carbon-carbon bond and at the other end is linked to said nucleus or ring system through a secondary or tertiary amino group, said organic compounds include those having a said nucleus or ring system in substituted form.

Preferred recording materials contain a spirodinaphthopyran compound, carbon tetrabromide and/or iodoform and as sensitizing agent Michler's ketone or a 2,2,4-trimethyl - 1,2-dihydroquinoline in polystyrene as binding agent.

3,813,246

PROCESS FOR THE REOXIDATION OF PHOTOGRAPHIC BLEACHING AND BLEACH-FIX BATHS

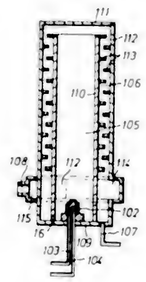
Karl-Wilhelm Schranz, Odenthal-Hahnenberg, Wolfgang Hunicke, Gerhard H. Brus, and Erwin Schon, Leverkusen, Josef Busch, Bensberg, and Herbert Bruck, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 17, 1972, Ser. No. 235,529

Claims priority, application Germany, Mar. 20, 1971, P 21 13 651.6

Int. Cl. G03c *5/26, 5/32*

U.S. Cl. 96—60 BF **10 Claims**



Photographic bleaching and bleach-fixing baths are reoxidized by spraying them through a nozzle in the presence of oxygen into an oxidation chamber. The oxygen is provided either in the form of air or pure oxygen, which may be intermixed at the nozzle or contacted in the chamber atmosphere. The gases and liquid constituents of the sprayed baths are separated by directing them through baffled passageways or bubbling through a liquid. The baffled passageways may be disposed concentrically about the oxidation chamber or in its bottom. The nozzles for liquid and gas atomization may be directed in the same or opposite directions or in separate or combined nozzles. A liquid for bubbling separation may be concentrically disposed in a jacket about the bottom of the oxidation chamber into which the liquid and gaseous constituents are forced by excess pressure. The liquid is discharged from an overflow near the top of the jacket and the gaseous constituents are separated by bubbling through the jacket. Reoxidation may be performed directly within the bleach or bleach-fixing chamber and may be performed at the same time as the baths are sprayed upon the silver halide emulsion layers of an exposed photographic material. Silver salts are removed from the baths before they are sprayed, and the photographic material may form part of the wall of the chamber.

3,813,247

PHOTOGRAPHIC ELEMENT CONTAINING NON-DIFFUSING POLYMERIC DEVELOPMENT ACCELERATORS

Louis Morton Minsk and Jon Tewksbury Staples, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

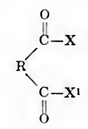
No Drawing. Filed Feb. 29, 1972, Ser. No. 230,471

Int. Cl. G03c *1/04, 1/08, 1/28*

U.S. Cl. 96—68 **10 Claims**

A polyester is disclosed which comprises the condensation product of:

(A) A bifunctional compound having the formula



wherein R is an alkylene group, a thia-alkylene group or a dithia-alkylene group and X and X^1 are independently selected and are —OH, —OR^1 where R^1 is an alkyl group, or a halogen, or are taken together and constitute an ether oxygen bridge completing a heterocyclic ring;

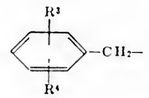
(B) A thia-alkylene glycol having an alkylene chain of 5 to 24 atoms including 1 or 2 thioether sulfur atoms or an oxathia-alkylene chain of 2 to 24 atoms which contains at least one oxygen atom and at least two sulfur atoms, each oxygen atom and sulfur atom being bivalently linked to adjoining carbon atoms; and

(C) A compound selected from the group consisting of:

(1) glycols of the formula

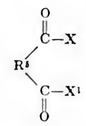
$$HO—R^2—OH$$

wherein R^2 is an arylenedialkylene group, an arylene-bis(thia-alkylene) group or an azaalkylene group of 5–11 atoms including at least one nitrogen atom having a

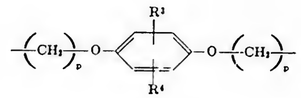


group attached thereto, R^3 and R^4 being independently selected from the group consisting of hydrogen, lower alkyl of 1–5 carbon atoms, lower alkoxy of 1–5 carbon and halogen; and

(2) a second bifunctional compound having the formula:



wherein R^5 represents the bivalent group:



X, X^1, R^3 and R^4 are as described above and *p* is an integer of from 1 to 6.

3,813,248

ORGANIC PHOTOCONDUCTIVE COMPOSITION COMPRISING AN ORGANIC PHOTOCONDUCTIVE COMPOUND AND A SENSITIZING COMPOUND HAVING AN ACTIVE METHYLENE GROUP

Kiyoshi Futaki, Hirokazu Tsukahara, and Kazuhiro Emoto, Kyoto, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

No Drawing. Filed June 10, 1971, Ser. No. 151,914

Claims priority, application Japan, June 10, 1970, 45/50,024

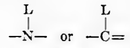
Int. Cl. G03g *5/00*

U.S. Cl. 96—1.5 **19 Claims**

An organic photoconductive composition, useful as an electrophotosensitizing material consisting of an organic photoconductive compound and a compound having an active methylene, as chemical sensitizer, represented by the formula,

$$R—COCH_2—X \text{ or } \underline{Z—COCH_2—Y}$$

wherein R is a substituted or unsubstituted phenyl, alkyl, arylamino, alkylamino, aryloxy or alkoxy; X is acyl, carbamoyl, phenyl-substituted carbamoyl or cyano; Y is carbonyl, oxygen, sulfur,



(wherein L is hydrogen or alkyl); Z is a residue necessary to form a 5- or 6-membered ring, and method for making the same.

3,813,249

LIGHT SENSITIVE PHOTOGRAPHIC MATERIAL

Aaron David Ezekiel, Elvin Frederick William Thurston, Michael Frederick Harper, and Malcom Barlow Wood, Ilford, England, assignors to Ilford Limited, Ilford, England

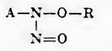
No Drawing. Filed Feb. 1, 1972, Ser. No. 222,663

Claims priority, application Great Britain, Feb. 4, 1971, 3,957/71

Int. Cl. G03c *1/02, 1/76*

U.S. Cl. 96—67 **16 Claims**

A photographic material comprising in at least one layer a water-soluble N-nitroso-oxime of the formula



(I)

wherein A represents a phenyl or naphth-1- or -2-yl radical or a phenyl or naphth-1- or -2-yl radical substituted by one or two members selected from hydrogen, alkyl having 1 to 5 carbon atoms, alkoxy having 1 to 5 carbon atoms, hydroxyalkyl having 1 to 5 carbon atoms, aralkyl and hydroxy and R is a cation as means for reducing spot formation is described.

3,813,250

SILVER HALIDE PHOTOSENSITIVE ELEMENT CONTAINING AN ANTIFOGGING COMBINATION OF A NITRATED HETEROCYCLIC COMPOUND AND A POLYMERIC STABILIZER

Yoshihiko Takamura, Yosuke Nakajima, Reiichi Ohi, and Takushi Miyazako, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Filed Oct. 10, 1972, Ser. No. 296,492

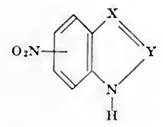
Claims priority, application Japan, Oct. 11, 1971, 46/79,979

Int. Cl. G03c *1/34*

U.S. Cl. 96—76 R **15 Claims**

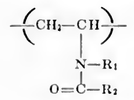
Anti-fogging agents for silver halide photographic emulsions consisting of a combination of (a) an nitrated

benzimidazole, indazole or benzotriazole compound represented by the general formula



(I)

where X and Y individually represent N or CR, wherein R represents a hydrogen atom or alkyl group containing 1 to 4 carbon atoms, and (b) at least one member selected from polymers containing greater than 50 mol percent of recurring units represented by the general formula



(II)

wherein R_1 and R_2 individually represent a hydrogen atom or an alkyl group containing 1 to 4 carbon atoms or form, when taken together with the nitrogen and carbon atoms to which they are attached, a 5- to 7-membered heterocyclic ring.

The anti-fogging agent may be incorporated in silver halide emulsion layers or in another layer adjacent to the emulsion layer to reduce fog in the emulsion layer without a sacrifice in the sensitivity of the photosensitive materials.

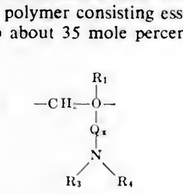
3,813,251
PEPTIZERS FOR PHOTOGRAPHIC EMULSIONS

Kenneth R. Hollister and Ernest J. Perry, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

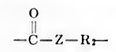
No Drawing. Filed Apr. 28, 1972, Ser. No. 248,442
Int. Cl. G03c *1/04*
U.S. Cl. 96—114 **15 Claims**

A photographic silver halide emulsion contains a peptizer comprising a polymer consisting essentially of:

(A) About 3 to about 35 mole percent of units of the structure



wherein R_1 is hydrogen or a methyl radical, Q is

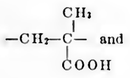


wherein Z is oxygen or =NH and R_2 is an alkylene radical of from 1 to 6 carbon atoms, x is zero or one, and R_3 and R_4 are either

(1) taken together and represent the atoms necessary to complete a 5 or 6 membered heterocyclic ring, or

(2) are independently selected from the group consisting of alkyl radicals of from 1 to 8 carbon atoms, but only when x is equal to one;

(B) About 30 to about 92 mole percent of units of the structure



(C) About 5 to about 65 mole percent of units of the structure

---

3,813,252
SINTERED REFRACTORY MATERIAL

Alfred Lipp, Leubas, St. Mang, Germany, assignor to Elektroschmelzwerk Kempten GmbH, Munich, West Germany

No Drawing. Continuation-in-part of application Ser. No. 755,503, Aug. 19, 1968, which is a continuation of application Ser. No. 570,756, Aug. 8, 1966. This application Oct. 27, 1969, Ser. No. 869,925
Claims priority, application Germany, Aug. 11, 1965, E 29,885
Int. Cl. C04b *35/66;* **H01b** *1/06*
U.S. Cl. 252—520 **6 Claims**

The present invention relates to formed refractory articles of increased machinability prepared by including 10–20%, by weight, of boron nitride in refractories comprising a mixture of a material selected from the group consisting of aluminum nitride, silicon nitride, and aluminum boride and an electrically conductive material selected from the group consisting of graphite, boron carbide titanium carbide, zirconium carbide, chromium carbide, silicon carbide, titanium boride, zirconium boride, chromium boride, silicon boride, beryllium boride and calcium boride.

3,813,253
DRY MIXTURES FOR PRODUCING ACID-RESISTANT CEMENT AND MORTAR COMPOSITIONS

Helmut Neises, Kelkheim, Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation of abandoned application Ser. No. 835,800, June 23, 1969. This application Oct. 1, 1971, Ser. No. 185,895
Int. Cl. C04b *19/03, 19/04*
U.S. Cl. 106—84 **2 Claims**

With the use of condensed aluminum phosphates as hardeners, a composition can be prepared which contains all the ingredients necessary for making acid-resistant water glass cements and mortars. The composition contains as essential ingredients an inert filler material, a water soluble alkali metal silicate and, as the hardener, an aluminum phosphate with a molar ratio of P_2O_5:Al_2O_3=1.1 to 3 which has been subjected to a thermal treatment by heating it in a first stage to at most 400° C. and in a subsequent stage to at most 750° C., the heating being continued in both stages until the weight remains constant. A workable water glass cement or mortar is obtained from such compositions by simply adding water. The necessary amount of water can be reduced and the workability improved by incorporating in the composition a non-ionic or anionic surfactant. For better storability the hardener or the alkali metal silicate are advantageously hydrophobized.

3,813,254
THERMOSETTING NON GELLED HYDROXYL-FUNCTIONAL COATING ON AN INKED METALLIC ARTICLE

Joseph M. Makhlouf, Mars, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Original application June 21, 1972, Ser. No. 155,274, now Patent No. 3,719,618. Divided and this application Oct. 11, 1972, Ser. No. 296,730
Int. Cl. B41m *1/24*
U.S. Cl. 117—12 **9 Claims**

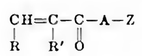
Hydroxyl functional polymers can be produced by employing monomers derived from 12-hydroxystearic acid and glycidyl acrylates or methacrylates and reacting said monomers with other unsaturated monomers, thus providing polymers that form suitable thermosetting compositions when the polymers are co-cured with various cross-linking agents or other resinous compositions.

3,813,255
ULTRAVIOLET-ABSORBING POLYMERS COMPOSITIONS AND FILTER

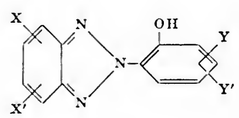
Marc Godfried Mannens, Mortsel, Jan Jaeken, Hove, Wilhelmus Janssens, Aarschot, and Jan Jozef Priem, Mortsel, Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

No Drawing. Original application May 17, 1971, Ser. No. 144,251, now Patent No. 3,761,272. Divided and this application June 4, 1973, Ser. No. 366,594
Claims priority, application Great Britain, June 9, 1970, 27,977/70
Int. Cl. G03c *1/84*
U.S. Cl. 117—33.3 **6 Claims**

The invention claims an ultraviolet-absorbing filter layer composition formed from an aqueous solution of a hydrophilic colloid having dispersed therein a hydrophobic copolymer obtained by emulsion polymerization of at least one α,β-ethylenically unsaturated monomer and of an ultraviolet-absorbing, solid, water-insoluble monomer of the formula:



wherein Z is H or Z', with Z' representing a substituted benzotriazole group of the formula:



R is H, $-CH_3$, —CN, —COOH or —COAZ'
R' is H, $-CH_3$, or $-CH_2COAZ'$
A is —O— or —NH
or A and R form together a cyclic imide group,
or A and R' form together a cyclic imide group,
A being bound to the substituted thiazole group of Z' via the carbocyclic phenyl group or via the carbocyclic benzo group.

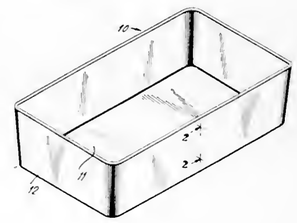
The ultraviolet-absorbing filter layer composition may be used for the protection of light-sensitive photographic materials against ultraviolet light and for the production of ultraviolet filters and filter layers.

3,813,256
METHOD OF MAKING A HEAT RESISTANT, VAPOR FREE COOKING UTENSIL

Robert S. Feinberg, Teaneck, N.J., assignor to Cryplex Industries, Inc., Flushing, N.Y.

Continuation-in-part of abandoned application Ser. No. 49,787, June 25, 1970. This application June 24, 1971, Ser. No. 156,298
Int. Cl. B65d *81/34*
U.S. Cl. 117—47 H **6 Claims**

A food-heating utensil is formed of a heat responsive gas or vapor releasing material such as paper or a thermoset cross-linked polyester substrate coated or encapsulated with a polysulfone resin, and is characterized by



the substantial absence of any gas or vapor release at high temperatures and excellent surface release properties.

3,813,257
COMPOSITE STRUCTURE AND METHOD OF PREPARING THE COMPOSITE STRUCTURE

James C. West, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation of application Ser. No. 105,683, Jan. 11, 1971, which is a continuation of application Ser. No. 18,374, Mar. 12, 1970, which is a continuation of application Ser. No. 842,789, June 30, 1969, which in turn is a continuation of application Ser. No. 602,487, Dec. 19, 1966, all now abandoned. This application May 9, 1972, Ser. No. 251,627
Int. Cl. B44d *1/092*
U.S. Cl. 117—47 R **5 Claims**

A method of preparing a composite structure of a cured polyurethane adhered to a treated elastomer, which comprises the steps (A) treating the elastomer with freshly prepared chlorine water, (B) substantially drying the heated elastomer by evaporation, (C) applying a liquid polyurethane reaction mixture to the treated elastomer, and (D) curing the reaction mixture.

3,813,258
METHOD FOR EVAPORATING SILVER ON TITANIUM AND ITS ALLOYS

Helmut Pieper, Bremen, and Gustav Tober, Delmenhorst, Germany, assignors to Vereinigte Flugtechnische Werke-Fokker Gesellschaft mit beschrankter Haftung, Bremen, Germany

No Drawing. Filed Apr. 27, 1972, Ser. No. 247,952
Int. Cl. C23c *13/02*
U.S. Cl. 117—71 M **3 Claims**

Method of providing silver layers of high adhesive strength on titanium or titanium alloy surfaces, in that purest titanium is evaporated onto a titanium or titanium alloy surface; and subsequently nickel, copper and finally silver are evaporated thereon.

3,813,259
PREPARATION OF RESIN ENCAPSULATED CRUMB RUBBER

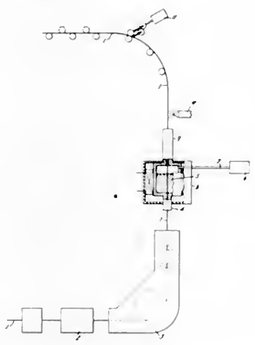
Terry C. Neubert, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 7, 1972, Ser. No. 242,022
Int. Cl. B44d *1/02*
U.S. Cl. 117—100 C **4 Claims**

A resinous, dust-free, semicontinuous, adherent coating-type partitioning agent for elastomeric crumb or

elastomer bonded particles is prepared by slowly adding together a dilute resin latex and a dilute coagulating agent (the elastomeric particulate being slurried in one or the other of these ingredients) at a temperature near or above the agglomerating temperature of the resin. Under these conditions, the resin coagulates slowly and is coincidentally deposited on the surface of the elastomeric particles, becoming sintered so that essentially none of the resin is free to form a separate phase. Preferred coating resins are styrenebutadiene copolymers containing at least 80% styrene. Three to ten percent of resin by weight of product provides adequate partitioning under normal conditions.

3,813,260
METHOD FOR PURGING DIP FORMING CRUCIBLE ENVIRONMENT
Norman Jay Lipstein, Schenectady, N.Y., assignor to General Electric Company
Continuation of application Ser. No. 99,690, Dec. 18, 1970, which is a continuation of application Ser. No. 871,593, Nov. 3, 1969, which is a continuation of application Ser. No. 633,325, Mar. 8, 1967, which in turn is a continuation-in-part of application Ser. No. 538,370, Mar. 29, 1966, all now abandoned. This application Feb. 7, 1972, Ser. No. 224,329
Int. Cl. C23c *1/10, 1/12*
U.S. Cl. 117—114 R **3 Claims**



In accreting molten material onto a continuous, elongated core, the core is passed upwardly through a crucible containing a molten bath of the material, and exits through an elongated tube extending upwardly from the crucible and is then cooled. An inert gas is introduced to the crucible above the molten material at a pressure sufficient to maintain a continuous flow of gas through the tube outwardly from the crucible, and coolant (e.g. water) penetrating the tube or crucible is atomized and/or vaporized and is conveyed concurrently with the gas stream.

3,813,261
TRANSPARENTIZED FIBROUS MATERIALS AND PROCESS FOR MAKING SAME
Peter Muller, Port Washington, N.Y., assignor to Andrews Paper & Chemical Co., Inc., Port Washington, N.Y.
No Drawing. Filed July 23, 1971, Ser. No. 165,692
Int. Cl. D21h *5/08*
U.S. Cl. 117—153 **4 Claims**

A transparentized fibrous material and process for its preparation is disclosed. A fibrous material is treated with an impregnating liquid containing a polyol having two or more hydroxyl functions part or all of which are etherified or esterified with radicals containing one or more ether or ester links and free hydroxyl groups, and also containing methylol derivatives of a polyamino compound together with a condensation catalyst. The impregnated fibrous material is cured by resination reaction *in situ* and immobilization of the impregnated material. A transparentized fibrous material results which is resistant to water, most organic solvents, and heat and is useful for use as tracing materials as well as a translucent base for sensitizing with reprographic coatings.

3,813,262
RESIN-IMPREGNATED TISSUE OVERLAYS
Ray T. Shelton, Kelso, and Ellsworth O. Jensen, Longview, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.
No Drawing. Original application Nov. 27, 1970, Ser. No. 93,427, now Patent No. 3,684,649, dated Aug. 15, 1972. Divided and this application June 12, 1972, Ser. No. 262,077
Int. Cl. D21h *1/40*
U.S. Cl. 117—155 UA **11 Claims**

Disclosed herein is a resin-impregnated tissue useful for overlaying various woody substrates. The tissue is impregnated with an aqueous composition comprising an emulsified thermosetting acrylic resin and a solubilized thermoplastic acrylic resin.

3,813,263
METHOD FOR REDUCING ELECTROMIGRATION DAMAGE AT METAL INTERFACES
Robert Rosenberg, Peekskill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of abandoned application Ser. No. 837,778, June 30, 1969. This application Jan. 10, 1972, Ser. No. 216,864
Int. Cl. H01l *7/02*
U.S. Cl. 117—201 **20 Claims**

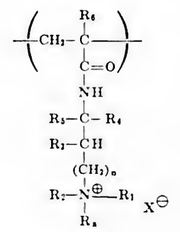


A method for reducing electromigration damage at metal interfaces between interconnection lines and semiconductor contact materials is taught. The accumulation of excess vacancies in an interface region between two different metals is limited by controlling the flow of ions at the interface region in the presence of electron flow such that the ratio of the rates at which ions enter and leave the interface region approaches unity. By eliminating the accumulation of vacancies (which results in void formation) in the interface region, failure of the metal where vacancies would otherwise appear is avoided. The accumulation of excess vacancies is controlled in the operating environment where the two metals must carry current of relatively high density by adjustment of the grain sizes of the different metals; by forming an additional region of another metal in the interface region which is characterized by the presence of lattice diffusion at a desired temperature; by introducing a solute having a higher diffusivity into one of the metals having a lower diffusivity; and by increasing the thickness of the interface region by either grading one metal into the other or by introducing another metal which adds to the thickness of the interface region.

Where vacancies occur as a result of interdiffusion at high temperature during bonding of two metals, directing the electron flow in a direction opposite to the direction of diffusion of the metal having the higher diffusivity controls the appearance of vacancies. Controlling the current density also controls the appearance of these vacancies which ultimately lead to catastrophic cracking at either the metal interconnection or at the metal contact material.

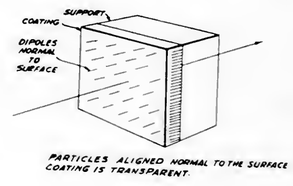
3,813,264
ELECTROCONDUCTIVE PAPER
Jerry Emile Boothe, Pittsburgh, Andrew Jackson Sharpe, Jr., McMurray, and Kathleen Ann Seese, Carnegie, Pa., assignors to Calgon Corporation, Robinson Township, Pa.
No Drawing. Filed Mar. 22, 1972, Ser. No. 236,969
Int. Cl. B44d *1/00;* **G03g** *7/00*
U.S. Cl. 117—201 **4 Claims**

An electroconductive paper useful in making copies by an electrostatic process is made by incorporating therein an N-(alkyl ammonium)acrylamide polymer having about 90 weight percent units of the formula



where R_1 and R_2 are independently selected from linear and branched alkyl groups having up to 18 carbon atoms and aralkyl groups having up to 10 carbon atoms and in which R_1 and R_2 may be combined to form a heterocyclic group having one or more hetero atoms: R_3 is selected from the group consisting of hydrogen, lower alkyl groups of 1 to 4 carbon atoms and halogen; R_4 is selected from the group of hydrogen, halogen, and linear or branched alkyl groups of up to 5 carbon atoms; R_5 is selected from the group consisting of phenyl, lower alkyl groups of 1 to 4 carbon atoms and substituted phenyl wherein the substituents may be lower alkyl groups of 1 to 4 carbon atoms or lower alkoxy groups of 1 to 4 carbon atoms; R_3 or R_4 can combine with R_5 to form a cyclic group of at least 6 carbon atoms or a bicyclic group of at least 7 carbon atoms, which groups can be substituted with a linear or branched alkyl group having up to 5 carbon atoms; R_6 is selected from the group consisting of hydrogen and methyl; R_7 may be any group capable of quaternizing the nitrogen, preferably selected from the group consisting of hydrogen, benzyl, phenethyl, cyanoethyl, and linear, branched and substituted alkyl and aralkyl groups; $X^{\ominus}$ is any anion, especially halide, alkosulfate, tosylate, carboxylate, sulfonate, sulfate, phosphate, acetate, nitrate, etc.; and n is an integer of 0 to 2.

3,813,265
ELECTRO-OPTICAL DIPOLAR MATERIAL
Alvin M. Marks, 166—25 9th Ave., Whitestone, N.Y. 11357
Application Feb. 16, 1970, Ser. No. 11,696, now Patent No. 3,709,828, which is a continuation-in-part of application Ser. No. 378,836, June 29, 1964, now Patent No. 3,512,876. Divided and this application Mar. 23, 1972, Ser. No. 237,350
Int. Cl. F21v *9/00;* **G02f** *1/18*
U.S. Cl. 117—211 **31 Claims**

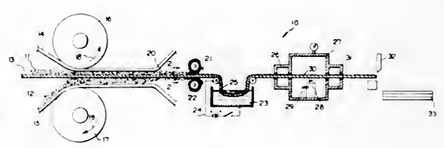


An article of manufacture is provided as a matrix having dispersed substantially uniformly therethrough a plurality of electro-optically responsive dipole particles selected from the group consisting of electrically conductive and semi-conductive material and dichroic crystals, the matrix being a transparent medium capable of being in the fluid state during the initial orientation of the dipoles, whereby the dipoles are capable of rotation to a desired preferred orientation upon the application of a force field, the medium being thereafter solidified. A method of applying the force field is disclosed.

ERRATA

For Classes 117—212 thru 156—254 see:
Patents Nos. 3,813,291 thru 3,813,315

3,813,266
PROCESS FOR PRODUCING A CAPACITOR
Paolo della Porta, Tiziano Giorgi, Bruno Kindl, and Mario Zucchinelli, Milan, Italy, assignors to S.A.E.S. Getters S.p.A., Milan, Italy
Application May 1, 1970, Ser. No. 33,828, now Patent No. 3,654,533, which is a continuation-in-part of abandoned application Ser. No. 527,906, Feb. 16, 1966. Divided and this application Sept. 2, 1971, Ser. No. 177,450
Int. Cl. B44d *1/16;* **H01g** *13/00*
U.S. Cl. 117—212 **12 Claims**



A capacitor comprising:

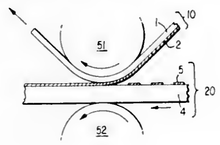
(a) A first capacitor plate comprising an electrically conductive substrate having electrically conductive particles partially embedded in at least one surface thereof;

(b) A dielectric comprising a thin, electrically non-conductive coating disposed entirely over the exposed portions of the particles and the substrate;

(c) A second capacitor plate comprising a continuous, electrically conductive coating disposed over the surface of the non-conductive coating.

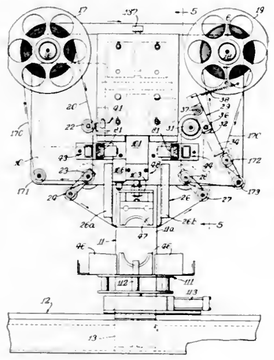
Processes for producing these capacitors are also described.

3,813,267
PROCESS FOR FIXING ELECTROPHOTOGRAPHIC IMAGES
Satoru Honjo, Osamu Fukushima, and Chiaki Osada, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 29, 1971, Ser. No. 213,532
Claims priority, application Japan, Dec. 29, 1970, 46/121,453
Int. Cl. B44c *1/18*
U.S. Cl. 156—236 **16 Claims**



Electrophotographic images are fixed by applying thereto a fixing sheet comprising a supporting base and a clear adhesive resin layer, whereafter the adhesive resin layer is separated from the supporting base by heat and/or pressure and is thus allowed to transfer to surface bearing the toner image.

3,813,268
MACHINE AND METHOD FOR APPLYING INDICIA TO ARTICLES
Daniel Kerwin, Lombard, Ill., assignor to The Meyercord Co., Carol Stream (Wheaton), Ill.
Filed Aug. 19, 1971, Ser. No. 173,089
Int. Cl. B65c *9/18, 9/44*
U.S. Cl. 156—238 **18 Claims**

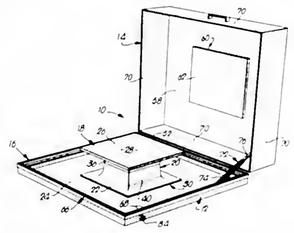


This invention deals with a machine or method for transferring decalcomanias (decals) from a rolled carrier web or strip to a series of articles. The machine supports a supply reel containing the web and transports the web from the supply reel, past a decal applying die, to a take-up reel, a feed roller being provided to drive the web. Brakes on opposite sides of the die are adapted to clamp the web, and a photoelectric device actuates the brakes to clamp the web when a decal on the web is in a transfer position in front of the die. A web tensioning mechanism is provided to hold the web under tension during application of a decal. This same mechanism may also be operated to adjust the position of the web so that successive decals are precisely at the transfer position. In instances where an interleaf or backing strip is provided on the supply reel along with a web, the machine removes the interleaf before the web reaches the die, and rewinds the interleaf with the web on the take-up reel.

3,813,269
METHOD OF MAKING FIBER GLASS THERMOPLASTIC SHEETS
Robert A. Molbert, Akron, Ohio, assignor to The General Tire & Rubber Company
No Drawing. Continuation-in-part of abandoned application Ser. No. 18,027, Feb. 26, 1970. This application July 20, 1972, Ser. No. 273,661
Int. Cl. B44d *1/95*
U.S. Cl. 156—272 **6 Claims**

Non-uniformity in the distribution of fibers in glass fiber reinforced thermoplastic sheeting has a deteriorating influence upon certain physical properties of the sheeting such as flexural modulus and tensile strength. Non-uniformity is caused by the inability of the viscous thermoplastic melt to penetrate into the fiber mat during manufacture. This invention is a method of making a glass fiber reinforced thermoplastic sheet utilizing powdered thermoplastics and static electricity phenomena to achieve a uniform distribution of fibers.

3,813,270
HEAT TRANSFER MACHINE
Clifford A. Hix and Daniel H. Hix, Pittsburg, Kans., assignors to Hix Automation Incorporated, Pittsburg, Kans.
Filed June 2, 1972, Ser. No. 258,959
Int. Cl. B32b *31/20*
U.S. Cl. 156—382 **3 Claims**

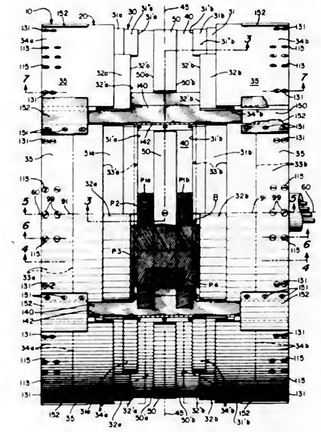


A device for effecting the transfer of an image from one piece of material to another in which a platen and a heating element are enclosed in a container such that when a vacuum is created therein the platen and heating element are drawn together to compress the materials therebetween and cause the image to be transferred. The platen and heating element are respectively affixed to a base and a cover of the container which are, in turn, interconnected by a hinge structure that permits the cover to move in a linear path of travel toward the base in response to the vacuum, thus avoiding fatiguing of the base and cover walls because of flexing.

3,813,271
BELT BUILDING DRUM
Robert S. Riggs, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed June 28, 1972, Ser. No. 266,897
Int. Cl. B29h *17/16, 17/20, 17/28*
U.S. Cl. 156—417 **33 Claims**

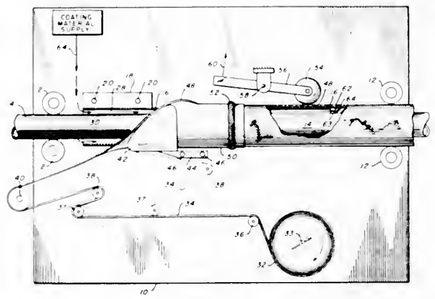
A segmented collapsible drum for building an endless inextensible belt assembly, optionally including a tread, for a tire. The drum features edge guides mounted in pairs on each segment of the drum. Pairs of the guides for a plurality of plies are disposed in alternating sequences about the drum and at differing radial heights above the drum surface to locate plies of differing widths

as they are wrapped successively about the drum. Pairs of guides spaced radially outwardly from the drum surface are movable axially to overlie a wider inner ply



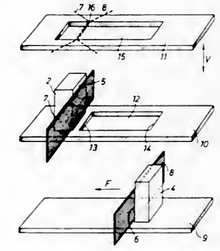
and to locate a narrower outer ply. These latter pairs can then be moved axially outward to allow collapse of the drum and removal of the completed belt assembly.

3,813,272
METHOD AND APPARATUS FOR SIMULTANEOUSLY APPLYING TO AN EXTENDED CYLINDRICAL OBJECT A COATING AND A PLASTIC FILM WRAPPING TO RETAIN THE COATING
Clemens F. Straughan, Tulsa, Okla., assignor to CFS Corporation, Tulsa, Okla.
Filed May 12, 1971, Ser. No. 142,452
Int. Cl. B29c *24/00*
U.S. Cl. 156—468 **9 Claims**



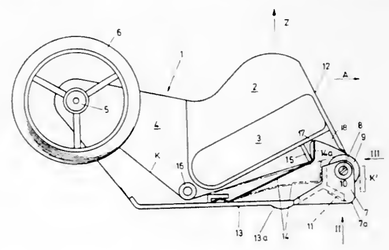
This invention involves the method and apparatus for simultaneously placing a coating of a selected material on the outer surface of an extended cylindrical object such as a pipe or conduit, and holding the coating in position by wrapping the coating with a strip of thin film formed to a cylindrical contour and sealed with a longitudinal seam. This is accomplished by inserting the pipe through a tubular concentric mandrel, wrapping and sealing the plastic film against the mandrel and injecting the coating material through the annular space between the pipe and the mandrel and thus into the space between the pipe and the sealed plastic film. Using heat shrinkable plastic the film forms a tightly fitting cover for the pipe coating material.

3,813,273
METHOD FOR CONSTRUCTING A HONEYCOMB STRUCTURE AND A DEVICE FOR CARRYING OUT SAID METHOD
Jean Loustau, 59 Avenue de Suffren, Paris 7eme, France
Filed Feb. 7, 1972, Ser. No. 224,102
Claims priority, application France, Feb. 10, 1971, 7104447; Apr. 4, 1971, 7116043
Int. Cl. B31f *1/00*
U.S. Cl. 156—469 **2 Claims**



A method for constructing a honeycomb structure, comprising employing parallel lines of fixed abutments alternating with lines of movable punches which are parallel to each other and parallel to the lines of abutment and have an active face facing the active faces of the fixed abutment which face them in an adjacent line and a face facing the gap between the two fixed abutments of the other adjacent line of abutments, the lines of each kind carrying on said facing faces at least one longitudinal component element of the structure, moving the lines of movable punches toward the lines of fixed abutments in a direction perpendicular to the lines of punches and abutments until said component elements are united in the surface common to the facing faces, interconnecting the component elements in said common surface and separating the structure obtained from the abutments and punches.

3,813,274
HANDHELD APPLICATOR FOR ADHESIVE TAPE
Hansjörg Rothenberger, Sonnmatt, 9032 Engelburg, Switzerland
Filed Dec. 13, 1971, Ser. No. 207,347
Claims priority, application Switzerland, Dec. 17, 1970, 18,735/70
Int. Cl. B32b *31/18*
U.S. Cl. 156—527 **6 Claims**



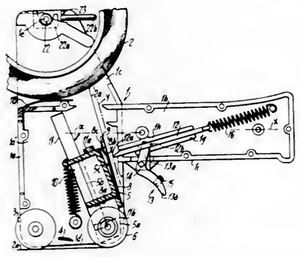
A handheld dispenser and applicator for tape coated with pressure sensitive adhesive of the type including a

supporting body provided with a handle, a tape reel, an exposed pressure roller, guides for guiding tape from the reel past the roller to an object to be taped during application of the tape under the manually generated pressure of the roller, and a blade for cutting the trailing end of the applied piece of tape, is provided with a leaf spring which engages a portion of the tape between the roller and the reel and laterally deflects the engaged tape portion as soon as the tension caused by application of the tape is relaxed when the trailing tape end is cut off. The leading end of the tape remaining on the applicator is thereby pulled back to the roller and is attached under the pressure of the roller during the next taping operation.

3,813,275
HAND-OPERATED DISPENSER FOR APPLYING ADHESIVE TAPE

Heinz Hermann Weick, 94 Rue de la Servette, Geneva, Switzerland, and Viktor Trueb, Oberhelfenschwil, and Walter Hesener, Meyrin, Switzerland; said Trueb and said Hesener assignors to said Weick

Filed Apr. 21, 1972, Ser. No. 246,312
Claims priority, application Switzerland, Apr. 28, 1971, 6,284/71; Mar. 23, 1972, 4,476/72
Int. Cl. B32b *31/18*
U.S. Cl. 156—527 **21 Claims**



A hand-operated dispenser for applying adhesive tape comprising a roughly T-shaped casing, the vertical bar of the "T" forming a hand grip, a bearing for rotatably supporting a roll of adhesive tape arranged in the area of one face of the cross piece of the "T," the other face of the T-shaped cross piece being adapted to be passed over the article to be taped, a cutting edge located in this face of the cross piece and next to this on the feed side of the tape a sliding member, which with its lower end projects beyond the casing for changing the direction of the tape and pressing it on the article to be taped, means for guiding the sliding member in the casing so that it can assume two positions in such a manner that the portion of the tape lying in the cutting area in one position of the sliding member is higher than the cutting edge, means for locking the sliding member in its lower position, manually operated release means for unlocking the sliding member.

3,813,276
METHOD OF TREATING A GLASS BODY

Hendrikus Johan Lodewijk Trap, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

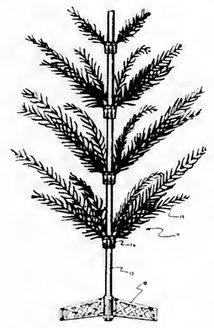
No Drawing. Filed Apr. 25, 1972, Ser. No. 247,298
Claims priority, application Netherlands, May 29, 1971, 7107454
Int. Cl. C03c *15/00*
U.S. Cl. 161—1 **3 Claims**

A method in which the electrical conductivity of a glass is adjusted by means of an oxidizing or reducing treatment and in which subsequently a layer is etched off the glass surface.

3,813,277
CHRISTMAS TREE

Isaac Noe Kleiman, Fray Juan de Torquemada 157, Mexico City 8, Mexico

Filed Apr. 25, 1972, Ser. No. 247,268
Int. Cl. A47g *33/06*
U.S. Cl. 161—24 **1 Claim**

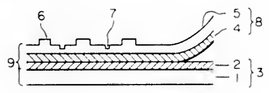


A Christmas tree that includes a stem or trunk supported in a conventional base, and a plurality of one-piece branch supports coupled to the trunk at different levels thereof, the supports being constituted by sleeves of a thermoplastic material or the like, wherein the outside parts of the supports have a plurality of symmetrically distributed cylindrical perforations with longitudinal axes parallel to that of the sleeve, tree branches being inserted in the perforations; the upper portions of the perforations terminate in radial slots of substantially rectangular cross section, that permit the folding and unfolding of the branches in relation with the stem.

3,813,278
SELF-STICKING MATERIAL AND A PROCESS FOR PRODUCING THE SAME

Keizo Katagiri, Mamoru Sakaguchi, and Tokumaro Kamata, Katsuta, Japan, assignors to Nippon Kakoh Seishi K.K., Tokyo, Japan

Filed Mar. 13, 1972, Ser. No. 234,047
Int. Cl. B32b *5/02*
U.S. Cl. 161—82 **18 Claims**



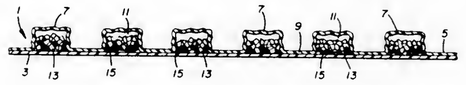
A self-sticking material comprising a base sheet (**5**), a film of self-sticking composition (**4**) comprising 100 parts, by weight, of ethylene-vinyl acetate/vinyl chloride graft polymer (known as EVA/VC) and 5 to 30 parts of a plasticizer, and a releasing paper (**3**) having a smooth surface. Said self-sticking material is used for preparing stickers and masking sheets and the like.

3,813,279
ELASTIC FOAM CARPET UNDERLAY

Lawrence C. Varner, Jr., % The General Tire & Rubber Co., P.O. Box 951, Akron, Ohio 44309

Continuation-in-part of abandoned application Ser. No. 98,506, Dec. 16, 1970. This application Apr. 27, 1972, Ser. No. 248,172
Int. Cl. B32b *3/28*
U.S. Cl. 161—127 **28 Claims**

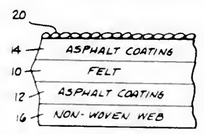
A fireproof carpet underlay is provided which has improved load-deflection characteristics and yet can be made at a fraction of the cost of conventional carpet underlay. The underlay is made from polyurethane foam scrap of low density (i.e., 1 to 3 pounds per cubic foot) and two thin sheets of inexpensive plastic material, such as polyethylene or polyvinyl chloride coated with a vinylidene chloride polymer. The underlay has a multiplicity of regularly spaced circular or polygonal pockets sandwiched between the two plastic sheets and containing a substantial amount of air and a fire-retardant liquid, such as water, in a major amount by weight sufficient for fireproofing. Each pocket functions as an air cushion and takes up a substantial proportion of the load (i.e., 20 to 50 percent) by compression of air, the balance being taken by compression of the foam.



3,813,280
BITUMINOUS ROOFING PRODUCTS AND PROCESS

Bernard John Olszyk, Somerville, and Richard Leon Fricklas, Bound Brook, N.J., assignors to Johns-Manville Corporation, New York, N.Y.

Filed Sept. 9, 1971, Ser. No. 178,870
Int. Cl. E04d *5/10*
U.S. Cl. 161—151 **13 Claims**

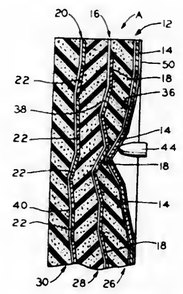


A non-woven fibrous web is affixed to the coating layer of hot bitumen commonly applied to roll or shingle form roofing products. The fibrous web prevents the products from sticking together when rolled or stacked.

3,813,281
COMPOSITE FLEXIBLE ARMOR

Lester E. Burgess, Swarthmore, and Ronald G. Brownstein, Broomall, Pa., assignors to Gulf + Western Industrial Products Company, Salem, Ohio

Filed Jan. 30, 1973, Ser. No. 328,100
Int. Cl. B32b *3/10, 5/20;* **F41h** *1/02*
U.S. Cl. 161—159 **9 Claims**

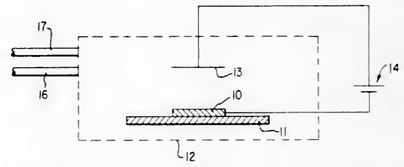


Layers of rigid platelets are separated by layers of compressible foam material having gas cells therein. A high velocity projectile striking a platelet in one layer compresses and forces gas from the cells in the foam material to absorb and dissipate kinetic energy.

3,813,282
LAMINATING PROCESS INCLUDING CATHODE SPUTTERING OF CARBON SUBSTRATE

Robert Masotti, Lyon, Jean-Philippe Rieux, Decines, Philippe Borrel, St. Martin le Vinoux, and Jean Lehureau, Lyon, France, assignors to Progil, Paris, France

Filed Dec. 29, 1971, Ser. No. 213,851
Claims priority, application France, Dec. 31, 1970, 7047731
Int. Cl. B32b *3/00, 5/02*
U.S. Cl. 161—164 **6 Claims**

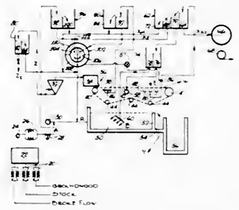


A carbon substrate is subjected to superficial cathode sputtering to alter its surface characteristics. Carbon substrates thus treated are useful for the fabrication of various composite assemblies exhibiting improved physical properties, such as enhanced mechanical strength.

3,813,283
CONTROLLING DRAINAGE BY ADDITION OF LONGS AND FINES TO STABILIZE STOCK SYSTEM

John Christopher Urbas, 200 Comber Ave., Dorval, Quebec, Canada

Filed Mar. 10, 1972, Ser. No. 233,529
Int. Cl. D21f *1/60*
U.S. Cl. 162—190 **6 Claims**



In a fourdrinier type papermaking machine having a plurality of interrelated material flows indicative of a state of equibrium, that equilibrium can be controlled by controlling one of the flows, namely the drainage flow. An actual drainage flow is metered and compared to a desired drainage flow and long or fine fibers are introduced into the mixed stock in a ratio determined by the comparison step to make the two drainage flows equal.

3,813,284
FIBROUS VIBRATION PLATE FOR LOUDSPEAKER AND PRODUCTION THEREOF

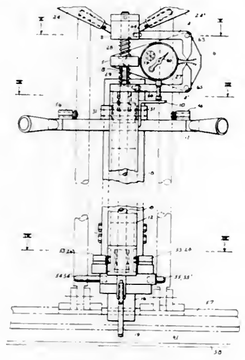
Yasuhiro Miki, Kawagoe, and Tadaki Kumanogo, Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Apr. 19, 1972, Ser. No. 245,338
Claims priority, application Japan, Apr. 23, 1971, 46/26,078
Int. Cl. D21j *3/00*
U.S. Cl. 162—219 **5 Claims**

A vibration plate for a loudspeaker having an edge portion integral therewith is produced in such a manner that

a first ply having a flanged edge portion and a central conical portion and made into uniform thickness is fabricated by forming a first ply in a first mold comprising a molding portion of a configuration substantially equal to that of the vibration plate and provided with a number of suction holes evenly distributed over the molding portion, and a wire net extended along the entire area of the molding portion. A second ply having a mere conical portion and made into a uniform thickness is secondly fabricated in a second mold comprising a molding portion of a configuration substantially equal to that of the first mold but the suction holes being distributed over a mere portion thereof corresponding to the conical portion of the vibration plate, and a wire net extended along the entire area of the molding portion. Then the first ply and the second ply are combined into an integral vibration plate by means, for instance, of a heating press.

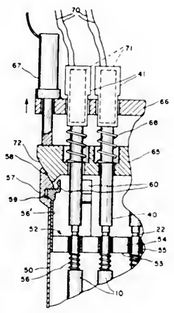
3,813,285
PAPER MACHINE HEADBOX SLICE OPENING GAUGE
Clifford D. Shelor, Tyrone, Pa., assignor to Westvaco Corporation, New York, N.Y.
Filed July 20, 1973, Ser. No. 381,270
Int. Cl. D21f *7/06*
U.S. Cl. 162—263 **4 Claims**



A portable apparatus readily attachable onto the adjusting screws of a conventional paper machine headbox for producing the cross-direction profile of a paper machine headbox slice opening accurately and with sufficient repeatability so as to render the measurement dependable within the limits required for the manufacture of a high quality paper web.

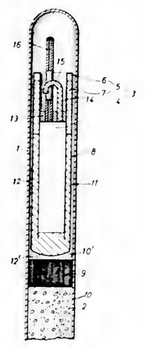
3,813,286
FUEL ELEMENT WITH FAILURE INDICATOR
Arthur J. Goldman, White Plains, N.Y., D. Garth Rowe, San Jose, Calif., and Cecil Roy Jones, Orange, Conn., assignors to Transfer Systems Incorporated, North Haven, Conn.
Filed May 8, 1972, Ser. No. 251,016
Int. Cl. G21c *17/06*
U.S. Cl. 176—19 R **6 Claims**

A novel fuel element for use in a power-generating nuclear reactor is described. The fuel element features a built-in indicator to indicate failure, and is especially adapted for use in a fuel assembly having a removable top closure. In a preferred embodiment, the indicator is a spring loaded movable pin which is displaced outwardly when the reactor is shut down by the internal element gas pressure. Should the element develop a leak, the



spring causes retraction of the pin indicator. A failure sensor is also described.

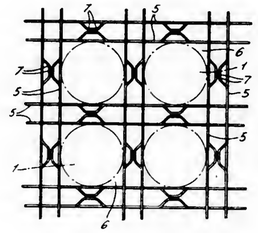
3,813,287
NUCLEAR REACTOR FUEL ELEMENT
Siegfried Malang, Karlsruhe-Waldstadt, Germany, assignor to Gesellschaft fur Kernforschung mbH, Karlsruhe, Germany
Filed Oct. 19, 1971, Ser. No. 190,541
Claims priority, application Germany, Nov. 17, 1970, P 20 56 392.2
Int. Cl. G21c *3/04*
U.S. Cl. 176—68 **3 Claims**



In a nuclear reactor fuel element containing a body defining one region in communication with the element fuel zone and another region containing a vaporizable fluid, the body is in the form of a cartridge separately inserted into the fuel element casing.

3,813,288
NUCLEAR REACTOR FUEL ASSEMBLY SPACER GRID
Bernard Leaver, Atherton, and Willard Mercer, Preston, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed June 29, 1972, Ser. No. 267,627
Claims priority, application Great Britain, July 7, 1971, 32,005/71
Int. Cl. G21c *3/34*
U.S. Cl. 176—78 **3 Claims**

A spacer grid in a fuel element assembly including a plurality of elongate fuel pins supported in a bundle with their longitudinal axes parallel comprises intersecting strip members which extend in at least two directions between parallel rows of the fuel pins in the fuel element assembly, a closely spaced pair of the strip members extending parallel to one another between each row of the fuel pins and the next, the intersecting strip members defining a plurality of cells each penetrated by a fuel pin, and the fuel pins being laterally located in the fuel element assembly by contact with the walls of the cells.



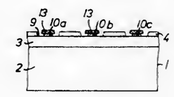
3,813,289
ORGOTEIN FROM RED BLOOD CELLS
Wolfgang Huber, San Francisco, Silver H. Chow, Sunnyvale, and Mark G. Saifer, Berkeley, Calif., assignors to Diagnostic Data, Inc., Mountain View, Calif.
No Drawing. Continuation-in-part of application Ser. No. 273,277, July 19, 1972. This application Sept. 22, 1972, Ser. No. 291,320
Int. Cl. A61k *17/66*; C7g *7/4*
U.S. Cl. 195—4 **16 Claims**

Orgotein substantially free from hemoglobin and carbonic anhydrase is obtained from red blood cells by the steps of heating at least the red blood cell portion of blood at a pH from 5 to 8 at which the hemoglobin precipitates and at a temperature of about 60–80° C.; cooling the heated mixture; separating the precipitated proteins from an aqueous solution of the heated mixture; and separating the orgotein from the supernatant, e.g., by the addition of acetone to the cooled solution, by lyophilization, by ultrafiltration, or by adsorption on and elution from an ion exchange resin column.

3,813,290
GROWTH AND RECOVERY OF CELLS OF A HYDROCARBON-UTILIZING MICROORGANISM
Israel J. Heilweil and Sundaresa Srinivasan, Princeton, N.J., assignors to Mobil Oil Corporation
No Drawing. Continuation-in-part of abandoned applications Ser. No. 804,281, Mar. 4, 1969, and Ser. No. 804,298, Mar. 4, 1969. This application Apr. 10, 1972, Ser. No. 242,774
Int. Cl. C12b *1/00*
U.S. Cl. 195—28 R **9 Claims**

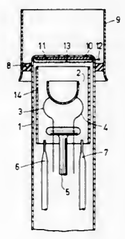
This specification discloses a process for the growth and recovery of cells of an aerobic, hydrocarbon-utilizing microorganism. The cells of the microorganism are grown in an oxygenated culture medium which is an emulsion of a hydrocarbon substrate and an aqueous mineral salt nutrient. The culture medium contains a nonionic surfactant to maintain the emulsion. The process involves a preliminary step of determining in an emulsion similar to that of the culture medium the proportion of the surfactant at which inversion of the emulsion occurs. In a subsequent step, the growth of the microorganism is carried out employing in the culture medium a proportion of the hydrocarbon substrate, aqueous mineral salt nutrient and the surfactant substantially equivalent to that at which inversion is attained. With this proportion of surfactant in the culture medium, the microorganism grows at an optimum rate and the cells thereof are readily separated and recovered from the culture medium.

3,813,291
METHOD OF MANUFACTURING A BARRIER LAYER FIELD-EFFECT TRANSISTOR
Vishnuprakash Joshi, Heilbronn-Bockingen, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed July 28, 1971, Ser. No. 166,667
Claims priority, application Germany, July 29, 1970, P 20 37 589.7
Int. Cl. H01l *7/50*
U.S. Cl. 117—212 **7 Claims**



A method of manufacturing a barrier layer field effect transistor comprises producing a contact making window in an insulating layer on a semiconductor body, which window is wider than the width of the control electrode to be produced, producing a metal layer at least in the window, covering the metal layer with a masking layer resistant to etching in the region of the window and of a width larger than the width of the electrode to be produced, etching away the excess metal from the metal layer and under etching the metal layer to produce a control electrode narrower than the masking layer.

3,813,292
METHOD OF DOPING THE SURFACE OF A METAL-OXYGEN COMPOUND
Alexander Hendrik Boonstra, Paulus Phillippus Maria Schampers, and Adriaan Netten, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 1, 1972, Ser. No. 230,695
Claims priority, application Netherlands, Mar. 6, 1971, 7103016
Int. Cl. B44d *1/14, 1/18*
U.S. Cl. 117—215 **10 Claims**



Doping of the surface of a metal-oxygen compound by exposure to and chemisorption of a reactive gas comprising an oxygen-replacing element is effected at such a low temperature that the adsorbed gas is not decomposed. A correct quantity of reactive gas being adsorbed then leads to discrete adsorption densities of less than 1. Used for shifting the photosensitivity of a lead monoxide target plate for a camera tube of the vidicon type to longer wavelengths.

3,813,293
METHOD OF APPLYING A SATISFACTORILY ADHERING, POORLY REFLECTING, CONDUCTIVE LAYER TO AN INSULATING SURFACE AND ELECTRIC DISCHARGE TUBE HAVING A LAYER APPLIED BY SAID METHOD

Johannes van Esdonk, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 856,160, Sept. 8, 1969. This application Nov. 3, 1971, Ser. No. 195,525

Claims priority, application Netherlands, Sept. 12, 1968, 6813017

Int. Cl. C23b *5/50, 5/64*

U.S. Cl. 117—217 **2 Claims**

A smooth, conductive layer of poor reflectivity on an insulating surface is obtained by first applying a chromium-nickel layer from the vapor phase, to which layer is applied a nickel layer which is oxidized by heating in air at 250° C. to 500° C.

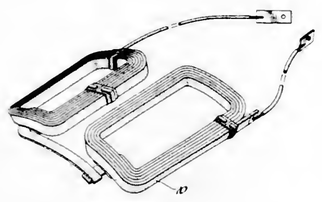
3,813,294
METHOD FOR INSULATING A PREFORMED ELECTRICAL COIL

Clarence H. Dyer, Pendleton, Conrad L. Gaunt, Anderson, and Edward D. Jarvis, New Castle, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 6, 1972, Ser. No. 231,836

Int. Cl. B44d *1/094, 1/14, 1/34*

U.S. Cl. 117—218 **1 Claim**



A preformed electrical coil is heated and immersed in a bath of A stage epoxy resin. The coil is then immersed in a fluid bed of mica powder until the resin coating becomes impregnated with mica to the extent of approximately 45% mica. After the resin-mica coated coil is cured at a temperature determined by the curing temperature of the epoxy resin, it is immersed in a bath of A stage polyester resin. The polyester coated coil is again immersed in the fluid bed of mica powder to provide a mica coating thereon and is then dried at room temperature.

3,813,295
DIELECTRIC MATERIALS

Daniel W. Mason, West Peabody, Mass., and Henry H. Nester, deceased, by Dianne L. Nester, special administratrix, Gloucester, Mass., assignors to Owens-Illinois, Inc.

No Drawing. Original application June 5, 1970, Ser. No. 43,941, now Patent No. 3,707,499. Divided and this application May 8, 1972, Ser. No. 251,447

Int. Cl. C04b *35/00;* **H01b** *1/06, 3/02*

U.S. Cl. 117—221 **3 Claims**

A dielectric material is formulated by firing an admixture of from about 2–55% by weight zircon (zirconium silicate) and about 45–98% by weight of a lead barium borosilicate glass. In final form, the dielectric material exhibits a low K (approximately 6) and a high Q value. The paste composition is formulated by admixing the aforementioned ingredients in an organic vehicle, drying the paste and firing the paste at a temperature of from about 800–1,000° C. The paste is usually applied by a screen printing technique preferably using a mesh size in the range of about 165.

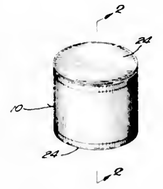
3,813,296
INSULATING COATING FOR ELECTRICAL DEVICES

Darrel D. McStrack, New Berlin, and James E. Schroeder, Greenfield, Wis., assignors to McGraw-Edison Company, Milwaukee, Wis.

Filed Nov. 23, 1971, Ser. No. 201,461

Int. Cl. C03c *17/00, 21/00*

U.S. Cl. 117—229 **14 Claims**



An electrical insulating coating for a lightning arrester valve block includes a major amount of silicon carbide particles which have a bulk resistivity substantially higher than the resistivity of the electrically conductive portion of the valve block. The coating is prepared by admixing the silicon carbide particles, preferably green silicon carbide, with ceramic forming materials and sufficient water to form a mixture which can be applied as a coating to the device in a convenient manner. After the resistance device has been coated with this mixture, it is fired at an elevated temperature to mature the ceramic-forming ingredients and thereby form a hard, highly-adherent coating.

3,813,297
PROCESS FOR MAKING POTATO STARCH WITHOUT WASTE

Roy L. Shaw, Jr., East Grand Forks, Minn., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed June 7, 1972, Ser. No. 260,570

Int. Cl. C13l *1/02*

U.S. Cl. 127—66 **6 Claims**

High quality potato starch is produced by fine grinding and air classifying cut and dehydrated potatoes to obtain a starch-enriched fraction and a protein-enriched fraction. The starch-enriched fraction is water washed in counter current fashion to remove protein, sugars, amino and other organic acids and obtain a high quality potato starch contaning less than 1.0% protein. The protein-enriched fraction from the air classification step is combined with the water from the counter current washing step to obtain, when dried, a product having a protein content of about 20 to 30%. This relatively high protein product is useful as a high quality animal feed supplement.

3,813,298
DUAL SCREENING PROCESS FOR SEPARATING STARCH PARTICLES AND FIBERS

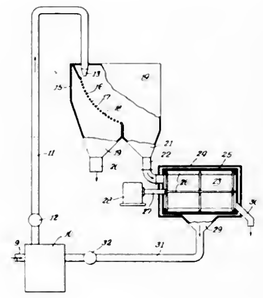
Vincent P. Chwalek, 300 N. State St., Chicago, Ill. 60610

Continuation-in-part of abandoned application Ser. No. 99,486, Dec. 18, 1970. This application Apr. 27, 1973, Ser. No. 355,248

Int. Cl. C13l *1/00*

U.S. Cl. 127—69 **8 Claims**

A continuous process for separating starch particles and fibers from an aqueous slurry containing said particles and fibers suspended therein which comprises: (1) passing a supply stream of said slurry over a screen bend having a slot width of such dimensions that a separation of starch from fiber is effected to obtain a first fraction comprising an aqueous slurry containing a major portion of the starch particles and which is substantially free of fiber, and a second fraction comprising an aqueous slurry containing in suspension, therein substantially all the fiber and a minor portion of the starch particles; (2) separating the second fraction into two components by centrifugally forcing said second fraction against a screen having openings of a dimension such that an aqueous component containing starch and fine fiber is separated from the fiber; (3) continuously recycling the aqueous component containing starch and fine fiber of step (2) to the supply stream of step (1); (4) recovering the first fraction of step (1) and the fiber separated in step (2).



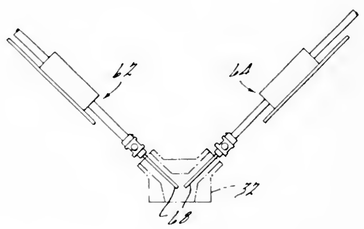
3,813,299
METHOD AND APPARATUS FOR FLUSHING OIL PASSAGES IN ENGINE BLOCKS

George H. Bugor, Westland, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Mar. 22, 1972, Ser. No. 236,855

Int. Cl. B08b *9/04*

U.S. Cl. 134—24 **11 Claims**



Method and apparatus for presenting high pressure cleaning liquid to the oil passages of an engine block to clean and flush them. The method includes introducing a flow of cleaning fluid into the oil galleries, plugging at least some of the oil passage openings in the front and rear portions of the block and again introducing cleaning fluid into the oil galleries.

3,813,300
PASTE-TYPE ELECTRODE BACKING PLATE FOR LEAD-ACID BATTERY

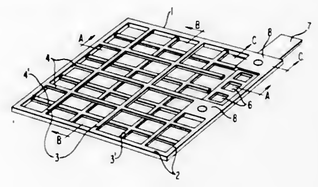
Shunji Shima, Hideyoshi Kadowaki, Eiji Muto, Ichiro Okazaki, and Koichi Matsumura, Kyoto, Japan, assignors to Japan Storage Battery Co., Ltd., Kyoto, Japan

Continuation of abandoned application Ser. No. 91,646, Nov. 23, 1970. This application Aug. 31, 1972, Ser. No. 285,278

Claims priority, application Japan, Feb. 12, 1970, 45/12,102; July 22, 1970, 45/64,607

Int. Cl. H01m *35/04*

U.S. Cl. 136—38 **7 Claims**



A backing plate for a paste-type electrode to be used for a lead-acid battery, comprising a plastic support or grid for an active conducting material and a current collector, the support being comprised of a frame and a plurality of crosspieces arranged in crisscross fashsion in the space surrounded by the frame, each crosspiece having a thickness less than that of the frame. The crosspieces are disposed so that the surfaces of the crosspieces facing opposite surfaces of the support are sufficiently spaced from the opposite support surfaces for receiving the active conducting material. The number of the crosspieces spaced from one surface of the frame is substantially the same as the number of the crosspieces spaced from the opposite surface of the frame, the crosspieces being substantially uniformly arranged in the space defined by the frame. Also, the crosspieces spaced from one surface of the frame are disposed in the spaces defined by the crosspieces spaced from the opposite surface of the frame, and the surfaces between the crosspieces and the frame are continuous throughout the entire space within the frame.

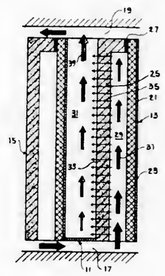
3,813,301
PROCESS OF CHARGING AND DISCHARGING A METAL HALOGEN CELL

Peter Carr, Utica, Mich., assignor to Occidental Energy Development Company, Whitcomb, Madison Heights, Mich.

Filed Nov. 18, 1971, Ser. No. 200,062

Int. Cl. H01m *33/00, 29/00*

U.S. Cl. 136—86 A **7 Claims**



An electrode for use in an electrical energy storage device having an aqueous metal halide electrolyte com-

prising a first side of the electrode a second side whereby the first and second sides are attached thereby forming a channel for flow of the electrolyte therebetween and held in place by a conducting carbonized cement.

3,813,302

GRAIN-REFINING COMPOUNDS

Alexander Robley Morrison, Flat 8, 594 Inkerman Road, Caulfield, Victoria, Australia

No Drawing. Filed Nov. 2, 1971, Ser. No. 195,013

Claims priority, application Australia, Nov. 19, 1970, 3,250/70

Int. Cl. C23f *7/08*

U.S. Cl. 148—6.15 R **12 Claims**

Novel improved compositions of titanium for use as grain-refining materials in zinc phosphating processes consist essentially of mixed orthophosphates of titanium and barium, strontium or calcium, which additionally form non-flocculated dispersions in water. The compositions may be prepared by a process in which titanium orthophosphate is precipitated in a dispersion of the divalent metal orthophosphate in water under specific limiting processing conditions. Alkaline metal-cleaning liquids containing the novel titanium compositions are also disclosed.

3,813,303

METHOD OF TREATING AN ALUMINUM SURFACE

Erich Hofling, Rudolf Baur, and Siegfried Bloeck, Kreuzlingen, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

No Drawing. Filed Apr. 5, 1971, Ser. No. 241,406

Claims priority, application Switzerland, Apr. 14, 1971, 5,368/71

Int. Cl. C23f *7/14*

U.S. Cl. 148—6.15 R **7 Claims**

Aluminum surfaces which are covered with a coating or an adhesive layer of a hardenable synthetic resin are pretreated in an aqueous solution containing an alkali pyrophosphate and/or an alkali tripolyphosphate and an alkali nitrite.

3,813,304

PROPELLANTS CONTAINING COPOLYMERS OF DIENES AND POLYMERIZABLE FERROCENE OR CARBORANE COMPOUNDS

Samuel F. Reed, Jr., Holland, Pa., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Original application June 18, 1971, Ser. No. 155,669. Divided and this application Oct. 25, 1972, Ser. No. 300,039

Int. Cl. C06d *5/06*

U.S. Cl. 149—19.2 **3 Claims**

Copolymers of a diene selected from butadiene, isoprene, and chloroprene and a polymerizable monomer selected from ferrocenylmethyl methacrylate, isopropenylferrocene, 1-ferrocenylbutadiene, 2-ferrocenylbutadiene, vinylcarborane, isopropenylcarborane and carboranylmethyl acrylate are disclosed along with preparative procedures therefor. Copolymerizations are carried out in solution (toluene or dioxane) with a suitable polymerization initiator selected from an azo compound to introduce either carboxyl or hydroxyl functionality into the copolymers.

3,813,305

HIGH BURNING RATE NF PROPELLANTS

Mart G. Baldwin and James L. Chaille, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Oct. 31, 1967, Ser. No. 679,968

Int. Cl. C06b *11/00*

U.S. Cl. 149—19.3 **8 Claims**

High burning rate solid propellants having NF-containing binders. The propellant binder is preferably composed of two NF_2-containing materials, the polymer of [2,3-bis(difluoramino)propyl acrylate] and 1,2,3-tris[α,β-bis(difluoramino)ethoxy] propane plasticizer. The propellant oxidizer is preferably ammonium perchlorate in finely divided form and aluminum powder is the preferred solid propellant fuel.

3,813,306

PROPELLANT COMPOSITION USING CARBOXY-TERMINATED COPOLYMERS OF BUTADIENE AND FERROCENE DERIVATIVES

Samuel F. Reed, Jr., Holland, Pa., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Original application Dec. 7, 1970, Ser. No. 95,889. Divided and this application May 30, 1972, Ser. No. 257,560

Int. Cl. C06d *5/06*

U.S. Cl. 149—19.9 **3 Claims**

Copolymers of butadiene and vinyl ferrocene (VF) are disclosed along with preparative procedures therefor. The copolymers are produced in an organic solvent when polymerization is initiated by a carboxy-containing azo compound, such as, azobis(2-methyl-4-carboxy butyronitrile), thereby forming a coplymer of butadiene and vinyl ferrocene. The copolymers are useful in propellant formulations as a binder where high burning rates are desired.

3,813,307

PROPELLANT COMPOSITION CONTAINING POLYMERS OF VINYL FERROCENE

Jimmy D. Burnett, Arab, Ala., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Sept. 17, 1969, Ser. No. 858,896

Int. Cl. C06b *11/00*

U.S. Cl. 149—19.91 **4 Claims**

Copolymers of vinyl ferrocene and butadiene are disclosed along with the procedure for preparation. The copolymers are useful as a burning rate catalyst and provide a means of introducing and maintaining a high catalyst concentration in solid propellants inasmuch as the copolymer containing the iron catalyst is capable of serving as the binder replacing part of the normally used binders in solid propellants. Also disclosed is a typical solid propellant composition utilizing the copolymers of this invention as a binder replacement and burning rate catalyst.

3,813,308

CASE BONDING SYSTEM FOR CAST COMPOSITE PROPELLANTS

Paul H. Skidmore, Frostburg, Md., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Mar. 18, 1969, Ser. No. 808,719

Int. Cl. C06b *21/00*

U.S. Cl. 149—109 **5 Claims**

A process for bonding a carboxy-containing rubber liner for a cast composite propellant to the rocket motor

insulation is described. Positive bonding without detriment to rocket motor performance is achieved with an organic polyisocyanate surface preparation which chemically unites the insulation to the liner during cure of the liner.

3,813,309

METHOD FOR STRIPPING RESISTS FROM SUBSTRATES

Peter Bakos, Wappingers Falls, and Diana J. Knight, Pine Bush, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 887,725, Dec. 23, 1969. This application Dec. 4, 1972, Ser. No. 311,577

Int. Cl. C23d *17/00*; C23g *1/02*

U.S. Cl. 156—2 **8 Claims**

A method for removing resist materials from substrates without leaving a deleterious residue thereon is provided. The method essentially comprises the use of a resist stripping bath composition which includes a halogenated hydrocarbon solvent, a strong organic acid, an amine and a second organic solvent.

3,813,310

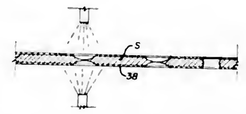
METHOD FOR THE MANUFACTURE OF FLAT COSTUME JEWELRY

Lee John Droege, Michael J. Reardon, and Alan Roy Wilhite, Central City, Colo., assignors to Central City Micro Foundry Ltd., Central City, Colo.

Filed Oct. 2, 1972, Ser. No. 294,360

Int. Cl. C23f *1/02*

U.S. Cl. 156—3 **8 Claims**



This invention concerns costume jewelry manufactured through photofabrication processes from flat production sheets to form items such as earrings and small pendants. The appearance of these items is enhanced by small, transparent or translucent, colored inserts of selected plastic materials. After conventional photofabrication operations form the earrings and pendants in a production sheet, including openings to hold the inserts, further operations include the use of a backing sheet, preferably aluminum foil, adhered against the production sheet and items thereon to hold liquid plastic in the openings until it sets to form the inserts. A further refinement in the production of the items includes the provision of small aluminum reflector tabs at the back of the inserts which materially enhance the brilliance and appearance of the items. The tabs are preferably formed by using an aluminum backing sheet to hold the plastic until it sets, and thereafter, by chemically milling away all of the backing sheet except portions at the inserts.

3,813,311

PROCESS FOR ETCHING SILICON WAFERS

Roger W. Beck, Kokomo, and Douglas J. Yoder, Sharpsville, Ind., assignors to General Motors Corporation, Detroit, Mich.

No Drawing. Filed Jan. 24, 1973, Ser. No. 326,231

Int. Cl. H01l *7/50*

U.S. Cl. 156—17 **2 Claims**

A method for etching silicon wafers with improved control of wafer flatness. Wafers are initially etched in a hydrofluoric acid rich etchant containing nitric acid and acetic acid, and then etched a second time in a nitric acid rich etchant containing hydrofluoric acid and acetic acid.

3,813,312

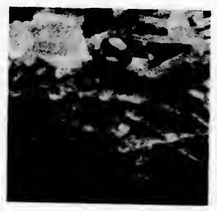
PROCESS FOR MAKING GYPSUM BOARD

William A. Kinkade, 5449 Larkspur Lane 60532, and Clyde B. Roe, 1813 Ogden Ave., 2B 60532, both of Lisle, Ill.

Original application Oct. 5, 1970, Ser. No. 78,067, now abandoned. Divided and this application Jan. 25, 1972, Ser. No. 220,721

Int. Cl. B32b *13/00*; C04b *11/00*

U.S. Cl. 156—39 **20 Claims**



A process of producing gypsum board of enhanced strength and resistance to humidified bond failure at any particular density through the use of a delayed action accelerator. The accelerator is preferably formed by grinding landplaster and a sugar.

3,813,313

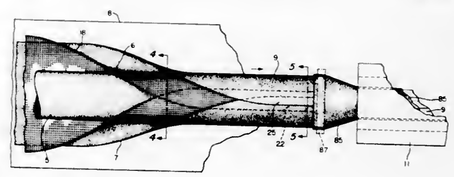
METHOD AND APPARATUS FOR MAKING HOSE

Robert H. Feucht and Lawrence R. Jones, Cuyahoga Falls, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 10, 1972, Ser. No. 225,262

Int. Cl. B29d *23/00*

U.S. Cl. 156—156 **22 Claims**



A method and apparatus for making flexible reinforced hose in long lengths with the hose having a reinforcing section consisting of one or more circumferentially discontinuous or non-endless layers of reinforcing material including at least one longitudinally extending overlapped joint therein. The method includes providing at least one web of reinforcing material, applying one or more layers of flexible polymeric material to the web, folding the web to form an elongated tubular hose member with a longitudinal overlapped joint, moving the tubular member into a curing chamber of an elongated hollow curing apparatus, confining the tubular member exteriorly of the curing chamber prior to curing to prevent opening of the periphery of the member under conditions of inflation, inflating the tubular member prior to curing at least a length of the tubular member, cooling the cured length of the tubular member, deflating the cured length of the tubular member, advancing the cured length of

the tubular member out of the curing apparatus, and re-

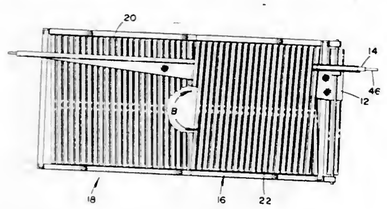
the tubular member out of the curing apparatus, and repeating the above steps until the entire hose is cured. The apparatus includes an elongated hollow tubular curing apparatus including a curing chamber therein, means for carrying and supporting the hose components, means for moving the tubular member into the curing apparatus, means for confining an uncured length of the tubular member exteriorly of the curing chamber prior to curing, and means for inflating, cooling and deflating the tubular member and means for advancing the cured tubular member out of the curing apparatus. The method and apparatus of this invention are particularly useful for making long length water discharge hose.

3,813,314

CONTINUOUSLY WRAPPED HOSE AND METHOD OF MAKING THE SAME

Elmer A. Steckel, Wheatridge, William G. Schaffer, Englewood, and Roger A. Payne, Denver, Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed Jan. 26, 1972, Ser. No. 220,945
Int. Cl. B65h *81/00*
U.S. Cl. 156—162 **4 Claims**



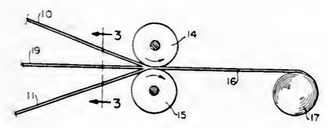
A hose having a continuously wrapped reinforcement applied to a tube at a small helical angle by passing the tube and a strip of reinforcement between two sets of rollers where the axes of the first set are offset at an angle from the axes of the second set of rollers.

3,813,315

METHOD OF LAMINATING PLASTIC TO METAL

Emery I. Valyi, 5200 Sycamore Ave., Riverdale, N.Y. 10471

Continuation of application Ser. No. 784,568, Dec. 18, 1968, which is a continuation-in-part of application Ser. No. 712,144, Mar. 11, 1968, which in turn is a continuation-in-part of application Ser. No. 654,797, July 20, 1967, all now abandoned. This application Apr. 27, 1971, Ser. No. 137,974
Int. Cl. B32b *31/18;* **C09j** *5/02*
U.S. Cl. 156—254 **10 Claims**



A method of bonding a plastic layer onto a metal surface in which the metal surface is conditioned for efficient bonding, by first forming thereon a substrate by rolling the metal in contact with a polymer under sufficient pressure to reduce the thickness of the metal. The layer of plastic is bonded to the substrate which forms a link between the plastic layer and the surface of the metal.

ERRATA

For Classes 195—4 and 195—28 see:
Patents Nos. 3,813,289 and 3,813,290

3,813,316

MICROORGANISMS HAVING MULTIPLE COMPATIBLE DEGRADATIVE ENERGY-GENERATING PLASMIDS AND PREPARATION THEREOF

Ananda M. Chakrabarty, Latham, N.Y., assignor to General Electric Company

Filed June 7, 1972, Ser. No. 260,488
Int. Cl. C12b *1/00*
U.S. Cl. 195—28 R **18 Claims**

Unique microorganisms have been developed by the application of genetic engineering techniques. These microorganisms contain at least two stable (compatible) energy-generating plasmids, these plasmids specifying separate degradative pathways. The techniques for preparing such multi-plasmid strains from bacteria of the genus Pseudomonas are described. Living cultures of two strains of Pseudomonas (*P. aeruginosa* [NRRL B–5472] and *P. putida* [NRRL B–5473]) have been deposited with the United States Department of Agriculture, Agricultural Research Service, Northern Marketing and Nutrient Research Division, Peoria, Ill. The *P. aeruginosa* NRRL B–5472 was derived from *Pseudomonas aeruginosa* strain 1c by the genetic transfer thereto, and containment therein, of camphor, octane, salicylate and naphthalene degradative pathways in the form of plasmids. The *P. putida* NRRL B–5473 was derived from *Pseudomonas putida* strain PpGl by genetic transfer thereto, and containment therein, of camphor, salicylate and naphthalene degradative pathways and drug resistance factor RP–1, all in the form of plasmids.

3,813,317

RESOLUTION OF RACEMATES OF RING-SUBSTITUTED PHENYLALANINES

Normand L. Benoiton, Vanier, Ontario, Jeffrey H. Y. Tong and Antoine D'Iorio, Ottawa, Ontario, and Jean C. Petitclerc, Sherbrooke, Quebec, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed Mar. 29, 1972, Ser. No. 239,132
Claims priority, application Canada, Apr. 2, 1971, 109,471
Int. Cl. C12d *1/00*
U.S. Cl. 195—29 **17 Claims**

The enzymatic resolution of racemic mono- and di-ring substituted phenylalanines is provided, via the specific steps of esterification, specific enzymatic hydrolysis of the L-ester, recovery of the liberated L-acid, e.g. by crystallization, and optionally hydrolysis and recycling of the D-isomer. The process gives one economical route for the production of very pure L-DOPA and L-*m*-tyrosine.

3,813,318

PRODUCTION OF XYLOSE (DEXTROSE) ISOMERASE ENZYME PREPARATIONS

Frederick C. Armbruster, La Grange, Robert E. Heady, Park Forest, and Robert P. Cory, La Grange, Ill., assignors to CPC International Inc.

No Drawing. Filed Sept. 17, 1971, Ser. No. 181,639
Int. Cl. C12b *1/00*
U.S. Cl. 195—31 F **8 Claims**

Process for the production of xylose (dextrose) isomerase by means of a mutant strain of Streptomyces that proliferates in a culture medium that may be free of xylose. The xylose (dextrose) isomerase enzyme is therefore constitutive rather than induced.

3,813,319

PROCESS FOR THE MANUFACTURE OF PROTEASES

Renato Craveri, Milan, Pier Luigi Manachini, Cologno Monzese, and Fabrizio Aragozzini, Milan, Italy, assignors to Societá Italiana Resine S.I.R. S.p.A., Milan, Italy

Filed Mar. 15, 1972, Ser. No. 234,742
Claims priority, application Italy, Mar. 23, 1971, 22,113/71
Int. Cl. C12d *13/10*
U.S. Cl. 195—65 **6 Claims**

A process for the manufacture of proteases of high proteolytic activity, having optimum activity at a pH ranging from 7 to 11 and at a temperature of from 45° to 65° C. and exhibiting a stability of at least 1 hour at 40° C. and at a pH of from 5 to 10, which comprises culturing the micro-organism designated as ATCC No. 20350 belonging to the thermophilic eumycetes group in cultural media comprising at least one source of carbon, at least one source of nitrogen, and at least one mineral salt in the presence of a quantity of air ranging from 0.2 to 1 liter/liter/minute, under agitation, for a time ranging from 30 to 70 hours, at a temperature of 38° to 45° C. and at a pH value of from 6.5 to 8, is disclosed.

3,813,320

METHODS OF MAKING GLUCOSE ISOMERASE AND OF CONVERTING GLUCOSE TO FRUCTOSE

Kenneth K. Shieh and Brendan J. Donnelly, St. Louis County, and Howard A. Lee, Rock Hill, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,476
Int. Cl. C07g *7/02*
U.S. Cl. 195—66 R **8 Claims**

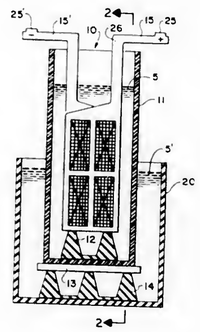
Methods for the conversion of D-glucose to D-fructose are disclosed. Enzymes derived from *Aerobacter levanicum* are used. A glucose isomerizing enzyme is produced when *Aerobacter levanicum* is grown on a substrate containing xylose, preferably unpurified birchwood sulfite liquor.

3,813,321

PROCESS FOR TREATING INDUSTRIAL WASTES

Simon Bastacky, 6604 Dalzell Place, Pittsburgh, Pa. 15217

Filed June 28, 1973, Ser. No. 374,339
Int. Cl. B01k *1/00;* **C02c** *5/12*
U.S. Cl. 204—149 **24 Claims**



A process for treating industrial wastes containing sulfuric acid and metal constituents comprising subjecting the wastes to a cell equipped with a plurality of alternately positioned positive and negative lead-antimony alloy electrodes and charging the electrodes. The liquid portion of the waste is dissipated and a residue including the metallic constituents forms. A secondary process is also disclosed comprising the steps of placing additional pickle liquor in a secondary processing tank, contacting the pickle liquor in the secondary processing tank with the exterior wall of the cell, and conducting thermal energy through the cell wall to the pickle liquor in the secondary tank wherein the liquid portion of the liquor in the secondary processing tank is dissipated and a residue including the metallic constituents forms within the secondary tank. The metallic constituents may be reclaimed by a drying step or by an ignition step.

3,813,322

RADIATION CURABLE STYRENATED POLYESTER COATING COMPOSITIONS AND PROCESS OF CURING THEM

Hargovind Nihchaldas Vazirani, Passaic Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,737
Int. Cl. C08g *1/18*
U.S. Cl. 204—159.15 **8 Claims**

The radiation curable styrenated polyester resins described herein are based upon from 60 to 75 weight percent of a polyester which is the esterification product of maleic anhydride and trimellitic anhydride, one or more short-chain diols such as propylene glycol and a long-chain aliphatic compound such as castor oil. The remainder of the resins include styrene (from 25 to 40 weight percent) up to 50 weight percent of which may be substituted by acrylates such as methyl methacrylate. The resins may additionally contain one or more ultraviolet sensitizers, and one or more inhibitors. Upon curing, the resins are characterized by mechanical toughness and flexibility and are useful for example as cover coats for flexible printed circuit boards and as wire coatings.

3,813,323

ELECTRODEPOSITION COATING METHOD

Masahiro Ogawa, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

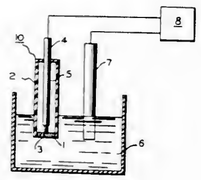
Filed Feb. 8, 1972, Ser. No. 224,440
Claims priority, application Japan, Apr. 20, 1971, 46/25,399
Int. Cl. B01k *5/02*
U.S. Cl. 204—181 **9 Claims**



The present invention relates to electrophoretic electrodeposition of polyamide resin powder. More specifically, a method of electrodeposition is provided wherein the dispersion medium is a mixed solution of methylethylketone and trichloroethylene, or such a solution added with carbon tetrachloride. Through electrophoretic electrodeposition, polyamide resin powder dispersed within the medium is uniformly deposited onto the surface of an object to be coated to thereby form a coating of polyamide resin on the object.

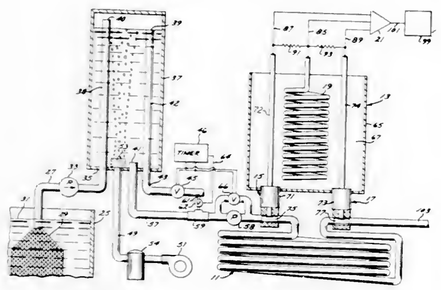
3,813,324

3,813,324
DEVICE FOR MEASURING AN ACTIVITY OF COBALTOUS IONS
Kenji Higashiyama and Hiroshi Hirata, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan
Filed Feb. 28, 1972, Ser. No. 229,912
Claims priority, application Japan, Mar. 2, 1971, 46/11,124, 46/11,125; Mar. 3, 1971, 46/11,408, 46/11,409
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 M **7 Claims**



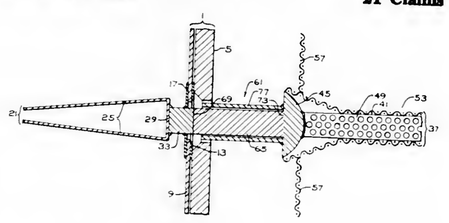
A device for measuring an activity of cobaltous ions comprises a selective electrode and a reference electrode immersed in a solution containing cobaltous ions, said selective electrode including a disc in a batch composition which comprises a combination of cobaltous chalcogenide and at least one member selected from the group consisting of silver telluride and silver selenide or in a batch composition which comprises a combination of silver sulfide and at least one member selected from the group consisting of cobaltous telluride and cobaltous selenide.

3,813,325
CONTINUOUS RESPIROMETER APPARATUS
Kenneth C. Merrell, Brea, Timothy F. Scott, Fullerton, Gordon R. Brushwyler, Yorba Linda, James H. Koegel, Placentia, and William E. Poindexter, Santa Ana, Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Filed July 27, 1972, Ser. No. 275,695
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 B **22 Claims**



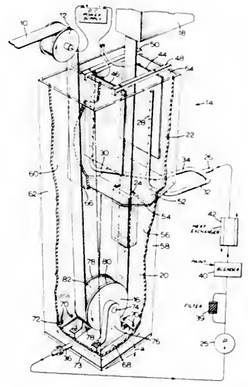
Improved continuous respirometer apparatus including an elongated residence tube having a relatively small cross-section and flow control means for controlling the flow rate of sewage through such tube at a selected rate. Oxygen sensing means is provided with first and second electrolytic sensing probes disposed at the upstream inlet and downstream outlet of such residence tube and cooperate with common electrolyte means to produce first and second electrical signals. Measurement means is connected with the oxygen sensing means for detecting the first and second signals to produce a measurable read-out indicating the difference between such signals whereby the first and second electrolytic sensing probes will cooperate with the common electrolyte to produce an output signal that is essentially unaffected by variations in such common electrolyte.

3,813,326
BIPOLAR ELECTROLYTIC DIAPHRAGM CELL HAVING FRICTION WELDED CONDUCTOR/CONNECTOR MEANS
Leslie Gunby, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Nov. 24, 1972, Ser. No. 309,310
Int. Cl. B01k *3/00*
U.S. Cl. 204—268 **21 Claims**



A bipolar electrolytic diaphragm cell is disclosed having a low resistance conductor/connector between the cathodes of one cell and the anodes of the next adjacent cell. The conductor/connector, which penetrates through the backplate, has an anolyte-resistant member connected to the anode and a catholyte-resistant member connected to the cathode. The anolyte- and catholyte-resistant members are connected to an intermediate high conductivity member by friction welding.

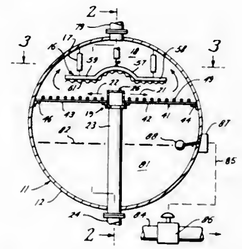
3,813,327
TANK FOR ELECTRO-COATING CONTINUOUS STRIP
Francis R. Crowne, Rexdale, Ontario, Chiong-Heng Tan, Mississauga, Ontario, and Martin A. Vandenbroek, Hamilton, Ontario, Canada, assignors to Abrex Specialty Coatings Ltd., Oakville, Ontario, Canada
Filed June 29, 1972, Ser. No. 267,397
Int. Cl. B01k *5/02*; **C23b** *13/00*
U.S. Cl. 204—300 **3 Claims**



A tank for use in electro-coating strip as the strip moves through the tank continuously. The tank includes

inner and outer chambers arranged so that the strip moves upwardly from the outer chamber through a passage and then through the inner chamber where the electro-coating takes place. The passage provides an electrical seal to prevent throw effects reaching the outer tank so that the coating applied to the strip can be controlled substantially within the inner chamber.

3,813,328
ELECTRIC TREATER
Delber W. Turner, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.
Filed Oct. 27, 1972, Ser. No. 301,562
Int. Cl. B03c *5/02*
U.S. Cl. 204—302 **19 Claims**



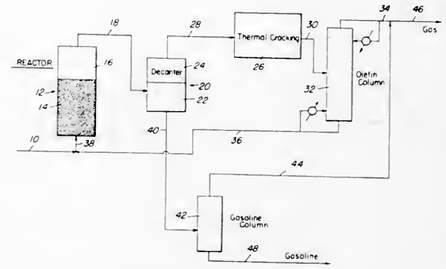
An electric treater for resolving water-in-oil emulsion including a closed horizontally elongated vessel containing an electrical field defined by horizontally-disposed, upper imperforate (energized) and lower foraminous (grounded) electrodes. An inlet distributor directs emulsion flows laterally beneath the imperforate electrode and toward each sidewall of the vessel. Treated oil is removed from above the imperforate electrode and coalesced water from a body of water maintained below the foraminous electrode. The imperforate electrode is formed of transverse rigid ribs having straight and arcuate sections and long pieces of thin metal (corrugated) sheeting integrally secured into a monocoque electrode structure being lightweight but highly resistant to torsional and longitudinal bending forces.

3,813,329
SOLVENT EXTRACTION OF COAL UTILIZING A HETEROPOLY ACID CATALYST
John G. Gatsis, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Aug. 18, 1972, Ser. No. 281,879
Int. Cl. C10g *1/00*
U.S. Cl. 208—9 **16 Claims**

A process for solvent extracting solid carbonaceous materials in which a heteropoly acid of a Group V–B or Group VI–B metal is employed as a catalyst and the heteropoly acid catalyst or the Group V–B or Group VI–B metal component thereof is recovered in heteropoly acid form from the solid residue resulting from solvent extraction and the heteropoly acid recovered is recycled to the solvent extraction operation.

3,813,330
PROCESS FOR AROMATIZING OLEFINS IN THE PRESENCE OF EASILY CRACKED PARAFFINS
Edwin N. Givens, Pitman, Charles J. Plank, Woodbury, and Edward J. Rosinski, Deptford, N.J., assignors to Mobil Oil Corporation
Filed Mar. 5, 1973, Ser. No. 337,971
Int. Cl. C10g *37/10*
U.S. Cl. 208—66 **7 Claims**

Process for aromatizing a feedstock, which may be liquid or gaseous and is hydrocarbon in nature having a boiling range of about C_2 to 400° F. by contacting the feedstock with a ZSM–5 type of catalyst under aromatization conditions whereby making a mixed gas and liquid product, separating the gas and liquid fractions of the



product, subjecting the gas fraction to dehydrogenative cracking to increase the proportion of olefins and light gases therein, separating and recycling the olefin rich portion to admixture with the original feedstock, and recovering liquid gasoline of very high octane.

3,813,331
DEMETALATION OF HYDROCARBON CHARGE STOCKS WITH MANGANESE NODULE CATALYST
Paul B. Weisz, Yardley, and Anthony J. Silvestri, Morrisville, Pa., assignors to Mobil Oil Corporation
No Drawing. Continuation-in-part of application Ser. No. 100,931, Dec. 23, 1970, now Patent No. 3,716,479. This application Oct. 25, 1972, Ser. No. 300,550
The portion of the term of the patent subsequent to Feb. 13, 1990, has been disclaimed
Int. Cl. C10g *23/02*
U.S. Cl. 208—251 H **9 Claims**

This specification discloses a process for the demetalation of hydrocarbon charge stocks containing metal impurities. The process comprises contacting said hydrocarbon charge stock with hydrogen and with a catalyst comprising salt water manganese nodules. These nodules have been previously washed with water having a temperature of at least 125° F. and a total salts content of not more than 1000 parts per million for a time sufficient to increase the accessible surface area of the nodules.

3,813,332
COLOR STABILIZATION OF PETROLEUM DISTILLATES
Marion J. Gattuso, Hoffman Estates, and Robert J. Arnold, Chicago, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Nov. 24, 1972, Ser. No. 309,381
Int. Cl. C10g *17/00*
U.S. Cl. 208—290 **2 Claims**

A process for the removal or stabilization of color generating impurities in a petroleum distillate charge stock by utilizing a solid resin which possesses acidic properties.

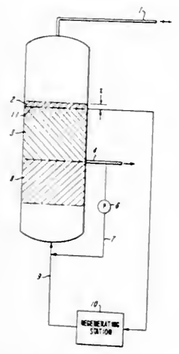
3,813,333
METHOD OF TREATING FLUID IN A CONTINUOUS MANNER
Georg Plura, Bergneustadt, Germany, assignor to L. & C. Steinmuller G.m.b.H., Postfach, Gummersbach, Germany
Filed Apr. 19, 1972, Ser. No. 245,481
Claims priority, application Germany, Apr. 20, 1971, P 21 18 949.1
Int. Cl. B01d *15/02*
U.S. Cl. 210—33 **2 Claims**

A method of continuously treating fluids, according to which the fluid to be treated, after entering the ion ex-

change bed, is subdivided into at least two branch streams, at least one of which serves to carry off used up ion ex-

and impregnated with a reinforcing resin, with grooves

change bed, is subdivided into at least two branch streams, at least one of which serves to carry off used up ion exchange particles, while the other is treated in the ion exchange bed and, after reaching the maximum approximation of the desired properties, enters into a bed section comprised exclusively of regenerated ion exchange particles. From here the branch stream is withdrawn, and the



discharged finished fluid stream is subsequently divided into at least two branch streams, at least one of which conveys the regenerated ion exchange particles to the bed, and the bed in its entirety, in view of the pressure differential in the non-treating bed section and in the treating bed section, is moved against the direction of flow of the fluid to be treated.

3,813,334

POROUS BACKING MATERIAL FOR SEMI-PERMEABLE MEMBRANE CARTRIDGES

Donald T. Bray, Escondido, Calif., assignor to Desalination Systems, Inc., Escondido, Calif.

Filed Apr. 9, 1973, Ser. No. 349,072

Int. Cl. B01d *13/00*

U.S. Cl. 210—321 **8 Claims**



A backing material comprising two layers of ribbed fabric arranged in rib face to rib face relationship with the ribs substantially parallel in the direction of spiral winding, the width of the grooves in each layer of ribbed fabric being less than the width of the ribs in the opposite fabric layer, is employed for transfer of product liquid to a central collecting tube in a spiral wound cartridge for use in reverse osmosis or ultrafiltration apparatus. This provides excellent fluid transfer through the longitudinal grooves in the ribbed fabric layers; the greater width of the ribs prevents these from intruding into the grooves of the opposite fabric layer and restricting flow. Preferably the ribbed fabric is of tricot woven from a synthetic fiber and impregnated with a reinforcing resin, with grooves and ribs in each fabric layer being of substantially the same dimensions as the respective grooves and ribs in the other fabric layer.

3,813,335

LUBRICANT COMPOSITION FOR THE HOT PRESSING OF METALS AND A METHOD FOR THE PREPARATION THEREOF

Oleg Pavlovich Drobich, ulitsa Klary Tsetkin 36/2; Alexei Evgenievich Pritomanov, prospekt Gagarina 133, kv. 28; and Viktor Petrovich Rokutov, ulitsa Fuchika 14, kv. 32, all of Dnepropetrovsk, U.S.S.R.; Nikolai Spiridonovich Kirvalidze, ulitsa Ryleeva 22, Nikopol, U.S.S.R.; and Dushell Vladimirovich Gerzmava, ulitsa Kirova 9, kv. 30; and Boris Valentinovich Mandzjuk, ulitsa Glinki 18, kv. 72, both of Dnepropetrovsk, U.S.S.R.

No Drawing. Filed July 7, 1972, Ser. No. 269,581

Int. Cl. C10m *5/02, 5/04, 5/08*

U.S. Cl. 252—14 **5 Claims**

A lubricant composition for use in the hot pressing of metals which comprises the following components taken in weight percent:

Vermiculite	60–38
Graphite	0–16
Mineral oil	33–23
Wood saw-dust	3–11
Sodium chloride	4–12

A method for the preparation of said lubricant composition, characterized in that vermiculite free of mechanical impurities is heated up to a temperature of about 900–1100° C. which is subsequently ground and mixed with graphite, wood saw-dust, sodium chloride and a mineral oil in the temperature range from about 60° C. to about 80° C. to obtain a final product.

This lubricant composition is suitable for the pressing of metal tubes and profiles.

3,813,336

REACTION PRODUCTS OF AMINES AND DITHIOPHOSPHORIC ACIDS OR SALTS

Alfred Goldschmidt, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Sept. 11, 1970, Ser. No. 73,171

Int. Cl. C10m *1/48*

U.S. Cl. 252—32.7 E **17 Claims**

Novel compositions useful as lubricating oil additives are produced by reacting an amine and a dithiophosphoric acid or salt at a temperature of 140°–200° C.

3,813,337

METAL WORKING LUBRICANT COMPOSITION

David B. Sheldahl, Griffith, Ind., assignor to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,795

Int. Cl. C10m *1/40*

U.S. Cl. 252—33.4 **16 Claims**

Soluble oil compositions and aqueous emulsions thereof having improved extreme pressure properties and being useful in metal working operations are disclosed. The soluble oil compositions comprise lubricating oil, non-cationic emulsifier, overbased alkali metal or alkaline earth metal sulfonate, chlorinated hydrocarbonaceous component, a coupling agent and a stabilizing amount of water. The aqueous emulsions are formed by combining a major amount of water with a minor amount of the composition described above.

3,813,338

TEXTILE-MACHINERY LUBRICANT COMPOSITION

Walter J. Coppock, Wallingford, and James R. Amaroso, Newtown Square, Pa., and John Q. Griffith III, Claymont, Del., assignors to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

No Drawing. Continuation-in-part of applications Ser. No. 35,231, May 6, 1970, Ser. No. 60,642, Aug. 3, 1970, now abandoned, Ser. No. 178,193, Sept. 7, 1971, and Ser. No. 178,479, Sept. 7, 1971. This application Apr. 4, 1972, Ser. No. 240,806

Int. Cl. C10m *1/54, 3/48*

U.S. Cl. 252—42.1 **13 Claims**

An improved high retention lubricant for textile-machinery comprises a naphthenic base oil, a tackiness agent (e.g., polyisobutylene), and an effective amount of a lithium soap (e.g. 0.1–1.5% lithium stearate) to provide a MacMichael viscosity at 70° F. of at least 15 (preferably 20–35). The base oil can have a viscosity in the range of 60–600 SUS at 100° F. (more preferably 125–300 SUS) and an aniline point in the range of 150–170° F., said base oil comprising at least one hydrorefined naphthenic oil component having a viscosity in the range of 40–12,000 SUS at 100° F., and preferably, is a wide boiling range blend containing at least two such hydrorefined naphthenic oils. For example, the lubricant can comprise 75 parts by weight of 100 SUS hydrorefined naphthenic oil, 20 parts of 2400 SUS hydrorefined napththenic oil, 2 parts of a high molecular weight (apparent M.W. in oil of about 100,000) polyisobutylene tackiness agent, 1 part of lithium stearate, 1.5 parts of chlorinated paraffin as an antiwear agent, and 5 p.p.m. of silicone antifoam.

3,813,339

ACID-TERMINATED HYDROXY ESTER COMPOUNDS AS LUBRICATING OIL ADDITIVES

Raymond H. Boehringer, Cincinnati, Ohio, Ronald M. Wilson, Edgewood, Ky., and Mark A. Margeson, Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio

No Drawing. Filed Aug. 2, 1972, Ser. No. 277,272

Int. Cl. C10m *1/26, 1/28*

U.S. Cl. 252—56 S **4 Claims**

Noncorrosive and low-sludging EP additives for lubricating oils to improve the load-carrying ability of synthetic ester lubricants are provided. The additive compositions of this invention are acid-terminated hydroxy ester compounds obtained by the partial esterification of a polybasic acid with a glycidyl ester. The extreme pressure properties of synthetic ester lubricating oil compositions are significantly increased by incorporating a small amount of compounds such as half-esters derived from the reaction of dimer acid and a glycidyl ester of a branched-chain acid.

3,813,340

METHOD OF PRODUCING CRYSTALLINE SILICON CARBIDE WHISKERS

Wilhelmus Franciscus Knippenberg and Gerrit Verspui, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of application Ser. No. 712,550, Mar. 26, 1968, which is a continuation-in-part of application Ser. No. 667,700, Sept. 14, 1967, both now abandoned. This application Feb. 10, 1971, Ser. No. 114,374

Claims priority, application Netherlands, Sept. 15, 1966, 6613012; Nov. 22, 1966, 6616397; Mar. 1, 1967, 6703399, 6703400

Int. Cl. C01b *31/36;* **C04b** *35/56*

U.S. Cl. 252—62.3 C **5 Claims**

Method for controlling the growth of silicon carbide crystals by carrying out the growth in the presence of an element of Group III–B of the Periodic System of the elements, especially, lanthanum. The wurtzite modifications can be produced, which will be useful in semiconductor devices. In addition, very long thin whiskers can be produced useful for reinforcing other materials.

3,813,341

DERIVATIVES OF GLYCOLS, GLYCOL ETHERS AND GLYCOL ESTERS

John Scotchford Elliott, Gerald John Joseph Jayne, Monty Frederick Crook, and Colin John Harrington, London, England, assignors to Buemah Oil Trading Limited, London, England

No Drawing. Original application Mar. 9, 1971, Ser. No. 122,558, now abandoned. Divided and this application Aug. 14, 1972, Ser. No. 280,101

Claims priority, application Great Britain, Mar. 9, 1970, 11,273/70

Int. Cl. C09k *3/00*

U.S. Cl. 252—77 **9 Claims**

Novel glycol urethanes have the general formula:

$$R_1\text{—NH—}\underset{\underset{O}{\|}}{C}\text{—O—}\left(R_2O\right)_n R_3$$

wherein R_1 is an alkyl group containing from 1 to 4 carbon atoms, an allyl group or the group

$$\text{—}R_6\text{—NH}\underset{\underset{O}{\|}}{C}\text{—O—}\left(R_2O\right)_n R_7;$$

R_2 is an alkylene radical containing from 1 to 4 carbon atoms; R_3 is hydrogen, an alkyl radical containing from 1 to 4 carbon atoms, or one of the groups

$$R_4\underset{\underset{O}{\|}}{C}\text{— or } R_1\text{NH—}\underset{\underset{O}{\|}}{C}\text{—;}\ R_4$$

is an alkyl radical containing from 1 to 4 carbon atoms; R_6 is an alkylene group containing from 1 to 10 carbon atoms; R_7 is an alkyl group containing from 1 to 4 carbon atoms or the group

$$R_4\underset{\underset{O}{\|}}{C}\text{—;}$$

and each n is the same or different and is an integer of from 1 to 6 and when any n is an integer greater than 1, each R_2 may be the same or different.

A method of preparing the novel compounds and hydraulic fluids consisting of, or comprising the novel compounds are also described.

3,813,342

CLEANING COMPOSITIONS

Isadore Nathan Cooperman, 62 Farms Road, Freehold Township, Monmouth County, N.J. 07728

No Drawing. Continuation-in-part of abandoned application Ser. No. 43,170, June 30, 1970, which is a continuation-in-part of application Ser. No. 770,087, Oct. 23, 1968, now Patent No. 3,532,599. This application June 20, 1972, Ser. No. 264,425

Int. Cl. C11d *7/42*

U.S. Cl. 252—170 **12 Claims**

A composition suitable for cleaning printing equipment having accumulated gum deposits comprising at least one enzyme selected from the group consisting of diastase, an esterase, a pentosanase-hexosanase, a protease or a cellulase and an organic solvent capable of dissolving printing ink, said composition containing at least about 0.1 percent by weight of the enzyme.

3,813,343

DIMETHYL SULFOXIDE CONTAINING

present in the basil membrane of an insect. This allows

3,813,343

DIMETHYL SULFOXIDE CONTAINING CLEANER COMPOSITIONS

Cromwell D. Mukai, Berkeley Heights, and Bernard Weinstein, North Plainfield, N.J., assignors to American Home Products Corp., New York, N.Y.

No Drawing. Filed Jan. 10, 1972, Ser. No. 216,827

Int. Cl. C11d *9/14, 3/34, 3/44*

U.S. Cl. 252—111 4 Claims

Cleaning compositions are described comprising (a) a non-caustic inorganic cleaner, (b) an amine and/or ammonia, (c) an organic solvent insoluble or partially soluble in water, and (d) dimethyl sulfoxide. These compositions are useful in removing deposits such as grease, oil, food, etc. from surfaces such as oven walls.

3,813,344

NUCLEAR FUEL TABLET CONTAINING URANIUM CARBIDE, PLUTONIUM CARBIDE AND PLUTONIUM NITRIDE, SULFIDE OR PHOSPHIDE

Axel Krauth, Wurzburg, and Norbert Muller, Wolfgang, near Hanau, Germany, assignors to NUKEM, G.m.b.H., Wolfgang, near Hanau, Germany

Filed Sept. 29, 1971, Ser. No. 184,818

Int. Cl. C09k *3/00;* G21c *19/42*

U.S. Cl. 252—301.1 R 5 Claims

Nuclear fuels are prepared from uranium-plutonium-carbide or uranium-plutonium-nitride in which the fertile material (e.g. uranium carbide) and the fuel (plutonium carbide) are present arranged separately and the fuel (e.g. plutonium carbide) region has a higher and more open porosity than the fertile material (e.g. uranium carbide).

3,813,345

METHOD OF PRODUCING MICROCOLLOIDAL AQUEOUS EMULSIONS OF UNSATURATED ORGANIC COMPOUNDS

John T. Urton, Prairie Village, Kans., assignor to Vanguard Chemical Company, Inc., Kansas City, Mo.

Filed Aug. 5, 1971, Ser. No. 169,248

Int. Cl. B01j *13/00*

U.S. Cl. 252—312 18 Claims

A method of reducing the micelle size of an aqueous emulsion of an unsaturated organic compound utilizes an ionic pumping action to achieve micelle division. The resin utilized is selected on the basis of the presence in the molecular chain of a high number of sites which can accept a positive ion to cause the molecule to assume an overall charge. A gross emulsion is first formed utilizing a sufficient quantity of surfactant so that an excess is present to assure surfacing of the newly formed micelles upon division of the micelles of the initial emulsion. The resin is equilibrated utilizing a compound capable of donating positive ions to the resin molecule to cause the molecule to assume a charge of the same sign as the sign of the charge on the emulsion micelles. The resulting increased charge in the emulsion results in division of the micelles into micelles of a smaller size. The resin pumping action can be continued until the micelles of the emulsion are characterized by an inability to reflect light of a visible wavelength.

The invention also provides for a method of killing insects wherein a microemulsion of an unsaturated organic compound having insecticidal properties is prepared in the manner set forth above. An additional step is the inclusion of a chelating agent for the calcium ions which are present in the basil membrane of an insect. This allows the emulsion micelles of the insecticide to penetrate through the insect.

3,813,346

METHOD FOR EXPANDING MICA-GROUP MINERALS WITH HYDROGEN PEROXIDE PLUS AN ACID

Takeo Wada and Saburo Komai, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Aug. 3, 1972, Ser. No. 277,509

Claims priority, application Japan, Aug. 12, 1971, 46/61,244

Int. Cl. C04b *31/22, 31/36, 2/02*

U.S. Cl. 252—378 R 10 Claims

The present invention relates to a method for expanding a mica mineral which comprises treating a mica mineral in the presence of hydrogen peroxide and an acid. A high degree of expansion is realized.

3,813,347

MANUFACTURE OF ADSORBENT COMPOSITE

Charles M. Hayes, Hoffman Estates, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 78,291, Oct. 5, 1970. This application Dec. 17, 1971, Ser. No. 209,406

Int. Cl. B01j

U.S. Cl. 252—428 9 Claims

The method of preparing an adsorbent composite which comprises precoating an adsorbent with an inert removable shielding liquid, thereafter uniformly distributing the precoated adsorbent in a matrix and subsequently removing said shielding liquid from the composite. A specific embodiment comprises precoating carbon granules with Decalin, separately preparing a polyurethane formulation, adding the precoated carbon granules thereto, foaming the polyurethane formulation, and subsequently heating the composite in vacuum to remove the Decalin. In one embodiment, the final composite is especially useful to adsorb gasoline vapors from the carburetor and/or fuel system of an automobile and for the controlled desorption of the gasoline upon restarting the engine.

3,813,348

TRANSVINYLATION CATALYST

John J. Godfrey, Murrysville, Pa., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Application Aug. 9, 1971, Ser. No. 170,295, now Patent No. 3,786,102, which is a continuation-in-part of abandoned application Ser. No. 883,241, Dec. 9, 1969. Divided and this application Nov. 22, 1972, Ser. No. 308,889

Int. Cl. C07c *41/00, 41/10*

U.S. Cl. 252—431 N 3 Claims

A transvinylation catalyst consisting essentially of a mercury(II) salt of a strongly acidic sulfonated hydrocarbon ion exchange resin and an effective amount of a sterically hindered tertiary amine selected from the group consisting of 2,6-lutidine, 2,6-diethylpyridine, 2-methyl-6-ethylpyridine, 2-methyl-6-n-propylpyridine, and 2-methyl-6-isopropylpyridine. A process for preparing a first vinyl ether comprising contacting a second vinyl ether and an alcohol or phenol with said catalyst.

ERRATUM

For Class 252—520 see:
Patent No. 3,813,252

3,813,349

LIQUID DETERGENT COMPOSITION

Alan B. Wolfson, Springfield Township, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Continuation of abandoned application Ser. No. 888,862, Dec. 29, 1969. This application May 30, 1972, Ser. No. 257,746

Int. Cl. C11d *3/066, 3/07*

U.S. Cl. 252—526 2 Claims

Disclosed herein are stable two-phase liquid detergent emulsions that maintain stability without the use of additional stabilizing agents. These autostabilized emulsions are made up of anionic, zwitterionic or simipolar compounds, electrolytes, alcohols and water. Autostabilized emulsions are capable of supporting water-insoluble particulate material.

3,813,350

MILDNESS ADDITIVE

Ralph Kelly, Cincinnati, and Edmond Jean Ritter, Loveland, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

No Drawing. Application Jan. 9, 1968, Ser. No. 696,509, now Patent No. 3,630,934, which is a continuation-in-part of application Ser. No. 613,095, Feb. 1, 1967, now Patent No. 3,538,009. Divided and this application May 5, 1971, Ser. No. 140,555

Int. Cl. C11d *3/16, 3/48*

U.S. Cl. 252—547 21 Claims

The degree of skin irritation of detergent compositions is reduced by adding to the detergent composition a mildness additive having the general formula Y—R—Y′ wherein R is a divalent organic radical containing a chain of at least 15 atoms the majority of which are carbon atoms, and containing a cyclic moiety of at least 5 atoms, and wherein Y and Y′ are polar groups containing at least one nitrogen, oxygen, phosphrous, sulfur or combination thereof. Suitable mildness additives include esters of polymerized unsaturated C_{12}–C_{26} fatty acids and glycols or polyoxyalkylene glycols.

3,813,351

PRIMING COMPOSITION

J. Brent Thomson, Lewiston, Idaho, assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 167,799, July 30, 1971, now Patent No. 3,706,592, which is a division of application Ser. No. 862,531, Sept. 30, 1969, now Patent No. 3,697,551, which in turn is a continuation-in-part of abandoned application Ser. No. 789,974, Dec. 31, 1968. This application June 6, 1972, Ser. No. 260,079

Int. Cl. C08c *11/22, 11/24;* C08g *30/00*

U.S. Cl. 260—2 EP 3 Claims

Disclosed are priming compositions comprising (1) a nitrogen containing silane compound of the formula

$$(X)_a\text{—}\overset{(T)_b}{\underset{|}{Si}}\text{—}[R\text{—}(Z)_c]_d$$

where R is an organic radical, X is selected from halo, hydroxy, alkoxy, aryloxy, organo oxycarbonyl, azido, amine, and amide radicals; T is selected from alkyl, cycloalkyl, aryl, alkaryl, and aralkyl radicals; a is an integer from 1 to 3; b is an integer from 0 to 2; c is an integer from 1 to 10; d is an integer from 1 to 3; and $a+b+d$ equals 4; and Z is selected from

$$-O\text{—}\overset{\overset{O}{\|}}{C}\text{—}\overset{\overset{R'}{|}}{C}N_3,\quad -O\overset{\overset{O}{\|}}{C}N_3,\text{ and } -SO_2N_3$$

where R′ is selected from hydrogen, alkyl, cycloalkyl, aryl and —COOR″ radicals; where R″ is selected from alkyl, cycloalkyl, and aryl radicals, (2) a polymer, and (3) a liquid medium. Also disclosed is a process to promote the adhesion of polymers to siliceous materials, metals, metal oxides, and other polymers using the said priming composition.

3,813,352

EPOXIDE RESIN MIXTURES

Jurgen Habermeier, Pfeffingen, Daniel Porret, Binningen, and Dieter Baumann, Birsfelden, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 26, 1972, Ser. No. 318,154

Claims priority, application Switzerland, Dec. 30, 1971, 19,179/71

Int. Cl. C08g *30/02*

U.S. Cl. 260—2 EP 10 Claims

New epoxide resin mixtures which contain a major proportion of higher molecular weight N,N′-diglycidyl compounds of oxalkylated cyclic ureide derivatives are obtained by reacting 1 mole of an oxylated cyclic ureide, such as 3 - (2′ - hydroxy - n - propyl)-5,5-dimethyl hydantoin, with 1.2 to 3.0 moles of epihalogenohydrin in known manner.

The new epoxide resin mixtures are suitable for the manufacture of moulded articles and coatings with good mechanical properties and, in comparison with the low molecular N,N′-diglycidyl compounds of oxalkylated cyclic ureides, possess the advantage that a slighter exothermicity occurs on gelling and a slighter shrinkage during curing.

3,813,353

PREPARATION OF ION EXCHANGE RESINS FROM ACROLEIN COPOLYMERS

David H. Clemens, Willow Grove, Pa., and Raymond J. Lange, Wheelersburg, Ohio, assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Feb. 5, 1973, Ser. No. 329,932

Int. Cl. C08f *27/08*

U.S. Cl. 260—2.1 C 14 Claims

Weak base anion exchange resins are prepared by the Wallach reaction on poly(acrolein:divinylbenzene). The crosslinked polyacrolein is subjected to reaction with a secondary amine and formic acid to convert the aldehyde groups to the tertiary amine form. The resulting weak base anion exchange resins have good anion exchange capacities, good physical stability, good rinse requirements and resistance to oxidation. Strong base anion exchange resins are prepared by reaction of the tertiary amine product with a suitable alkyl halide or equilvalent material. These resins show excellent thermal stability and resistance to organic fouling.

3,813,354

COPOLYMERS OF ALKENYLSULFONATES AND CATION PERMOSELECTIVE MEMBRANES BASED THEREON

Antonio Chiolle, Ferrara, Lino Credali, Casalecchio, Paolo Longi and Francesco Greco, Milan, and Romano D'Angelo, Brugherio, Italy, assignors to Montecatini Edison S.p.A., Milan and Rome, Italy

No Drawing. Filed July 5, 1972, Ser. No. 269,061

Claims priority, application Italy, July 8, 1971, 26,727/71

Int. Cl. C08f *15/02, 15/40*

U.S. Cl. 260—2.2 R 17 Claims

Alkenylsulfonate copolymers, which, on heating, undergo self-cross-linking, and when so cross-linked, can be formed into cation permoselective membranes, said copolymers comprising, in chemically combined form: an alkenylsulfonate, vinylidene chloride and/or α-chloroacrylonitrile, and optionally, at least one other copolymerizable monomer containing a $CH_2{=}C<$ group.

3,813,355

ANTIMONY TALLATE CATALYSIS OF FOAMS

3,813,358

POLYCARBON

3,813,355
ANTIMONY TALLATE CATALYSIS OF FOAMS PREPARED FROM CARBOXY-CONTAINING ADDUCT POLYOLS

John K. Allen, Batavia, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Aug. 21, 1972, Ser. No. 282,465
Int. Cl. C08g 22/40, 22/44
U.S. Cl. 260—2.5 AB 2 Claims

The catalysis of rigid urethane-type foams prepared from polyarylpolyisocyanates and free carboxy-containing adduct polyols is improved by the use of antimony tallate as the catalyst. Antimony tallate is also extremely effective in foams containing aromatic carboxylic acid derivatives as a third principal component. These foams are useful for applications requiring good fire resistant properties.

3,813,356
FIRE-RETARDANT MATERIAL OR CONGLOMERATE CONTAINING FILLER CONSISTING ESSENTIALLY OF MAGNESIUM SILICATE

Henri Lievremont, 103 Rue Lamarck, and Adolphe Cominassi, 95 Avenue Mozart, both of 75 Paris, France

No Drawing. Filed Aug. 22, 1972, Ser. No. 282,757
Claims priority, application France, July 18, 1972, 25,814
Int. Cl. C08f 47/10, 51/18
U.S. Cl. 260—2.5 F 19 Claims

This invention concerns a new industrial product consisting of a fire-retardant material or conglomerate, characterized by the fact that it contains 25 to 80% of a binder consisting of a phenol-formol resin, and 30 to 120% fillers, preferably inorganic fillers, in relation to the weight of resin, including 10 to 42% magnesium silicate powder.

This material meets building safety standards, notably for high-rise buildings.

3,813,357
HYDROCARBON-DERIVED RESINS HAVING LOW SOFTENING POINT

David R. St. Cyr, Uniontown, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of application Ser. No. 52,133, July 2, 1970, now Patent No. 3,692,756. This application June 8, 1972, Ser. No. 260,881
Int. Cl. C08f 15/40
U.S. Cl. 260—5 3 Claims

A composition comprising a hydrocarbon-derived resin as a tackifier and a polymer selected from natural rubber, synthetic rubber and a thermo plastic polymer. The hydrocarbon-derived resin is characterized by having a softening point in the range of about 25° C. to about 80° C., a volatility of less than about 6 weight percent and a number average molecular weight in the range of about 1000 to about 1400 and which comprises from about 5 to about 60 percent units derived from piperylene, from about 1 to about 30 percent units derived from 1,3-butadiene, from about 5 to about 60 percent units derived from isobutylene, from about 5 to about 30 percent units derived from 2-methyl-1-butene, from about 5 to about 40 percent units derived from 2-methyl-2-butene, from about 0 to about 10 percent units derived from isoprene and from about 0 to about 10 percent units derived from other hydrocarbons containing 4 to 6 carbon atoms, wherein the ratio of units derived from piperylene to units derived from 1,3-butadiene is from about 10:1 to about 1:2 and the ratio of units derived from piperylene to units derived from isobutylene is from about 6:1 to about 1:6.

3,813,358
POLYCARBONATE MOLDING COMPOSITION COMPRISING AN AROMATIC POLYCARBONATE GRAFT COPOLYMER AND A MODIFIER

William J. O'Connell, Evansville, Ind., assignor to General Electric Company

No Drawing. Filed Jan. 3, 1972, Ser. No. 215,111
Int. Cl. C08b 21/08; C08g 41/04, 39/10
U.S. Cl. 260—16 4 Claims

An improved polycarbonate molding composition having in admixture therewith minor amounts of a graft copolymer of a polybutadiene and a mixture of an alkenyl cyanide and a vinyl aromatic hydrocarbon.

3,813,359
STARCH-FLUORO POLYMER TEXTILE SIZING, WATER AND OIL REPELLENT COMPOSITION

Robert Tweedy Hunter, Jr., Mendham, and Herman Lowell Marder, Plainfield, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 740,437, June 19, 1968. This application Feb. 4, 1972, Ser. No. 223,735
Int. Cl. C08d 9/06
U.S. Cl. 260—17.4 ST 6 Claims

A textile sizing, i.e., starching, composition which also imparts a measure of water and/or oil-repellency containing a water-soluble starch and a fluoropolymer emulsion dispersed, preferably, under the aegis of normally gaseous propellant.

3,813,360
7H-THIAZOLO[3,2-a]PYRIMIDIN-7-ONES

Delme Evans, Chalfont St. Peter, England, assignor to Lilly Industries, Limited, London, England

No Drawing. Filed Sept. 20, 1971, Ser. No. 182,122
Claims priority, application Great Britain, Sept. 30, 1970, 46,404/70
Int. Cl. C07d 51/46
U.S. Cl. 260—25 A 1 Claim

7H - thiazolo[3,2-a]pyrimidin - 7 - ones, for example 3-methyl - 5 - phenyl - 7H - thiazol[3,2-a]pyrimidin-7-one β-aminoacryloyliminothiazoline derivatives thereof and their benzothiazole and benzothiazoline analogues possess anti-fungal, amoebicidal and anti-inflammatory activity, and may be prepared by reaction of a 2-aminothiazole or 2-aminobenzothiazole with a propiolic acid or ester thereof followed optionally by reaction with an amine, or with propiolyl chloride followed by reaction with an amine.

3,813,361
NON-DISCOLORING THERMOSETTING POLYURETHANE LACQUER

Marina N. Gillis, Morrisville, Pa., and Michael P. Mazzeo, Hightstown, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Filed Oct. 16, 1972, Ser. No. 298,173
Int. Cl. C08g 51/24, 51/44, 51/34
U.S. Cl. 260—29.2 TN 14 Claims

A thermosetting polyurethane lacquer composition is disclosed comprising (a) a polyurethane, which is the reaction product of at least one polyol and a diisocyanate, and which has been chain extended, (b) a cross-linking amount of dimethylolurea or dimethylolethyleneurea, (c) suitable solvents, and (d) .003–.03 parts of phosphoric acid per 100 parts of polyurethane solvents.

3,813,362
WATER - SOLUBLE POLYAMIDEPOLYAMINES CONTAINING PHENYLENE LINKAGES AND PROCESSES FOR THE MANUFACTURE THEREOF

Anthony Thomas Coscia, South Norwalk, and Laurence Lyman Williams, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

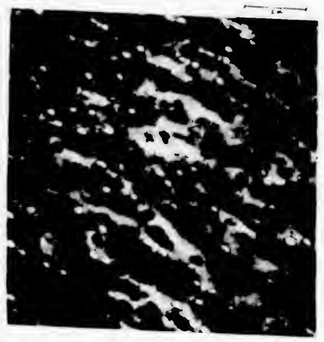
No Drawing. Original application Oct. 12, 1970, Ser. No. 80,181, now Patent No. 3,733,290. Divided and this application Oct. 27, 1972, Ser. No. 301,556
Int. Cl. C08g 20/20, 51/24
U.S. Cl. 260—29.2 N 7 Claims

Water-soluble cationic polyamide-polyamine resins containing phenylene linkages are prepared by reacting ⅓ to ¾ mol of a non-orthophthalic acid with 1 mol of a water-soluble polyalkylenepolyamine, reacting the resulting monomeric phthalamide with ⅔ to ¼ mol of a C_3–C_{10} saturated aliphatic dicarboxylic acid to form a chain polymer (the total amount of the acids being ¾ to ⅘ mol per mol of the polyamine) the polymer can be rendered thermosetting by reaction with epichlorohydrin.

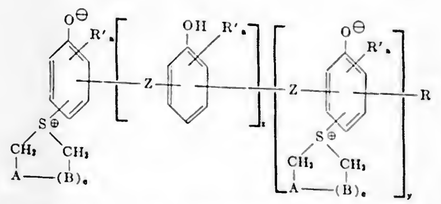
3,813,363
AQUEOUS COATING COMPOSITIONS OF CYCLIC SULFONIUM ZWITTERIONS AND COLLOIDAL SOLS

Donald L. Schmidt, Hugh B. Smith, and Wilhelm E. Walles, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 16, 1971, Ser. No. 172,332
The portion of the term of the patent subsequent to Jan. 18, 1989, has been disclaimed
Int. Cl. C08g 5/02, 33/10; C10m 7/08, 7/28; F16c 33/20
U.S. Cl. 260—29.3 19 Claims



Aqueous coating compositions are prepared from water-soluble cyclic sulfonium zwitterions of Formula I:



where Z is a bridging ether, ester or alkylene group and $\Sigma(x+y)=0-20$ and aqueous inorganic and organic colloidal sols stable at alkaline pH. These compositions cure thermally to form water-insoluble coatings with the colloidal particles dispersed throughout a binder matrix of polymerized zwitterionic monomer. Coatings of unusual hardness, scratch resistance, flexibility, resilience and lubricity can be obtained using sols of such materials as silica, polytetrafluoroethylene, polyethylene, styrene-butadiene latex, and water-insoluble oils.

3,813,364
SELF-BONDING, HEAT-CURABLE SILICONE RUBBER

George P. De Zuba, Mechanicville, and Abe Berger, and Terry G. Selin, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Continuation of application Ser. No. 241,831, Apr. 6, 1972, now abandoned, which is a continuation-in-part of Ser. No. 132,552, Apr. 8, 1971, now abandoned. This application Apr. 18, 1973, Ser. No. 352,125
Int. Cl. C08g 51/04
U.S. Cl. 260—37 SB 33 Claims

A self-bonding, heat-vulcanizable silicone rubber composition comprising (a) an organopolysiloxane polymer of the formula

$$R_aSiO_{\frac{4-a}{2}},$$

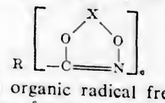
(b) a curing catalyst, and (c) an additive selected from cyanurates, isocyanurates, silyl-cyanurates and silyl-isocyanurates, where R is selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, a varies from 1.95 to 2.01. There may also be present in the above composition a process aid and a filler, as well as other ingredients.

3,813,365
HIGH MOLECULAR WEIGHT CYCLIC NITRILE ADDUCT COMPOSITIONS

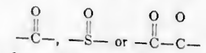
Kurt C. Frisch, Grosse Ile, and Sidney Reegen, Oak Park, Mich., and Jerry A. Dieter, Cherry Hill, N.J., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed May 3, 1971, Ser. No. 139,934
The portion of the term of the patent subsequent to Sept. 29, 1987, has been disclaimed
Int. Cl. C08g 22/00, 22/40
U.S. Cl. 260—77.5 R 6 Claims

High molecular weight compositions useful for coatings and films are prepared by reacting
(A) a cyclic nitrile adduct having the structure



wherein R is an organic radical free of nucleophilic groups and having from 2 to about 200,000 carbon atoms, X is:



and n ranges from 2 to about 100,000 with
(B) a nucleophilic organic compound having at least 2 reactive hydrogen-containing radicals selected from the group consisting of hydroxyl radicals and thiol radicals in the presence of a suitable catalyst the ratio of (A) to (B) being 1:X, with X varying from less than 1 to 0.

3,813,366
METHOD TO PREPARE NYLON 6 PREPOLYMER PROVIDING A FINAL SHAPED ARTICLE OF LOW OLIGOMER CONTENT

William Howell Wright, Petersburg, Alex John Bingham, Richmond, and William Albert Fox, Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Mar. 21, 1973, Ser. No. 343,594
Int. Cl. C08g 20/14
U.S. Cl. 260—78 L 7 Claims

A coupled process for the production of polycaproamide shaped articles from molten anhydrous nascent

polymer is disclosed. The improvement is hydrolyzing to form prepolymer by continuously maintaining

phase with gaseous chlorine in the presence of a

polymer is disclosed. The improvement is hydrolyzing to form prepolymer by continuously maintaining a carefully controlled temperature profile, from top to bottom of the hydrolyzer, from a top temperature of 200° to 240° C. and a bottom temperature of 245° to 275° C. with no more than 25° difference between the stages and substantially uniform temperature within each stage by mixing with a high degree of turbulence within each stage to achieve a mixing Reynolds number of from about 250 to about 200,000, and achieving plug flow effect along the length of the reactor by baffles between each stage, so the final product has a water extractables content of less than 3.5 percent and oligomer content of less than 2.5 percent.

3,813,367

LACTAM POLYMERIZATION WITH HALOGEN SUBSTITUTED AROMATIC INITIATORS

Markus Matzner, Edison, and James E. McGrath, Somerville, N.J., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Oct. 10, 1969, Ser. No. 865,487

Int. Cl. C08g *20/18*

U.S. Cl. 260—78 L **22 Claims**

Certain halogen substituted aromatic compounds are utilized as polymerization initiators or activators with alkaline catalysts in the anionic polymerization of lactam monomers to provide long pot life, a rapid polymerization and novel polymers. The initiators are compounds containing at least one carbocyclic aromatic ring substituted with at least one halogen atom which has been activated towards nucleophilic substitution.

3,813,368

ABIETATE MODIFIED POLYSULFIDE POLYMERS

José L. Villa, Heightstown, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Filed May 12, 1972, Ser. No. 252,646

Int. Cl. C08g *23/00*

U.S. Cl. 260—79 **2 Claims**

A polysulfide polymer is reacted with abietic acid and is effective as an adhesive additive for a polysulfide polymer-based composition used as sealants or bonding agents on various substrates such as glass or aluminum.

3,813,369

CONTINUOUS MASS POLYMERIZATION PROCESS

George A. Latinen, deceased, late of Springfield, Mass., by May V. Latinen, administratrix, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed May 25, 1972, Ser. No. 256,660

Int. Cl. C08f *1/06*

U.S. Cl. 260—80.6 **21 Claims**

An improved process for copolymerizing by continuous mass technique alkenyl nitrile compound(s) with monoalkenyl aromatic compound(s) wherein the capabilities of both using reflux and of achieving unusually high conversion levels with unusually high conversion rates are provided. The process utilizes within a reaction zone a combination of homogeneous mixing and vapor phase removal of monomer to control temperature. Copolymers produced by this process display substantially uniform molecular weight distribution and composition distribution.

3,813,370

PROCESS FOR THE CHLORINATION OF POLYMERIC MATERIALS

Gian Paolo Gambaretto and Gianpietro Talamini, Padova, and Giancarlo Palma, Venice, Italy, assignors to Montecatini Edison, S.p.A., Milan, Italy

No Drawing. Filed May 8, 1972, Ser. No. 251,401

Claims priority, application Italy, May 10, 1971, 24,307/71; Jan. 24, 1972, 19,734/72

Int. Cl. C08f *27/03*

U.S. Cl. 260—88.2 S **8 Claims**

Vinyl chloride homopolymers and copolymers and olefinic polymers and copolymers are chlorinated in the dry phase with gaseous chlorine in the presence of a small amount of elemental fluorine in an environment which is substantially free of ultraviolet radiation and organic peroxides.

3,813,371

METHOD FOR CURING A FURFURYL ALCOHOL BINDER

Keith B. Bozer and Lloyd H. Brown, Crystal Lake, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,337

Int. Cl. C08f *5/04*

U.S. Cl. 260—88.5 **4 Claims**

This invention relates to a process for curing a furfuryl alcohol binder with a specified acid salt of an aromatic amine, said binder useful for example in the preparation of fiber glass laminates.

3,813,372

METHOD OF MANUFACTURING ACRYLONITRILE POLYMERS HAVING AN EXCELLENT WHITENESS

Yasushi Joh and Teruhiko Sugimori, Otake, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

Continuation of abandoned application Ser. No. 162,921, July 15, 1971. This application Feb. 23, 1973, Ser. No. 335,121

Claims priority, application Japan, July 27, 1970, 45/64,979

Int. Cl. C08f *3/76, 15/02, 15/22*

U.S. Cl. 260—88.7 R **1 Claim**

An acrylonitrile polymer useful for producing acrylonitrile synthetic fiber having an excellent whiteness and a superior heat stability is prepared by the polymerization method wherein the acrylonitrile is polymerized or copolymerized in the presence of a redox catalyst at a concentration of monomer to be polymerized in water which concentration is so adjusted that the concentration of nonpolymerized monomer remaining in water which relates to the yield of the resultant polymer is on or within the quadrilateral ABCD defined in the accompanying drawing.

3,813,373

METHOD FOR PRODUCING HIGH BULK DENSITY POLYVINYL CHLORIDE

Ikoh Ito, Takeshi Sekihara, and Tomoyuki Emura, Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Japan

No Drawing. Filed Oct. 17, 1972, Ser. No. 298,404

Int. Cl. C08f *1/11, 3/30*

U.S. Cl. 260—92.8 W **5 Claims**

Method for producing polyvinyl chloride having a high bulk density of more than 0.6 g./cc., superior free flow property and superior processability by suspension polymerization of vinyl chloride monomer in an aqueous medium in the presence of a specific water-soluble cellulose derivative and a specific alkali metal salt of an inorganic or organic acid by using an agitator having an agitating blade in which the ratio (*d*/*D*) of span (*d*) of the agitating blade to the inside diameter (D) of the polymerization vessel is 0.3 to 0.8 and further the tip speed of the agitating blade is not more than 7 m./sec.

3,813,374

POLYMERIZATION OF CONJUGATED DIOLEFINS WITH CATALYSTS CONTAINING CARBON OXYSULFIDE

Dale C. Perry, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 19, 1970, Ser. No. 82,189

Int. Cl. C08d *3/04, 3/06, 1/14*

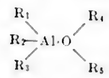
U.S. Cl. 260—94.3 **10 Claims**

There is disclosed a process for the polymerization of conjugated diolefins by means of a catalyst system com-

prising (A) titanium tetrachloride (B) at least one member of the group consisting of (1) organoaluminum compounds defined by the formula:



wherein R_1 is selected from the group consisting of alkyl, cycloalkyl, aryl, alkaryl, arylalkyl and halogen radicals and hydrogen and R_2 and R_3 are selected from the group consisting of alkyl, cycloalkyl, aryl, arylalkyl and alkaryl radicals and (2) the etherates of organoaluminum compounds of the formula:



wherein R_1 is selected from the group consisting of alkyl, cycloalkyl, aryl, alkaryl, arylalkyl and halogen radicals and hydrogen; R_2 and R_3 are selected from the group consisting of alkyl, cycloalkyl, aryl, arylalkyl and alkaryl radicals; R_4 and R_5 are selected from the group consisting of saturated aliphatic, unsaturated aliphatic, saturated alicyclic, unsaturated alicyclic and aromatic radicals and (C) carbon oxysulfide.

3,813,375

MAKING POWDERS OF ETHYLENE POLYMERS

Hans Joachim Klocke, Frankenthal, Dieter Stockburger, Gruenstadt, Volker Gierth, Ludwigshafen, and Gerhard Zeitler, Hessheim, Germany, assignors to Badische Anilin & Soda-Fabrik Aktiengesellschaft, Germany

No Drawing. Filed Mar. 1, 1972, Ser. No. 230,958

Int. Cl. C08f *3/04, 1/92*

U.S. Cl. 260—94.9 GD **6 Claims**

Method of making powders from ethylene polymers by dissolving the ethylene polymers at a temperature above 60° C. in a fluorinated chlorohydrocarbon having from 1 to 4 carbon atoms and 0 to 2 hydrogen atoms, cooling the solution to a temperature below 60° C. or evaporating the solvent, and collecting the pulverized ethylene polymers.

3,813,376

7 - (o - AMINOMETHYLPHENYL - ACETAMIDO)-3-(3-HYDROXYPYRIDAZIN - 6 - YLTHIOMETHYL)-3-CEPHEM-4-CARBOXYLIC ACID

Takayuki Naito, Tokyo, and Jun Okumura, Yokohama, Japan, assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Aug. 31, 1972, Ser. No. 285,764

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C **10 Claims**

7-(*o*-aminomethylphenylacetamido) - 3 - (3-hydroxypyridazin-6 - ylthiomethyl) - 3 - cephem-4-carboxylic acid and its nontoxic, pharmaceutically acceptable salts and especially its dimethanesulfonate derivative are valuable as antibacterial agents, as nutritional supplements in animal feeds and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by many Gram-positive and Gram-negative bacteria. 7-(*o*-aminomethylphenylacetamido) - 3 - (3 - hydroxy-pyridazin-6-ylthiomethyl) - 3 - cephem - 4-carboxylic acid is prepared, for example, by treatment at 0° C. with trifluoroacetic acid of the corresponding compound in which the free amino group is protected with a *tert.*-butoxycarbonyl group.

3,813,377

OXIDATIVE DEHYDROCYCLIZATION PROCESS OF IMINES

Marcello Massi Mauri, San Donato Milanese, and Pietro Antonio Moggi, and Ugo Romano, Milan, Italy, assignors to Snam Progetti, S.p.A., Milan, Italy

No Drawing. Filed Nov. 2, 1971, Ser. No. 195,043

Claims priority, application Italy, Nov. 3, 1970, 31,304/70

Int. Cl. C07d *27/64*

U.S. Cl. 260—279 R **7 Claims**

The present invention provides a novel oxidative dehydrocyclization process wherein imines such as N-ethylidenecylohexylamine are used to prepare indole by a reaction in the presence of oxygen and a catalyst such as silica.

3,813,378

PROCESS FOR THE PRODUCTION OF CYCLIC IMIDIC ACID ESTERS

Helmut Witte, and Wolfgang Seeliger, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed June 2, 1972, Ser. No. 259,310

Claims priority, application Germany, June 4, 1971, 21 27 776.9; Nov. 24, 1971, 21 58 061.0

Int. Cl. C07d *85/36, 87/20*

U.S. Cl. 260—244 **6 Claims**

Δ^2-oxazolines and 5,6-dihydro-4H-1,3-oxazines are produced by heating an organic nitrile and a β- or α- aminoalkanol, at 50–180° C. in the presence of a salt soluble in the reaction mixture of lithium, copper, calcium, zinc, cadmium, manganese, nickel or cobalt and removing the ammonia by-product from the reaction mixture.

3,813,379

THERMALLY STABILIZED THERMOSETTING PLASTIC MATERIAL, AND ARTICLE

Karel J. Brouwers, La Mesa, and Preston J. Heinle, Phoenix, Ariz., assignors to Motorola Inc., Franklin Park, Ill.

Original application Dec. 14, 1970, Ser. No. 97,914. Divided and this application July 20, 1972, Ser. No. 273,358

Int. Cl. C08g *51/52*

U.S. Cl. 260—28 **7 Claims**

Molding materials of the thermosetting type containing halogenated compounds for flame retarding are stabilized against high temperature decomposition by the addition of a stabilizing system of a thioester and an antioxidant. Such stabilized materials are used in encapsulating semiconductive elements in forming improved semiconductor devices.

3,813,380

CONTACT ADHESIVE MIXTURES

Eugen Bock, Leverkusen-Schlebusch, Manfred Dollhausen, Hitdorf, and Horst Muller-Albrecht, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 275,851, July 27, 1972. This application July 16, 1973, Ser. No. 379,501

Int. Cl. C08g *22/14, 22/26*

U.S. Cl. 260—77.5 AP **1 Claim**

Compositions suitable for use as contact or pressure-sensitive adhesives are provided which compositions are mixtures of a polyalkylene polyether polyol, a diisocyanatodiurethane and a catalyst which promotes the reaction between OH and NCO groups optionally with the inclusion of an aromatic diisocyanate and if desired in the presence of conventional additives such as, for example, pigments, fillers, and the like.

3,813,381

ETHYLENE POLYMERIZATION WITH AMMONIA MODIFIED CATALYST

Frederick J. Karol, Somerset, N.J.

and their pharmacologically acceptable acid addition salts thereof. These new benzyl phthalazone derivatives are

3,813,387

SULPHAMOYLPHENYL-

acid and its nontoxic, pharmaceutically

3,813,381
ETHYLENE POLYMERIZATION WITH AMMONIA MODIFIED CATALYST

Frederick J. Karol, Somerset, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed July 17, 1972, Ser. No. 272,420
Int. Cl. C08f *1/64, 3/06, 15/04*
U.S. Cl. 260—88.2 R **19 Claims**

Supported bis-cyclopentadienyl chromium [II] catalysts are modified by treatment with ammonia in order to improve the toughness and impact strength of the resulting ethylene polymers made therewith.

3,813,382
ANALOGS OF LUTEINIZING HORMONE RELEASING FACTOR SUBSTITUTED IN POSITION 9

Wayne A. McKinley, Wallingford, and William H. McGregor, Malvern, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Dec. 20, 1972, Ser. No. 317,041
Int. Cl. C07c *103/52;* **C07g** *7/00*
U.S. Cl. 260—112.5 **5 Claims**

Novel decapeptides are described in which the decapeptide pGlu - His - Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH_2 identified as the luteinizing hormone-releasing factor has the amino acid in the 9-position of the peptide chain replaced by an aliphatic amino acid. The resulting decapeptides have both luteinizing hormone (LH-RF) releasing factor and follicle-stimulating hormone-releasing factor (FSH-RF) activity.

3,813,383
METHOD OF PRODUCING A MOLLUSCICIDE FROM ENDOD

Akliln Lemma, Addis Ababa, Robert M. Parkhurst, Menlo Park, and Wilfred A. Skinner, Jr., Portola Valley, Calif., assignors to Ethiopian Science Foundation, Addis Ababa, Ethiopia

No Drawing. Filed Jan. 19, 1973, Ser. No. 325,037
Int. Cl. C07g *17/00;* **A01n** *9/08*
U.S. Cl. 260—236.5 **5 Claims**

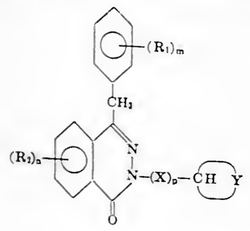
A molluscicide is produced from Endod by removing the fatty constituents of Endod by extraction with a fat solvent, soaking the defatted Endod in warm water, extracting the soaked Endod with a solvent which is substantially insoluble or only slightly soluble in water and evaporating at least a portion of the solvent.

3,813,384
BASICALLY SUBSTITUTED BENZYL PHTHALAZONE DERIVATIVES, ACID SALTS THEREOF AND PROCESS FOR THE PRODUCTION THEREOF

Dietrich Vogelsang, deceased by Ursula Vogelsang Nee Schafer, Heir Helpup, Gerhard Scheffler, Sennei, Norbert Brock, Uerentrup, and Dieter Lenke, Bielefeld, Germany, assignors to Asta-Werke Aktiengesellschaft, Chemische Fabrik, Westfalen, Germany

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,532
Int. Cl. C07d *25/00, 51/06*
U.S. Cl. 260—239 A **4 Claims**

New basically substituted benzyl phthalazone derivatives of formula I



I

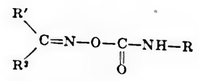
and their pharmacologically acceptable acid addition salts thereof. These new benzyl phthalazone derivatives are excellent antihistamines and therefore useful in the treatment of histamine induced disturbances.

3,813,385
6 - [(LOWER ALKYLIDENE)IMINOOXYCARBONAMIDO]-PENICILLANIC ACIDS AND METHOD OF THEIR PREPARATION

Peter Wolfgang Henniger, Leiden, Netherlands, assignor to American Home Products Corporation, Radnor, Pa.

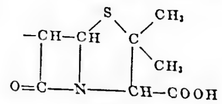
No Drawing. Filed Dec. 17, 1970, Ser. No. 99,276
Claims priority, application Great Britain, Dec. 18, 1969, 61,841/69
Int. Cl. C07d *99/16, 99/24*
U.S. Cl. 260—239.1 **11 Claims**

Novel penicillanic acid and cephalosporanic acid derivatives of the formula

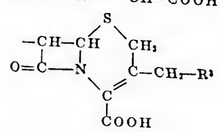


(I)

wherein R is selected from the group consisting of

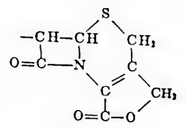


(II)



(III)

and



(IV)

R′ is selected from the group consisting of hydrogen, lower alkyl, lower alkoxycarbonyl, lower alkanoyl, aryl, benzyl, heterocyclic of 5 to 6 atoms in the ring and the hetero atom is nitrogen, oxygen or sulfur linked through a carbon atom and a phenylmethylidene-hydroxyimino, R_2 is selected from the group consisting of lower alkyl, lower alkanoyl and phenyl and R′ and R^2 together with the carbon atom to which they are attached form a cycloalkylidene of 5 to 8 carbon atoms, R_3 is selected from the group consisting of hydrogen and lower alkanoyloxy and the said aryl, benzyl and cycloalkylidene optionally are substituted with at least one member of the group consisting of halogen, lower alkyl and lower alkoxy and their non-toxic, pharmaceutically acceptable salts, esters and amides and their preparation and their use as antibiotics.

3,813,386
6-(2 - SUBSTITUTED-2-TRIPHENYLPHOSPHONIUM ACETAMIDO)PENICILLANIC ACIDS

John H. Sellstedt, King of Prussia, Daniel M. Teller, Devon, and Charles J. Guinosso, Abington, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Nov. 23, 1971, Ser. No. 201,574
Int. Cl. C07d *99/16*
U.S. Cl. 260—239.1 **3 Claims**

Novel 6(2-substituted - 2 - triphenylphosphonium acetamido)penicillanic acids are described which are useful as anti-bacterial agents.

3,813,387
SULPHAMOYLPHENYL PYRROLIDINONES

Rolf Wilhelm Pfirrmann, Lucerne, and Emil Hofstetter, Wolhusen, Switzerland, assignors to Ed. Geistlich Sohne A.G. fur Chemische Industrie

No Drawing. Filed Aug. 4, 1971, Ser. No. 169,062
Claims priority, application Great Britain, Aug. 5, 1970, 37,842/70
Int. Cl. C07d *27/08*
U.S. Cl. 260—239.6 **10 Claims**

New antiepileptic compounds showing effectiveness against both grand mal and petit mal forms of epilepsy coupled with very low toxicities and good in vivo stability have the 1-(sulphamoylaryl)-pyrrolidin-2-one structure; the pyrrolidine ring carrying as possible substituents aliphatic, cycloaliphatic, cycloalkylidene araliphatic and aryl groups; the sulphamoylaryl portion carrying as possible substituents halogen atoms or aliphatic hydrocarbon, trifluoromethyl, ether, hydroxy or acylamino groups. The compounds are prepared by reaction of a sulphamoylarylamine with a butyrolactone or γ-halobutyryl halide or by halosulphonation of a corresponding 1-arylpyrrolidin-2-one and reaction with ammonia or an amine.

3,813,388
7-[D-(α-AMINO-α-PHENYL-, 2-THIENYL- AND 3-THIENYL-ACETAMIDO)] - 3 - [S-(2-METHYL-1,2,3-TRIAZOLE - 4 - YL)THIOMETHYL]-3-CEPHEM-4-CARBOXYLIC ACIDS

Leonard Bruce Crast, Jr., 8623 Weaver Road, R.D. 4, Clay, N.Y. 13041

No Drawing. Filed Jan. 31, 1972, Ser. No. 222,295
Int. Cl. C07d *99/24*
U.S. Cl. 260—239.1 **6 Claims**

7-[D-(α-amino-α-phenyl-, 2-thienyl- and 3-thienyl-acetamido)]-3-[S-(2 - methyl - 1,2,3 - triazole - 4 - yl)thiomethyl]-3-cephem-4-carboxylic acids and their nontoxic, pharmaceutically acceptable salts are valuable as antibacterial agents, as nutritional supplements in animal feeds, as agents for the treatment of mastitus in cattle and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment, particularly by oral administration, of infectious diseases caused by many Gram-positive and Gram-negative bacteria.

3,813,389
PROCESS FOR 7-AMINOCEPHALOSPORANIC ACID

Harold B. Hayes, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Sept. 3, 1971, Ser. No. 177,869
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C **6 Claims**

Improved process for preparing 7-aminocephalosporanic acid comprising reacting penicillin contaminated cephalosporin C, protected cephalosporin C and salts thereof with a carboxylic acid halide in the presence of an imide such as DMAC or DMF to obtain the mixed anhydride blocked derivative and thereafter cleaving the α-aminoadipoyl side chain therefrom by known process via imino halide and imino ether formation followed by aqueous hydrolysis to provide 7-ACA substantially free of penicillin contaminants.

3,813,390
7-(o-AMINOMETHYLPHENYLTHIOACETAMIDO)-3-(3-HYDROXYPYRIDAZIN - 6 - YLTHIOMETHYL)-3-CEPHEM-4-CARBOXYLIC ACID

Takayuki Naito, Tokyo, and Jun Okumura, Yokohama, Japan, assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,630
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C **7 Claims**

7-(o-Aminomethylphenylthioacetamido) - 3 - (3 - hydroxy-pyridazin-6-ylthiomethyl)-3-cephem - 4 - carboxylic acid and its nontoxic, pharmaceutically acceptable salts and especially its dimethanesulfonate derivative are valuable as antibacterial agents, as nutritional supplements in animal feeds and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by many Gram-positive and Gram-negative bacteria. 7-(o-aminomethylphenylthioacetamido)-3-(3-hydroxy-pyridazin - 6 - ylthiomethyl)-3-cephem-4-carboxylic acid is prepared, for example, by treatment of 0° C. with trifluoroacetic acid of the corresponding compound in which the free amino group is protected with a *tert.*-butoxycarbonyl group.

3,813,391
7 - [β - (o - AMINOMETHYLPHENYL)PROPIONAMIDO] - 3 - (TETRAZOLO[4,5-b]PYRIDAZIN-6-YLTHIOMETHYL) - 3 - CEPHEM-4-CARBOXYLIC ACID

Takayuki Naito, Tokyo, and Jun Okumura and Hajime Kamachi, Yokohama, Japan, assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,793
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C **7 Claims**

7 - [β-(o-aminomethylphenyl)propionamido]-3-(tetrazolo[4,5-b]pyridazin - 6 - ylthiomethyl) - 3 - cephem-4-carboxylic acid and its nontoxic, pharmaceutically acceptable salts and especially its dimethanesulfonate derivative are valuable as antibacterial agents, as nutritional supplements in animal feeds and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by many Gram-positive and Gram-negative bacteria. 7-[β-(o-aminomethylphenyl)propionamido]-3-(tetrazolo[4,5 - b]pyridazin-6-ylthiomethyl)-3-cephem-4 - carboxylic acid is prepared, for example, by treatment at 0° C. with trifluoroacetic acid of the corresponding compound in which the free amino group is protected with a *tert.*butoxycarbonyl group.

3,813,392
PYRROLO(1,2,3-*de*)QUINOXALIN - 2(3H)-ONES AND RELATED COMPOUNDS

John H. Sellstedt, 266 Iven Ave., St. Davids, Delaware, Pa. 18327; Milton Wolf, 1058 Windy Knoll Road, West Chester, Pa. 19380

No Drawing. Original application June 9, 1969, Ser. No. 831,723, now abandoned. Divided and this application May 15, 1972, Ser. No. 252,990
Int. Cl. C07d *51/78*
U.S. Cl. 260—250 R **3 Claims**

This invention concerns pyrrolo[1,2,3-*de*]quinoxalin-2(3H) - ones and related compounds which are pharmacologically active as central nervous system depressants.

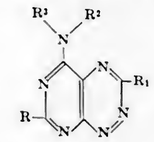
3,813,393
PYRIMIDOTRIAZINES

Kenneth John Maynard Andrews, and Brian Peter Tong, Harpenden, England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed June 23, 1972, Ser. No. 265,879
Int. Cl. C07d *57/34*
U.S. Cl. 260—249.5 **41 Claims**

A new class of pyrimidotriazines is described having a general anti-inflammatory activity and specific compounds therein also exhibit a diuretic activity. Methods for the preparation of the instant pyrimidotriazines are also described.

The new pyrimidotriazines are of the following formula



I

wherein R is a trifluoromethyl, lower alkyl, aryl or lower aralkyl group, R^1 is a hydrogen atom or a lower alkyl, aryl or lower aralkyl group, R^2 is a hydrogen atom or a lower alkyl group and X is a thiophene ring, the condensed ring system containing said thiophene ring being a benzothiophene, thienothiophene or thienopyridine ring, and Y is a hydrogen atom or a lower alkyl group, and their pharmaceutically acceptable salts.

wherein R is a trifluoromethyl, lower alkyl, aryl or lower aralkyl group, R^1 is a hydrogen atom or a lower alkyl, aryl or lower aralkyl group, R^2 is a hydrogen atom and R^3 is a hydrogen atom or a lower alkyl, lower alkenyl, lower alkynyl, lower cycloalkyl, aryl, lower aralkyl, hydroxyl, hydroxy-(lower alkyl) or acyl group or R^2 and R^3 each represent a lower alkyl group which may be joined directly or through an oxygen, nitrogen or sulfur atom to form with the nitrogen atom to which they are attached to a 5-membered or 6-membered heteromonocyclic ring.

3,813,394

PURINE DERIVATIVES HAVING HYPOCHOLESTEROLEMIC ACTIVITY

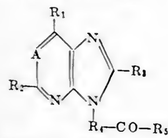
Akira Tensho, Tokorozawa, Takashi Kamiya and Yoshihisa Saito, Suita, Masashi Hashimoto, Toyonaka, and Hideo Seki, Takatsuki, Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Continuation-in-part of application Ser. No. 851,057, Aug. 18, 1969, which is a continuation-in-part of Ser. No. 861,808, Sept. 29, 1969, both now abandoned. This application Mar. 24, 1970, Ser. No. 22,361

Int. Cl. C07d *57/38*

U.S. Cl. 260—252 **16 Claims**

Purine derivatives of the formula:



wherein A is N or N→O, R_1 is hydrogen, halogen, hydroxyl, mercapto, lower alkoxy, ar(lower)alkoxy, lower alkylthio, amino, lower alkylamino, di(lower)alkylamino, ar(lower)alkylamino, acylamino, hydroxyamino, lower alkoxyamino, ar(lower)alkoxyamino or aryloxyamino, R_2 and R_3 are each hydrogen, halogen, hydroxyl, mercapto, amino, lower alkyl, aryl, lower alkoxy, ar(lower)alkoxy or lower alkylthio, R_4 is lower alkylene substituted with one or more hydroxyls (but no hydroxyl group being present at the carbon atom adjacent to the ring nitrogen atom) which may be protected with acyl, lower alkyl, ar(lower)alkyl or, when a pair of hydroxyls exist on the alkylene group, with lower alkylidene or ar(lower)alkylidene and R_5 is hydroxyl, lower or higher alkoxy, amino, lower alkylamino or di(lower)alkylamino, and their salts, which exhibit marked hypocholesterolemic acivity with extremely low toxicity.

3,813,395

4-ARYL ALKYL PIPERAZINO THIENOBENZO THIAZEPINES

Michio Nakanishi, Oita, Tomohiko Munakata and Shinro Setoguchi, Fukuoka, and Sunao Fukunari, Oita, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

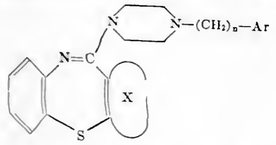
No Drawing. Filed May 13, 1971, Ser. No. 143,179

Claims priority, application Japan, May 13, 1970, 45/41,180, 45/41,181

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 TR **6 Claims**

A thienobenzothiazepine compound of the formula:



wherein Ar is a member selected from the group consisting of a phenyl, pyridyl and thienyl group, n is 1 or 2, which the polymethine chain of the dye includes the 1, 2

and X is a thiophene ring, the condensed ring system containing said thiophene ring being a member selected from the group consisting of a thieno[2,3-b][1,5]benzothiazepine and a thieno[2,3-b][1,5]benzothiazepine; and the pharmaceutically acceptable acid addition salts thereof. The present invention also extends to a process for making the aforementioned compounds, a pharmaceutical composition containing said compounds and a method for treating psycho disorders by employing said compound.

3,813,396

1,2-DIHYDROQUINOBENZOXAZEPINE[PIPERAZINYLALKYL]OXIMES

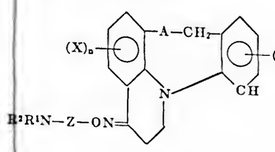
Harry L. Yale, New Brunswick, and Ramesh B. Petigara, Somerset, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed Aug. 13, 1971, Ser. No. 171,715

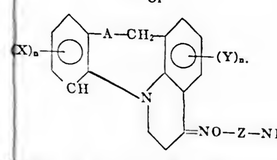
Int. Cl. C07d *51/70*

U.S. Cl. 260—268 PC **8 Claims**

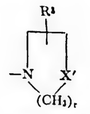
1,2-dihydroquinobenzoxa(or thia)zepine derivatives are provided having the structures



or



wherein A is O or S; X and Y are the same or different and can be halogen, trifluoromethyl, lower alkyl, cycloalkyl, lower alkylmercapto, lower alkoxy, cyano, isocyanido or di-lower alkylsulfamoyl; R^1 and R^2 are the same or different and can be halogen, lower alkyl, aralkyl or alkenyl or NR^1R^2 taken together is a heterocyclic radical having the formula



in which X′ represents NR^4, O, S, or CH_2; r represents 1, 2 or 3; R^4 represents halogen, lower alkyl, hydroxy-lower alkyl, lower alkanoyloxy-lower alkyl, hydroxy-lower alkoxy-lower alkyl, di(lower alkyl) amino-lower alkoxy-lower alkyl, lower-alkylamino-lower alkyl, di-lower alkyl amino-lower alkyl, amino-lower alkyl, R^3 represents any of the R^4 groups; Z is alkylene or alkenylene; n is 0, 1 or 2; and n' is 0, 1 or 2; and pharmaceutically acceptable salts thereof.

3,813,397

CERTAIN HEMIOXONAL DYES

Leslie G. S. Brooker, Rochester, Arthur Fumia, Jr., Hilton, and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application July 20, 1970, Ser. No. 56,657, now Patent No. 3,652,289. Divided and this application Nov. 23, 1971, Ser. No. 201,571

Int. Cl. C07d *91/16*

U.S. Cl. 260—268 C **5 Claims**

Novel trimethine hemioxonal dyes are provided in

and 3 carbon atoms of a 1-cyclohexen-3-ylidene nucleus, the 1-carbon atom of said 1-cyclohexen-3-ylidene nucleus having the nitrogen atom of a tertiary amino group attached thereto. Photographic emulsions and elements are also provided featuring the trimethine hemioxonal dyes of the invention as spectral sensitizers or as filter material. A method for preparing the trimethine hemioxonal dyes is also provided which comprises heating a quaternary salt of a 3-chlorocyclohex-2-en-1-ylidene compound having substituted on the 1-carbon atom thereof the nitrogen atom of a tertiary amino group, with an acidic compound having an active methylene group of the type used in the preparation of hemioxonal dyes, in the presence of a basic condensing agent.

3,813,398

BENZENESULFONYL-SEMICARBAZIDES AND PROCESS FOR THEIR MANUFACTURE

Walter Aumüller, Kelkheim, Taunus, Rudi Weyer, Frankfurt am Main, and Ruth Heerdt, Mannheim, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

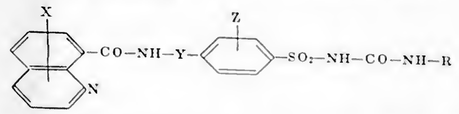
No Drawing. Filed June 3, 1971, Ser. No. 149,746

Claims priority, application Germany, Apr. 26, 1971, P 21 20 266.4

Int. Cl. C07d *33/00*

U.S. Cl. 260—283 SA **6 Claims**

Hypoglycemically active benzenesulfonyl - semicarbazides of the formula



wherein X is hydrogen, chlorine, bromine, methyl or methoxy, Y is $-CH(CH_3)-CH_2-$, preferably

$$-CH_2-CH_2-,$$

Z is hydrogen or a hydrocarbon radical of 1 or 2 carbon atoms, which forms together with Y a 5- or 6-membered ring, R is alkylene-imino of 3 to 7 carbon atoms in the ring which may be unsaturated or substituted by 1 or 2 methyl or lower alkyl or methoxy, pentamethylene-imino substituted by endoalkylene of 1 to 3 carbon atoms, hexamethylene-imino substituted by endoethylene in β-e-position, tetrahydro-iso-indoline, 4,7 - endoalkylene-hexahydro- or -tetrahydro-iso-indoline, the endoalkylene containing 1 or 2 carbon atoms and the double bond of the tetrahydro compound being in 5,6-position, and the salts thereof.

3,813,399

8-OXYQUINOLINE- AND 8-OXYQUINALDINE ACRYLATES

Helmut Huber-Emden, Basel, Adolf Hubele, Riehen, and Guenter Klahre, Reinach, Basel-Land, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

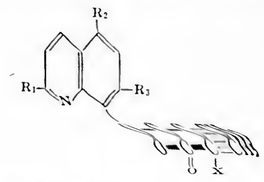
No Drawing. Filed Feb. 9, 1971, Ser. No. 114,069

Claims priority, application Switzerland, Feb. 13, 1970, 2,138/70

Int. Cl. C07d *33/48*

U.S. Cl. 260—287 OX **11 Claims**

The present invention relates to new 8-oxyquinolines of the formula



922 O.G.—46

wherein

(a) X represents hydrogen or halogen and R_1 represents hydrogen or methyl, and the substituents R_2 and R_3 represent hydrogen or halogen, or wherein

(b) X represents methyl, R_1 represents hydrogen and one of the two substituents R_2 and R_3 denotes halogen and the other hydrogen, or both substituents R_2 and R_3 denote halogen, and in the case of (b) R_1, R_2 and R_3 represent substituents that differ from one another if R_2 represents chlorine or bromine, or wherein

(c) X represents methyl and R_1 represents methyl and R_2 and R_3 represent hydrogen or halogen, their process of manufacture and their use as active ingredient in pesticidal preparations.

3,813,400

DERIVATIVES OF 3-AMINO-1,2,4-TRIAZOLES

John Terence Arnott Boyle, Maidenhead, and John Christopher Saunders, Taplow, Maidenhead, England, assignors to John Wyeth & Brother Limited, Taplow, Maidenhead, England

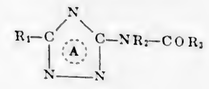
No Drawing. Filed Nov. 29, 1972, Ser. No. 310,289

Claims priority, application Great Britain, Dec. 6, 1971, 56,466/71

Int. Cl. C07d *31/44*

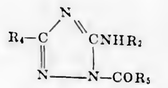
U.S. Cl. 260—295 AM **8 Claims**

The invention relates to triazole derivatives of formula



(A)

where A designates a 1,2,4-triazole ring carrying a hydrogen atom or lower alkyl group R_2 is hydrogen or lower alkyl, one of R_1 and R_3 is a substituted or unsubstituted pyridyl group the other of R_1 and R_3 is a aryl, heteroaryl or phen(lower)alkyl group which can be substituted. The compounds are useful pharmacologically and possess one or more of the following activities: anti-depressant activity, anti-tubercular activity, anti-inflammatory and inhibition of blood platelet aggregation. New triazole derivatives of formula



(B)

where R_2 is hydrogen or lower alkyl, R_4 is optionally substituted pyridyl and R_5 is optionally substituted phenyl, are intermediates for the preparation of compounds of formula A by thermal isomerization.

3,813,401

CERTAIN 5-NITROTHIAZOL-2-YL OXAZOLE AND IMIDAZOLE DERIVATIVES

Peter Graham Hughes, Sunningdale, and John Pomfret Verge, Middle Assendon, England, assignors to Lilly Industries Limited, London, England

No Drawing. Filed Mar. 13, 1972, Ser. No. 234,337

Claims priority, application Great Britain, Mar. 30, 1971, 8,253/71

Int. Cl. C07d *99/04, 99/06*

U.S. Cl. 260—302 H **5 Claims**

2-(5¹-nitro-2¹-thiazolylthio) oxazole and imidazole compounds are useful as fungicides, being active against plant pathogenic fungi, especially grey mould and downey mildew infections of fruits, and again various fungi pathogenic to animals such as Candida and dermatophytes.

The compounds are prepared by condensation of the

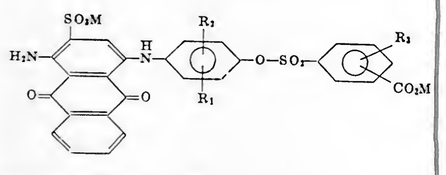
of the appropriate 2-mercapto-oxazole or imidazole with a 2-halo-5-nitrothiazole.

3,813,402
BLUE ANTHRAQUINONE ACID DYES

James F. Feeman, Wyomissing, Pa., assignor to Compton & Knowles Corporation, Worcester, Mass.

No Drawing. Filed Oct. 20, 1971, Ser. No. 190,816
Int. Cl. C09b *1/34*
U.S. Cl. 260—372 2 Claims

Compounds, useful in the dyeing of polyamides, having the formula:



wherein M represents —H, —Na, —K, —Li or NH_4; R_1 and R_2 are —H or —lower alkyl; R_3 is —H, —lower alkyl, —F, —Cl, Br or NO_2.

3,813,403
CATALYTIC HYDROGENATION OF KETO GROUPS IN HETEROPOLYCYCLIC COMPOUNDS

Herbert S. Aaron, Baltimore, and Louis P. Reiff, Joppa, Md., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,656
Int. Cl. C07d *43/06*
U.S. Cl. 260—292 3 Claims

The invention relates to the method of selective catalytic hydrogenation of keto groups in heteropolycyclic compounds the steps comprising reacting at ambient temperatures heterocyclic compounds comprising keto groups in a mineral acid over a catalyst in the presence of hydrogen, after removing the catalyst the filtrate is made alkaline, extracted, and dried thus providing the hydrogenated non-keto heteropolycyclic compounds.

The compounds thus produced can be employed as intermediates in the production of antioxidants, for example.

3,813,404
TROPANE-2-CARBOXYLATES AND DERIVATIVES

Robert L. Clarke, Bethlehem, and Sol J. Daum, Albany, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed Nov. 15, 1972, Ser. No. 306,918
Int. Cl. C07d *43/06*
U.S. Cl. 260—292 9 Claims

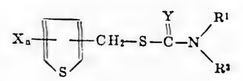
Tropane derivatives having a phenyl or substituted phenyl group in the 3-position and a carbo-lower-alkoxy group in the 2-position, possessing local anesthetic and/or stimulant activity, are prepared by reacting an anhydroecgonine lower-alkyl ester with an arylmagnesium halide.

3,813,405
THIENYLMETHYL-N,N-DISUBSTITUTED-CARBAMATES

Masahiro Aya, Masao Miyamoto, Nobuo Fukazawa, and Shigeki Ohsuga, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 28, 1971, Ser. No. 110,581
Claims priority, application Japan, Feb. 2, 1970, 45/8,584
Int. Cl. C07d *29/36, 63/14*
U.S. Cl. 260—293.68 11 Claims

Novel thiol and dithiocarbamic acid esters of the formula



in which

X is halogen,
Y is oxygen or sulfur,
R^1 and R^2, which may be the same or different, are lower alkyl, benzyl, cycloalkyl or aryl, or together with the nitrogen form a heterocyclic radical with 5, 6 or 7 ring members, and
n is 0, 1 or 2,

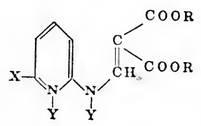
are outstandingly effective as herbicides, especially as selective herbicides for use in controlling weeds in paddy field.

3,813,406
PROCESS FOR PREPARING 1-ALKYL-1,8-NAPHTHYRIDINE COMPOUNDS

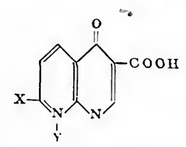
Yasuo Wada, Ikeda, and Nanao Watanabe, Sakai, Japan, assignors to Koei Chemical Co., Ltd., Osaka-shi, Osaka-fu, Japan

No Drawing. Filed Feb. 18, 1971, Ser. No. 97,411
Claims priority, application Japan, Feb. 20, 1970, 45/15,015, 45/15,016
Int. Cl. C07d *39/10*
U.S. Cl. 260—295.5 B 15 Claims

A process for preparing 1-alkyl-1,8-naphthyridine compounds which comprises treating a compound of the formula:



wherein X is an alkyl group having 1 to 3 carbon atoms, Y is an alkyl group having 1 to 10 carbon atoms and R is a lower alkyl group with polyphosphoric acid at a temperature from 160 to 250° C. to give a compound of the formula:



wherein X and Y are each as defined above.

3,813,407
PROCESS FOR THE PREPARATION OF 1-HYDROXY - 2 - (1,1-DIFLUOROALKYL)BENZIMIDAZOLES AND 1-HYDROXY-2-(1,1-DIFLUOROALKYL) - 1H - IMIDAZO(4,5-b)PYRIDINES

George O. P. Doherty, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Mar. 19, 1970, Ser. No. 21,226
Int. Cl. C07d *49/38*
U.S. Cl. 260—296 B 10 Claims

The present invention is directed to a process for the preparation of 1-hydroxy-2-(1,1-difluoroalkyl)benzimidazoles and 1-hydroxy-2-(1,1-difluoroalkyl)-1H-imidazo(4,5-b)pyridines. The process involves the reduction of, respectively, corresponding 2-nitro-1-(2,2-difluoroalkanamido)benzenes and 3-nitro-2-(2,2-difluoroalkanamido) pyridines, to intermediates which undergo a spontaneous cyclodehydration to yield the ultimate products. The reduction is achieved in good yield by the use, as reducing agent, of hydrogen in the presence of a catalyst, or tin, zinc, or iron in acid or neutral solution. All of the products are useful as herbicides.

3,813,408
1H-IMIDAZO(4,5-b)PYRIDINE COMPOUNDS

George O. P. Doherty, Greenfield, Ind., and Kenneth H. Fuhr, Columbus, Ohio; said Doherty now by change of name George O. P. O'Doherty; assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of abandoned application Ser. No. 21,535, Mar. 20, 1970. This application Sept. 17, 1971, Ser. No. 181,574
Int. Cl. C07d *31/42*
U.S. Cl. 260—296 H 8 Claims

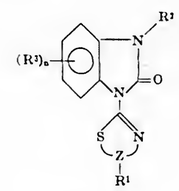
Substituted 1-hydroxy-2 - (1,1 - difluoroalkyl) - 1H-imidazo(4,5-b)pyridine compounds useful as herbicides; and intermediates useful in the synthesis of these compounds. In addition to exhibiting herbicidal activity, the substituted 1 - hydroxy-2-(1,1-difluoroalkyl)-1H-imidazo-(4,5-b)pyridine compounds are of low mammalian toxicity.

3,813,409
BENZIMIDAZOLINONE COMPOUNDS

Rudiger D. Haugwitz, Titusville, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed July 31, 1972, Ser. No. 276,507
Int. Cl. C07d *49/38*
U.S. Cl. 260—306.7 7 Claims

Benzimidazlinone compounds which exhibit anti-inflammatory activity have the following formula



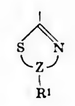
I

wherein

Z is ethylene or propylene;

R^1 is hydrogen, methyl, ethyl, phenyl, nitrophenyl, benzyl, phenethyl, tolyl or xylyl;

R^2 is hydrogen; alkyl of from 1 to 5 carbons; benzyl; nitrobenzyl; phenethyl; nitrophenethyl;



wherein Z and R^1 are as defined above; alkoxycarbonyl wherein the alkoxy radical is from 1 to 10 carbon atoms; phenoxycarbonyl; or substituted phenoxycarbonyl wherein the substituent is nitro, halo or alkyl of from 1 to 5 carbons; acyl of from 2 to 6 carbon atoms; benzoyl or substituted benzoyl wherein the substituent is halogen or alkyl of from 1 to 3 carbons; symmetrically dialkyl-substituted carbamoyl wherein the alkyl radical has from 1 to 3 carbons; and dialkylaminoalkylene wherein the dialkyl radicals have from 1 to 3 carbons and the alkylene radical has 2 or 3 carbons;

R^3 is hydrogen, halogen, nitro, cyano, trifluoromethyl, alkyl of from 1 to 3 carbon atoms, alkoxy of from 1 to 3 carbn atoms, amino, dialkylamino wherein the alkyl radical has from 1 to 3 carbon atoms, alkanoyl of from 2 to 6 carbons, alkylamido of from 2 to 6 carbons, or benzoyl; and

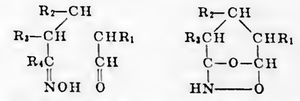
n is 0, 1 or 2.

3,813,410
7-AZA-6,8-DIOXA-BICYCLO-3,2,1-OCTANE

Werner Heimberger, Hanau (Main), and Wolfgang Weigert, Offenbach am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed June 3, 1970, Ser. No. 43,236
Claims priority, application Germany, June 3, 1969, P 19 28 264.5
Int. Cl. C07d *85/06*
U.S. Cl. 260—307 F 1 Claim

There are prepared glutaraldehyde monooximes of the tautomeric forms.



Where R_1, R_2, R_3, and R_4, are the same or different and are hydrogen, alkyl of 1 to 6 carbon atoms, $—CH(OR_5)_2$ —CN, $—CONH_2$ and $—COOR_6$ where R_5 and R_6 are hydrogen or alkyl of 1 to 6 carbon atoms.

3,813,411
PROCESS FOR ISOXAZOLYL LACTONES

Gabriel Saucy, Essex Fells, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Jan. 5, 1970, Ser. No. 811, now Patent No. 3,691,189. Divided and this application June 5, 1972, Ser. No. 259,724
Int. Cl. C07d *85/22*
U.S. Cl. 260—307 H 3 Claims

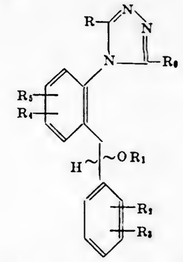
Alternate process routes to 7 - (3,5-disubstituted-4-isoxazolyl)-5-hydroxy heptanoic acid lactone and its 3- and/or 4- optionally alkyl substituted analogs are described. The preparative routes involve multistep procedures starting from aminoethyl substituted tetrahydropyranols or their alkyl substituted analogs. The final product lactones are known intermediates useful in the preparation of pharmacologically valuable steroidal compounds.

3,813,412
CERTAIN TRIAZOLYL BENZHYDROL COMPOUNDS

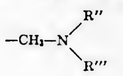
Martin Gall, Kalamazoo, and Jackson B. Hester, Jr., Galesburg, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Aug. 18, 1971, Ser. No. 172,919
Int. Cl. C07d *55/06, 57/00, 99/06*
U.S. Cl. 260—308 R 4 Claims

Compounds of the formula VI



wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, cycloalkyl of 3 to 8 carbon atoms, inclusive, phenyl, benzyl, —COOR′ in which R′ is alkyl defined as above, and a heterocyclic aromatic radical of 5 and 6 ring atoms containing from 1 to 4 hetero atoms selected from the group consisting of N, S, and O; wherein R_0 is



in which R'' and R''' are selected from the group consisting of hydrogen, alkyl defined as above, or together



are piperidine, pyrrolidine, or morpholine; wherein R_1 is hydrogen, acetyl, or propionyl; but acetyl or propionyl only when R'' and R''' are other than hydrogen, and wherein R_2, R_3, R_4, and R_5 are selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, halogen, nitro, cyano, trifluoromethyl, amino, and alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkanoylamino, and dialkylamino in which the carbon chain moieties are of 1 to 3 carbon atoms, inclusive; and the pharmacologically acceptable acid addition salts thereof are prepared by reducing a 2-(3,5-disubstituted-4H-1,2,4-triazol-4-yl)-benzophenone I to obtain the corresponding 2-(3,5-disubstituted-4H-1,2,4-triazol-4-yl)benzhydrol (II) or by reducing with borane a 4-(2-benzoylphenyl)-5-substituted-4H-1,2,4-triazole - 3 - carboxaldehyde 3-(o-acyloxime) IV [obtained by acylating the corresponding oxime (III)] to give the corresponding 2-[3-(aminomethyl) - 5 - substituted-4H-1,2,4-triazol - 4 - yl]benzhydrol (V).

The novel compounds of formula VI are active sedatives.

3,813,413
HYDROXYARYLPOLYMETHYLENESULFONIUM ZWITTERIONS

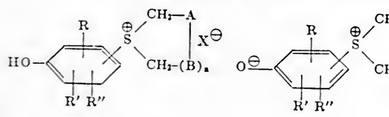
Melvin J. Hatch, Socorro, N. Mex., and Masao Yoshimine, Hugh B. Smith, and Donald L. Schmidt, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Oct. 15, 1969, Ser. No. 866,763, now Patent No. 3,636,052, dated Jan. 18, 1972. Divided and this application Mar. 29, 1971, Ser. No. 129,118

Int. Cl. C07d *63/08*

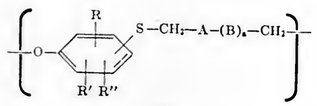
U.S. Cl. 260—330.5 **3 Claims**

Hydroxyarylpolymethylenesulfonium salts of Formula I, prepared by condensation of a phenol and a polymethylenesulfide, can be converted into a sulfonium hydroxide inner salt II and then thermally polymerized to yield polymers containing a plurality of groups of Formula III:



I

II



III

These polymers and copolymers are useful water resistant thermoplastic resins and impregnants.

3,813,414
PREPARATION OF COUMARIN

Samuel Kahn, Rutherford, N.J., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed June 30, 1972, Ser. No. 267,776

Int. Cl. C07d *7/28*

U.S. Cl. 260—343.2 R **12 Claims**

Preparing coumarin by reacting salicylaldehyde and and acetic anhydride in contact with preformed alkali metal biacetate.

3,813,415
PROCESS FOR THE PREPARATION OF 3-(BETA DIALKYLAMINO-ETHYL)-4 - ALKYL-7-CARBOETHOXYMETHOXYCOUMARINS

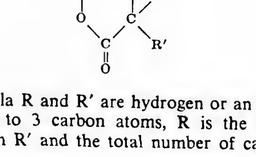
Henryk Kycia and Danuta Chmielewska, Warsaw, Hanna Rolak, Zyrardow, Zbigniew Michno and Jan Zaniuk, Grodzisk Mazowiecki, Janusz Surgiewicz, Warsaw, Ferdynand Stefaniak, Grodzisk Mazowiecki, Przemyslaw Lenkowski, Milanowek, and Anna Kobosko, Grodzisk Mazowiecki, Poland, assignors to Grodziskie Zaklady Farmaceutyczne "Polfa" Przedsiebiorstwo Panstwowe

Filed July 28, 1972, Ser. No. 276,262

Int. Cl. C07d *7/26*

U.S. Cl. 260—343.2 R **10 Claims**

3 - (beta-dialkylaminoethyl) - 4-alkyl-7-carboethoxymethoxycoumarin of the formula:



in which R_1, R_2 and R_3 stand for a lower alkyl group containing 1–3 carbon atoms and its hydrohalides.

The above-mentioned compounds proved to be drugs used in case of circulatory system diseases. The said compounds are produced in the reaction of resorcinol with a gamma-butyrolactone derivative of the formula:



or by addition of a hydrogen halide in the presence of phosphorous acid (P^{III}) then the thus obtained 3-(beta-haloethyl-4-alkyl-7-hydroxycoumarin is subjected to reaction with a haloacetic acid ethyl ester in the presence of alkali metal carbonate and a catalytic quantity of diethylformamide or water and potassium iodide. The thus obtained 3-(beta-haloethyl)-4-alkyl-7-carboethoxymethoxycoumarin is subjected to reaction with a dialkylamine and the thus obtained product is isolated as a complex compound with zinc chloride and if necessary converted to the hydrohalide.

3,813,416
SUBSTITUTED GAMMA-BUTYROLACTONES DERIVED FROM C_{16} AND GREATER UNSATURATED ACIDS

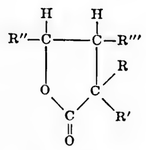
El Ahmadi I. Heiba, Princeton, and Ralph M. Dessau, Highland Park, N.J., assignors to Mobil Oil Corporation

No Drawing. Continuation-in-part of applications Ser. No. 799,940, Feb. 17, 1969, and Ser. No. 30,582, Apr. 21, 1970, which is a continuation-in-part of application Ser. No. 714,447, Mar. 20, 1968, all now abandoned. This application Sept. 7, 1971, Ser. No. 178,392

Int. Cl. C07d *5/06*

U.S. Cl. 260—343.6 **12 Claims**

This specification discloses a lactone having the formula



In this formula R and R' are hydrogen or an alkyl group containing 1 to 3 carbon atoms, R is the same as or different from R' and the total number of carbon atoms

in R and R' does not exceed 3. One of R'' or R''' is an alkyl or an alkenyl group, and the other is a carboxyalkyl, carboxyalkenyl, esteralkyl, or esteralkenyl group, the sum of the number of carbon atoms in R'' and R''' being at least 14. These lactones can be employed to produce a long chain dicarboxylic acid having a gamma- or beta-hydroxy group which can be used in forming alkyd resins or detergents. The lactones are also useful as lubricants for metal parts.

3,813,417
CYCLOALKYL[f][1]BENZOPYRANS

Noal Cohen, Montclair, Michael Rosenberger, Caldwell, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,296

Int. Cl. C07d *7/18*

U.S. Cl. 260—345.2 **23 Claims**

A multi-step, stereospecific total synthesis of steroids utilizing intermediates having a cyanoalkyl A-ring precursor is disclosed. The initial starting materials for this process are the relatively inexpensive and commercially available reagents γ-butyrolactone and sodium cyanide. The process is suitable for the preparation of racemic or optically active, medicinally valuable steroids, particularly 19-norsteroids. It is a feature of this process that conditions employed during the multiple step synthesis are selected so as to retain the normally labile nitrile group even during hydrogenation and hydrolysis steps. In this manner, it is possible to employ the nitrile group as an A-ring precursor without resorting to protective groups as was heretofore found necessary in previous steroid total synthesis processes.

3,813,418
PROCESS FOR THE PREPARATION OF 6-KETO-$\Delta^{1,3,5(10)}$ STEROIDS

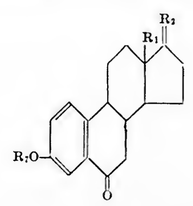
Helmut Hofmeister, Henry Laurent, Klaus Prezewowsky, and Rudolf Wiechert, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

No Drawing. Filed July 12, 1972, Ser. No. 271,076

Int. Cl. C07c *169/20, 169/32*

U.S. Cl. 260—397.4 **11 Claims**

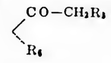
A-ring aromatic steroids having estrogenic activity of the general formula



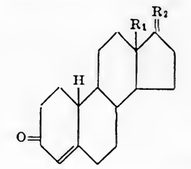
wherein R_1 is alkyl of 1–3 carbon atoms; R_2 is =O,



in which R_3 is hydrogen or acyl of up to 6 carbon atoms and R_4 is hydrogen or saturated or unsaturated alkyl of up to 4 carbon atoms, or



in which R_5 and R_6 are hydrogen, hydroxy or acyloxy, and R_7 is hydrogen, alkyl of up to 4 carbon atoms or acyl, are prepared by reacting a 3-keto-Δ^4-steroid of the general formula



wherein R_1 and R_2 have the values given above, with a basic reagent in a high-boiling polar solvent in the presence of oxygen at temperatures of 70–150° C.; and optionally thereafter esterifying or etherifying any free hydroxy groups present in the product in a conventional manner.

3,813,419
PREPARATION OF PHENOLIC ETHERS

Nicholas J. Bach and Eugene Farkas, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of application Ser. No. 127,771, Mar. 24, 1971, now Patent No. 3,697,558. This application Apr. 15, 1971, Ser. No. 134,420

Int. Cl. C07c *167/30*

U.S. Cl. 260—397.5 A **3 Claims**

An improved process for preparing cyclopentyl ethers of phenols.

3,813,420
13-POLYCARBONALKYL-3,11,17,20,21-PENTAOXYGENATED-18-NORPREGNENES

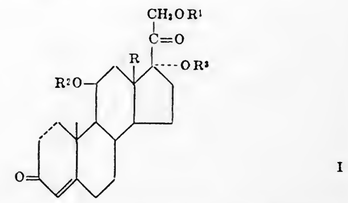
George H. Douglas, Paoli, Pa., Warren R. Faust, Newark, Del., and Herchel Smith, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Original application Feb. 5, 1969, Ser. No. 799,148, now abandoned. Divided and this application Aug. 17, 1971, Ser. No. 172,544

Int. Cl. C07c *169/34*

U.S. Cl. 260—397.45 **3 Claims**

13-polycarbonalkyl (PCA) - 3,11,17,20,21 - pentaoxygenated - 18 - norpregnenes, Δ^1-dehydroanalogs and acyl esters thereof, particularly of Formula I:



I

wherein R is alkyl of 2–6 carbon atoms, R^1, R^2 and R^3 are hydrogen or acyl and the broken line indicates an optional double bond, are provided.

One pathway comprises epoxidizing and isomerizing a 13 - PCA - 17α - ethyl - 3 - alkoxygona - 1,3,5(10),8-tetraene-17-ol (II) to produce a 13-PCA - 17α - ethyl-3-alkoxygona - 1,3,5(10),8 - tetraen - 11 - on - 17 - ol (III); reducing (III) produces a 13-PCA-17α-ethyl - 3 - alkoxygona - 1,3,5(10) -trien-11-on-17-ol (IV); reducing (IV) produces a 13 - PCA - 17α - ethyl - 3 - alkoxygona-1,3,5(10) - trien - 11β,17α - diol (V); acylating (V) to produce the corresponding 11-acylate (VI); dehydrating (VI) to produce a 13-PCA - 3 - alkoxy - 18,19 - dinorpregna-1,3,5(10),17(20) - tetraen - 11β - ol, acylate (VII); removing the protective acylate group to produce a 13-PCA-3 - alkoxy - 18,19 - dinorpregna-1,3,5(10),17(20)-tetraen-11β-ol (VIII); reducing (VIII) to produce a 13-PCA-3-

alkoxy - 18,19 - dinorpregna - 2,5(10),17(20) - trien-11β-ol (IX); hydrolyzing (IX) to produce a 13-PCA-18, 19-dinorpregna - 5(10),17(20) - dien - 3 - on - 11β - ol (X); methylenating (X) to produce a 13-PCA-18-norpregna - 4,17(20) - diene-3-on-11β-ol (XI); oxidatively hydroxylating (XI) to produce a 13-PCA - 18 - norpregn-4-en - 3,20 - dione-11β,17α-diol (XII); iodinating (XII) to produce a 13-PCA - 21 - iodo - 18 - norpregn-4-ene-3,20 - dione - 11β,17α - diol (XIII); and alkanoylizing (XIII) to produce a 13-PCA - 18 - norpregn-4-en-3,20-dione - 11β,17α,21 - triol, 21-acylate (Ia). Hydrolysis of (Ia) provides the corresponding 21-free alcohol (Ib); acylation of (Ib) provides the corresponding acylate (Ic). Delta - 1 - dehydrogenation, chemically or microbiologically, provides the corresponding dehydro analogs (Id, Ie and If).

In a second pathway, (XII) is converted to the corresponding enamine (XVI); acidification and bromination of (XVI) produces the corresponding 21-bromo-enamine salt (XVII); hydrolysis of (XVII) produces the corresponding 21-bromo - 13 - PCA - 18 - norpregn-4-en-3,20-dione - 11β,17α - diol (XIIIa); and alkanoylization of (XIII) produces (Ia).

Compounds (I) are pharmacologically active as anti-inflammatory agents, reducing experimentally-induced edemae in laboratory animals. Compounds (XI), (XII), (XIII), (XIIIa), (XVI) and (XVII) are novel and valuable intermediates for (I).

3,813,421
USE OF EPOXIDES IN THE PREPARATION OF HIGHER FATTY ACID ANHYDRIDES
John B. McKelvey and Ruth R. Benerito, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Mar. 5, 1973, Ser. No. 337,791
Int. Cl. C07c *53/00, 57/00;* **C08h** *9/00*
U.S. Cl. 260—398 **1 Claim**

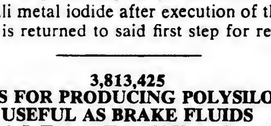
This invention relates to a process for the preparation of higher fatty acid anhydrides. More particularly, this invention relates to the use of epoxides in preparation of higher fatty acid anhydrides.

3,813,422
SURFACE MODIFIER FOR SYNTHETIC HIGH POLYMERS
Hideo Marumo, 5–4 Nishikuba 3-chome, Musashino-shi, Tokyo 180, Japan
No Drawing. Filed July 22, 1971, Ser. No. 165,355
Claims priority, application Japan, July 23, 1970, 45/64,552; May 10, 1971, 46/30,394
Int. Cl. C07c *101/26;* **C07f** *3/06, 7/22*
U.S. Cl. 260—429 R **13 Claims**

Certain compounds having specific chemical formula and belonging to the category of amphoteric surface active agents which are metal (other than alkali metal) or amine derivatives of hydroxyalkoxyhydrocarbylamines or quaternary ammonium hydroxides or derivatives thereof having one or more of the hydroxyl groups of the hydroxyalkoxy portion of the molecule replaced by carboxymethoxy and/or having a carboxymethyl group attached to a nitrogen atom and which are capable of making wholesale improvement of various surface properties of synthetic high polymers such as man-made fibers, plastics, paints and printing inks. Said various surface properties of synthetic high polymers that can be improved together by the said compounds include wettability, anti-stain, anti-soil, soil-release, cleanability, anti-fog, adhesion, dyeability, color fastness of dyed fibers, hygroscopicity, lubrication, softness and flexibility, mold releasability, anti-block, anti-tack, antistatic, dispersion, stability to light, antioxidation, and other surface properties.

3,813,423
ORGANOMETALLIC COMPOUNDS AND USES THEREOF
Alexander Joseph Peter Pioli, William Brian Hollyhead, and Peter Frank Todd, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Original application May 27, 1970, Ser. No. 41,074, now Patent No. 3,681,317. Divided and this application Mar. 14, 1972, Ser. No. 234,684
Claims priority, application Great Britain, May 28, 1969, 26,923/69, 26,924/69
Int. Cl. C07f *7/00, 7/28*
U.S. Cl. 260—429.3 **6 Claims**

Organometallic compounds of the general formula



where

M is a Group IV transition metal
R^{1-5} are substituents which may be the same or different
n is an integer from 0 to 3, provided that when M=titanium and n=0, R^{1-5} are not all hydrogen,
L is an anionic ligand
L′ is a neutral ligand and
m is an integer from 0 to 2.

Also processes for their preparation, and their use as olefin, especially ethylene, polymerization initiators.

3,813,424
PROCESS OF THE MANUFACTURE OF DIALKYLTIN OXIDE
Yasuo Hayashi and Yoshiaki Adachi, Fukushima-ken, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed June 2, 1972, Ser. No. 259,246
Claims priority, application Japan, June 4, 1971, 46/39,177; June 19, 1971, 46/44,067, 46/44,068
Int. Cl. C07f *7/22*
U.S. Cl. 260—429.7 **8 Claims**

The invention relates to the process for the direct manufacture of dialkyltin oxide through such reaction steps that alkyl iodide is reacted directly with metallic tin to dialkyltin iodide which is then hydrolyzed to the desired product.

The main object of the invention is to provide a process for the manufacture of dialkyltin oxide with least possible loss of iodine and at a maximum possible purity of the final product.

For this purpose, an aqueous alkaline solution appeared from a certain processing stage and containing unrecovered alkali metal iodide after execution of the recovery step thereof is returned to said first step for recirculation.

3,813,425
PROCESS FOR PRODUCING POLYSILOXANE USEFUL AS BRAKE FLUIDS
Frank J. Traver, Troy, N.Y., assignor to General Electric Company
No Drawing. Filed Mar. 17, 1971, Ser. No. 125,396
Int. Cl. C07f *7/08*
U.S. Cl. 260—448.2 E **11 Claims**

A process for forming an ester polysiloxane comprising reacting in the presence of water, a diorganopolysiloxane of the formula R_2SiX_2 with cyanoalkylchlorosilane of the formula $RSi(X)_2C_gH_{2g}CN$ and a silane of the formula $R'R_2SiX$ where R is selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, R′ is the same as R or $—C_gH_{2g}CN$, X is a hydrolyzable radical selected from halogen, alkoxy, aryloxy and acyloxy radicals, g is a whole number that varies from 1 to 20, to obtain a polysiloxane, which polysiloxane is then esterified in the presence of a catalyst with an alcohol.

3,813,426
S,S-2-CHLOROALKYL THIOPEROXYOXAMATES AND THEIR MANUFACTURE
Wendell Gary Phillips, Olivette, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Feb. 4, 1972, Ser. No. 223,709
Int. Cl. C07c *69/00*
U.S. Cl. 260—453 R **12 Claims**

S,S-2-chloroalkyl thioperoxyamates are prepared from oxamoyl sulfenyl chlorides by reaction with episulfides. The S,S-2-chloroalkylthioperoxyoxamates are pesticidally active and particularly useful as herebicides.

3,813,427
CHRYSANTHEMIC ACID ESTERS
John Mervyn Osbond, Hatfield, and James Charles Wickens, St. Albans, England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 117,147, Feb. 19, 1971. This application Sept. 28, 1971, Ser. No. 184,615
Claims priority, application Great Britain, Oct. 20, 1970, 49,737/70
Int. Cl. C07c *69/74*
U.S. Cl. 260—468 H **11 Claims**

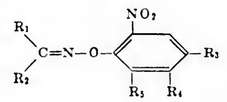
Chrysanthemic acid esters of oxy or thio phenyl butynyl alcohols or phenyl pentynyl alcohols. The phenyl ring may include a chloro or lower alkyl substituent. The esters are useful as insecticides.

3,813,428
PRODUCTION OF MONOCARBOXYLIC ACIDS
Frank E. Paulik, Houston, Tex., and Arnold Hershman, Creve Coeur, Walter R. Knox, Town and Country, and James F. Roth, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation of application Ser. No. 752,794, Aug. 15, 1968, which is a continuation-in-part of applications Ser. No. 628,578 and Ser. No. 628,581, both Apr. 5, 1967, all now abandoned. This application June 15, 1972, Ser. No. 263,332
Int. Cl. C07c *51/12*
U.S. Cl. 260—532 **18 Claims**

The present invention relates to a process for the preparation of monocarboxylic acids, specifically by the reaction of alcohols substituted at the alpha carbon atom, having the formula R—CH_2OH, and having from 2 to 30 carbon atoms, where R is phenyl or hydroxymethyl; and halogen derivatives thereof in which the OH radical is substituted by Cl, Br, or I; ester derivatives thereof in which the carboxylic acid moiety of the ester has from 1 to 20 carbon atoms; and ether derivatives thereof; with carbon monoxide in the presence of catalyst compositions essentially comprising rhodium or iridium compounds and complexes, together with a halide promoter.

3,813,429
OXIME ETHERS
Adolf Hubele, Riehen, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Application June 16, 1970, Ser. No. 46,832, now Patent No. 3,733,359, which is a continuation-in-part of abandoned application Ser. No. 521,413, Jan. 18, 1966. Divided and this application Mar. 8, 1973, Ser. No. 339,246
Claims priority, application Switzerland, Jan. 22, 1965, 915/65; July 9, 1965, 9,630/65
Int. Cl. C07c *101/42*
U.S. Cl. 260—471 R **3 Claims**

New oxime ethers and pesticidal and herbicidal preparations containing them are disclosed. The oxime ethers correspond to the formula



wherein R_1 is a hydrogen atom or a lower alkyl radical; R_2 is an aliphatic, cycloaliphatic, araliphatic, aromatic or heterocyclic radical; or wherein R_1 and R_2 form part of a saturated or unsaturated carbocycle or a 5-, 6- or 7-membered heterocycle; R_3 is a nitro, trifluoromethyl, formyl, lower carbalkoxy, sulfamyl or mono- or di-lower alkyl sulfamyl radical; R_4 and R_5 each is a hydrogen or halogen atom, an amino, mono- or di-lower alkyl amino, lower alkoxy, cycloalkoxy, lower alkylthio, nitro, lower carbalkoxy, arylthio, lower aralkylthio or lower alkyl group, or 5-, 6- or 7-membered heterocycle.

3,813,430
1-ARYL-2-ALKYL OR -ALKENYL-3,4-DIHYDRONAPHTHALENES
Donald K. Phillips, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.
No Drawing. Filed Oct. 26, 1970, Ser. No. 84,135
Int. Cl. C07c *39/12, 43/20, 69/14*
U.S. Cl. 260—479 R **16 Claims**

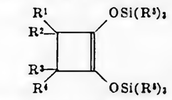
Certain 1-aryl-2-alkyl or -alkenyl-3,4-dihydronaphthalenes, having hypocholesteremic and antiseptic action, are prepared via Grignard or allied reactions on the corresponding 1-tetralones.

3,813,431
p-[1-(NONYLTHIO)ETHYL]BENZENESULFONATES
Michael A. Lintner, Framingham, and Louis Long, Jr., Concord, Mass., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Filed May 21, 1969, Ser. No. 826,716
Int. Cl. C07c *143/24*
U.S. Cl. 260—505 R **5 Claims**

Novel *p*-[1-(nonylthio)ethyl]benzenesulfonates useful as surface active agents prepared by reacting *p*-(1-bromoethyl)benzenesulfonamide or ethyl *p*-(1-bromoethyl)-benzenesulfonate with sodium nonylmercaptide.

3,813,432
SUBSTITUTED 1-HYDROXY CYCLOPROPANE-1-CARBOXYLIC ACIDS
Hans-Georg Heine, Hans-Michael Fischler, and Willy Hartmann, Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed June 2, 1972, Ser. No. 258,967
Claims priority, application Germany, June 8, 1971, P 21 28 327.2
Int. Cl. C07c *61/04*
U.S. Cl. 260—514 H **11 Claims**

1-hydroxy cyclopropane-1-carboxylic acids are prepared by treating compounds having the formula



(II)

with chlorine and/or bromine at a temperature of below +30° C., thereafter adding a protic solvent to the reaction mixture and isolating the cyclopropane compound. Certain substituted 1-hydroxy cyclopropane-1-carboxylic acids are also disclosed.

3,813,433
16-METHYL AND ETHYL PGE$_1$ AND 16,16-DIMETHYL AND DIETHYL PGE$_1$
John E. Pike, Kalamazoo, and William P. Schneider, Kalamazoo Township, Kalamazoo County, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Continuation-in-part of application Ser. No. 123,388, Mar. 11, 1971, which is a continuation-in-part of application Ser. No. 648,992, June 26, 1967, both now abandoned. This application July 24, 1971, Ser. No. 274,822
Int. Cl. C07c *61/36*
U.S. Cl. 260—514 D **7 Claims**

Prostaglandin E_1-type, F_1-type, A_1-type, and B_1-type compounds with one or two methyl or ethyl substituents

at the C-16 position are disclosed. These are useful for the same pharmacological purposes as the unsubstituted prostaglandins.

3,813,434
PREPARATION OF PURE GLYCINE

Nelson S. Marans, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed June 6, 1972, Ser. No. 260,164
Int. Cl. C07c *99/12*
U.S. Cl. 260—534 E **9 Claims**

In the preparation of glycine from ammonia and glycolonitrile, the recovery of the pure glycine product free of contamination with iminodiacetic acid is accomplished by ion exchanging an aqueous solution containing a mixture of glycine and iminodiacetic acid, using an anion exchange resin. Thus, glycine is separated and recovered while the iminodiacetic acid impurity is retained by the basic ion exchange resin. The iminodiacetic acid may then be recovered by use of an acid having an ionization constant greater than 1×10^{-3}.

3,813,435
PROCESS FOR PREPARING METHYL-PHOSPHONOTHIOIC DICHLORIDE

Alvin P. Wood, Holiday, Fla., and Kenneth Wayne Ratts, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,908
Int. Cl. C07f *9/42*
U.S. Cl. 260—543 P **10 Claims**

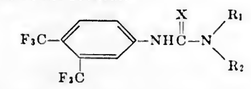
Method of making methylphosphonothioic dichloride from an alkali metal chloride, hydrogen sulfide, and a fluid mix of methyl trichlorophosphonium tetrachloroaluminate and methyl trichlorophosphonium heptachlorodialuminate.

3,813,436
PHENYLUREA DERIVATIVES AND PROCESS FOR THEIR MANUFACTURE

Dieter Duerr, Bottmingen, and Erwin Nikles, Liestal, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed May 19, 1971, Ser. No. 145,007
Claims priority, application Switzerland, May 21, 1970, 7,522/70
Int. Cl. C07c *127/00*
U.S. Cl. 260—553 A **3 Claims**

Compounds of the formula



wherein X represents oxygen or sulphur, R_1 represents hydrogen, a lower alkyl, alkenyl, alkinyl or alkoxy radical and R_2 represents a lower alkyl or alkenyl radical, or R_1 and R_2 together with the nitrogen atom to which they are bound form an optionally substituted heterocyclic ring and/or a heterocyclic ring interrupted by oxygen or sulphur.

3,813,437
N-2-ETHYLHEXYL-N'-ARYL UREAS

Dieter Duerr, Bottmingen, Hans Rudolf Hitz, Muttenz, Max Duennenberger, Frenkendorf, and Max Schellenbaum, Muttenz, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 7,425, Jan. 12, 1970, which is a division of application Ser. No. 694,121, Dec. 28, 1967, now Patent No. 3,592,932. This application July 7, 1972, Ser. No. 269,686
Claims priority, application Switzerland, Oct. 17, 1967, 14,462/67
Int. Cl. C07c *127/16*
U.S. Cl. 260—553 A **3 Claims**

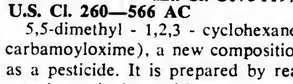
The present invention provides N-2-ethylhexyl-N'-aryl-ureas which are useful as active ingredients in preparations for combating harmful bacteria.

3,813,438
PROCESS FOR PREPARING N-SUBSTITUTED ACRYLAMIDES

Akira Oshima, Mumazu, and Kazuhiko Tsuboshima and Nobuhito Takahashi, Fuji, Japan, assignors to Kohjin Co., Ltd., Tokyo, Japan

No Drawing. Filed Apr. 11, 1972, Ser. No. 243,450
Claims priority, application Japan, Apr. 12, 1971, 46/22,355
Int. Cl. C07c *103/30*
U.S. Cl. 260—561 N **16 Claims**

A process for preparing N-alkyl acrylamides comprising reacting in a Diels-Alder reaction cyclopentadiene with a dienophile having the formula



in which R_1 and Y are defined hereinafter, to form a Diels-Alder adduct, amidating the Diels-Alder adduct to form a N-mono- or N-di-alkylamide adduct thereof, and thermally decomposing the resulting amide adduct is disclosed.

3,813,439
PROCESS FOR PREPARATION OF TRIAMINO-GUANIDINE AND ITS SALTS

Jean P. Picard, Morristown, Daniel R. Satriana, Verona, and Frank J. Masuelli, Dover, N.J., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed June 13, 1961, Ser. No. 116,885
Int. Cl. C07c *133/10*
U.S. Cl. 260—564 F **7 Claims**

1. A process for the preparation of triaminoguanidine derivatives comprising treating a hydrazine compounded with a material selected from the group consisting of a triaminoguanidine nitrate, a hydrochloride, a perchlorate, a picrate, a halide in an aqueous solution with calcium cyanamide, precipitating the calcium by the addition of ammonium carbonate monohydrate, and removing the calcium precipitate by filtration to obtain the triaminoguanidine derivative.

7. A process of preparing triaminoguanidine free base comprising treating a hydrazine compounded with a material selected from a group, consisting of a triaminoguanidine nitrate, a hydrogen chloride, a perchlorate, a picrate, and a halide in an aqueous solution with calcium cyanamide, precipitating the calcium by the addition of ammonium carbonate, monohydrate, neutralizing the filtrate with sodium hydroxide, adding dimethyl formamide to precipitate triaminoguanidine free base crystals, and separating the crystals from the solution.

3,813,440
OXIME CARBAMATE EXERTING A PESTICIDAL ACTION

Giuseppe Losco, Antonino Reggio, Giannantonio Michieli, and Angelo Longoni, Milan, Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Dec. 1, 1971, Ser. No. 203,539
Claims priority, application Italy, Dec. 4, 1970, 32,639/70
Int. Cl. C07c *119/00*
U.S. Cl. 260—566 AC **1 Claim**

5,5-dimethyl - 1,2,3 - cyclohexanetrione-tri-(N-methylcarbamoyloxime), a new composition of matter, is useful as a pesticide. It is prepared by reacting 1,2,3-cyclohexanetrione-trioxime with methylisocyanate. Compositions containing this compound in admixture with other pesticides have been found to exert a synergistic pesticidal effect.

3,813,441
PROCESS FOR THE CONTINUOUS PREPARATION OF QUATERNARY AMMONIUM COMPOUNDS

Gunther Müller-Schiedmayer, Burghausen (Salzach), Heinz Müller and Herbert Hubner, Burgkirchen (Alz), and Klaus Ulm, Burghausen (Salzach), Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 19, 1970, Ser. No. 12,846
Claims priority, application Germany, Feb. 25, 1969, P 19 09 275.2
Int. Cl. C07c *87/30*
U.S. Cl. 260—567.6 **9 Claims**

Quaternary ammonium chlorides of amines having at least one long aliphatic chain are obtained by reacting continuously said amines with methyl chloride in the presence of an alkali metal hydroxide as acid-binding agent while maintaining a methyl chloride partial pressure of about 3 to 10 atmg., using a reaction medium consisting of final product and a lower alkanol.

3,813,442
11-SUBSTITUTED-DESA-ANDROSTANES

Milan Radoje Uskokovic, Montclair, and Thomas Henry Williams, Cedar Grove, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application June 17, 1968, Ser. No. 737,279, now abandoned, which is a division of application Ser. No. 499,044, Oct. 20, 1965, now Patent No. 3,574,761, which in turn is a continuation-in-part of application Ser. No. 400,206, Sept. 29, 1964, now Patent No. 3,412,107, dated Nov. 19, 1968. Divided and this application May 14, 1971, Ser. No. 143,597
Int. Cl. C07c *49/48*
U.S. Cl. 260—586 H **2 Claims**

This invention is directed to 11-substituted-desA-androstanes and derivatives thereof which are useful as intermediates in the synthesis of known 9β,10α-sterodis of the androstane series. The latter compounds can be utilized as both anabolic and anti-androgenic agents.

3,813,443
BOLL WEEVIL SEX ATTRACTANT

Richard C. Gueldner, Starkville, James H. Tumlinson III, West Point, and Dicky D. Hardee, Paul A. Hedin, and Alonzo C. Thompson, Starkville, and James P. Minyard, State College, Miss., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Nov. 18, 1970, Ser. No. 90,794. Divided and this application Apr. 27, 1972, Ser. No. 248,185
Int. Cl. C07c *49/45*
U.S. Cl. 260—586 R **1 Claim**

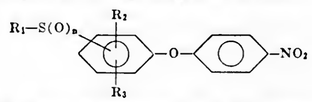
Synthetic routes to each of four critical components of the boll weevil sex attractant complex are described. Effective mixtures of the several components equal to or better than the natural attractant are disclosed.

3,813,444
p-NITRODIPHENYL ETHERS

Yasunori Abe, Omiya, Nobuo Yamane, Ageo, Kensaku Itoh, Yono, Shuichi Ishida, Omiya, and Hisabumi Kobayashi, Yono, Japan, assignors to Nippon Kayaku Co., Ltd., Tokyo, Japan

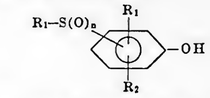
No Drawing. Filed May 13, 1971, Ser. No. 143,187
Claims priority, application Japan, June 22, 1970, 45/53,520
Int. Cl. C07c *147/06*
U.S. Cl. 260—607 A **3 Claims**

New compounds having the general formula



(I)

wherein R_1 represents a lower alkyl or allyl radical, R_2 represents a hydrogen or chlorine atom or a methyl radical, R_3 represents a hydrogen or chlorine atom, R_2 and R_3 may be identical or different and n is 0, 1 or 2; said compounds are manufactured by condensing phenol compounds having the general formula



(II)

(wherein R_1, R_2 and R_3 have the same meanings as mentioned above and n is 0, 1 or 2,) with p-chloronitrobenzene in the presence of an acid binding agent. Said new compounds have a selective and lasting herbicidal effect.

3,813,445
PREPARATION OF DIHYDROXYBIPHENYLS

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 857,555, Sept. 12, 1969. This application Oct. 3, 1972, Ser. No. 294,721
Int. Cl. C07c *39/12*
U.S. Cl. 260—620 **7 Claims**

Dihydroxy-substituted biphenyls are synthesized by treating phenol with a stable acidic catalyst at elevated temperatures.

3,813,446
PRODUCTION OF TRIFLUOROMETHYLNITRO-PHENOLS AND RELATED COMPOUNDS

Richard L. Jacobs, Perrysburg, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio

No Drawing. Filed June 24, 1968, Ser. No. 739,143
Int. Cl. C07c *79/24*
U.S. Cl. 260—622 R **8 Claims**

A method of making trifluoromethylnitrophenols, chloronitrophenols and related compounds which consists of reacting certain halonitrobenzotrifluorides with at least an equimolar amount of an alkali metal or alkaline earth metal thiocyanate, sulfhydrate, or hydroxide and carrying out the reaction in the presence of a solvent medium such as dimethylsulfoxide, dimethylformamide or dimethylacetamide.

3,813,447
HYDROPHILIC SYNTHETIC HIGH POLYMERS FOR SOFT CONTACT LENSES AND A PROCESS FOR MANUFACTURING THE SAME

Kyoichi Tanaka, Takeshi Mio, and Toyoyasu Tanaka, Nagoya, Japan, assignors to Toyo Contact Lens Company, Limited, Nagoya, Japan

No Drawing. Filed Sept. 15, 1971, Ser. No. 180,849
Claims priority, application Japan, Sept. 19, 1970, 45/82,164
Int. Cl. C08f *15/40*
U.S. Cl. 260—63 UY **6 Claims**

A hydrophilic synthetic high polymer having an excellent workability and especially sutiable for the preparation of soft contact lenses, artificial corneas, and optical lenses for medical use, and a process for manufacturing the same essentially comprising the steps of preparing a solution by either mixing a 2-hydroxyethyl methacrylate monomer, a vinyl acetate monomer and a cross-linking monomer, or mixing a 2-hydroxyethyl methacrylate monomer, a vinyl acetate monomer and a cross-linking monomer, an N-(1,1-dimethyl-3-oxobutyl) acrylamide, adding a catalyst or initiator for polymerization to said solution, injecting said solution into a mold, heating said mold for co-polymerization of said solution, and cooling the co-polymer thus produced for subsequent removal from said mold. As an alternative, the step of adding a catalyst or initiator for polymerization may be eliminated, and the process may, in this case, include exposing a solution containing mold to Co rays before heating it for co-polymerization of the solution.

3,813,448
NUCLEAR CHLORINATION OF ALKYL SUBSTITUTED AROMATIC COMPOUNDS

Stephen N. Massie, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Mar. 20, 1972, Ser. No. 236,335
Int. Cl. C07c 25/04, 25/22
U.S. Cl. 260—650 R 9 Claims

The chlorination of alkyl-substituted aromatic compounds can be made selective to the nuclear chlorination of the compound rather than a side chain chlorination by effecting the chlorination reaction in the presence of a vanadium or molybdenum-containing compound.

3,813,449
PROCESS FOR THE PREPARATION OF FLUOROCARBON WAXES

Robert Hartwimmer and Eduard Weiss, Burghausen, Salzach, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 20, 1972, Ser. No. 273,508
Claims priority, application Germany, July 22, 1971, P 21 36 639.2
Int. Cl. C07c 19/08
U.S. Cl. 260—653.1 R 4 Claims

The present invention relates to a process for the preparation of low molecular weight fluorocarbon waxes by thermal cracking of polytetrafluoroethylene or copolymers of tetrafluorethylene and higher perfluoro-olefins at elevated temperatures and pressures under the simultaneous influence of shearing and friction forces.

3,813,450
PREPARATION OF GERANYL COMPOUNDS

Ted Symon, Lombard, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Feb. 11, 1972, Ser. No. 225,672
Int. Cl. C07c 21/02
U.S. Cl. 260—654 R 7 Claims

Geranyl compounds are prepared by telomerizing a prenyl compound and isoprene in the presence of a solid metal oxide catalyst.

3,813,451
PROCESS FOR ALKYLATION OF AROMATIC COMPOUNDS

Robert C. Canfield, Alvin, Thomas E. Neta, Houston, and Robert F. Wiesenborn, Alvin, Tex., assignors to Monsanto Company, St. Louis, Mo.

Filed Jan. 16, 1973, Ser. No. 324,014
Int. Cl. C07c 3/54
U.S. Cl. 260—671 P 10 Claims

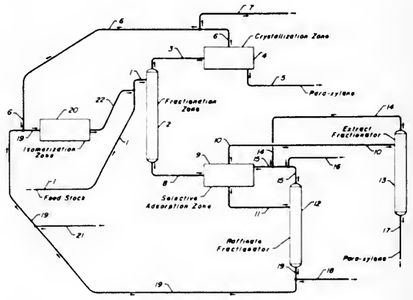
A process for the preparation of monoalkylated aromatic compounds which comprises passing an alkylatable aromatic compound and an olefinic hydrocarbon through a reaction zone under alkylating conditions while maintaining said reactants substantially completely in the liquid phase and employing liquid reactants as a quenching medium for temperature control. If any unreactive diluent is present in the reaction mixture or quenching medium the mole ratio of the olefinic hydrocarbon to such inert hydrocarbon diluent is maintained at least about five to one. The process is particularly applicable to the preparation of cumene from benzene and propylene over a solid phosphoric acid catalyst.

3,813,452
PROCESS FOR SEPARATING PARA-XYLENE

Herbert J. Bieser, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Oct. 20, 1972, Ser. No. 299,570
Int. Cl. C07c 7/02, 15/08
U.S. Cl. 260—674 SA 7 Claims

High purity para-xylene is recovered and produced in high yields from feed streams containing C_8 aromatic and C_8 nonaromatic hydrocarbons. Removing the nonaromatic C_8 hydrocarbons along with some para-xylene in a fractionation zone allows the use in an adsorption zone of an easily available inexpensive desorbent boiling in about the range of some of the nonaromatic C_8 hydrocarbons. Loss of para-xylene from the process is minimized by directing the fractionation zone overhead to a crystallizer for recovery of the para-xylene. Para-xylene deficient streams can be directed to a xylene isomerization zone for the production of additional para-xylene.



3,813,453
PREPARATION OF 1-BUTENE

Lawson G. Wideman, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,146
Int. Cl. C07c 3/10
U.S. Cl. 260—683.15 D 3 Claims

Ethylene is dimerized to butene-1 by using a catalyst prepared by reacting tungsten hexachloride or tungsten hexabromide with aniline or an alkyl substituted aniline and then adding an alkyl aluminum halide.

3,813,454
FLAME-RETARDANT POLYESTERS

Charles V. Juelke, Morristown, and Louis E. Trapasso, Watchung, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 54,010, July 10, 1970. This application May 22, 1972, Ser. No. 255,865
Int. Cl. C09k 3/28
U.S. Cl. 260—873 1 Claim

Fibers and other shaped structures of polyesters such as polyethylene terephthalate are rendered flame-retardant by the incorporation of polyvinyl diphenyl phosphine oxide.

3,813,455
PROCESS FOR INCREASING MOLECULAR WEIGHT OF LIVE POLYMERS

William M. Saltman and Melvin Auerbach, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,413
Int. Cl. C08d 5/04
U.S. Cl. 260—879 9 Claims

A method of increasing the molecular weight and the molecular weight distribution of homopolymers of conjugated diolefins and aromatic olefins and copolymers of conjugated diolefins and/or aromatic olefins which have been polymerized by means of lithium based catalysts in which each polymer chain contains at least one terminal lithium group which comprises reacting such polymers with a hexahalogenated cyclopentadiene at temperatures from about 0° C. to about 100° C. whereby the polymer chains are extended.

3,813,456
PROCESS FOR PREPARING AMINO-SUBSTITUTED PHOSPHONATES

Al F. Kerst, Littleton, Colo., assignor to The Gates Rubber Company, Denver, Colo.

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,513
Int. Cl. C07f 9/40
U.S. Cl. 260—968 5 Claims

A process is described for the preparation of amino-substituted phosphonates from their corresponding cyano-substituted phosphonate precursors, the process comprising hydrogenating the cyano-substituted phosphonates in the conjoint presence of ammonia and rhodium catalyst at a temperature from about —20° C. to about 200° C. and at superatmospheric pressure.

The compounds have antibacterial, antifungal and anti-algal activity. They also have utility as phytotoxic materials and impart flame retardancy to certain of their co-condensation products, among other useful applications.

3,813,457
PREPARATION OF N-UNSUBSTITUTED (THIONO)-(THIOL)-PHOSPHORIC(PHOSPHONIC) ACID O-ESTER MONO-AMIDES

Reimer Colln, Wuppertal-Elberfeld, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 10, 1972, Ser. No. 270,390
Claims priority, application Germany, July 15, 1971, P 21 35 349.1
Int. Cl. C07f 9/24
U.S. Cl. 260—971 10 Claims

A process for the preparation of an N-unsubstituted phosphoric or phosphonic acid O-ester mono-amide, or the corresponding thiono, thiol or thionothiol O-ester mono-amide, which comprises contacting at a temperature of about —10 to 70° C. the corresponding N-unsubstituted phosphoric or phosphonic acid diamide with at least an equivalent amount of an alcohol in the presence of an approximately equivalent amount of a strong mineral acid.

The strong acid preferably is hydrogen chloride which may be added by bubbling in or by dropwise addition in a diluent which may comprise excess alcohol. The initial diamide may be used in unpurified form in admixture with ammonium chloride as obtained by reaction of the corresponding dihalide with ammonia. In contrast with substituted amide starting materials the reaction is extremely selective toward producing the O-ester monoamide substantially free of O,O-diester. The products exhibit insecticidal and acaricidal activity and can also be used to synthesize other insecticides and acaricides.

3,813,458
RANDOM ORIENTATION OF STAPLE IN SLURRY-CAST PROPELLANTS

Ronald L. Simmons, Cumberland, Md., assignor to Hercules Incorporated, Wilmington, Del.

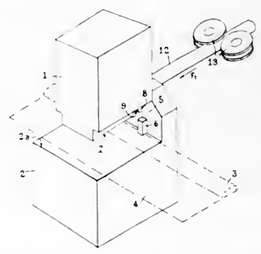
No Drawing. Filed June 5, 1968, Ser. No. 736,930
Int. Cl. C06b 21/02
U.S. Cl. 264—3 C 11 Claims

A method for randomly orienting metallic staple in solid propellants prepared by slurry casting is provided. The metallic staple is randomized by casting powder granules which form a part of the slurry. The casting powder granules are added in a sufficient quantity to form interstices between the casting powder granules. The staple is trapped in these interstices during mixing and thereby randomly oriented.

3,813,459
PROCESS FOR MAKING THE STOPS OF A SLIDE FASTENER

Marcel Potin, Choisy-le-Roi, France, assignor to Societe Financiere Francaise de Licences et Brevets, Choisy-le-Roi, France

Original application Aug. 4, 1970, Ser. No. 60,891. Divided and this application Oct. 25, 1972, Ser. No. 300,448
Claims priority, application France, Aug. 7, 1969, 6927109; June 1, 1970, 7019985
Int. Cl. B29d 5/00
U.S. Cl. 264—23 5 Claims

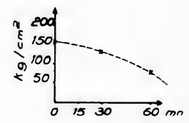


The invention provides a process for making the stops at the ends of the rows of interlocking units in a slide fastener by moulding these stops from thermoplastic material directly on to the ends of the rows of the interlocking units, the operation being performed by positioning the corresponding row of interlocking units between two complementary parts forming a stamp and a block and by also placing between these two parts a fragment of thermoplastic material obtained by cutting it from the end of a continuous strip of such material which is moved forward in jerks, the fragment being moulded by subjecting it to the effect of heat, for example by transmitting ultrasonic vibrations to it while it is held between the two parts which form the stamp and the block and, after joining, leave between them a die cavity in the shape of the stop which is to be made.

3,813,460
MANUFACTURE OF CONCRETES AND MORTARS

Andre Tardieu, Puymoyen, 16 La Couronne, France

Filed Feb. 9, 1972, Ser. No. 224,842
Claims priority, application France, Feb. 15, 1971, 7105870; Dec. 20, 1971, 7145764
Int. Cl. B28b 1/00
U.S. Cl. 264—28 5 Claims

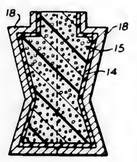


This invention relates to manufacturing concretes or mortars and is concerned with the problem of storage or transportation of materials of this kind which are made up from a binder, aggregate and water. In accordance with the invention, the mixture of the aforementioned materials in a pasty state is frozen and, after transportation or appropriate length of storage, is thawed out to reconvert the mixture into a pasty state for use.

3,813,461
PROCESS FOR PRODUCING POROUS ARTICLES OF POLYTETRAFLUOROETHYLENE
Naohiro Murayama, Takayuki Katto, and Shinichiro Funabashi, Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Feb. 3, 1972, Ser. No. 223,300
Claims priority, application Japan, Feb. 3, 1971, 46/3,937; Nov. 10, 1971, 46/89,084
Int. Cl. B29c *5/00*
U.S. Cl. 264—41 27 Claims

A porous article of polytetrafluoroethylene having fine open cells and having high strength and pliability is produced by stretching a sheet of polytetrafluoroethylene at least biaxially. A porous film of polytetrafluoroethylene having especially large gas-permeability is obtained by performing the above stretching in a liquid, such as carbon tetrachloride or methanol, which is a non-solvent for polytetrafluoroethylene and is capable of wetting polytetrafluoroethylene or penetrating into the fine pores formed in the sheet during stretching. The product finds a wide range of applications including filters for strongly corrosive gases or diaphragms for separating isotopes or uranium concentration.

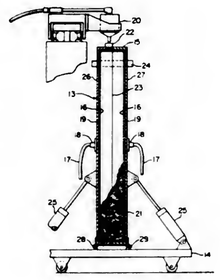
3,813,462
PROCESS FOR THE MANUFACTURE OF MOLDED ARTICLES
Arthur H. Roberts, 12 Lynnwood Drive, Westbury, N.Y. 11590
Division of application Ser. No. 760,415, Sept. 18, 1968, which is a division of application Ser. No. 523,778, Jan. 28, 1966, now Patent No. 3,419,455, which is a continuation-in-part of applications Ser. No. 455,764, May 14, 1965, now Patent No. 3,405,026, and Ser. No. 475,989, July 30, 1965, now Patent No. 3,414,456, the latter two being continuations-in-part of abandoned application Ser. No. 22,002, Apr. 13, 1960. Divided and this application May 10, 1971, Ser. No. 141,481
The portion of the term of the patent subsequent to Oct. 7, 1985, has been disclaimed
Int. Cl. B29d *27/00*
U.S. Cl. 264—45 23 Claims



Process for preparing rigid, impact-resistant article comprising a hollow outer shell component and an inner rigidifier component comprising a cellular plastic material. The article is formed by preparing separately (1) a premolded skin from a pliable plastic material, and (2) a plastic composition having foaming capability. The plastic composition is poured or sprayed into a premolded shell component and foams in place inside the cavity of the shell component. The resulting cellular structure is solidified and becomes rigid. The article is recovered.

3,813,463
METHOD OF MOLDING EMBOSSED FOAMED POLYMETHANE LAMINATES
Marvin T. Conger, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Original application Sept. 23, 1968, Ser. No. 761,451, now Patent No. 3,630,819. Divided and this application July 29, 1971, Ser. No. 167,192
Int. Cl. B29d *27/04*
U.S. Cl. 264—45 1 Claim

This invention relates to the preparation of laminates useful as building boards or panels by forming a foam within a mold which has decorative films releasably adhered to the mold surface where the foam material is a



rigid polyurethane which has substantial impact resistance.

3,813,464
METHOD OF DISSOLVING SPENT NUCLEAR FUEL
Arnold L. Ayers, Convent Station, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
Application Sept. 4, 1968, Ser. No. 777,933, which is a continuation-in-part of abandoned application Ser. No. 718,175, Apr. 2, 1968. Divided and this application June 28, 1971, Ser. No. 157,597
Int. Cl. C01g *43/00*
U.S. Cl. 423—20 12 Claims

A novel process for the dissolution of spent nuclear reactor fuel, while simultaneously controlling the amount of volatile off-gases evolved during the dissolution, comprises the steps of (a) passing spent nuclear reactor fuel, in regulated amounts, through a dissolvent solution, (b) continuously withdrawing the volatile off-gases which are evolved, (c) withdrawing a portion of the solution of spent nuclear reactor fuel when a predetermined maximum concentration of fuel values is reached in the solution, (d) adding a compensating volume of dissolvent solution while step (c) is being carried out, (e) continuously recirculating the remaining portion of the solution of spent nuclear reactor fuel to the dissolution step, (f) discontinuing steps (c) and (d) when a predetermined minimum concentration of fuel values is reached in the solution, and (g) repeating steps (c)–(f) as the predetermined maximum and minimum fuel values are repeatedly obtained in the solution. In a preferred mode of operation two dissolver systems are employed and fuel to be dissolved is fed to one dissolver system while the other dissolver system is being washed, discharged and readied for another dissolution cycle.

3,813,465
CYTOLOGICAL PRESERVATIVE AND MUCOLYTIC COMPOSITION
Irwin S. Lerner, 341 Shore Road, Greenwich, Conn. 06830, and Joann R. Walla, Fairfax, Conn.; said Walla assignor to said Irwin S. Lerner
No Drawing. Filed Dec. 16, 1971, Ser. No. 208,960
Int. Cl. G01n *1/00, 1/30*
U.S. Cl. 424—3 14 Claims

Cytological specimens are preserved and the mucus therein is liquefied by treatment with a composition comprising an isotonic lithium chloride solution buffered at a physiologic pH and a cell preserving material such as formalin and thymal.

3,813,466
WOUND DRESSINGS
Robert J. Anderson, Bloomfield, N.J., assignor to Parachem Corporation, Palisades Park, N.J.
No Drawing. Continuation-in-part of applications Ser. No. 337,709, Jan. 8, 1964, now Patent No. 3,328,259, and Ser. No. 782,515, Dec. 23, 1958, now abandoned. This application May 31, 1967, Ser. No. 642,294
Int. Cl. A61l *15/03, 15/04*
U.S. Cl. 424—28 7 Claims

The invention comprises a laminated dressing for a wound comprising a primary layer which is readily soluble in plasma and a secondary layer in face adhering contact with the primary layer, also soluble in plasma but to a lesser extent than the primary layer.

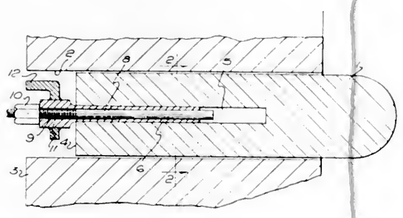
3,813,467
METHOD OF PACKING FRESH PORK CARCASSES
Albert Sterling Drain, Phoenix, Ariz., assignor to Armour and Company, Chicago, Ill.
No Drawing. Filed Nov. 26, 1971, Ser. No. 202,584
Int. Cl. A22c *18/00*; B65b *25/06*
U.S. Cl. 426—393 11 Claims

A method of packing pork to preserve it against bacterial spoilage during extended storage periods during which time the pork may be shipped to distant places. Pork carcasses, including halves and quarter carcasses, are placed with their skins intact into an envelope of heat shrinkable film, a vacuum drawn, and the carcass encased in the film envelope subjected to heat sufficient to shrink the film and to kill undesired bacteria on the skin. This treatment is followed by storage under refrigerated conditions during which time the packaged pork may be transported to distant places.

3,813,468
ELECTRODES FOR GLASS FURNACES

Gordon Brian Shaw, Sheffield, England, assignor to Pickford Holland & Company Limited, Sheffield, England

Filed May 30, 1973, Ser. No. 365,290
Claims priority, application Great Britain, June 11, 1972, 27775/72
Int. Cl. C03b *5/02*
U.S. Cl. 13—6 **11 Claims**

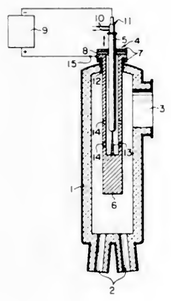


A ceramic electrode for glass furnaces comprises an electrode body having one or more longitudinal holes there being inserted in the or each hole expandable tube means formed from electrically conductive material there being further means passing along the expandable tube capable of movement relative to the tube to effect expansion of the tube whereby the tube is brought into intimate contact with the electrode, said tube and said movable means extending out of the electrode to means capable of effecting the relative movement, the tube being connected to a source of electrical power.

3,813,469
METHOD FOR HEATING VACUUM DEGASSING CONTAINER

Isamu Eguchi, Nagoya, and Susumu Hiratake, Kasugai, both of Japan, assignors to Daido Seiko Kabushiki Kaisha, Nagoya-shi, Japan

Filed Apr. 9, 1973, Ser. No. 348,893
Int. Cl. H05b *7/18*
U.S. Cl. 13—9 **3 Claims**

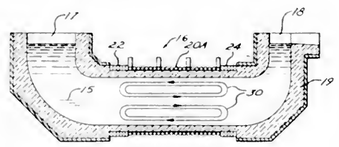


A method for heating a vacuum degassing container, disposing a plasma torch and an anode in a vacuum degassing container and using plasma jet or plasma arc produced between the torch and the anode as a heat source.

3,813,470
HORIZONTAL CORELESS INDUCTION FURNACES

William J. Duca, Warren, Ohio, assignor to Ajax Magnethermic Corporation, Warren, Ohio

Filed Apr. 30, 1973, Ser. No. 355,647
Int. Cl. F27d *11/06*; **H05b** *5/14*
U.S. Cl. 13—29 **4 Claims**

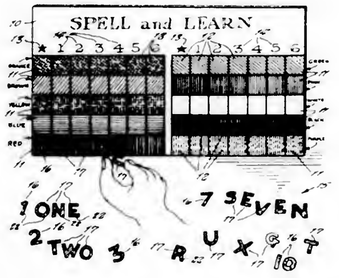


There is disclosed herein a horizontal coreless induction furnace having a polyphase coil that is electrically energized to establish a unidirectional stirring motion within the horizontally disposed coreless melt section of the furnace to prevent or reduce the build up of nonmetallics within the power coil surrounded portion of the furnace.

3,813,471
SPELL AND LEARN EDUCATIONAL TOY

Clarence T. Dean, III, P.O. Box 732, Cambridge, Md. 21613

Filed Feb. 26, 1973, Ser. No. 335,938
Int. Cl. G09b *1/04*
U.S. Cl. 35—35 H **1 Claim**



A toy for small children, and which is educational so that the children can learn to spell words and know the alphabet, numbers and colors; the toy consisting of a spelling board divided into ten spelling sections, each of which is of different color, and the toy also including three sets of digits for placement on the spelling sections; one set of digits comprising numbers, another comprising an alphabet set and a third comprising alphabetic letters that spell out colors.

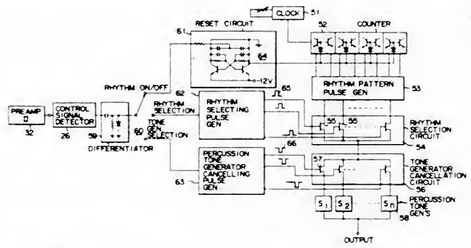
3,813,472
ELECTRONIC MUSICAL INSTRUMENT WITH RHYTHM SELECTION PULSE GENERATOR

Katsuhiko Hirano, Shizuoka, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Aug. 17, 1972, Ser. No. 281,561
Claims priority, application Japan, Aug. 20, 1971, 46-62980
Int. Cl. G10h *1/00*
U.S. Cl. 84—1.03 **1 Claim**

An electronic musical instrument for automatically changeing tone colors of musical sounds comprises a plurality of tone color formation circuits for providing different tone colors to

a tone signal selectively derived from tone generators in response to operation of a keyboard and a switch circuit having switching elements for receiving the differently tone-colored signals respectively. The switch elements are rendered conductive to pass the tone signals therethrough in a preselected order in response to control signals which are recorded on one channel of a two-channel recording medium such as a stereophonic disk or tape. The other channel of the

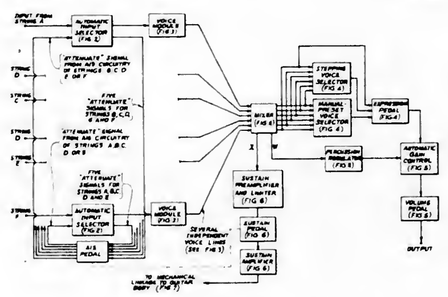


recording medium is recorded with musican information adapted to accompany a melody performance to be carried out by a player with the electronic musical instrument. The control signals are recorded on the recording medium at so proper positions thereof that musical sounds being produced by the electronic musical instrument are caused to be varied at proper points of time in conformity with melody and accompaniment performances. The control signals may be utilized to control rhythm section sounds in various ways.

3,813,473
ELECTRIC GUITAR SYSTEM

Paul Francis Terymenko, Oshawa, Ontario, Canada, assignor to 254803 Investments Limited, Toronto, Ontario, Canada

Filed Oct. 27, 1972, Ser. No. 301,372
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.16 **7 Claims**



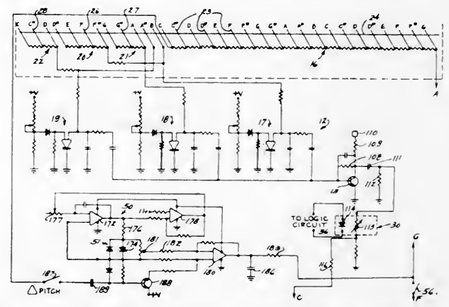
An electric guitar having a plurality of strings and including circuitry for adjustably attenuating the input signals from the strings not played, circuitry for adjustably varying the attack of the output signals representing notes and chords, gain control circuitry utilizing a photoconductor, and a mechanically coupled feedback path for applying output signals back to the strings to sustain vibrations.

3,813,474
ELECTRONIC MUSICAL INSTRUMENT CIRCUIT

Anthony C. Ippolito, North Tonawanda, N.Y., assignor to The Wurlitzer Company, Chicago, Ill.

Filed Aug. 25, 1972, Ser. No. 283,832
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.17 **6 Claims**

A key actuated electronic musical instrument of the type suitable for use with piano or organ keyboards, or the like, has a single relaxation oscillator circuit for producing melody tones from selected keys of a keyboard, and three relaxation oscillator circuits for producing chord tones from other selected keys of the keyboard. A delta pitch circuit which produces a sawtooth-like output signal is coupled to one of the inputs of the single oscillator to provide a rapidly changing sound going from a flat tone to a natural tone. The signals for producing melody sounds are delivered through a selective filter circuit which will selectively simulate the sounds of, for example, a saxophone, brass, horn, or a string instrument. The sound signal from the filter circuit is then delivered to an

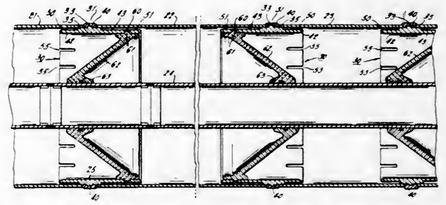


audio amplifier and loud-speaker system. The three oscillator signals for producing chord sounds are mixed together in a transistor buffer stage and then delivered to the audio amplifier through a gate circuit formed by a light-emitting diode and a light-dependent resistor. The gate circuit is responsive to an automatic rhythm generator so that chord sounds may have a selected rhythm. Also connected to the audio amplifier is the automatic rhythm sound generator which can play one of several rhythms utilizing desired percussion sounds. An adjustable vibrato circuit is connected to the melody oscillator to produce a pulsating sound that can be varied in frequency.

3,813,475
GROUNDED GAS INSULATED BUS ENCLOSURE-COMBINED ENCLOSURE JOINT BACKUP RING AND CONTAMINATION CONTROL DEVICE

John C. Cronin, 403 Georgetown, Greensburg, Pa. 15601

Filed May 21, 1973, Ser. No. 362,534
Int. Cl. H01b *9/06*
U.S. Cl. 174—21 C **9 Claims**

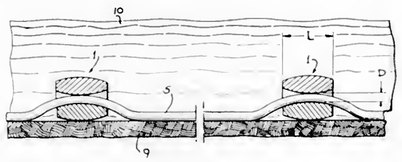


Gas (SF_6) insulated bus systems having an outer grounded housing and an axial conductor wherein the outer housing section ends are supported in butt relation on an inner ring which also serves to position the insulator that supports the axial conductor; a butt weld may be formed between the housing ends over the ring. The butt weld and ring obviate the need for a friction fit of the housing ends within each other thereby reducing the scraping which creates impurities. The inner ring may have cylindrical extensions on each side spaced slightly from the inner wall of the housing to provide a tap which will receive and retain impurities that are created during construction or that may arise later — thereby reducing contamination of the insulating gas.

3,813,476
UNDERWATER OIL-FILLED ELECTRICAL CABLE INSTALLATION WITH MEANS LOCALLY SUPPORTING THE CABLE ABOVE THE BED OF THE WATER

Paolo Gazzana Priaroggia, Milan, Italy, assignor to Industrie Pirelli Societa per Azioni, Milan, Italy

Filed June 18, 1973, Ser. No. 371,119
Claims priority, application Italy, July 3, 1972, 26534/72
Int. Cl. H02g 9/02
U.S. Cl. 174—37 3 Claims

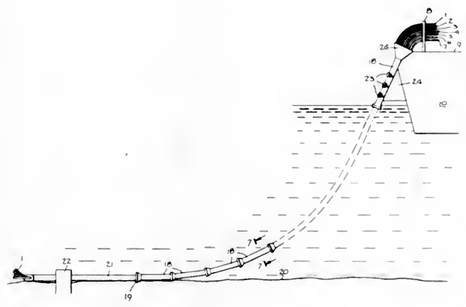


A device for encircling an oil-filled underwater cable to lift a portion of the cable above the floor of the body of water upon which the cable is laid. By placing a device according to the invention around a cable, any water that infiltrates the cable is precluded from passing the lifted portion surrounded by the device. A plurality of devices of the invention at spaced locations along a cable will localize the damage due to water penetration to the cable section between two of the encircling devices. The device can suitably be formed of two detachably interconnected identical half-shells having convexly curved inner and outer surfaces, the joined half-shells forming a toroidal casing with a central hole for receiving the cable.

3,813,477
ELECTRIC POWER CABLE APPARATUS FOR TRANSMITTING POWER FROM A FLOATING STRUCTURE

Frank E. Fischer, Ossining, N.Y., assignor to Consolidated Edison Company of New York Inc., New York, N.Y.

Filed July 12, 1972, Ser. No. 270,957
Int. Cl. H02g 9/04
U.S. Cl. 174—70 R 15 Claims

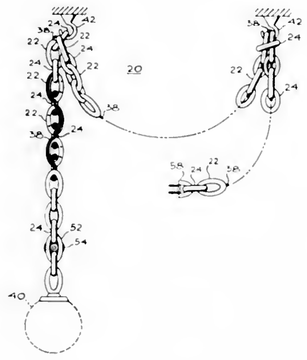


A self-contained, fluid impregnated, high voltage, electric power cable or cables extending between a fixed point underwater and a movable platform, such as the deck of a barge floating on such water, the cable or cables being surrounded by a series of interconnected rigid pipes having interconnections which permit limited tilting of the axis of one pipe with respect to the axes of the next adjacent pipes so as to avoid bending of the cable or cables which would damage the electric characteristics thereof.

3,813,478
FLEXIBLE ELECTRICALLY CONDUCTIVE CHAIN AND METHOD OF MAKING THE SAME

Gerald A. Ervin, Calabasas, Calif., assignor to Samuel W. Ford, Pacoima, Calif., a part interest

Filed Oct. 30, 1972, Ser. No. 302,259
Int. Cl. F16q 13/18; B21l 17/00
U.S. Cl. 174—70 R 10 Claims



An improved flexible electrically conductive chain is provided which comprises a plurality of spaced conductor links, each of which includes an external shell defining an enclosed internal passageway, apertures extending through the shell in communication with the passageway adjacent opposite ends of the link, and a plurality of support links. The links preferably are in the configuration of a peripheral shell with central opening, with individual support links disposed between and interconnecting adjacent conductor links through said openings. A flexible conductor is disposed within said passageways, through said apertures and external of said support links. The support links space the conductor links a distance apart which permits free flexing and bending of the conductor and chain without loadbearing or strain on the conductor.

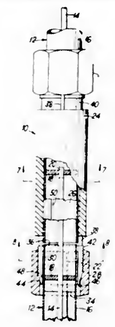
The improved chain can be made of a number of methods, including a novel procedure wherein the conductor links are simultaneously molded around the conductor, with joining studs which maintain conductor link spacing. Such studs can be later removed. The support links are then attached to form the finished chain.

3,813,479
COAXIAL CABLE JOINT

Oliviero Olivero, Florence, Italy, assignor to International Standard Electric Corporation, New York, N.Y.

Filed June 14, 1973, Ser. No. 369,738
Claims priority, application Italy, June 26, 1972, 9563/72; Aug. 26, 1972, 9648/72
Int. Cl. H02g 15/08
U.S. Cl. 174—88 C 9 Claims

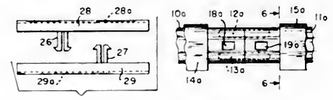
A joint for coaxial cables such as telephone cables which is suitable for cable transmission frequencies of 60 MHz. and high speed digital devices. The joint employs metal tubes which are externally conical in shape and are inserted in the ends of the sheaths of the cables. A connecting sleeve is coupled at its ends by terminal nuts over the metal tubes to grip the sheaths of the cables therebetween. Means are provided inside the sleeve extending between the metal tubes forming a continuous metallic cylindrical surface. The inside diameter of the metal tubes and the diameter of the cylindrical surface within the sleeve correspond to that of the cable sheaths to provide a constant impedance match. The joint also provides a stable mechanical junction between the cables.



3,813,480
DEVICE OF INSULATING MATERIAL HOLDING ADJACENT LENGTHS OF SEMI-RIGID ELECTRICAL CONDUCTORS JOINED

Stephen B. Sprague, 23920 Anza Ave. No. 244, Sunnyvale, Calif.

Filed May 21, 1973, Ser. No. 362,369
Int. Cl. H01r 7/02
U.S. Cl. 174—92 3 Claims

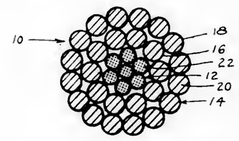


This device is provided with two parts of insulation material that are similar and are held together by pins extending through holes in the electrical conductors so that when these insulation materials are assembled with the electrical conductors said pins not only hold the insulation members on the electrical conductors but also cooperate with said members to prevent the conductors from spreading apart.

3,813,481
STEEL SUPPORTED ALUMINUM OVERHEAD CONDUCTORS

Harold W. Adams, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of Ser. No. 206,269, Dec. 9, 1971, abandoned, which is a continuation-in-part of Ser. No. 51,128, June 30, 1970, abandoned. This application Nov. 16, 1972, Ser. No. 307,076
Int. Cl. H01b 5/10
U.S. Cl. 174—130 23 Claims

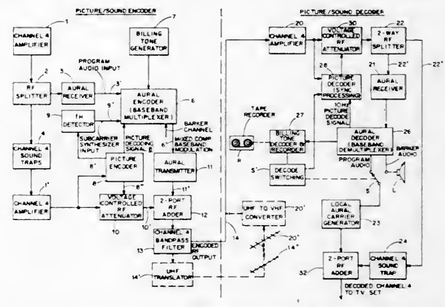


The disclosed composite conductors have a steel component for supporting the weight of the composite conductor, and an annealed aluminum component for purposes of electrical conductivity. Annealing the aluminum component gives it relatively low yield strength and relatively high elongation characteristics, and thereby improves service performance of the conductor.

3,813,482
METHOD OF AND APPARATUS FOR SCRAMBLE-ENCODED TRANSMISSION AND DECODED RECEPTION FOR OVER THE AIR AND CABLE SUBSCRIPTION TELEVISION AND THE LIKE

Isaac S. Blonder, Locust, N.J., assignor to Blonder-Tongue Laboratories Inc., Old Bridge, N.J.

Filed July 24, 1972, Ser. No. 274,199
Int. Cl. H04n 1/44
U.S. Cl. 178—5.1 53 Claims

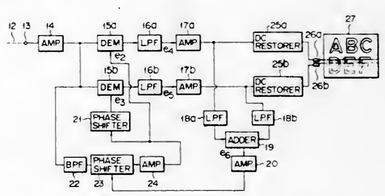


This disclosure deals with novel television or similar scrambling-decoding techniques for use in subscription television and the like (STV), involving the transmission of picture signals scrambled by repetitively depressing to blanking level a plurality of sync signals, preferably the vertical, and at about a 10 Hz rate in order to produce a shifting rolling picture, psychologically unpleasant and discomforting to the viewer, while displacing the audio program signals to a super-audible subcarrier and substituting a barker channel in the normal aural band—all without affecting the video signals; such that, upon reception, decoding and picture and sound restoration, the reception quality, even for color, remains unchanged.

3,813,483
FACSIMILE SYSTEM

Koichi Kurosawa, and Ko Okubo, both of Tokyo, Japan, assignors to Anritsu Electric Co., Ltd., Tokyo, Japan

Filed June 1, 1972, Ser. No. 258,789
Int. Cl. H04j 1/20; H04l 5/12; H04n 1/02
U.S. Cl. 178—6 4 Claims

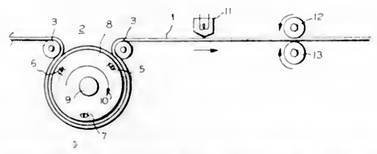


A facsimile system comprising a signal transmitting section comprising two scanners for scanning the surface of an original picture in parallel directions, a multiplex modulator for forming a composite picture signal by subjecting two carrier waves shifted 90° in phase from each other to 2-phase modulation by the picture signals obtained from said scanners; and a signal receiving section comprising a multiplex demodulator for subjecting said composite picture signal to 2-phase demodulation so as to separate it into two original picture signals and two recorders for reproducing the original picture upon receipt of the aforesaid two picture signals.

3,813,484
MAGNETIC TAPE REPRODUCING SYSTEM FOR STOP MOTION VIDEO WITH AUDIO

Mineo Mino; Kiyoji Fujisawa, and Kenzo Ianabe, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 22, 1973, Ser. No. 343,674
Int. Cl. H04n *5/78*
U.S. Cl. 178—6.6 FS **7 Claims**

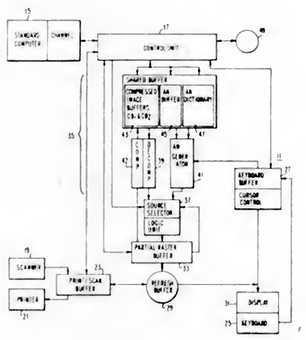


An apparatus for reproducing a video signal for successive still pictures and a corresponding audio signal, which are recorded on the longitudinal tracks on magnetic tape respectively. The apparatus has rotary magnetic heads for reproducing the video signal and a stationary magnetic head for reproducing the audio signal. The output signals from a plurality of the rotary magnetic heads are gated respectively by respective gate circuits so as to provide the same field of the video signal, and the gated signals are mixed additively by a mixer, so that the same field is reproduced repeatedly and a still picture is displayed on a color TV receiver. The gate circuits are controlled by the vertical synchronizing signal contained in the field of the video signal for each picture and by the control signal provided from a detector for detecting the phase of the rotary magnetic heads, and these signals are provided to the gate circuits through a ring counter, and further these signals are suitably delayed for controlling the gating action so as to reproduce a still picture and to change continuously to reproduce subsequent still pictures.

3,813,485
SYSTEM FOR COMPRESSION OF DIGITAL DATA

Ronald Barthold Arps, Stanford, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 5, 1972, Ser. No. 215,504
Int. Cl. H04n *7/12*
U.S. Cl. 178—6.8 **18 Claims**

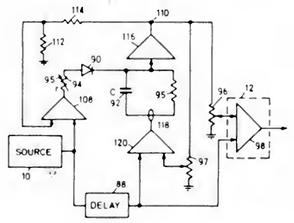


A system for compressing or compacting data that is representative of scanned images. Involved are predictive coding of two level pictorial data, followed by run-length coding characterized by an infinite overflow capability. The predictive stage utilizes an *n*th-order exhaustive, causal predictor which looks at adjacent points of previous lines and preceding points of present lines to predict what color (black or white) the predictive is. If the prediction is in error, a binary one is transmitted. Alternatively, if the prediction is correct, a binary zero is transmitted. The run-length coding is adapted to code the run-lengths of binary zero between binary one errors using a dual-base counting system, where p represents one base (the number of low order subword states) and n represents a second base (the number of high order subword states) with a subword length, L, of $\log_2 (p + n)$ bits. Mutually exclusive states in this run-length counting system provide an automatic comma for separating variable-length words (groups of subwords). A significant advantage of this type of run-length number system is that it provides a practical run-length encoding technique with the flexibility of variable-length overflow. The overall data compacting system also achieves a relatively high compression ratio for line drawings and other related type printed matter.

3,813,486
IMAGE ANALYSIS

William Ralph Knowles, Royston, England, assignor to Image Analysing Computers Limited, Royston, England

Filed Oct. 28, 1970, Ser. No. 84,721
Claims priority, application Great Britain, Oct. 31, 1969, 53405/69; Mar. 5, 1970, 10560/70
Int. Cl. H04n *5/14*
U.S. Cl. 178—7.1 **3 Claims**



The invention concerns image analysis systems employing a source of scanned video signal and threshold detector means for generating a binary signal whose value depends on the fulfilment or otherwise of the detection criterion. Means are provided for accumulating at least the low frequency content of the video signal and deriving therefrom a correcting voltage for application to the detector means to reduce variations between the peak value of the video signal corresponding to the background of the image and the threshold level of said detector means.

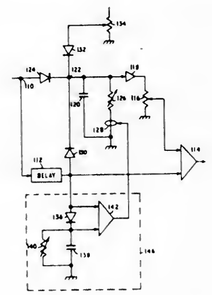
3,813,487
DETECTION DEVICES FOR IMAGE ANALYSIS SYSTEMS

Michael John Cowham, Sawston, and David Edward Wadlow, Royston, both of England, assignors to Image Analysing Computers Limited, Royston, England

Filed Feb. 17, 1972, Ser. No. 227,160
Claims priority, application Great Britain, Feb. 25, 1971, 5390/71; Dec. 16, 1971, 58584/71
Int. Cl. H04n *5/21*
U.S. Cl. 178—7.1 **13 Claims**

Circuit modifications to a known detection device by which video signal amplitude excursions are converted into a two value signal by comparing the video signal with a reference voltage, which is derived from the local peak value of the video signal by means of a peak rectifying circuit comprising a rectifying diode and capacitor. One aspect of the invention provides a HOLD-discharge circuit which normally prevents the capacitor voltage of the peak rectifying circuit from decaying, a subsidiary peak rectifying circuit having an adjustable discharge rate (preferably set to the maximum shading rate) and a voltage comparator for comparing the amplitude excursions with the subsidiary peak rectifying circuit capacitor voltage to produce a switching pulse whevever the latter decays below the instantaneous video signal amplitude video signal to operate the HOLD-discharge circuit into a discharge state for the duration of the switching pulse. The capacitor voltage of the first peak rectifying circuit can either serve as a reference voltage for a voltage comparator forming the video signal detector or a gain control voltage for a variable-gain amplifier controlling the amplification of the video signal.

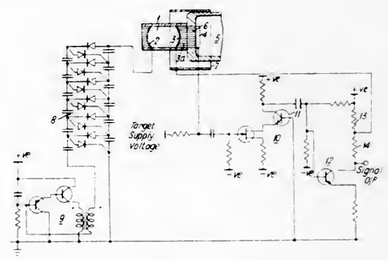
A second aspect provides a voltage clamping circuit to prevent the capacitor voltage of the peak rectifying circuit of the known detection device or a voltage derived therefrom from dropping below a value equivalent to the maximum shading level voltage. The second aspect may be employed independently of the first aspect.



3,813,489
LOW LIGHT TELEVISION CAMERA

Melvin Murray Ramsay, Broxbourne; William Geddes Barnes, and Michael Albert Bedgood, both of Harlow, all of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 3, 1972, Ser. No. 303,554
Claims priority, application Great Britain, Nov. 23, 1971, 54291/71
Int. Cl. H04n *5/34*
U.S. Cl. 178—7.2 **3 Claims**

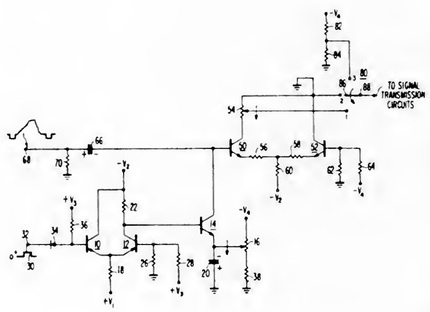


The phosphor screen of an image intensifier fiber-optically coupled to the target of a television camera tube is connected to a point in the video amplifier which provides a signal to decouple the target from ground. The phosphor acts as a guard ring to avoid capacitive effects. The feedback signal from the amplifier is equal in magnitude and phase to the voltage signal produced at the target. An added guard ring may be connected to the same potential as the phosphor.

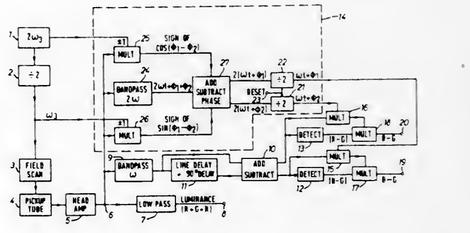
3,813,490
COLOUR TELEVISION CAMERAS

Ian MacDonald Green, Buckie, Scotland, assignor to EMI Limited, Hayes, Middlesex, England

Filed Oct. 4, 1972, Ser. No. 294,806
Claims priority, application Great Britain, Oct. 8, 1971, 46846/71
Int. Cl. H04n *9/06*
U.S. Cl. 178—5.4 ST **11 Claims**



This disclosure describes a circuit which is gated to amplify the video portion of a television signal to the exclusion of its synchronizing components, and which permits the amplitude adjusted, the gated signal to be adjusted, yet without altering the value of its black level.

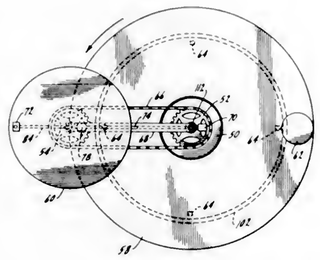


A colour television camera is disclosed which includes a pickup tube and a filter arrangement, disposed in the path of incident light to the tube, for analysing a viewed scene into three primary colours. The filter arrangement is such that video signals are derived from the tube in the form of two carrier waves which are respectively amplitude modulated by signals indicative of the differences in intensity between light of different pairs of said primary colours. A circuit arrangement is provided for processing said video signals to provide signals similar to those which are derived from a standard three-tube camera.

3,813,491
MEANS FOR MOVING A TELEVISION SCREEN

Leonard J. Pennar, 3623 W. Cermak Rd., Chicago, Ill. 60623

Filed Sept. 21, 1972, Ser. No. 290,788
Int. Cl. H04n 5/64, 5/655
U.S. Cl. 178—7.81 11 Claims

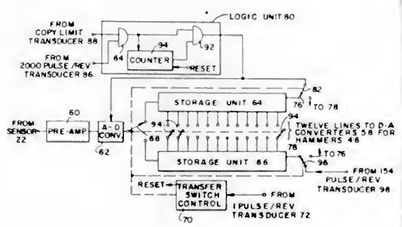


A transporting device for periodically moving a television screen over a prescribed path while presenting the viewing surface to the observer thereby providing relief of eyestrain.

3,813,492
COPIER SYSTEM

John T. Potter, Locust Valley, N.Y., assignor to Potter Instrument Company Inc., Plainview, N.Y.

Continuation-in-part of Ser. No. 136,950, April 23, 1971. This application May 25, 1972, Ser. No. 256,965
Int. Cl. H04l 15/34
U.S. Cl. 178—30 15 Claims

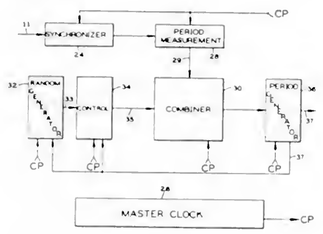


An element responsive to the level of reflected light scans a document in consecutive parallel scan lines, producing an electrical output signal which is converted from analog to digital form. The digital output is entered into one of a pair of storage resistors. A copy of the document is produced by a multi-hammer helix printer which composes one line of dots at-a-time by printing plural line segments simultaneously. The hammers are energized so as to press against the helical bar in accordance with the outputs of corresponding digital-to-analog converters connected respectively to parallel output lines from the storage registers. A transfer switch control causes one register to be in the output mode operating the hammers while the other is in the input mode for serial data entry, and vice versa on alternate scan lines.

3,813,493
SECURE DATA TRANSMISSION APPARATUS

Patrick A. Hughes, 3750 N.W. 11th St., Pompano Beach, Fla. 33063, and David S. Russell, 891 N.W. 49th Ave., Fort Lauderdale, Fla. 33313

Filed Dec. 7, 1972, Ser. No. 313,149
Int. Cl. H04n 1/44; H04k 1/02
U.S. Cl. 179—1.5 S 6 Claims

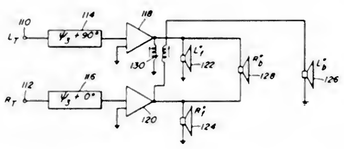


Apparatus for enciphering data to provide secure transmission including generating a stream of random signals for combining with the data to provide scrambled data signals. An intermediate sequence is provided to limit the magnitude of the change between successive random signals.

3,813,494
QUADRAPHONIC REPRODUCING SYSTEM

Benjamin B. Bauer, Stamford, Conn., assignor to Columbia Broadcasting Systems, Inc., New York, N.Y.

Division of Ser. No. 44,224, June 8, 1970, abandoned. This application Sept. 30, 1971, Ser. No. 185,050
Int. Cl. G10k 1/00; G11b 3/74
U.S. Cl. 179—1 GQ 8 Claims



Apparatus for decoding four separate channels of sound information transduced from a medium having only two separate tracks and presenting them on four loudspeakers to give the listener the illusion of sound coming from a corresponding number of separate sources. The sound information is contained in two composite signals each containing three of the four separate channels in predetermined amplitude and phase relationships, and the decoder includes a matrix of phase-shifting networks and signal-combining circuits operative to derive from the two composite signals four output signals in which different ones of said four channels are predominant.

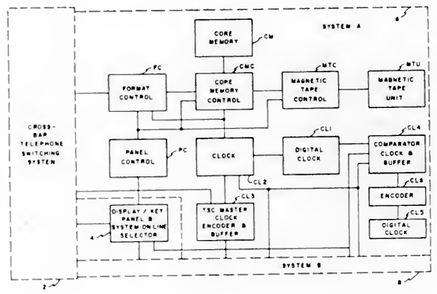
3,813,495
MEMORY CONTROL FOR TOLL SYSTEMS

Howard Jeffery Conerly, Milan, Tenn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 11, 1972, Ser. No. 313,674
Int. Cl. H04m 15/06
U.S. Cl. 179—7 MM 7 Claims

A control system for recording toll information is disclosed for use with automatic toll systems for station-to-station

telephone calls. The control system employs electronic logic circuits which, in response to signals generated in other components of the system, enable records to be made in the core

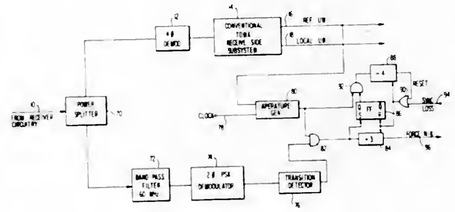


memory relating to billing data including the identity of the calling party and the time during which a call is established. The core memory empties into a tape memory periodically after the recorded data has been checked for accuracy.

3,813,496
TDMA BURSTS ACQUISITION SYSTEM

Wilfrid G. Maillet, Gaithersburg, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Oct. 2, 1972, Ser. No. 293,905
Int. Cl. H04j 3/06
U.S. Cl. 179—15 BS 9 Claims

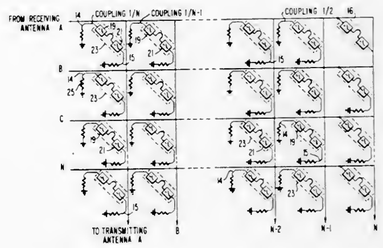


In a time division multiple access communication system, burst time acquisition is accomplished automatically and rapidly taking advantage of the known range to the satellite. When the transmitter is turned on or when burst synchronization is lost, a low power acquisition signal, occurring at the frame rate and controlled in time by the burst synchronizer start pulse, is transmitted. At the receiver, an aperture is generated providing a window occupying all or a portion of the time slot assigned to the burst of the station. The acquisition signal is caused to precess across the entire frame until the acquisition signal is received during the generation of said window. When the latter occurs the start time is set back a number of bit positions corresponding to the amount of precession of the acquisition signal during a round trip delay time from the station to the repeater and back to the station. The normal burst transmission resumes thereafter.

3,813,497
MICROWAVE MULTIPLEX SWITCH

Marvin Richard Wachs, Rockville, and Arnold Berman, Kensington, both of Md., assignors to Communications Satellite Corporation, Washinton, D.C.

Filed Apr. 12, 1972, Ser. No. 243,330
Int. Cl. H04j 3/00
U.S. Cl. 179—18 GF 9 Claims

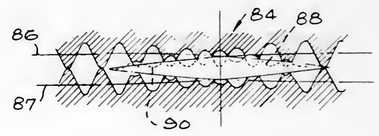


N x N microwave multiplex switch matrix for use on multi-transponder satellites. Incoming signals on any of the N input conductors can be selectively channeled to any of the N output conductors through single pole-single throw switching elements. Cascaded directional couplets are utilized in an equal power splitter arrangement to transfer equal portions of the incoming signals to each of the output conductors.

3,813,498
MUSICAL RECORDING WITH RE-ENTRY TRACK

Carl S. Nelson, Jr., Los Angeles, Calif., assignor to Opsonar Organ Corporation, Bronx, N.Y.

Filed Nov. 17, 1971, Ser. No. 199,476
Int. Cl. G11b 7/00; G10h 3/06
U.S. Cl. 179—100.3 R 4 Claims

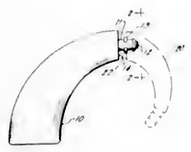


An improvement in the method of recording a closed-loop track on an optical disc music record, so that the joint where the head and tail ends of the recording meet will create a minimum of objectionable effects when the record is played. The recording of the track is extended over slightly more than one revolution of the record to produce a joint region on the record where the head and tail ends of the recording overlap. The musical or other information signals delivered to the recording head, and the bias signal (which determines the width of the track when there is no information signal) delivered to the head, are both gradually increased over several cycles of the music signal at the head end and gradually decreased over several cycles of the music signal at the tail end to provide a smoother transition where the head and tail ends overlap.

3,813,499
HEARING AID NOZZLE WITH RESILIENT BAYONET LOCK

Walter R. Vignini, Peekskill, N.Y., assignor to Sonotone Corporation, Elmsford, N.Y.

Filed Nov. 8, 1972, Ser. No. 304,847
Int. Cl. H04v 25/02
U.S. Cl. 179—107 H 8 Claims

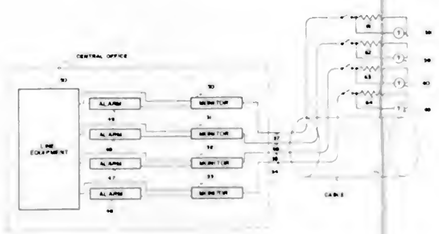


Interconnecting means for the transition piece or auricle mounting unit of a behind-the-ear hearing aid and the nozzle of the hearing aid comprising radial lugs on the nozzle of the hearing aid and radial recesses in the tubular passage of the transition piece or auricle mounting unit wherein the elastomeric construction of the auricle mounting unit permits a relatively low application force to apply the auricle mounting unit to the nozzle of the hearing aid and interengage the radial lugs of the nozzle with the recesses of the passage in the auricle mounting unit while nevertheless a higher retention force is achieved requiring a greater force to remove the auricle mounting unit thereby providing protection against accidental separation of the nozzle and while nevertheless providing protection against accidental misuse by permitting the elastomeric auricle mounting unit to deform and slip off the lugs in the case of application of force in excess of a predetermined force.

3,813,500
ALARM SYSTEM UTILIZING TELEPHONE TALKING PAIRS

Walter L. Roberts, Hickory, N.C., assignor to Superior Continental Corporation, Hickory, N.C.

Continuation-in-part of Ser. No. 815,321, April 11, 1969. This application Feb. 18, 1970, Ser. No. 12,240
Int. Cl. H04m 3/08
U.S. Cl. 179—175.2 C 18 Claims

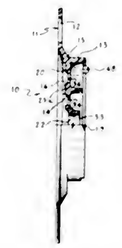


Disclosed herein is a fail-safe alarm system virtually transparent to a telephone subscriber circuit. The alarm system is adapted for use with a telephone transmission pair (electrical conductors) in conjunction with any vending machine or a pay-station telephone and is employed to detect not only the attempted vandalism of the coin box, its location, but also a filled coin box as well. Normally closed contacts of a switch device in a vending machine or telephone paystation coupled with a "high-value" resistor make up a leakage path, and current flowing through this leakage path also flows through a "low-value" resistor. This resistor is a basic part of an alarm circuit, the alarm circuitry bridging the talking pair. The resulting voltage drop across this last-mentioned resistor is used to reverse bias a transistor in the alarm circuit, thereby keeping an alarm from sounding. Coin box vandalism and/or a filled coin box causes the contacts of a switch device to open, thereby removing the leakage path ("high-value") resistor from the alarm circuitry. This electrical condition causes the alarm circuitry to conduct thereby causing an alarm to be activated at a central office.

3,813,501
ELECTRICAL CORD-REEL APPARATUS

Adolph Meletti, and Bernard J. Tamarin, both of Philadelphia, Pa., assignors to Vacuum Cleaner Corporation of America, Philadelphia, Pa.

Filed Apr. 6, 1972, Ser. No. 241,641
Int. Cl. H02g 11/00
U.S. Cl. 191—12.2 R 20 Claims

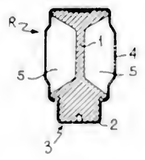


Retractable electrical cord-reel apparatus is provided with a pair of hub-and-flange members secured together in sheave-like configuration to accommodate an electrical cord wrapped therearound. The ends of a pair of electrical conductors in the cord terminate within the hub after passage through a gap therein and are secured against lengthwise withdrawal by frictional engagement in serpentine configuration about a plurality of bosses upstanding on the back of one of the hub-and-flange members whose opposite face carries ringlike electrical conductors communicating with the ends of the cord conductors via intervening openings through the member.

3,813,502
CONDUCTOR RAILS FOR ENERGISING ELECTRICAL MACHINERY

Patrick Theodore Bommart, Rueil Malmaison, France, assignor to Acieries De Gennevilliers Anciens Etablissements C. Deleachaux, Gennevilliers, France

Filed Oct. 10, 1972, Ser. No. 296,378
Claims priority, application France, Oct. 8, 1971, 71.36256
Int. Cl. B60m 1/34
U.S. Cl. 191—30 8 Claims



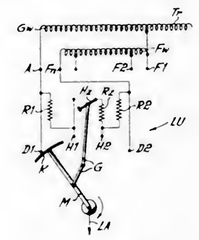
A conductor rail assembly for high speed tracked vehicles includes an I-section aluminium rail core, the lower flange carrying a U-section stainless steel sheath for contact by a current-collecting shoe. The remainder of the core is protected by an insulating sheath which is spaced from the vertical web of the core to provide spaces within which fishplates can be located. An inverted J insulating support carries the rail by

means of a resilient claw. The base of the support is connected to a bracket secured to track sleepers, the connection between support and bracket enabling vertical and lateral adjustment.

3,813,503
TRANSFER SWITCH FOR TAP-CHANGING REGULATING TRANSFORMERS

Wolfgang Breuer, Regensburg, Germany, assignor to Maschinenfabrik Reinhausen Gebruder Scheubeck K.G., Regensburg, Germany

Filed Jan. 15, 1973, Ser. No. 323,560
Claims priority, application Germany, Feb. 3, 1972, 2204983
Int. Cl. G05f 1/14
U.S. Cl. 200—11 TC 6 Claims

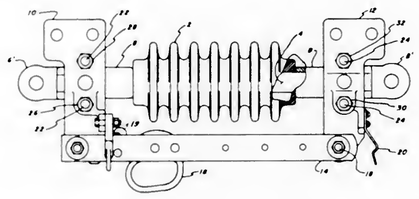


A so-called Jansen type transfer switch for regulating transformers is provided with an additional resistor and additional switching means rendered operative and inoperative, respectively, at predetermined points of time during a tap-changing operation for improving the L/R ratio during the particular tap-changing operation, and thus rendering less onerous the switching duty which the auxiliary contacts or arcing contacts of the transfer switch have to perform.

3,813,504
HIGH VOLTAGE IN-LINE DISCONNECT SWITCH

Ronald Vernon Anderson, St. Charles, Mo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jan. 30, 1973, Ser. No. 327,987
Int. Cl. H01h 31/00
U.S. Cl. 200—48 R 6 Claims

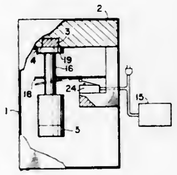


A switch is provided for insertion directly into a high voltage power line to provide means for electrically disconnecting an extension of the line. The switch employs an insulator having high tensile strength and a high dielectric constant which can physically support a power line and also withstand the electrical forces applied through the line. The electrical circuits are either completed or broken through action of a switch blade which can conduct electric current between hardware components connected to end fittings on the insulator. The end fittings are tapered and faced by steps to prevent their being pulled from the hardware or rotated with respect to the hardware.

3,813,505
SENSING DEVICE OF ACCELERATION AND VIBRATION

Akira Shoji, Tokyo, Japan, assignor to Toyo Automation Co., Ltd., Tokyo, Japan

Filed Sept. 18, 1972, Ser. No. 289,838
Claims priority, application Japan, Oct. 11, 1971, 46-80020; Oct. 25, 1971, 46-84478; Nov. 9, 1971, 46-89214
Int. Cl. H01h 35/14
U.S. Cl. 200—61.45 R 12 Claims

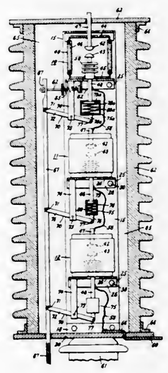


The acceleration and vibration sensing device of the present invention comprises in a casing a sensor means consisting of a cylindrical weight and a holding member attracting thereunder the sensor means by magnetic force. The sensor means detects external acceleration and vibration such as of an earthquake and permits the cylindrical weight to drop at a predetermined level of acceleration and vibration. This dropping motion is transmitted to an operating means connected to the sensor casing to actuate the valves or cocks, or electrical switches or air-operated microswitches either to open or close so as to avoid the danger caused from vibration of an earthquake or like accident. The sensing device can be provided so as to measure the gradient of inclination, as well as acceleration and vibration of the intensity as predetermined.

3,813,506
VACUUM-TYPE CIRCUIT BREAKER WITH IMPROVED ABILITY TO INTERRUPT CAPACITANCE CURRENTS

Graham R. Mitchell, Willingboro, N.J., assignor to General Electric Company, Philadelphia, Pa.

Filed Apr. 12, 1973, Ser. No. 350,419
Int. Cl. H01h 33/66
U.S. Cl. 200—144 B 11 Claims



A multi-break vacuum circuit breaker comprises a plurality of vacuum-type circuit interrupters electrically connected in

series. Closing of the circuit breaker is controlled in such a manner that any prestriking that occurs during closing consistently occurs across the contacts of a preselected one or two of the interrupters and not across the contacts of the remaining interrupters, which constitute a majority of the total number of interrupters. This maintains the contacts of the remaining interrupters in good condition for a subsequent opening operation, thereby improving the ability of the circuit breaker to interrupt capacitance currents on such an opening operation.

3,813,507

SYNCHRONOUS PUFFER CIRCUIT BREAKER

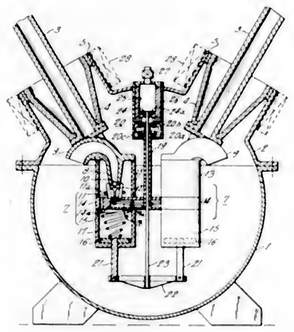
Fritz Kesselring, Kusnacht, Zurich, Switzerland, assignor to Siemens Aktiengesellshaft, Berlin and Munich, Germany

Filed Sept. 5, 1972, Ser. No. 286,033

Claims priority, application Germany, Sept. 6, 1971, 2145071

Int. Cl. H01h *33/70*

U.S. Cl. 200—148 A **6 Claims**



A high-voltage circuit breaker contains synchronously operated contacts which are opened just prior to current zero. The contacts are contained within a gas-filled vessel and one of the contacts is a nozzle contact. Gas flows through the nozzle contact prior to contact operation, due to the relative movement of a piston and cylinder. The synchronous operating circuit is further constructed to reclose the contacts if current continues to flow between the contacts after they open.

3,813,508

REED SWITCHES

Yokokawa Toshiki, and Chihiro Kawakita, both of Tokyo, Japan, assignors to OKI Electric Industry Co., Ltd., Tokyo, Japan

Filed Jan. 26, 1973, Ser. No. 327,098

Int. Cl. H01h *1/02*

U.S. Cl. 200—268 **2 Claims**



The cooperating contacts of a reed switch are made of rhodium oxide. Such contacts are prepared by plating rhodium on the reeds of reed switches and then oxidizing the surface layers of the plated rhodium contacts by heating them in an oxygen containing atmosphere at a temperature of from 380° to 580° C for 3 to 15 minutes.

3,813,509

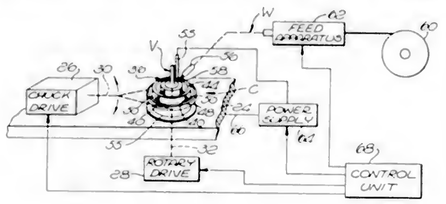
SYSTEM FOR INTERNAL-COMBUSTION ENGINE VALVE PRODUCTION

Marion D. Woods, and Albert J. Zvanut, both of Whittier, Calif., assignors to Stoody Company, Whittier, Calif.

Continuation-in-part of Ser. No. 295,751, Oct. 6, 1972, Pat. No. 3,743,815. This application July 2, 1973, Ser. No. 376,060

Int. Cl. B23k *9/04*

U.S. Cl. 219—76 **7 Claims**



A system is disclosed for use in the production of valves that include a disk or head which is integral with an axially-extending shank or stem. As disclosed herein, a form or blank of such a valve initially is provided (as by various metal-forming techniques) with an annular groove at the peripheral edge of the head. The valve form is then placed in a chuck to provide electrical contact with substantially the entire periphery of the valve head thereby affording a locus of short paths for heat flow and an arc-welding electrical current. In accordance herewith, the valve is then rotated in relation to an arc-welding apparatus to deposit an annulus of a specific form of hard metal in the groove of the valve. Finally, the valve is finished by smoothing the deposited annulus to provide a seating surface that will matingly engage an engine port to accomplish closure.

3,813,510

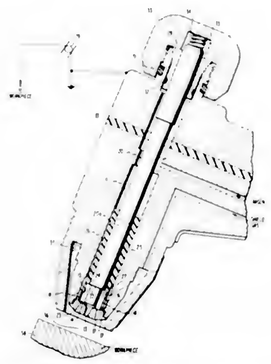
ELECTRIC ARC TORCHES

Bruce O. Hatch, Lebanon, N.H., assignor to Thermal Dynamics Corporation, W. Lebanon, N.H.

Continuation-in-part of Ser. No. 223,717, Feb. 4, 1972. This application Oct. 30, 1972, Ser. No. 302,123

Int. Cl. B23k *9/00*

U.S. Cl. 219—121 P **5 Claims**



This is an improvement to electric arc torch of the type producing plasma flames for cutting, welding, and other high temperature applications. The nozzle assembly of the torch provides close control of gas supplied to the electrode in a strong vortex to stabilize and enhance the directivity of the arc column.

3,813,511

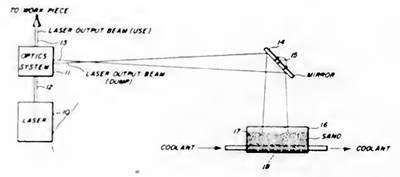
METHOD OF AND APPARATUS FOR ABSORBING HIGH POWER LASER ENERGY

John V. Staal, Needham, Mass., assignor to AVCO Everett Research Laboratory Inc., Everett, Mass.

Filed Feb. 21, 1973, Ser. No. 334,402

Int. Cl. B23k *27/00*

U.S. Cl. 219—121 LM **12 Claims**



A method of and apparatus for receiving and absorbing high power laser energy comprising a bed of comminuted material having a high melting point, such as sand or comminuted granular refractory material that will function as an inert diffuse scatterer of an incident laser beam, and laser beam mirror means for directing a preferably defocused laser beam onto the bed of comminuted material. Where it does not inherently or otherwise exist, the laser beam is defocused to the extent that the intensity of the beam (power/unit area) leaving the mirror means and impinging on the bed of material is sufficiently low as to not sufficiently change the surface characteristic of the bed of material away from being an inert diffuse scatterer of the laser beam incident on it.

3,813,512

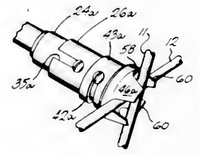
WELDING TIP ASSEMBLY

Alfred A. Nordgren, Holland, Mich., assignor to New York Wire Mills Corporation, Tonawanda, N.Y.

Filed Jan. 2, 1970, Ser. No. 114

Int. Cl. B23k *9/00*

U.S. Cl. 219—158 **8 Claims**



A work-holding canopy mounted over a welding tip and comprising a hood having one or more work-receiving jaws or grooves in it, the grooves having sides which taper together at the bottom thereof so as to cam together work pieces held therein. The hood also functions to confine the welding sparks and gases to the work area.

3,813,513

THERMAL PRINTING DEVICE

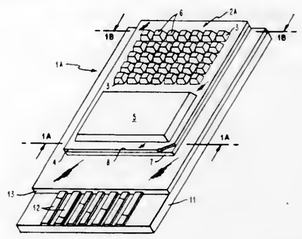
Madhukar B. Vora, Beacon, and Leon L. Wu, Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 16, 1973, Ser. No. 341,830

Int. Cl. H05b *1/00*

U.S. Cl. 219—216 **16 Claims**

A thermal printing device having an array of semiconductor heating elements forming character matrixes on selective heating of the elements for transfer of informational display to heat sensitive papers. The thermal printing displays are fabricated by standard integrated techniques into a structure in which the heating of the elements, in the array, is constrained to portions thereof which are to be disposed adjacent the heat sensitive medium on which the character is formed. Since the heating elements are formed by conventional integrated circuit techniques, they can be formed in a single wafer into which can also be concurrently integrated the necessary drive and character generating circuits.



3,813,514

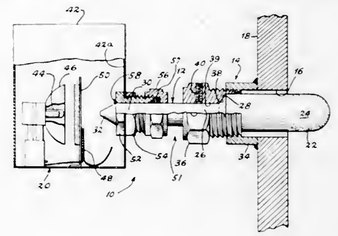
LIGHT PIPING UNIT FOR SUPPLYING RADIANT ENERGY TO THE INTERIOR OF A PRESSURE VESSEL

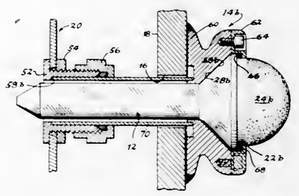
John M. Canty, 117 Cornwell Ave., Tonawanda, N.Y. 14150

Filed Oct. 16, 1972, Ser. No. 297,801

Int. Cl. H05b *1/00*; **G02b** *5/14*

U.S. Cl. 219—354 **13 Claims**



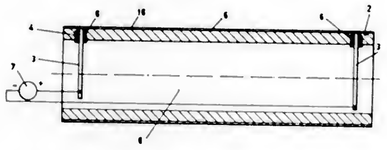


A light piping unit for use in supplying radiant energy to the interior of a pressure vessel having an internal operating pressure differing from ambient pressure external to the vessel. The unit includes an elongated optical light pipe formed intermediate its ends with an integral frusto-conically shaped mounting surface. The light pipe extends through an aperture in the wall of the pressure vessel with the mounting surface thereof in fluid sealed engagement with a cooperating frusto-conically shaped mounting surface defined in a mounting fixture attached to the vessel. The mounting surfaces of the light pipe and fixture are maintained in pressure-fluid sealing engagement with each other by the difference between the vessel operating and the ambient pressures acting on the inner and outer ends of the light pipe. A radiant energy source is accurately supported in proximity to an essentially conically shaped outer end of the light pipe either directly by the light pipe or by the mounting fixture.

3,813,515
APPARATUS WITH BUILT-IN THERMO-COUPLE FOR MEASURING AND CONTROLLING THE TEMPERATURE OF A BODY

Cornelis Hendrik Van Toorn, Bennebroekerdijk 213, Haarlemmermeer, Netherlands

Filed Nov. 9, 1971, Ser. No. 196,897
Claims priority, application Netherlands, Nov. 10, 1970, 7016462
Int. Cl. H05b *1/02*
U.S. Cl. 219—471 **6 Claims**

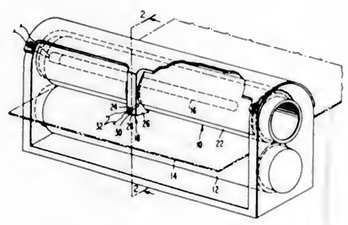


Apparatus embodies a carrier and is adapted to measure and control the temperature of said carrier at least a portion of which is covered with a metallic coating thereon and provided with means for measuring the temperature of said coating with the aid of at least one thermo-couple, in which each thermo-couple lead of different materials is passed, electrically insulated through the carrier, each lead being interconnected at its end to spaced apart points on said coating, whereby that part of the gauging plane on the coating extending between the junction ends of the thermo-couple leads constitutes the hot junction of the thermo-couple which is in contact with the surface whose temperature may be monitored and/or controlled.

3,813,516
APPARATUS FOR TEMPERATURE CONTROL FOR A HEATED ROTATING CYLINDER

Bader S. Kudsi, and Ballard Terry Mahurin, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 888,625, Dec. 29, 1969, abandoned. This application May 5, 1972, Ser. No. 250,838
Int. Cl. H05b *3/02*
U.S. Cl. 219—471 **5 Claims**

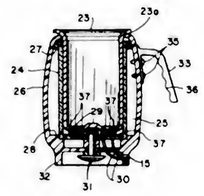


Apparatus for controlling the surface temperature of a heated roll which, in conjunction with a backup roll, is utilized to feed sheets for fixing tones images, for example, a heat sensing device such as a thermistor is positioned within the thermal boundary layer surrounding the heated roll to sense the temperature change of the air within the boundary layer adjacent the heated roll and to generate an electrical signal representative of the temperature changes. The signal is utilized in conjunction with a temperature controller to control the temperature of the heated roll so that the heat energy transferred to the paper sheet is accurately controlled.

3,813,517
BATTERY OPERATED COFFEE MAKER

Ivory McGruder, 7515 Kimbark, Chicago, Ill. 60619

Filed Jan. 4, 1973, Ser. No. 320,947
Int. Cl. F27d *11/02*
U.S. Cl. 219—438 **2 Claims**

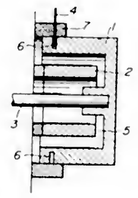


A coffee brewer and more particularly small coffee brewer pots which make use of electrical current as heat source, includes a corrosion resistant and high heat conductivity inner metal chamber and abutting against outside peripheral surface of said inner chamber is a heat insulating material with the surface abutting against said outside peripheral surface of said inner chamber coated with a heat reflecting substance; a commercially available electrical heating element with low electrical resistance wherein the absolute value of the electrical resistance being not less than one unit ohm while capable of carrying high electrical current, is positioned securely and resting on the outside bottom surface of said inner chamber while at the same time, trapped in place by the inner bottom of said insulating material with spacers. An outermost chamber encloses whole assembly, providing another heat insulating air gap and to which a convenient handle is securely attached and an integral base stand. A female receptacle on line cord to receive the male prongs of the heating element is provided together with the corresponding and separate electrical wires to which alligator clips are mechanically and electrically connected.

3,813,518
APPARATUS FOR MEASURING THE TEMPERATURE OF ROTARY BODIES

Koshei Arita, 10, 23 2-chome, Minamimagome, Ohota-ku, Tokyo, Japan

Filed Mar. 7, 1972, Ser. No. 232,554
Int. Cl. G01k *13/08*; **H05b** *1/02*
U.S. Cl. 219—471 **6 Claims**

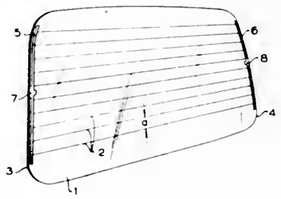


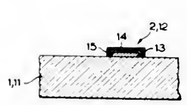
In apparatus for measuring the temperature of a rotary body, a slot is formed around the periphery of the rotary body in the radial direction thereof and a temperature measuring element is positioned to ride in the slot as the body is rotated.

3,813,519
ELECTRICALLY HEATED GLASS WINDOW

Friedrich Jochim, Herzogenrath; Dieter Peetz, Aachen; Heinz Karla, Herzogenrath, and Hermann Luerssen, Laurensberg, all of Germany, assignors to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France

Continuation of Ser. No. 46,271, June 15, 1970, abandoned, Division of Ser. No. 682,173, Nov. 13, 1967, Pat. No. 3,553,833. This application Dec. 26, 1972, Ser. No. 318,115
Int. Cl. H05b *3/06*
U.S. Cl. 219—522 **16 Claims**





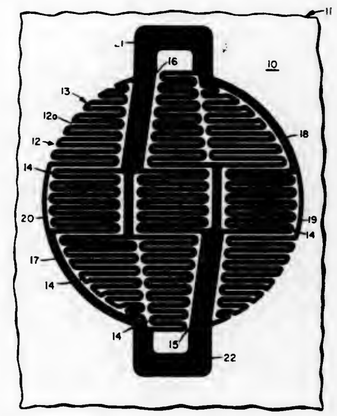
An electrically heated glass window comprised of a sheet of glass plate has a one-piece electric heating grid attached to the plate glass by being fused thereto. The heating grid includes an array of generally parallel conductor strips which are interconnected at each opposite end by a pair of electrical terminal strips, and both the conductor strips and the terminal strips constitute integral parts of a one-piece, generally coplanar grid which is fused to the plate glass, as by a first layer or strata of metallic silver particles applied in a paste-like medium and subjected to fusing temperature by heating the glass.

3,813,520
ELECTRIC HEATING UNIT

Harold A. Brouneus, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 28, 1973, Ser. No. 345,718
Int. Cl. H05b *3/16*
U.S. Cl. 219—543 **4 Claims**

An electric heating unit including a flat, smooth sheet or plate of a glassy material on the upper surface of which vessels are to be placed for heating or cooking purposes. A portion of the plate is selected as a heating portion and the lower surface of the selected portion is divided into a plurality of selected areas of generally equal areal expanse. There is bonded to or deposited on the surface of each selected area a sinuous or undulate pattern or strip of a thin film electrical resistance heating material having a linear positive temperature coefficient of electrical resistance, such strips being generally equal to each other in width and length to provide the strips with generally equal electrical resistances. A plurality of additional strips of the resistance material are also deposited on or bonded to the lower surface of the burner or burner portion and selectively connect with each other and with the sinuous strips to provide electrical bus bars which electrically connect the sinuous strips in parallel or multiple with each other, such additional strips being graded in width to maintain electrical power to all

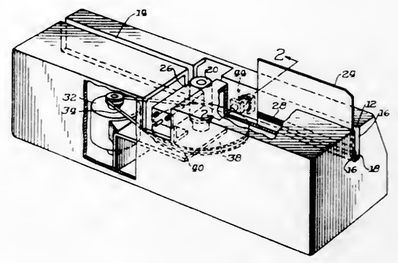


of the sinuous strips the same under normal cooking or heating conditions.

3,813,521
CONTROL SENSOR

Fred G. Kral, Lake Villa, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Division of Ser. No. 67,451, Aug. 27, 1970. This application Nov. 10, 1972, Ser. No. 305,405
Int. Cl. H01h *43/08*; **G06k** *7/06*, *19/02*, *7/08*
U.S. Cl. 235—61.11 D **4 Claims**



A sensor for a machine having a control circuit actuated by use with an electrically conductive member to actuate a circuit of the machine by completing a circuit through the sensor. The sensor includes first and second conductive portions arranged for simultaneous engagement with the conductive member carried on a component introduced into the machine.

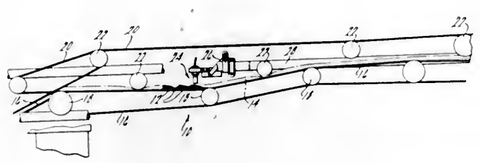
3,813,522
COUNTING SYSTEM FOR ARTICLES IN A STREAMLINED STACK

Donald Delbert McCarthy, 10156 Nottingham, Detroit, Mich. 48224

Filed Aug. 14, 1972, Ser. No. 280,641
Int. Cl. G06m *7/06*
U.S. Cl. 235—98 R **8 Claims**

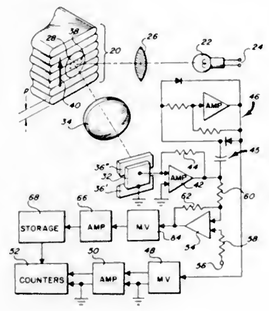
A newspaper counting system wherein a streamlined stack of papers passes beneath a sensor, the sensor directing a jet of

air toward the stack and senses disruption of the jet each time the leading edge of a paper passes the sensor. Each disruption



is counted to provide an accurate count of newspapers passing below the sensor.

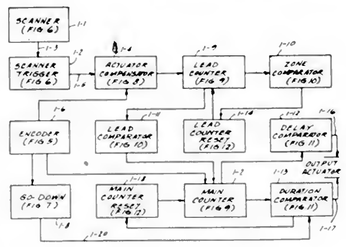
3,813,523
PITCH MATCHING DETECTING AND COUNTING SYSTEM
William L. Mohan, and Samuel P. Willits, both of Barrington, Ill., assignors to Spartanics, Ltd., Palatine, Ill.
Continuation-in-part of Ser. No. 780,367, Dec. 2, 1968, Pat. No. 3,581,067. This application May 24, 1971, Ser. No. 146,227. The portion of the term of this patent subsequent to May 25, 1988, has been disclaimed.
Int. Cl. G06m *9/00*
U.S. Cl. 235—92 SB **20 Claims**



An apparatus for stacked sheet-like materials having low or ambiguous edge contrast characteristics associated with individual ones of the stacked sheets. For low reflectance materials the sensor array is used as a current generator working into a substantially zero impedance circuit to maximize bandwidth. Where ambient levels are high sensors having different spectral response characteristics are used to detect whether the sensor array is being exposed to ambient or is generating counting data. Where contrast gradients are very low logic circuitry detects the absence of missed count data and injects synthesized data in its place.

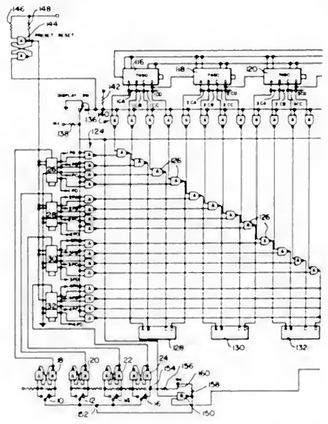
3,813,524
INDUSTRIAL MACHINE CONTROLLER
Daniel A. Coberley, Danville, Ill., assignor to Hurletron Incorporated, Danville, Ill.
Filed Nov. 24, 1971, Ser. No. 201,859
Int. Cl. G06m *7/06*
U.S. Cl. 235—92 T **4 Claims**

A digital industrial control system for effecting operations on objects moving at variable speed by controlling on and off intervals of a mechanical actuator, and utilizing encoder pulses to reflect distance of movement of the objects while



digitally compensating for actuator delay by introducing an extra count proportional to speed.

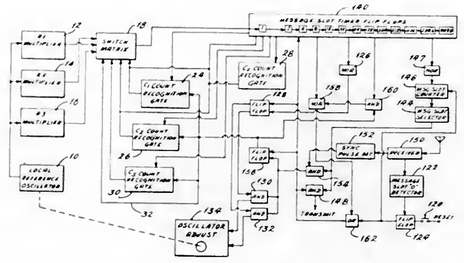
3,813,525
COUNTER AND PRESET UNIT
Richard E. Kitterman, and Grady E. Giles, both of Greenville, S.C., assignors to Hersey Products, Inc., Spartanburg, S.C.
Filed May 30, 1972, Ser. No. 257,533
Int. Cl. G06m *3/02*
U.S. Cl. 235—92 PE **6 Claims**



A counting system including a solid state counter and preset unit which counts an input pulse signal and compares it in a logic gating circuit with a preset number, a display device which permits the displaying of either the preset number or the incoming count and interlocking means to prevent accidental disruption of a count sequence.

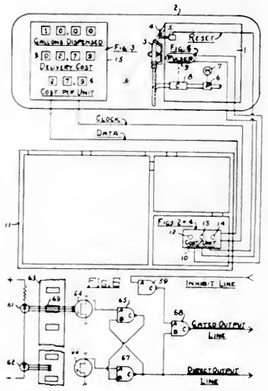
3,813,526
GAIN CHANGE CONTROL CIRCUIT FOR TIME SYNCHRONIZATION
Fred D. Watson, and John L. Mohr, both of St. Louis, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed Nov. 2, 1972, Ser. No. 303,107
Int. Cl. G01s *9/56*
U.S. Cl. 235—150.23 **15 Claims**

The present gain change means represent an improvement over the time synchronization means for remotely positioned timing devices. The present improvement includes means for changing the gain so as to provide multiple correction factors in time synchronization means, and the present means have particular application where an error correction gain of less than unity is of advantage particularly in controlling group synchronization. This is also true in situations where it is desired to improve the convergence of synchronization toward a common time base. The present means also have application to group resynchronization of members that have



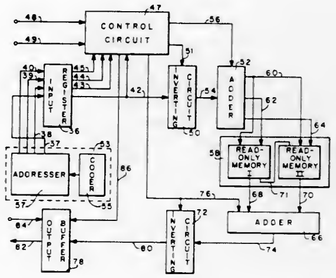
previously arrived at a common time base or index by restricting the relative timing error between cooperating members as they change from one time base to a new time base. The present means also include means to limit the maximum amount of correction applied during any one exchange of resync data.

3,813,527
LIQUID DISPENSER WITH ELECTRONIC COMPUTING AND DISPLAY SYSTEM
Earl M. Langston, Fort Wayne, Ind., assignor to Takeim Corporation, Fort Wayne, Ind.
Filed Oct. 24, 1972, Ser. No. 300,432
Int. Cl. G06f *15/56*; **B67d** *5/30*
U.S. Cl. 235—151.34 **20 Claims**



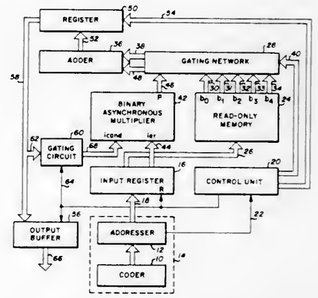
The invention relates to a computer and display system to be used for example in a gasoline dispenser in the same fashion as the conventional mechanical value register. The system is capable of electronically computing not only the amount of liquid dispensed based on a delivery pulse signal, but also the delivery cost dependent upon pre-selected cost per unit setting. This information, in the form of a seven segment display code, is multiplexed over a pair of conductors to one or more external displays or any device that can utilize the signal. The system, by the use of digital displays and electronic circuitry, will inherently round value amounts to the nearest correct unit. A modified form of the system can employ a redundancy circuit as a self-checking feature. Additionally, it can be used as a computer and display in any system involving quantitative measurements.

3,813,528
HIGH-SPEED FUNCTION GENERATOR
Curtis J. Blanding, San Jose, Calif., assignor to The Singer Company, Binghamton, N.Y.
Filed June 2, 1972, Ser. No. 258,953
Int. Cl. G06f *1/02, 15/34*
U.S. Cl. 235—152 **6 Claims**



A device for generating the value of the sine and cosine functions for angles between 0° and 360° is disclosed herein. By employing the symmetrical characteristics of the sine and cosine functions, a table of values for the sine function between 0° and 90° is the extent of the memory requirements. A read-only memory is disclosed for storing the table of values, and peripheral circuitry is provided for translating from the sine to the cosine functions as well as translating to angles between 90° and 360° for both functions. Additional circuitry is disclosed for providing the resultant output value in true binary form, or two's complement form.

3,813,529
DIGITAL HIGH ORDER INTERPOLATOR
Kenneth G. Bartlett, San Jose, Calif., assignor to The Singer Company, Binghamton, N.Y.
Filed Oct. 25, 1972, Ser. No. 300,595
Int. Cl. G06f *15/34*
U.S. Cl. 235—152 **6 Claims**



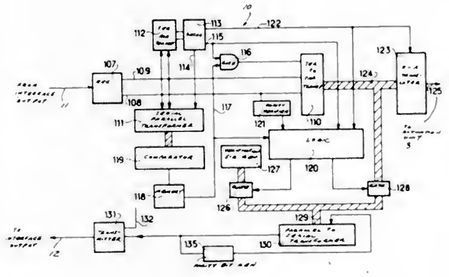
A system is disclosed herein which is designed to generate the value for dependent variables of given mathematical functions when provided with corresponding independent variables as inputs thereto by computing a Taylor Series Expansion of that function. Any function for which a Taylor Series Expansion exists in the region of interest may be generated by the disclosed system. A read-only memory is disposed for storing a plurality of predetermined parameters of a Taylor Series Expansion for each function to be computed. An

asynchronous binary product generator and a binary adder are provided, external to the read-only memory, for performing cyclic computations of the Taylor Series Expansion. A control circuit is provided for synchronizing the operation of the individual constituent circuits.

3,813,530
HIGH SECURITY DIGITAL CONVERSION AND TRANSMISSION SCHEME FOR A CLOSED LOOP CONTROL SYSTEM

Gabriel Chevalier, and Gilbert Gatel, both of Grenoble, France, assignors to Societe Generale De Constructions Electriques et Mecaniques, Paris, France

Filed Apr. 4, 1973, Ser. No. 347,837
Claims priority, application France, Apr. 5, 1972, 72.11974
Int. Cl. H03k *13/34*
U.S. Cl. 235—153 A **6 Claims**



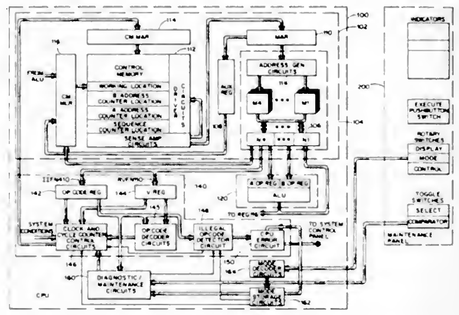
A system of security checks is incorporated in each of a plurality of separately addressable analog-digital and digital-analog converters in a control system supervised by a computer. Each converter is normally inactive and is conditioned for operation when a coded address applied thereto by the computer coincides with a preset unique address of the converter. In the case of analog-digital converters, the computer responds to a signal indicating such conditioning by operating the then-addressed one of the conditioned converter to translate the measured analog data at its input into digital form. In the case of the digital-analog converters, the signal indication denoting the conditioning of the converter causes command data from the computer to be entered from the computer to an output register of the converter. A subsequent verification of the computer between a stored version of the command data and a replica of the data entered into the conditioned converter effects the operation of the converter to translate the data entered into its input register into analog form.

3,813,531
DIAGNOSTIC CHECKING APPARATUS

Richard L. King, Hillsboro, N.H., and Wayne R. Buzby, Marlboro, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 2, 1973, Ser. No. 320,384
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 AK **21 Claims**

A data processing system incorporates diagnostic apparatus which enables service personnel to specify the type of instruction which will cause the system to halt when it starts processing that instruction. The diagnostic apparatus includes a plurality of switches which are used to set up the bit pattern of an instruction op-code specifying the type of instruction to be tested. This bit pattern is applied to a comparison circuit included within the diagnostic apparatus which compares the bit pattern with the bit pattern of each instruction op-code at a predetermined period of time as the system operates at normal processing speed. When the apparatus senses the op-code designated, it causes the system to treat the op-code as being

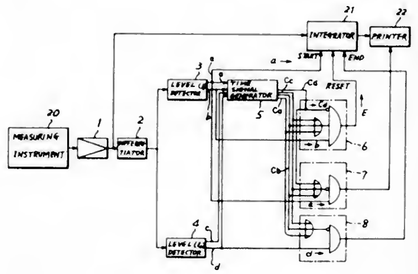


illegal and brings the system to an orderly halt and signals a program error condition. The service personnel can then use other apparatus normally included as part of the diagnostic apparatus to clear the error condition and then step through the instruction a cycle at a time examining the operation of the system in executing the instruction.

3,813,532
METHOD AND APPARATUS FOR INTEGRATING THE OUTPUT OF A MEASURING INSTRUMENT

Tatsuo Sato, and Shingo Takimoto, both of Kyoto, Japan, assignors to Shimadzu Seisakusho Ltd., Kyota, Japan

Filed Nov. 3, 1972, Ser. No. 303,417
Claims priority, application Japan, Nov. 10, 1971, 46-89647
Int. Cl. G06g *7/18*
U.S. Cl. 235—183 **14 Claims**

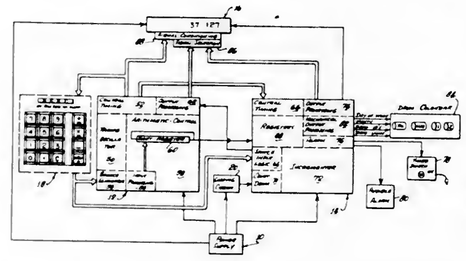


Method and apparatus for integrating the output of a measuring instrument, in which a plurality of check points of each peak in the output are detected to produce a time signal which lasts a predetermined period of time, so that if one of the check points is detected within the time period caused by the detection of the previous check point, the peak is treated as a noise peak. Whether or not a peak being detected is a noise peak superimposed on the signal peak of the measured output is determined by whether the end point or the apex of the peak exceeds a predetermined level.

3,813,533
CLOCK CALCULATOR

George W. Cone, La Jolla, and James E. Kinzie, Oceanside, both of Calif., assignors to Garrett Comtronics Corporation, San Diego, Calif.

Filed June 2, 1972, Ser. No. 259,060
Int. Cl. G04c *23/00*; G06f *7/38*
U.S. Cl. 235—156 **48 Claims**



A combined clock calculator having a calculator mode to perform and/or display arithmetic functions and results and a digital clock mode to perform and/or display time related functions.

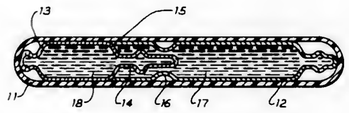
ERRATUM

For Class 235—176 see:
Patent No. 3,813,623

3,813,534
CHEMICAL LIGHTING DEVICE HAVING INTERLOCKING AMPOULES

Clarence W. Gilliam, Bloomington, Ind., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 14, 1973, Ser. No. 397,554
Int. Cl. F21v *9/16*
U.S. Cl. 240—2.25 **1 Claim**



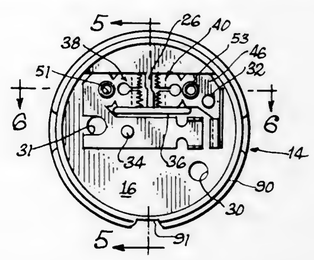
A chemical lighting device having an outer cylindrical sleeve of light transmitting material and a pair of interlocking frangible ampoules positioned within said outer cylindrical sleeve. A first ampoule containing an activator material has a reduced diameter portion that extends into a second ampoule containing a chemiluminescent material. The first ampoule is fuzed to the second ampoule and closes one end of the second ampoule. The second ampoule is provided with an indentation that surrounds the reduced diameter portion of the first ampoule so that the two ampoules can be broken simultaneously, and, upon mixing of the chemiluminescent material and the activator material, light is emitted through the outer sleeve.

3,813,535
LIGHT FIXTURE FOR VEHICLES

Jerry H. Freeman, Mount Prospect, Ill., assignor to Reflect-o-Lite Manufacturing Company, Chicago, Ill.

Filed Apr. 2, 1973, Ser. No. 346,981
Int. Cl. F21v *21/00*; H01r *7/00*
U.S. Cl. 240—57 **6 Claims**

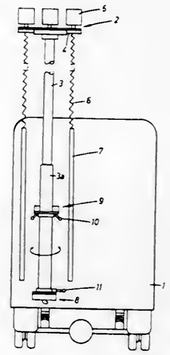
A fixture for mounting to a vehicle. A loop of a lead is pushed through an access opening, past a connector which has a flexible leg and a cutting edge at the end of the leg. When the lead loop is pulled back, the cutting edge pierces the lead insulation and makes electrical contact with the wire within the lead. The fixture may be surface mounted to an external vehicle surface and may mount a light bulb.



3,813,536
VEHICLE EQUIPPED WITH A FLOODLIGHT INSTALLATION

Helmut Kempkes, Hermann-lons-strasse 19, 563 Remscheid/Brd, Germany

Filed Jan. 2, 1973, Ser. No. 319,979
Claims priority, application Germany, June 24, 1972, 7223740
Int. Cl. F21v *21/14*
U.S. Cl. 240—67 **9 Claims**



A vehicle equipped with a floodlight installation, in which the floodlight installation is provided with an additional attachable and detachable part on the carrier mast for the lamps and the vehicle can be maintained for its other customary functions, for example as a fire truck, fire fighting ship or as a current generator trailer while at the same time providing a useful and low cost device for the lateral alignment of the floodlight installation.

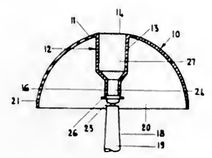
3,813,537
LAMPSHADE AND LAMP COMBINATION AND MEANS FOR JOINING ONE WITH THE OTHER

Gilbert Lieberman, 750-16th Ave., Pointe-aux-Trembles, Montreal 500, Canada

Filed Feb. 3, 1972, Ser. No. 223,132
Int. Cl. F21v *1/00*
U.S. Cl. 240—108 R **3 Claims**

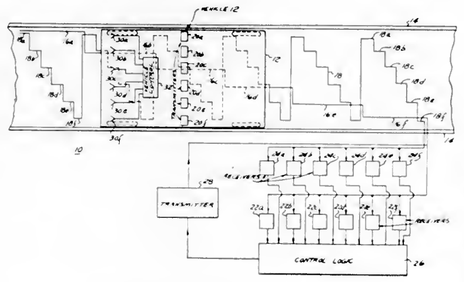
A lampshade and lamp combination including a molded lampshade having a central recess forming a bulb housing and an electric bulb socket engaging member. The lamp includes a vertical lamp part with an electric bulb socket at its upper end.

The socket engaging member has a bearing surface which rests under the force of gravity on a circumferential portion of



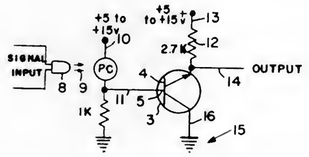
the socket thereby maintaining the lampshade in a constant vertical and horizontal position on the lamp with respect to the lamp post.

3,813,538
SYSTEM FOR AUTOMATICALLY CONTROLLING A LAND VEHICLE
George M. Thorne-Booth, Tarzana, Calif., assignor to The Bendix Corporation, Bendix Center, Southfield, Mich.
Filed Oct. 4, 1972, Ser. No. 295,089
Int. Cl. B61l *25/02*
U.S. Cl. 246—122 R **8 Claims**



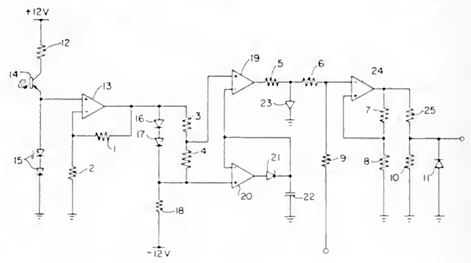
The illustrated control systems include a line running along the path to be traveled by a vehicle. Consecutive sections of the line are offset to face different locations of the vehicle as that vehicle moves along the path. The position of the vehicle along the path is identified by identifying the location on the vehicle facing the line. Control signals are then supplied to the vehicle causing it to move at a rate appropriate with its identified position.

3,813,539
ELECTRO-OPTICAL COUPLER UNIT
Edward M. Sioma, Levittown, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa.
Filed Jan. 31, 1973, Ser. No. 328,554
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **9 Claims**



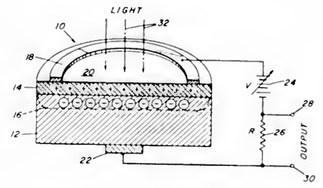
The present invention is concerned with an electro-optical coupler unit using a transistor in conjunction with a photocell and an actuating light source having improved reliability by virtue of the circuitry of the system. In accordance with the present invention the transistor in the photocell circuit is arranged to operate in an inverted mode rather than in the normal mode. By virtue of such operation, interference with operation of the control unit containing the photocell and transistor as a result of stray electromagnetic disturbances is effectively eliminated.

3,813,540
CIRCUIT FOR MEASURING AND EVALUATING OPTICAL RADIATION
Peter Albrecht, Augsburg, Germany, assignor to The National Cash Register Company, Dayton, Ohio
Filed Mar. 26, 1973, Ser. No. 344,824
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **2 Claims**



The invention relates to a circuit for optically sensing coded data on a record medium and including a photosensitive transducing element such as a phototransistor. In order to render the circuit independent of background brightness variations, the load impedance of the transducing element includes one or more of series connected diodes which have an exponential characteristic curve, so that the voltage drop across the diode or diodes is proportional to the natural logarithm of the current flowing through the transducing element. The voltage difference resulting from sensing contrasting marks on the record medium thus depends only on the contrast in reflected light and not on the absolute value of the current in the transducing element.

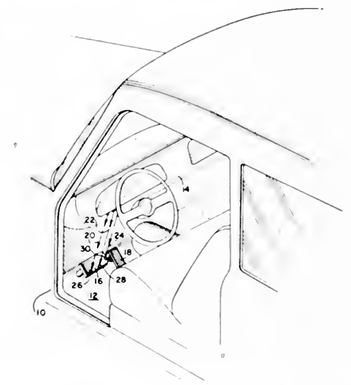
3,813,541
MOS PHOTODIODE
Norman A. Foss, Weston, and Samuel A. Ward, Riverside, both of Conn., assignors to Columbia Broadcasting System, Inc., Stamford, Conn.
Continuation of Ser. No. 144,002, May 17, 1971, abandoned.
This application Aug. 2, 1973, Ser. No. 384,922
Int. Cl. H01l *11/00, 15/00*
U.S. Cl. 250—211 J **4 Claims**



A photodetector which comprises an MOS structure having a very small non-obscuring front contact, in the form of a dot or ring, plus the usual ohmic contact to the semi-conductor body. The device is adapted to be reverse-biased to give a

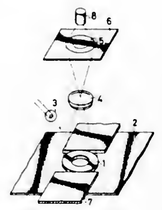
wide depletion range, and an inversion layer at the semiconductor-insulator interface conducts electrons along the surface from the point of generation by absorption of photons to the region of the front contact. The device has a relatively large light-sensitive area, exhibits fast response time, and has a spectral characteristic of high quantum efficiency over the range of about 0.2 to 1.1 microns wavelength.

3,813,542
BRAKE SIGNAL DEVICE FOR A VEHICLE
Joe Spadafora, 65 Forest Manor Rd., No. 502, Willowdale, Ontario, Canada
Filed Sept. 7, 1972, Ser. No. 287,008
Int. Cl. G01p *3/68*
U.S. Cl. 250—221 **5 Claims**



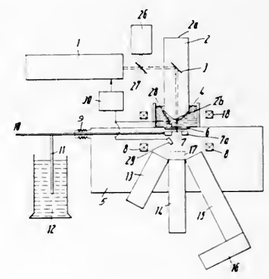
A brake signal device for a vehicle in which a beam of light is directed with respect to the brake pedal of the vehicle in a manner so that it is interrupted when the vehicle operator moves his foot to a position engaging the pedal. An electrical circuit including a photocell is responsive to the interruption of the beam for energizing a brake signal light normally mounted at the rear of the vehicle.

3,813,543
PATTERN DETECTING APPARATUS
Mikio Naya, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Nov. 29, 1972, Ser. No. 310,508
Claims priority, application Japan, Dec. 23, 1971, 46-2519
Int. Cl. G01n *21/32*
U.S. Cl. 250—562 **13 Claims**



An apparatus comprising an image-forming optical system for projecting reflected light from an article to be inspected and travelling on a conveyor onto an imaginary fixed plane to form an image thereon, a similar pattern resembling the pattern of portion of the article to be detected and permitting the passage of reflected light within the same area as the pattern of the portion to be detected, a photoelectric transducer disposed to receive the light passing through the pattern, an arithmetic circuit for calculating the difference between the electrical output level of the photoelectric transducer and an electrical level serving as a reference for judgement, position detecting means for detecting that the article has reached an inspecting position, and a logic circuit for generating an electrical instructing signal in response to a judging output signal from the arithmetic circuit and an article detecting signal from position detecting means.

3,813,544
METHOD FOR EVAPORATING, DESTROYING, EXCITING AND/OR IONIZING SPECIMEN MATERIAL LIMITED TO MICRO-REGIONS, AND ARRANGEMENT FOR CARRYING OUT THIS METHOD
G. Franzen, Munich; Franz Hillenkamp, Freising; Raimund Kaufman, Freiburg, and Ernst Remy, Munich, all of Germany, assignors to Ernst Remy, Munich, Germany
Filed Aug. 16, 1972, Ser. No. 281,231
Claims priority, application Germany, Aug. 18, 1971, 2141387
Int. Cl. H01j *39/34*
U.S. Cl. 250—281 **26 Claims**

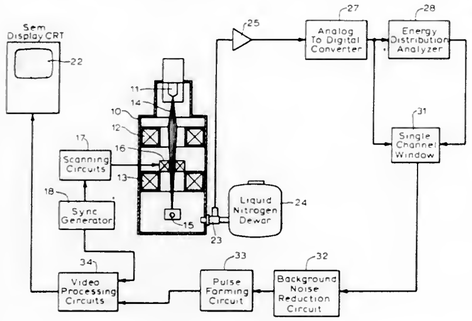


Method and apparatus for examining micro-regions of biologic specimens normally radiation absorptive in which a source of coherent electromagnetic radiation is optically focused on a selected region of the specimen. The power density is adjusted in the central diffraction disk to the point where the specimen becomes absorbent, the power density distribution in the first diffraction ring being below the level necessary to initiate absorption in the said first diffraction ring. In its preferred form, the coherent radiation is fed to a microscope having a cooled objective through which focusing on a selected micro-region is achieved.

3,813,545
X-RAY SCAN AREA MAPPING SYSTEM
Morris W. Barnhart, Buffalo Grove, Ill., and John C. Russ, Raleigh, N.C., assignors to Edax International, Inc., Prairie View, Ill.
Filed Apr. 12, 1973, Ser. No. 350,616
Int. Cl. H01j *37/26*
U.S. Cl. 250—306 **11 Claims**

An X-ray scan area mapping system for a scanning electron microscope provides a spacial area map display of X-ray events emitted from a specimen within at least one energy range as the specimen is scanned at scanning electron microscope rates by an electron beam. A background X-ray noise reduction circuit enables intensification of the scanning electron microscope cathode-ray tube display upon the occurrence of an X-ray event within the energy range and disables intensification when the time between consecutive X-ray

events within the energy range exceeds a predetermined time period. Background X-ray events occur at much slower rates than the X-ray events emitted from the specimen within the

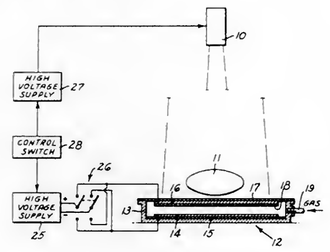


energy range, and therefor, a substantial reduction in background noise on the scanning electron microscope display is obtained.

3,813,546
PROCESS OF MAKING A SUBTRACTED IMAGE RADIOGRAPHIC RECORD

Andrew P. Proudian, Chatsworth, Calif., assignor to Xonics, Inc., Van Nuys, Calif.

Filed Feb. 28, 1973, Ser. No. 336,709
Int. Cl. G03b *41/16*
U.S. Cl. 250—315 **2 Claims**



Method and apparatus using an electron radiographic system for making a subtracted image record of an object. The method includes the steps of making the first exposure with a first polarity for the field between the electrodes, reversing the polarity and making a second exposure on the same dielectric receptor, and developing the resultant electrostatic image, typically with a contrast material being introduced into the object between the exposures.

3,813,547
CORONA GENERATING APPARATUS

Morton Silverberg, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

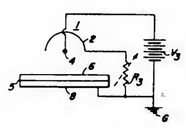
Division of Ser. No. 108,302, Jan. 21, 1971, Pat. No. 3,769,506. This application Aug. 23, 1972, Ser. No. 283,123The portion of the term of this patent subsequent to Oct. 30, 1990, has been disclaimed.
Int. Cl. G03g *15/02*
U.S. Cl. 250—324 **2 Claims**

Improved corona generating methods and apparatus therefor are provided in accordance with the teachings of this invention wherein a medium in relative motion with a charging station may be rapidly charged to a desired potential in a highly efficient manner. According to one embodiment of the present invention, corona charging apparatus including at least one coronode and having a shield associated therewith is provided and operated in such manner that current flow in the shield is maintained above a selected minimum level during the operation of the corona charging apparatus. The selected minimum level of current flow in the shield is of such value that the coronode will initially supply ion current with a substantially lower threshold energizing potential applied thereto than would be otherwise available and the directivity of the selected minimum level of current flow is such that the potential established at the shield will ensure that a majority of the ion charging current produced at the coronode is delivered to the medium to be charged.

3,813,548
CORONA GENERATING METHODS AND APPARATUS THEREFOR

Morton Silverberg, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 108,302, Jan. 21, 1971, Pat. No. 3,769,506. This application Aug. 23, 1972, Ser. No. 283,244The portion of the term of this patent subsequent to Oct. 30, 1990, has been disclaimed.
Int. Cl. G03g *13/02*, *15/02*
U.S. Cl. 250—324 **7 Claims**

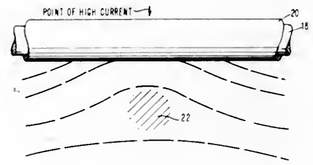


Improved corona generating methods and apparatus therefor are provided in accordance with the teachings of this invention wherein a medium in relative motion with a charging station may be rapidly charged to a desired potential in a highly efficient manner. According to one embodiment of the present invention, corona charging apparatus including at least one coronode and having a shield associated therewith is provided and operated in such manner that current flow in the shield is maintained above a selected minimum level during the operation of the corona charging apparatus. The selected minimum level of current flow in the shield is of such value that the coronode will initially supply ion current with a substantially lower threshold energizing potential applied thereto than would be otherwise available and the directivity of the selected minimum level of current flow is such that the potential established at the shield will ensure that a majority of the ion charging current produced at the coronode is delivered to the medium to be charged.

3,813,549
SELF-HEALING ELECTRODE FOR UNIFORM NEGATIVE CORONA

Thomas H. Di Stefano, Dobbs Ferry; Robert B. Laibowitz, and Robert Rosenberg, both of Peekskill, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1972, Ser. No. 317,973
Int. Cl. G03g *15/02*
U.S. Cl. 250—324 **9 Claims**

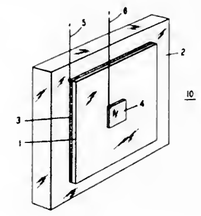


The present invention relates to electrodes used for charging electrophotographic image surfaces in copying machines. More particularly, the disclosure is directed to the negative corona discharge electrodes which produce a negative charge that is applied to the photoconductive surface exposed to the corona discharge. In the present invention, the electrode structure includes a combination of a wire of valve metal with a high resistivity coating spread uniformly over the surface of the wire. The valve metal, one example being tantalum, may serve as the electrode wire itself or may surround an inner wire such as stainless steel. By providing an electrode for corona discharge having a uniform high resistive coating, the plasma glow produced will spread uniformly along the length of the wire. By using a valve metal, which forms a hard oxide under the high resistivity coating, the electrode is self-healing in that if cracks or imperfections occur in the coating, the exposed valve metal will oxidize and fill in the cracks and imperfections.

3,813,550
PYROELECTRIC DEVICES

Richard Lee Abrams, Morris Township, Morris County, and Alastair Malcolm Glass, Murray Hill, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 35,309, May 7, 1970, abandoned. This application Dec. 12, 1972, Ser. No. 314,376
Int. Cl. G01t *1/16*
U.S. Cl. 250—338 **5 Claims**

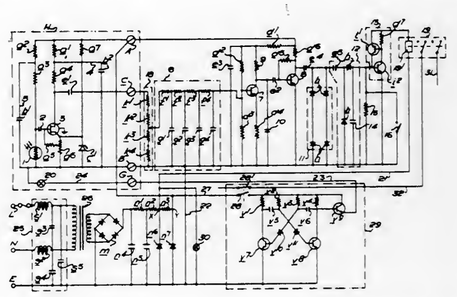


The frequency response of crystalline pyroelectric detectors for modulated infrared carriers is increased by mechanical damping so as to avoid a mechanical resonance limitation. Clean response for pulse trains at frequencies in excess of a megabit per second at incident power below 1 watt is attainable.

3,813,551
FIRE DETECTION APPARATUS

Arnold Broadbent, and Peter Frost, both of Shaw, England, assignors to Talentum Developments Limited, Oldham, England

Filed Jan. 15, 1973, Ser. No. 323,507
Int. Cl. G01j *5/00*
U.S. Cl. 250—338 **10 Claims**

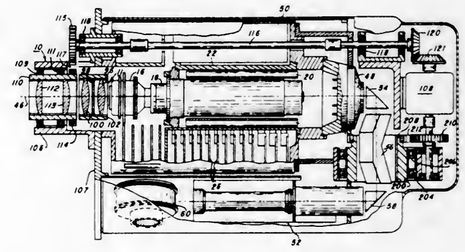


The invention comprises an infra-red flame and spark fire alarm apparatus comprising an infra-red radiation detection cell the signals from which are amplified, and arrangements for decoupling the supply line to the cell and amplified by two current paths to reduce the effect of transient A.C. pulses, feeding the amplified signals at millivolt level through a sensitivity control to a low pass filter and to a two stage coupled amplifier to give a gain of the order of 2,500 and feeding the output from the amplifier to a diode limiter or clipping circuit, the square wave output from the limiter being fed to a diode integrator, and a bistable switch to operate at a minimum input voltage of 0.5v obtained by successive pulses from the diode integrator within a prescribed period, the triggering of the bistable switch causing current to flow to switch a thyristor shorting out a supply line and giving an alarm signal.

3,813,552
IMAGE ROTATION DEVICE FOR AN INFRARED SCANNING SYSTEM OR THE LIKE

Ralph B. Johnson, Huntsville, Ala., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 2, 1973, Ser. No. 320,402
Int. Cl. G02b *23/02*; G01t *1/16*
U.S. Cl. 250—347 **8 Claims**



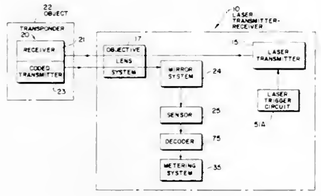
An infrared scanning system which does not require the use of scanning mirrors is disclosed. A cylindrical device having two cylindrical optical elements arranged in an afocal manner forms an image at infinity. As the cylindrical device is rotated about its longitudinal axis the image is rotated about the longitudinal axis at twice the rotational rate of the rotation of the device. A lens system focuses infrared energy radiating from the scene on an array of detectors supported at one end of a

support member. An array of emitters is mounted on the opposite end of the support member and the electronics necessary to interface the detector array with the emitters is mounted on the outer surface of the support member. The central portion of the support member also includes a mechanical cryogenic refrigerator for cooling the detector array. A television camera is focused on the emitter array to produce a television image of the scene scanned.

3,813,553
LASER TRANSCIEVER

Sidney J. Grossman, Ocean, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 17, 1973, Ser. No. 361,384
Int. Cl. G01t *1/16*
U.S. Cl. 250—347 **7 Claims**



A laser transceiver device useful in combination with an object to be viewed which object carries a suitably coded transponder, which laser transceiver includes a single objective lens system positioned for both transmission and reception of laser energy, a detector, and a tiltable mirror system for alternatively directing transmitted laser energy onto said objective lens system and said received laser energy onto said detector.

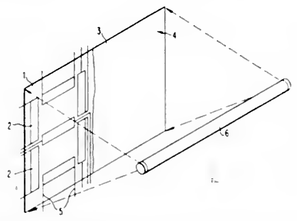
The laser transceiver device can consist of a modified single lens reflex camera having a quick return mirror; the modifications of such a camera include replacing the film by a small solid state laser and by either removing the shutter curtain or restraining it in the fully open position. The camera can be further modified to include a trigger circuit for pulsing the laser and means for operating the trigger circuit in synchronism with operation of the normal camera exposure release mechanism. A decoder corresponding to the coded transponder in the object being viewed can be installed within the camera body and connected between the camera photocell and the camera metering system. If the energy beam received from the transponder is other than a visible light beam, the light-reading photocell normally used in the camera must be replaced by a detector which can respond to the received transponder energy beam.

3,813,554
ADDRESSABLE PHOTOCHROMIC MEMORY DISPLAY DEVICE

Ifay F. Chang, Mahopac, and Russell W. Dreyfus, Cross River, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 12, 1972, Ser. No. 314,290
Int. Cl. G01n *21/38*
U.S. Cl. 250—461 **27 Claims**

An addressable photochromic memory display device comprising a readout area of a photochromic material, a means for uniformly exposing the photochromic material to electromagnetic radiation whereby the photochromic material changes color, a means for reversing the color change in selected areas

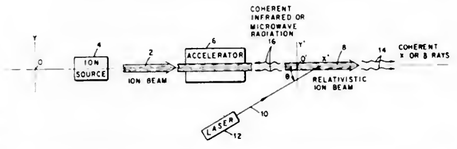


of the photochromic material whereby a readout is formed in the readout area.

3,813,555
METHOD AND MEANS FOR PRODUCING COHERENT X-RAY AND GAMMA-RAY EMISSIONS

James A. Viecelli, Oakland, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed May 16, 1973, Ser. No. 360,983
Int. Cl. H01j *35/00*
U.S. Cl. 250—493 **7 Claims**

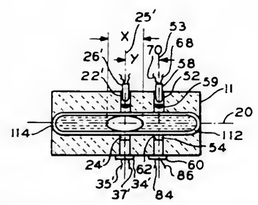


A method and apparatus for producing coherent x-ray and gamma-ray emissions by taking advantage of doppler shift phenomena and the relativistic effects of time dilation, wave vector angle compression, and length compression associated with an active optical lasing medium moving at a uniform velocity very nearly equal to the speed of light.

3,813,556
TILT LIMIT DETECTING APPARATUS

Emanuel E. Beer, Eastchester, and Eric H. Jeltrup, Ossining, both of N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed Apr. 27, 1972, Ser. No. 248,131
Int. Cl. G01d *5/34*; G01n *21/26*
U.S. Cl. 250—575 **13 Claims**



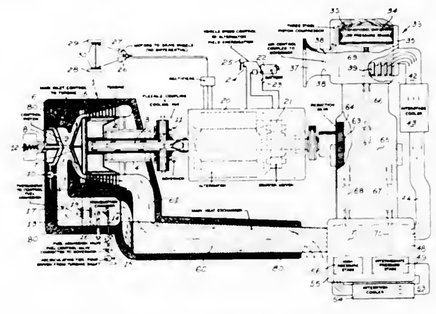
A tilt limit detecting device which utilizes a bubble level containing a prescribed amount of opaque fluid and a photodector arrangement transverse to the longitudinal axis of the bubble level. The photodector arrangement includes a pair of light source-photocell combinations the first of which is

normally positioned at the center of the bubble in the level position while the second combination is spaced a distance Y from the first, such that the distance Y is less than the bubble length X. The opaque fluid acts as a shutter interposed between the light source-photocell combinations, so that with the connection of suitable electronic circuitry to the photocells angular tilts in excess of the allowable limit, which generally equals X/2 in radians, are detected as well as the particular direction, clockwise or counter clockwise, identified.

3,813,557
GAS TURBINE VEHICLE DRIVE

Alfred H. Traeger, Erindale, Australia, assignor to Traeger Patents PTY. Limited, Marryatville and Traeger Charitable Trust Incorporated, Adelaide, both of, Australia

Filed Jan. 18, 1973, Ser. No. 324,584
Claims priority, application Australia, Jan. 20, 1972, 7717/72
Int. Cl. B60l *11/02*
U.S. Cl. 290—2 **3 Claims**

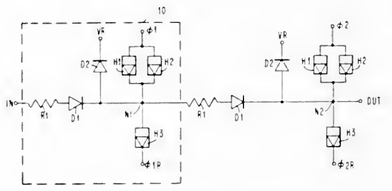


A vehicle in which a coupled gas turbine and compressor and electrical generator are rotationally coupled to be pulsed under speed governor control to run at a relatively constant speed, and drive from the generator is controlled to supply the required power to motors coupled to the vehicle wheels, the compressor preferably being a piston compressor with air inlet control, the turbine also having controlled gas intake by regulating gas input and also gas generator in the combustion chamber, all under control of the speed governor.

3,813,558
DIRECTIONAL, NON-VOLATILE BISTABLE RESISTOR LOGIC CIRCUITS

Paul John Krick, Katonah, and Peter Pleshko, Crugers, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 26, 1972, Ser. No. 266,173
Int. Cl. G11c *11/36*
U.S. Cl. 307—221 R **10 Claims**

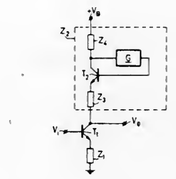


A circuit consisting of a pair of bistable resistors connected in series at a node to which current may be applied and from which current may be drawn and having a source of potential connected to each bistable resistor is disclosed. The bistable resistors are oriented physically in the same direction such that current in a given direction which exceeds a threshold and which switches the bistable resistors into a high resistance state can be characterized as the forward direction. Conversely, current in the opposite direction to the given direction which, when it exceeds a threshold, switches the devices from a high resistance state into a low resistance state can be characterized as the backward direction. With appropriately applied potentials to each of the bistable resistors, with one potential more positive than the other, current can be made to flow in the forward and backward directions. In the forward direction, both resistors are switched into or remain in a high resistance or RH state. When current flows in the backward direction through the pair of bistable resistors, they switch into or remain in the low resistance or RL state. By applying the same potentials to the bistable resistors and causing current to flow into or out of the node at which the bistable resistors are connected, it is possible to cause the pair of resistors to assume a low resistance high resistance state and, a high resistance low resistance state, respectively. Thus, by simply controlling the potentials and the direction of current flow through each of the pair of bistable resistors, four, non-volatile, stable states are achievable as opposed to a maximum of two volatile states in similarly arranged tunnel diode circuits, for example. Because the arrangements shown are inexpensive, easy to fabricate and permit high packing densities, circuits such as shift registers which utilize large numbers of similarly arranged logic circuits are most attractive. In addition, the nanosecond switching speeds available in bistable resistors make them superior to other known switching devices of slower switching speed. A shift register circuit incorporating three of the four non-volatile, stable states available with the logic circuits is also disclosed. The shift register utilizes a low resistance-high resistance state to represent a binary "one" and a high resistance-high resistance state and a high resistance-low resistance state to represent a binary "zero."

3,813,559
NOISE REDUCTION CIRCUIT

Jacob De Boer, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 28, 1972, Ser. No. 293,121
Claims priority, application Netherlands, Mar. 30, 1972, 7204290
Int. Cl. H03k *5/08*; H04b *1/10*
U.S. Cl. 307—237 **12 Claims**

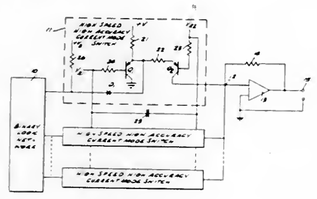


A noise reduction circuit has a transistor and impedance elements coupled to its emitter and collector respectively and an input signal applied to its base. The impedance of the collector impedance element is a function both the amplitude and frequency of the input signal. It can be another transistor and a variable bandpass filter. A switch can be part of the circuit so that it can be used during both recording and reproducing.

3,813,560
CURRENT MODE SWITCH FOR HIGH SPEED DIGITAL-TO-ANALOG CONVERSION

Jon Halloran Grant, Diamond Bar, and Raymond W. Pauly, Newport Beach, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 30, 1970, Ser. No. 43,614
Int. Cl. H03k *17/60, 13/02*
U.S. Cl. 307—253 **10 Claims**

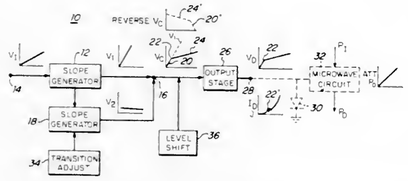


A current mode switch for high speed digital-to-analog conversion using first and second transistors with matched V_{BE} characteristics. A first resistor between a power source and the emitter of the first transistor provides current to be switched from an input control diode to a summing junction through a second resistor connected between the emitters of the two transistors. The difference between reference voltages on the bases of the transistors determines the level of current through the second resistor, and the high impedance of the second resistor in series with the second transistor reduces the level of noise and switching transient energy coupled to the summing junction. For applications not requiring accuracy, a diode may be substituted for the first transistor and the second transistor may be common to other current switches.

3,813,561
VOLTAGE CONTROL SWITCH DRIVER

Heyward Sturges Williams, Amherst, and Robert Robbins, Hudson, both of N.H., assignors to LRC, Inc., Hudson, N.H.

Filed Oct. 16, 1972, Ser. No. 297,808
Int. Cl. H03k *1/14, 6/04*
U.S. Cl. 307—263 **8 Claims**

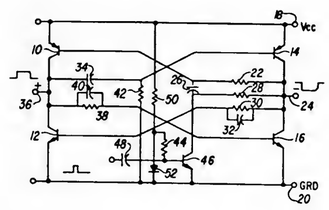


A diode switch driver circuit which utilizes a composite voltage having a composite slope including a first slope up to a predetermined region corresponding to the diode breakover region, and a second slope beyond that predetermined region for optimizing the linearity of the attenuation characteristic of a driven diode switch relative to the input drive voltage of the switch driver circuit comprising slope generating means, responsive to the input drive voltage, for producing a voltage having one of the first and second slopes; level shifting means, connected with the slope generating means for varying the voltage level of the voltage having one of the first and second slopes; and an output stage including a current amplifier circuit having a high input impedance and low output impedance responsive to the voltage having one of the first and second slopes for producing an output drive voltage for operating a diode switch.

3,813,562
TRIGGERED MONOSTABLE MULTIVIBRATOR CIRCUIT UTILIZING COMPLEMENTARY TRANSISTOR PAIRS

Robert A. Stehlin, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 166,288, July 26, 1971, Pat. No. 3,767,944, which is a continuation of Ser. No. 787,793, Dec. 30, 1968, abandoned. This application Apr. 5, 1973, Ser. No. 348,387
Int. Cl. H03k *3/10*
U.S. Cl. 307—273 **5 Claims**

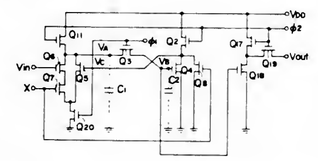


The disclosure is directed to electronic multivibrator circuits utilizing two pairs of series connected complementary transistors, with the bases of each of the transistors being cross-coupled to the juncture point of the transistors of the opposite pair. A monostable multivibrator is provided which has the base of one of the transistors coupled through a resistance to ground potential, and includes a normally non-conductive transistor connected to receive a triggering signal for initiating a mono-stable timing period. A bistable multivibrator is provided which includes triggering transistors connected across symmetrical portions of the circuitry for receiving set and reset triggering signals to control the bistable operation of the circuit. A free-running multivibrator is provided which includes resistive current paths from two of the transistor bases to ground potential for generation of a periodic pulse train output upon the application of electrical power.

3,813,563
FLIP-FLOP CIRCUIT

Yoshikazu Hatsukano; Kosei Nomiya, and Shuichi Torii, all of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 26, 1973, Ser. No. 373,758
Claims priority, application Japan, June 26, 1972, 47-63241
Int. Cl. H03k *3/286*
U.S. Cl. 307—279 **8 Claims**

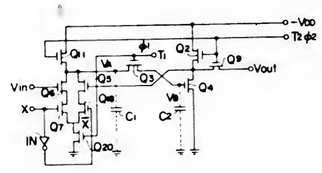


A flip-flop circuit comprising a first inverter including a first insulated gate field-effect transistor (MISFET), a second MISFET for storage and a third MISFET, the second MISFET being connected in series between the first and third MISFET's; a fourth MISFET for input and a fifth MISFET for control of writing as are connected in series between the first and third MISFET's; a second inverter including a MISFET for load and a sixth MISFET for storage as are connected in series with each other; a seventh MISFET for transfer as is connected between an output terminal of the first inverter and an input electrode of the sixth MISFET; and an eighth MISFET connected in parallel with the sixth MISFET. An output terminal of the second inverter is feedback-connected to an input electrode of the second MISFET, input electrodes of the third and seventh MISFET's are applied with a first train of clock pulses, an input electrode of the first MISFET is applied with a second train of clock pulses differing in phase from the first train of clock pulses, an input electrode of the fourth MISFET is applied with an input signal, input electrodes of the fifth and eighth MISFET's are applied with a writing control signal adapted to render the fifth and eighth MISFET's conductive at writing when at least the third and seventh MISFET's are conductive, and an output signal is derived from the input electrode of the sixth MISFET.

3,813,564
FLIP-FLOP CIRCUIT

Yoshikazu Hatsukano; Kosei Nomiya, and Shuichi Torii, all of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 26, 1973, Ser. No. 373,761
Claims priority, application Japan, June 28, 1972, 47-64018
Int. Cl. H03k *3/286*
U.S. Cl. 307—279 **6 Claims**



A flip-flop circuit includes a first inverter including a first insulated gate field-effect transistor (MISFET), a second MISFET for storage, and a third MISFET for control of writing and a fourth MISFET, the second and third MISFET's being connected in series between the first and fourth MISFET's. A fifth MISFET for receiving an input signal and a sixth MISFET for control of writing are connected between the first and fourth MISFET's. A second inverter including a seventh MISFET for storage and a MISFET for a load thereof are connected in series with each other, an output terminal of the second inverter being feedback-connected to an input electrode of the second MISFET. An eighth MISFET for transfer is connected between an output terminal of the first inverter and an input electrode of the seventh MISFET. The third MISFET is rendered non-conductive and the sixth MISFET conductive at writing when at least the fourth and eighth MISFET's are conductive.

3,813,565
DETECTOR APPARATUS

Robert Guilleux, Allee des Tamaris, 92-Plessis-Robinson, France

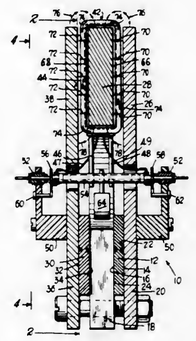
Filed Nov. 13, 1972, Ser. No. 305,680
Claims priority, application France, Nov. 15, 1971, 71.40728; Dec. 31, 1971, 71.47781
Int. Cl. H03k *3/26*
U.S. Cl. 307—308 **6 Claims**

An apparatus for detecting changes in a physical quantity comprises a sensitive element responding to changes in the quantity by varying an electrical potential. An amplifier fed with the varying potential provides an output signal by way of a time-constant circuit to a high input-impedance active device from the output of which negative feedback is taken to the amplifier input. The amplifier output signal is denotive of change in the sensed quantity and the high input impedance active element yields a signal denotive of rate of change of the quantity. The sensitive element may be an ionisation chamber and the active element an FET. The amplifier is a transistor, which may be an FET.

3,813,566
ELECTROMAGNETIC MOTIVE DEVICE

Harrison F. Edwards, Norwich, N.Y., and Louis A. Pannullo, Waterbury, Conn., assignors to The Lewis Engineering Company, Naugatuck, Conn.

Filed Dec. 26, 1972, Ser. No. 318,577
Int. Cl. H02k *33/18*
U.S. Cl. 310—36 **14 Claims**

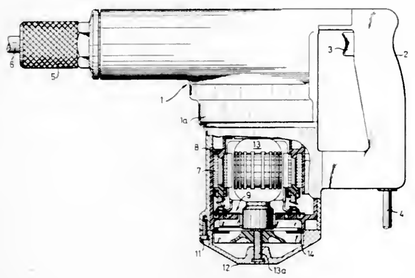


A high torque electromagnetic motive device comprising a permanent magnet slab having north and south poles respectively at its opposite sides, and comprising two essentially flat pole pieces each of annular configuration and each having a pair of corresponding portions engaged broadside with the opposite sides of the permanent magnet. Other portions of the pole pieces are disposed in spaced relation to one another so as to define an air gap. The device includes a coil in the form of a loop, which links one of the pole pieces, and means for movably mounting the coil to enable it to travel in an arcuate path in said air gap and along an annular portion of the pole piece that it links. The arrangement is such that an especially large angular displacement of the coil in excess of 200° is made possible, combined with high torque and low power consumption.

3,813,567
ELECTRICAL CONTACT FOR STATORS IN ELECTRIC TOOLS

Peter Schmuck, Mauren, Liechtenstein, Germany, assignor to Hilti Aktiengesellschaft, Schaan, Fuerstentum, Germany

Filed Oct. 11, 1972, Ser. No. 299,392
Claims priority, application Germany, Nov. 8, 1971, 2155457
Int. Cl. H02k 7/14
U.S. Cl. 310—50 10 Claims

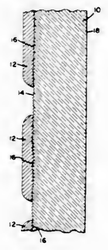


In an electric tool, a stator is secured within the tool housing against rotation and it is resiliently biased and held within the housing by means of a removable housing cover and springs. Contacts are provided on the stator and other contacts are connected to carbon brushes so that the resilient biasing action afforded by the cover and the springs holds the stator contacts and the carbon brush contacts in electrical engagement. The contacts are shaped to provide automatic engagement and disengagement upon the assembly and disassembly, respectively, of the stator within the housing.

3,813,568
CONTRAST-ENHANCING PICTURE TUBE FACEPLATE AND PROCESS FOR PRODUCING SAME

Stanley J. Scott, Buffalo; William J. Noroski, North Syracuse, and Wilfred D. Rublack, Liverpool, all of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Aug. 2, 1972, Ser. No. 277,398
Int. Cl. H01j 29/18
U.S. Cl. 313—92 R 3 Claims



Reflectivity of the faceplate of a color television receiver picture tube is reduced in order to achieve improved contrast in displayed images with minimal decrease in brightness and without objectionable halation of the displayed image by blasting the inner surface of the faceplate with an air-propelled slurry of abrasive particles having substantially uniform size in the range of 5–16 microns in diameter, preferably 9.5 microns. The abrasive-blasted surface of the faceplate is then etched in hydrofluoric acid. The faceplate thus processed exhibits an inner surface pitted with craters having an average diameter of approximately 5 microns and depths ranging up to approximately 1.5 microns at a density of substantially 10^7 craters per square centimeter.

3,813,569
LUMINESCENT SCREEN AND MERCURY VAPOR DISCHARGE LAMP CONTAINING SAME

Judicus Marinus Pieter Jan Verstegen, and Emiel Petrus Juliaan De Meester, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 8, 1972, Ser. No. 313,599
Claims priority, application Netherlands, Dec. 18, 1971, 7117430
Int. Cl. C09k 1/54
U.S. Cl. 313—108 R 7 Claims

A luminescent silicate activated by bivalent europium defined by the formula

$$Sr_{1-x-y-z-p}Ba_xCa_yMg_zEu_pB_2Si_2O_8$$

in which

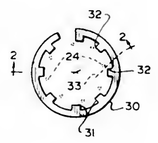
$0 < x < 0.60$
$0 < y < 0.50$
$0 < z < 0.25$
$0.01 < p < 0.20$
$x+y+z+p < 0.70$.

Upon excitation by short-wave or long-wave ultraviolet radiation the silicate exhibits a narrow band emission having a maximum at 440 nm. The silicate is preferably used in mercury vapour discharge lamps intended for photocehmical purposes.

3,813,570
ENHANCED LOW CAPACITY SOCKET

Christ J. Dumas, 4600 S. Wisconsin, Forest View, Ill. 60402

Continuation of Ser. No. 78,656, Oct. 7, 1970, abandoned. This application Aug. 4, 1972, Ser. No. 278,102
Int. Cl. H01j 5/48
U.S. Cl. 313—318 15 Claims



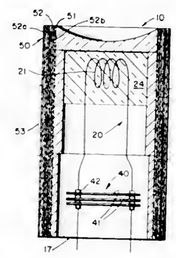
An enhanced low capacity socket assembly including ground means disposed therein, the ground means terminating in a series of point sources disposed in juxtaposition with respect to terminal pin contact means thereby to form close tolerance air dielectric capacitive means.

3,813,571
INSULATED CATHODE GUN DEVICE

Algerd Basiulis, Redondo Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 9, 1973, Ser. No. 349,157
Int. Cl. H01j 1/00; H01k 1/02
U.S. Cl. 313—326 5 Claims

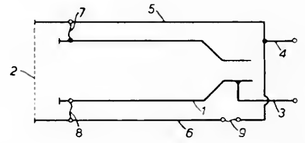
A cathode gun device having an improved heat shield for greater operating efficiency is disclosed. The device includes a tubular cathode electrode, a heater electrode, a plurality of heat shields that are heat reflective, and a plurality of heat shields that are of low thermal conductivity arranged in an alternate fashion.



3,813,572
CAMERA TUBE CONVERTIBLE FROM INTEGRAL MESH TO SEPARATE MESH TYPE

Hans Scholz, Essex, England, assignor to English Electric Valve Company Limited, Chelmsford, Essex, England

Filed Jan. 22, 1973, Ser. No. 325,458
Claims priority, application Great Britain, Feb. 17, 1972, 7353/72
Int. Cl. H01j 29/96, 21/28, 29/02
U.S. Cl. 315—3 4 Claims



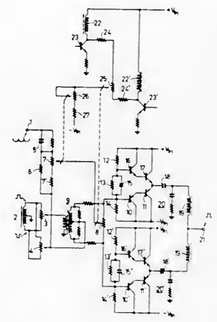
A camera tube has a wall anode and a mesh electrode which is separate from the wall anode. Connection is made to the mesh electrode from a terminal outside the tube envelope by means of two diammetrically opposed conductors which are connected to the wall anode by fuses which after completion of manufacture may be fused to convert the tube from one of the integral mesh type to one of the separate mesh type.

3,813,573
CIRCUIT ARRANGEMENT FOR GENERATING A VARIABLE MAGNETIC FIELD

Jan Lolke De Vries, Assen, and Alt Liemburg, Emmasingel, Eindhoven, both of Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 117,345, Feb. 22, 1971, abandoned. This application July 9, 1973, Ser. No. 377,798
Int. Cl. H01j 29/70
U.S. Cl. 315—13 C 5 Claims

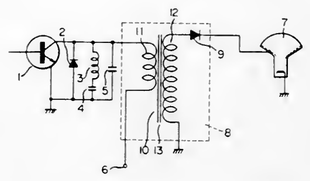
A circuit arrangement for generating a magnetic field periodically varying with time and being adjustable in amplitude, in which an extreme value of the field must be adjusted at a fixed level. The field is generated by a coil which is wound on a core of magnetic material. An auxiliary coil is wound on the same core through which coil a direct current adjustable by means of a potentiometer circuit flows in such a manner that the extreme value of the resultant field is adjusted at a fixed level. One embodiment of the circuit arrangement includes two mechanically coupled potentiometers. One possibility of use thereof is the convergence in a colour picture display apparatus in which the field is the combination of a parabolic and a sawtooth component. In the case of the horizontal convergence, the auxiliary coil may be the vertical convergence coil.



3,813,574
HIGH VOLTAGE TRANSFORMER DEVICE IN A HORIZONTAL DEFLECTION CIRCUIT

Kohei Sato, Ikeda, Japan, assignor to Matsushita Electric Co., Ltd., Osaka, Japan

Filed Nov. 14, 1972, Ser. No. 306,406
Claims priority, application Japan, Nov. 18, 1971, 46-92893; Nov. 27, 1971, 46-95599; Dec. 8, 1971, 46-99758; Jan. 24, 1972, 47-9273
Int. Cl. H01j 29/70
U.S. Cl. 315—29 36 Claims



A high voltage transformer device in a horizontal deflection circuit supplying an extra high tension (E_{HT}) to the anode of cathode-ray tube, which comprises a low-voltage coil (primary winding) and a high-voltage coil (secondary winding) including a high-voltage side winding and a low-voltage side winding, wherein the high-voltage side winding of the high-voltage coil is more closely magnetically coupled to the low-voltage coil than the magnetic coupling between the low-voltage side winding of the high-voltage coil and the low-voltage coil, thereby suppressing variations of the high voltage output, and improving the trackability of the focusing voltage when a focusing coil is additionally provided.

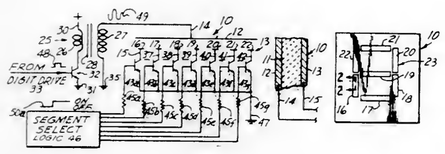
3,813,575
ELECTROLUMINESCENT DISPLAY SYSTEM AND METHOD OF DRIVING THE SAME

Robert D. Webb, Hacienda Heights, Calif., assignor to Sigmatron, Inc., Santa Barbara, Calif.

Filed Nov. 8, 1971, Ser. No. 196,434
Int. Cl. H05b 37/00
U.S. Cl. 315—167 18 Claims

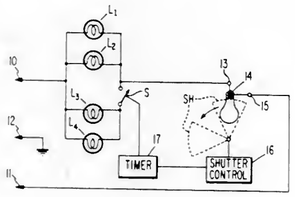
An electroluminescent display utilizing a capacitive display device. The display has an inherent minimum useful illumina-

tion term, during which it must be actuated in order to be seen by an observer. The display is driven (actuated), so as to be illuminated, by pulses of actuating alternating current, and there will be more than one of these pulses during each said minimum useful illumination term. The pulse term, or duration, of the individual pulses is shorter than the interval



between pulses. The pulses may be shaped so as most efficiently to transfer energy to the display. The driving system improves the efficiency and lengthens the life of single displays, and permits higher-intensity operation of multiple displays. A useful driving system includes a pulse transformer which produces the desired actuating current when it is itself pulsed.

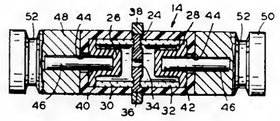
3,813,576
SERIES REGULATED POWER SUPPLY FOR ARC DISCHARGE LAMPS UTILIZING INCANDESCENT LAMPS
Fausto Caprari, Jersey City, N.J., assignor to RCA Corporation, New York, N.Y.
Filed July 21, 1972, Ser. No. 273,750
Int. Cl. H05b *37/00*
U.S. Cl. 315—205 **8 Claims**



A series regulated power supply for an arc discharge lamp is disclosed whereby at least one incandescent lamp is connected in series with the arc discharge lamp to establish a first current level. At least one other incandescent lamp is connected in shunt with the first lamp to establish a second current level. The incandescent lamps provide current regulation for the arc discharge lamp.

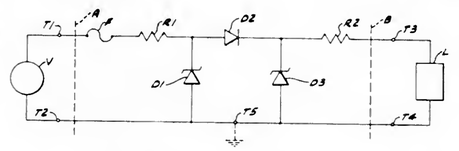
3,813,577
OVERVOLTAGE PROTECTION APPARATUS HAVING FUSIBLE RING AND SHORT CIRCUIT MEANS OPERATED THEREBY
Chester J. Kawiecke, Santa Barbara, Calif., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.
Filed Dec. 20, 1972, Ser. No. 316,738
Int. Cl. H02h *3/20*
U.S. Cl. 317—16 **10 Claims**

An overvoltage protection apparatus is described in which a fusible ring of low melting termperature metal is provided in contact around an intermediate ground electrode of the overvoltage protection device. The fusible ring is engaged by spring biased mounting clips connected to ground which move



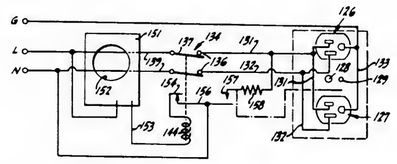
inwardly to short circuit the end terminals of such device to ground upon melting of such ring.

3,813,578
ELECTRICAL SAFETY BARRIER
Floyd L. Tiffany, Marshalltown, Iowa, assignor to Fisher Controls Company, Inc., Marshalltown, Iowa
Filed Jan. 3, 1973, Ser. No. 320,786
Int. Cl. H02h *3/20*
U.S. Cl. 317—16 **4 Claims**



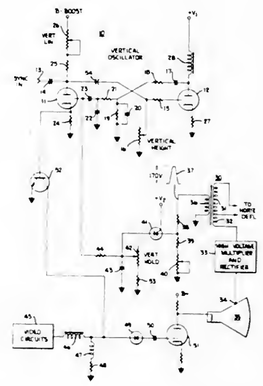
An electrical safety barrier for providing safe electrical interconnection between a safe area and a hazardous area. A circuit interconnects terminals for apparatus in the hazardous area. The circuit includes, in series, a diode, a current-limiting impedance, and current-interrupting means. Zener diodes, each of the same polarity, are connected on either side of the diode. Accordingly, the zener diodes provide independent fail-safe limiting of the voltage at the terminals in the hazardous area and yet can be independently tested.

3,813,579
ELECTRIC RECEPTACLE ASSEMBLY WITH GROUND FAULT PROTECTION
Richard C. Doyle, Orinda; Wallace W. Wahlgren, Oakland, and Ellwood S. Douglas, Orinda, all of Calif., assignors to The Rucker Company, Oakland, Calif.
Continuation-in-part of Ser. Nos. 87,713, Nov. 9, 1970, abandoned, and Ser. No. , , Continuation-in-part of Ser. No. 141,151, May 7, 1971, abandoned. This application July 14, 1972, Ser. No. 271,988
Int. Cl. H02h *3/26*
U.S. Cl. 317—18 D **18 Claims**



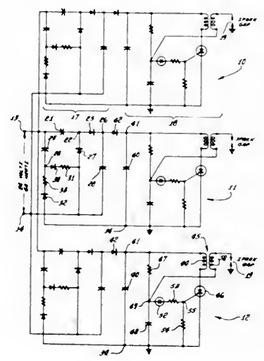
Electric receptacle assembly having a ground fault detector and current interrupter as an integral part thereof. The assembly is suitable for mounting in a standard receptacle box of the size commonly used for housing a double socket outlet, and it includes means for testing the operation of the system and means for providing a visual indication of the occurrence of a ground fault.

3,813,580
HIGH VOLTAGE PROTECTION CIRCUIT
Marvin Neil Norman, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Filed Jan. 19, 1973, Ser. No. 325,772
Int. Cl. H02h *7/20*
U.S. Cl. 317—23 **5 Claims**



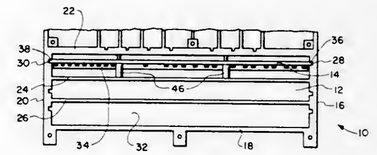
A high voltage protection circuit for a television receiver for rendering the picture unviewable when the kinescope ultor voltage exceeds a predetermined level. A voltage source representative of the ultor voltage is sensed and causes a switch to operate when a predetermined level is exceeded. The switch controls the operation of the vertical oscillator to collapse the raster under excessive high voltage conditions. The oscillator state also controls the video blanking circuit to cause video blanking during the alarm condition.

3,813,581
SPARK IGNITER FOR A PLURALITY OF GAS BURNERS
William Lloyd Hewitt, Harbor City, Calif., assignor to Cam-Stat Incorporated, Los Angeles, Calif.
Filed Sept. 21, 1973, Ser. No. 399,368
Int. Cl. F23q *3/00*
U.S. Cl. 317—96 **5 Claims**



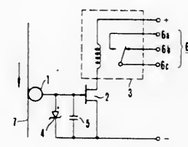
A spark ignition system for a plurality of gas burners providing for operation of a plurality of spark ignition circuits from one a.c. source, with each of the ignition circuits having a voltage multiplier feeding a pulsing circuit which in turn provides ignition pulses to the ignition electrodes, with an isolation diode between the voltage multiplier and pulsing circuit of each ignition circuit.

3,813,582
PRINTED CIRCUIT BOARD VIBRATION SNUBBER
Emanuel Gikow, West Long Branch, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Apr. 3, 1973, Ser. No. 347,603
Int. Cl. H02b *1/02*
U.S. Cl. 317—101 DH **3 Claims**



A printed circuit board that removably plugs into a metal chassis compartment and which supports circuitry whose performance is degraded if the circuit board vibrates in place in the chassis compartment and which is stiffened by a cemented-on backing to resist vibration, and which is nonrepairable due to the presence of the cemented backing, is improved by rendering the cemented-on backing excess through the addition of vibration snubber means in the form of at least one pin that projects through a perforation in the circuit board and is soldered to grounded metal cladding on one face of the circuit board, near its edge opposite that edge along which is mounted the plug-in terminals carried by the circuit board, the pin being designed to firmly abut the opposed partitions of the compartment in which the circuit board is nested.

3,813,583
YARN BREAK DETECTION SYSTEM
Tadashi Akiyama, Yokohama, Japan, assignor to Yamatake-Honeywell Company Limited, Tokyo, Japan
Filed Jan. 29, 1973, Ser. No. 327,375
Claims priority, application Japan, Jan. 28, 1972, 47/10320
Int. Cl. H01h *47/32*
U.S. Cl. 317—148.5 B **5 Claims**

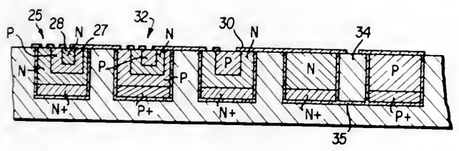


A yarn break detector having a collecting electrode type sensor to which a continuously moving yarn is lightly contacted. A gate electrode of a field effect transistor is connected to the sensor and a relay circuit is connected in series to a drain electrode of the transistor. Normally, the field effect transistor of high input impedance is operated to its one condition by the collected electric charges from the continuously moving yarn. When the yarn break or cutting off occurs, the collected charges on the sensor disappear and then the field effect transistor is changed into its other condition, thereby the relay circuit produces an alarm signal.

3,813,584
SOLID STATE INTEGRATED CIRCUITS

Uryon S. Davidsohn, deceased, late of Scottsdale, Ariz.; Amil J. Ajamie, administrator, 3550 N. Central, 705, Phoenix, Ariz. 85012; John P. Short, 207 Marion; Clyde Combs, Jr., 499 Cinnamon Dr., both of Satellite Beach, Fla. 32937, and Edward E. Guerra, 1983 Downing Ct., Santa Clara, Calif. 95051

Division of Ser. No. 374,132, June 10, 1964, abandoned. This application Oct. 10, 1972, Ser. No. 296,346
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 D **8 Claims**

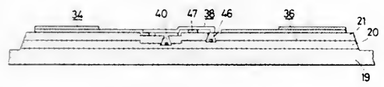


A dielectrically isolated integrated circuit containing at least one polycrystalline resistor between and dielectrically isolated from adjacent single crystal semiconductor islands.

3,813,585
COMPOUND SEMICONDUCTOR DEVICE HAVING UNDERCUT ORIENTED GROOVE

Yasuo Tarui; Yoshio Komiya, both of Tokyo, and Yasoo Harada, Aichi-ken, all of Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Filed Apr. 27, 1971, Ser. No. 137,807
Claims priority, application Japan, Apr. 28, 1970, 45-35904; Sept. 14, 1970, 45-80325
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 R **15 Claims**



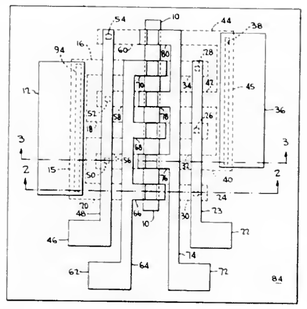
A compound semiconductor device is provided with at least one inwardly splayed groove by a method of etching which takes into account the crystal orientation of the semiconductor material.

3,813,586
MATCHED PAIR OF ENHANCEMENT MODE MOS TRANSISTORS

Michael E. Conner, Long Green, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 7, 1973, Ser. No. 338,794
Int. Cl. H01l *11/00*
U.S. Cl. 317—235 R **7 Claims**

A method and apparatus for matching the DC current-voltage characteristics of two MOS enhancement mode transistors. The method interdigitates pieces of two transistors in such a way that the average characteristic of the two transistors is the same while conserving as much area as possible. The matching of the average characteristic of the two transistors is due to a topological layout that preserves the gates of the transistors in close proximity to one another. The gate oxide for both transistors is deposited in one long continuous strip. The gate electrodes for the two devices are divided into several parallel connected pieces. The pieces of each gate are deposited in alternating positions along the length of the gate oxide. The interconnection of the gates, sources, and drains are then made in such a way so as to keep

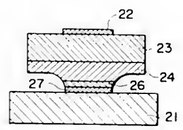


the diffused viae as short as possible thus minimizing the series drain and source resistances. The topology disclosed herein also obviates the need for two layers of metalization.

3,813,587
LIGHT EMITTING DIODES OF THE INJECTION TYPE

Jun-Ichi Umeda; Junio Aiki; Kazuhiro Kurata, all of Hachioji, and Hazime Kusumoto, Tama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 4, 1973, Ser. No. 357,088
Claims priority, application Japan, May 4, 1972, 47-43606
Int. Cl. H05b *33/00*
U.S. Cl. 317—235 N **16 Claims**



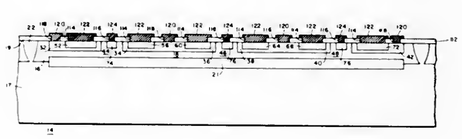
In a PN junction light emitting diode of the injection type comprising a first semiconductor region having a forbidden band width equal at most, to the width of a PN junction forbidden band, a second semiconductor region having a forbidden band width greater than the width of a PN junction forbidden band, and at least one pair of electrodes affixed to each of a P conductive region and an N conductive region, the light extraction efficiency can be greatly increased by constructing the diode so that the sum of the area S_A of the boundary between the first semiconductor region and the second semiconductor region and the bottom area S_C of the electrode mounted on the surface of the second semiconductor region ($S_A + S_C$) is sufficiently smaller than the area S obtained by subtracting the area ($S_A + S_C$) from the total surface area of the second semiconductor region.

3,813,588
EFFICIENT POWER DARLINGTON DEVICE CONFIGURATION

Charles M. Ring, Mesa, Ariz., assignor to Motorola, Inc., Chicago, Ill.

Filed July 9, 1973, Ser. No. 377,484
Int. Cl. H01l *19/00*
U.S. Cl. 317—235 R **5 Claims**

An efficient integrated circuit power Darlington device having first and second rows of emitter subregions. The power Darlington device is substantially elongated, and an elongated collector contact region extends along one side thereof, contacting an extending portion of an elongated buried layer region. In the output power transistor a ballast resistor is positioned between each pair of emitter subregions in the second row, and each of the emitter subregions of a pair is connected to one end of the ballast resistor therebetween, the other end of the ballast resistor being connected to the emitter terminal. A ballast resistor is positioned adjacent each emitter subregion in the first row. Each emitter subregion in the second row is connected to one end of the adjacent ballast resistor, the other end of which is connected to the emitter terminal. The

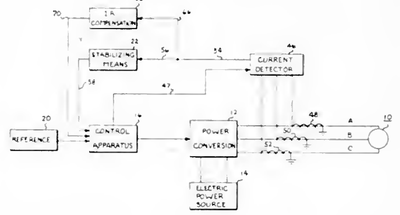


base preohmic region of the output transistor substantially surrounds each of the emitter subregions. The emitter of the input transistor is connected to the base of the output transistor. Low saturation resistance, short base metallization extensions, and high thermal dissipation efficiency are achieved by the structure, providing a device with very high safe operating area.

3,813,589
STABILIZING MEANS FOR AN A-C MOTOR DRIVE

William Knight Boice, Erie, Pa., assignor to General Electric Company, Erie, Pa.

Division of Ser. No. 262,269, June 13, 1972. This application July 19, 1973, Ser. No. 380,597
Int. Cl. H02p *5/40*
U.S. Cl. 318—227 **6 Claims**

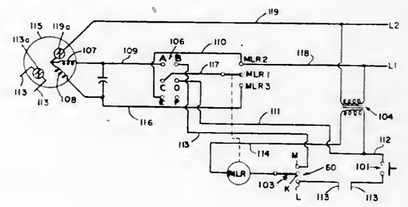


An a-c adjustable speed motor drive system including an a-c motor and power conversion means for converting d-c electric power to adjustable frequency, adjustable voltage electric power for delivery to the motor is provided with stabilizing means for damping motor speed oscillations. The stabilizing means includes apparatus for generating a signal proportional to the component of actual motor current that is in phase with the motor voltage and feedback means responsive to the in-phase signal for generating a stabilizing signal proportional to and phase shifted with respect to oscillations in the in-phase signal related to motor speed oscillations. The stabilizing signal is supplied to and utilized by the control apparatus for the power conversion means to adjust either the output frequency or the output voltage of the power conversion means. The feedback means includes resistive and capacitive elements connected in series between the in-phase signal generating apparatus and the control apparatus.

3,813,590
AUTOMATIC REVERSING CONTROL EQUIPMENT

John W. Ellmore, West Chester, Pa., assignor to Allister Manufacturing Company, Inc., Exton, Pa.

Filed Aug. 31, 1973, Ser. No. 393,283
Int. Cl. H02p *1/42*
U.S. Cl. 318—266 **14 Claims**

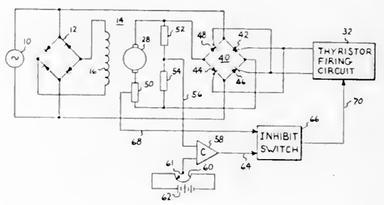


Control equipment for a reversible electric motor for driving a mechanism such as a garage door operator. The control equipment includes a pressure responsive device for moving a movable switch element between first and second motor energizing positions in a circuit. The movable switch element in one of the circuit positions conditions the motor for operation in one direction, and in the other of the circuit positions conditions the motor for operation in another direction. The equipment further includes a relay normally selectively energizable by an operator controlled switch to alternately complete first or second motor energizing circuit paths, depending upon the position of the switch element, to permit movement of the mechanism in the direction desired. In order to reverse the door when it encounters an obstruction, a circuit is provided to the relay which bypasses the operator controlled switch. The pressure responsive device first operates a bypass switch in the bypass circuit and then moves the aforesaid movable switch element to the one of its positions which conditions the motor for operation in a direction reversed to the direction in which the motor was operating at the time the obstruction was encountered. Simultaneously, the movable switch element closes contacts which complete the bypass circuit, thereby energizing the relay to complete the motor circuit causing the motor to operate in the reverse direction. Means are provided for disabling the bypass switch, thereby preventing energization of the relay via the bypass circuit at limits of door travel. First and second thermal cutouts are provided for controlling operation of the motor.

3,813,591
DC MOTOR SPEED CONTROL CIRCUIT

Edward H. Dinger, Waynesboro, Va., assignor to General Electric Company, Salem, Va.

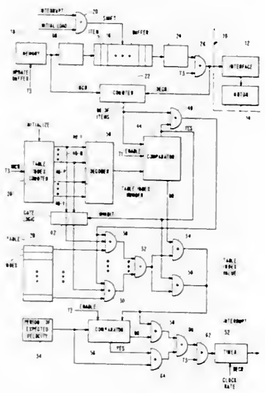
Filed Mar. 6, 1973, Ser. No. 338,615
Int. Cl. H02p *5/00*
U.S. Cl. 318—331 **6 Claims**



A d.c. motor control circuit of the type employing phase controlled semiconductor devices of the controlled rectifier type is provided with suitable feedback means respecting

motor operation. A full wave controlled rectifier bridge supplies power to the motor armature winding from an a.c. source and means are provided for adjusting the phase angle of controlled rectifier firing in response to an error signal derived from true back emf of the motor.

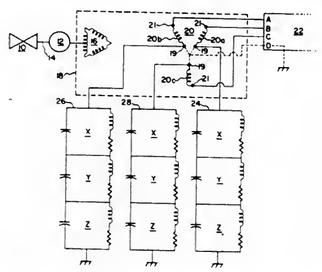
3,813,592
STEPPING MOTOR ACCELERATION AND DECELERATION CONTROL
Arlen W. Ryberg, Excelsior, Minn., assignor to Honeywell Information Systems, Inc., Waltham, Mass.
Filed Aug. 12, 1971, Ser. No. 171,219
Int. Cl. G05b *19/40*
U.S. Cl. 318—696
27 Claims



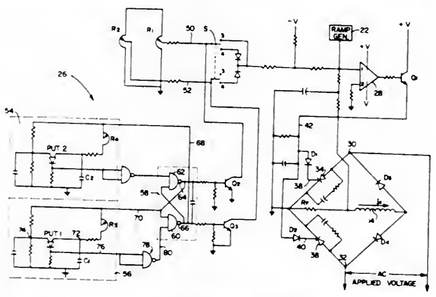
A digital computer is programmed to control the acceleration and deceleration of a stepping motor. A buffer is utilized to indicate the number of times the motor is to be stepped during a specified movement of the motor. A table is utilized to indicate selected periods of time between steps of the motor in order to achieve a selected rate of change of the motor's velocity. The number of the means for indicating, which number is indicative of the number of times the motor remains to be stepped, and the addressed location of the table are updated each time the motor is stepped. Repeated steps of the motor are made after waiting a period of time corresponding to the table location addressed. The motor accelerates, decelerates or rotates at a constant speed depending on the change or lack of change of the table location used.

3,813,593
REDUCTION OF TURBINE GENERATOR SHAFT TORQUES
James B. Tice, and Colin E. J. Bowler, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed May 4, 1973, Ser. No. 357,127
U.S. Cl. 321—9 R
8 Claims

The invention discloses a new and improved means for attenuating and modifying sub-synchronous frequencies in a power transmission system through the use of a power filter comprising a plurality of serially connected, mutually coupled, parallel resonant circuits, wherein the individual parallel resonant circuits are tuned. A power filter is inserted serially in one side of each phase of the power transmission system.

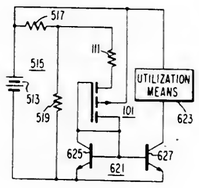


3,813,594
MAGNETICALLY CONTROLLED POWER SUPPLY HAVING PULSATING OUTPUT CURRENT CONTROL
Tibor Endre Toth, Florence, S.C., assignor to Union Carbide Corporation, New York, N.Y.
Filed Apr. 24, 1973, Ser. No. 353,964
Int. Cl. H02m *7/20*
U.S. Cl. 321—18
5 Claims



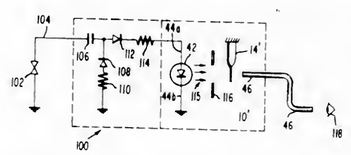
A magnetically controlled arc working power supply having a current control circuit with means for automatically pulsing the control current to produce a pulsating DC output current at an adjustable rate within a frequency range of 1–20 cps.

3,813,595
CURRENT SOURCE
Abel Ching Nam Sheng, Morris Plains, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Mar. 30, 1973, Ser. No. 346,672
Int. Cl. G05f *5/00*
U.S. Cl. 323—4
16 Claims



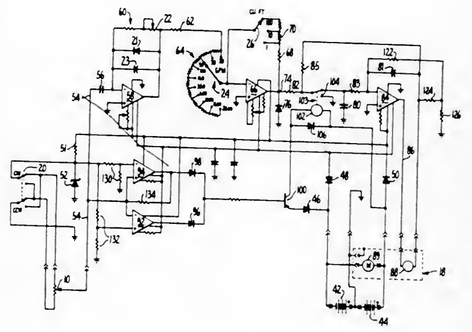
An MOS field-effect transistor having its gate electrode connected to its drain electrode can be used to operate as a constant current device by means of a resistive network placed between its source and substrate electrodes.

3,813,596
MAGNETIC REED SENSOR SUITABLE FOR USE IN IGNITION TIMING SYSTEMS
Leonard Robin Hulls, Marblehead, Mass., assignor to RCA Corporation, New York, N.Y.
Filed Mar. 30, 1973, Ser. No. 346,670
Int. Cl. G01r *13/42*; G01m *15/00*
U.S. Cl. 324—16 R
3 Claims



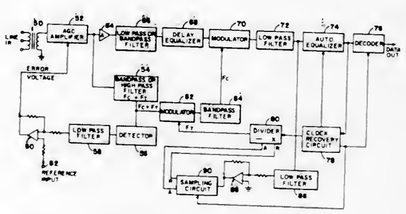
A magnetic reed sensor comprises a generally U-shaped permanent magnet having first and second end poles defining a gap of a given distance therebetween and establishing a magnetic flux path thereacross. A reed of flexible magnetic material is fixedly mounted at one end to a support with its other end forming a cantilever projection into the magnetic flux path wherein the flux path is normally symmetrically disposed about the reed. An external ferromagnetic material moved in proximity to said symmetric flux path, creates an unbalanced flux distribution which urges the reed toward one of the pole pieces. One embodiment includes a light source and a light pipe each mounted in opposite directions from the reed so that an optical path is completed between the light source and the light pipe in response to movement of the reed. The magnetic reed sensor then serves as a light shutter which is used in conjunction with an automotive engine to provide an optical indication of the relative timing of the engine.

3,813,597
TACHOMETER FOR LOW SPEED MEASUREMENT
Richard M. Le Vitt, Albany, Calif., assignor to East Bay Municipal Utility District, Oakland, Calif.
Filed Jan. 5, 1973, Ser. No. 321,398
Int. Cl. G01p *3/42*
U.S. Cl. 324—176
5 Claims



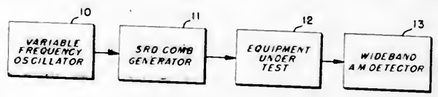
A tachometer is provided which is capable of detecting and/or recording very low rates of revolution. A typical application of the tachometer is described in conjunction with a flow rate recorder for a water meter.

3,813,598
SINGLE TONE CARRIER RECOVERY SYSTEM
Richard L. Stuart, Beltsville, Md., assignor to Rexon Electronics, Inc., Silver Spring, Md.
Filed Aug. 16, 1971, Ser. No. 172,090
Int. Cl. H04b *1/68*
U.S. Cl. 325—49
11 Claims



A data communication carrier recovery system wherein a single tone is added to the information spectrum to be transmitted to provide carrier recovery and "phase jitter" tracking. At the receiver, the transmitted spectrum is filtered to remove the tone prior to demodulation, demodulation being accomplished by multiplying the filtered signal by the recovered carrier to translate the spectrum back to baseband. The carrier is recovered by modulating the tone frequency by a subdivided recovered clock frequency. To provide jitter immunity the coherent carrier is made to exactly track the phase jitter by equalizing path delays so as to eliminate any variation in delay or phase between the recovered carrier and the carrier frequency present in the line signal. Three different carrier phase correction schemes are disclosed.

3,813,599
BANDWIDTH MEASUREMENT SYSTEM
Kenneth J. Campbell, Solana Beach, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 4, 1973, Ser. No. 366,805
Int. Cl. H04b *1/00*
U.S. Cl. 325—67
4 Claims

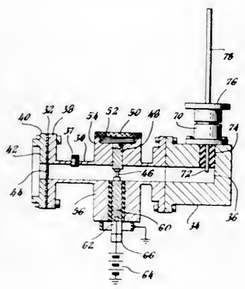


A signal source producing signals of selectively determinable variations in repetition frequency drives a step-recovery diode circuit for generating signals having spectral frequency distributions varying in response to changes in the repetition frequency. The spectrally distributed signals are impressed upon the circuit under test and a wide band amplitude modulation detector is connected to the output of the circuit under test. As the pulse repetition frequency is gradually changed, the output of the detector is observed, and the highest pulse repetition frequency producing signals detectable by the detector is a measure of the bandwidth of the circuit under test.

3,813,600
MODULATED MICROWAVE SOURCE
Leonard D. Cohen, Brooklyn, N.Y., assignor to GTE Laboratories Incorporated, Waltham, Mass.
Filed Aug. 31, 1971, Ser. No. 176,455
Int. Cl. H04b *1/00*
U.S. Cl. 325—126
1 Claim

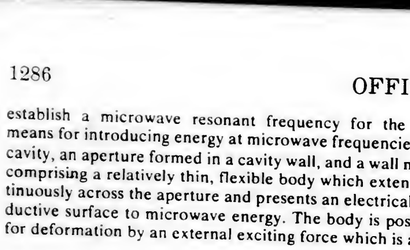
A microwave modulator comprises a microwave resonant cavity having a relatively rigid wall and dimensions which

establish a microwave resonant frequency for the cavity, means for introducing energy at microwave frequencies to the cavity, an aperture formed in a cavity wall, and a wall member comprising a relatively thin, flexible body which extends continuously across the aperture and presents an electrically conductive surface to microwave energy. The body is positioned for deformation by an external exciting force which is applied



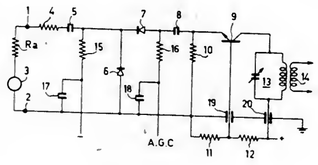
to an externally exposed surface of the body. The exciting force which deforms the flexible body causes a variation in the physical dimensions and in the resonant frequency of the cavity. The resonant frequency pre-established by the dimensions of the resonant cavity are therefore varied in accordance with the variations in the deformation of the body and microwave energy at the predetermined resonant frequency is modulated accordingly.

3,813,601
DIGITAL TRANSMISSION SYSTEM
Adole Reindl, Wayside, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Continuation-in-part of Ser. No. 177,032, Sept. 1, 1971. This application Mar. 29, 1973, Ser. No. 346,196
Int. Cl. H04b *1/04*
U.S. Cl. 325—141 **5 Claims**



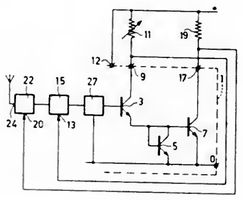
A digital transmission system which transmits quantized values of the extremal points of an analog wave. The system includes a PCM encoder and an extremal detector for generating n-bit binary coded representations of the input extremal voltages. During each clock period in which an extremal point is detected, m of the most significant PCM bits are transmitted along with a control bit to indicate that an extremal point was detected. Simultaneously the n-m least significant bits are stored in a first-in-first-out buffer. During clock periods in which an extremal point is not detected, a set of m bits are transmitted from the buffer along with a control bit which signifies that an extremal point was not detected in that clock period.

3,813,602
INPUT CIRCUIT FOR A TELEVISION TUNER
Adalbertus Hermanus Jacobus Nieveen Van Dijum, and Teunis Hermanus Uittenbogaard, both of Mollenhutseweg, Nijmegen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed June 2, 1971, Ser. No. 149,188
Claims priority, application Netherlands, June 6, 1970, 7008273
Int. Cl. H04b *1/18*; H03f *1/00*
U.S. Cl. 333—81 R **7 Claims**



A television tuner having an AGC controlled PIN-diode attenuator between the aerial terminals and the first transistor. The attenuator is formed in such a manner that its output impedance in case of continuing control deviates to an increasing extent from the transistor input impedance so that a considerable improvement of the signal-to-noise ratio is obtained.

3,813,603
INTEGRATED THRESHOLD CIRCUIT FOR STAGES WITH DIFFERENT CONTROL RANGES
Adriaan Cense, and Jan Van Straaten, both of Nijmegen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 22, 1972, Ser. No. 228,169
Claims priority, application Netherlands, Mar. 6, 1971, 7103018
Int. Cl. H04b *1/16*
U.S. Cl. 325—319 **5 Claims**

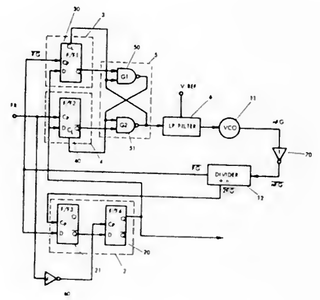


An integrated threshold circuit for an automatic gain control circuit in a television receiver in which the possibility of a very limited number of connecting terminals is created without limiting the adjusting possibilities by a series arrangement of the emitter of a first transistor with the parallel arrangement of a diode and the base-emitter junction of a second transistor.

3,813,604
DIGITAL DISCRIMINATOR
Gilles J. Denoncourt, St. Dorothee, Quebec, Canada, assignor to Canadian Marconi Company, Montreal, Quebec, Canada
Filed Oct. 4, 1972, Ser. No. 294,968
Int. Cl. H03d *3/18*
U.S. Cl. 329—122 **1 Claim**

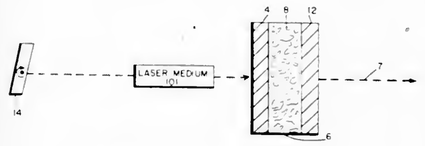
The disclosure relates to a phase and frequency discriminator which is especially adaptable to digital communication receiver systems. The discriminator consists of a duty cycle generator having two input terminals. Each one of the terminals is fed from a different pulse generator, and one of the

pulse generators is activated by the input signal while the other is activated by the second input signal. One of the pulse generators activates the duty cycle generator while the other one deactivates it. Thus, the output of the duty cycle generator is a signal whose duty cycle is proportional to the phase



relation between the two signals. In accordance with the disclosure, if the second signal is derived from a VCO whose input is controlled by the duty cycle, the second signal is brought into phase and frequency synchronism with the first signal.

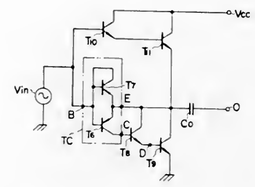
3,813,605
BISTABLE OPTICAL DEVICE
Abraham Szoke, Tel Aviv, Israel, assignor to Massachusetts Institute of Technology, Cambridge, Mass.
Division of Ser. No. 93,548, Nov. 30, 1970, abandoned. This application Nov. 7, 1972, Ser. No. 304,493
Int. Cl. H01s *3/05*
U.S. Cl. 330—4.3 **2 Claims**



A Fabry-Perot cavity containing a saturable absorber is placed in combination with a parallel monochromatic coherent light source, a laser, such that the light beam emitted by the laser impinges on a reflecting mirror of the cavity. For a certain range of laser intensities there are two possible values of the output of the Fabry-Perot cavity thereby forming a bistable optical device. This apparatus is utilized to generate short pulses with high peak power, to produce variable length optical pulses, and to perform logical operations including memory functions on optical signals.

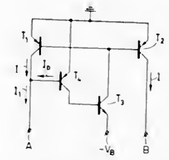
3,813,606
TRANSISTOR CIRCUIT
Yoshio Sakamoto, and Shinsuke Iguchi, both of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed June 30, 1972, Ser. No. 268,078
Claims priority, application Japan, July 9, 1971, 46-59538
Int. Cl. H03f *3/18*
U.S. Cl. 330—13 **10 Claims**

A transistor circuit suitable for a quasi-complementary circuit comprises first and second lateral type PNP transistors wherein both the emitter electrodes are connected in common, both the base electrodes are connected with the collec-



tor electrode of the second transistor, and an input signal is applied to the base electrodes.

3,813,607
CURRENT AMPLIFIER
Johannes Otto Voorman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.
Filed Oct. 18, 1972, Ser. No. 298,760
Claims priority, application Netherlands, Oct. 21, 1971, 7114470
Int. Cl. H03f *3/18*
U.S. Cl. 330—17 **9 Claims**



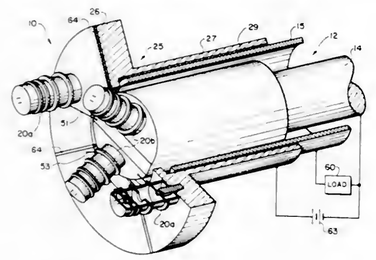
Circuit arrangement providing a constant current amplification which is determined by the ratio between the emitter surface areas of a first and a second transistor of one conductivity type, the first transistor passing the input current and the second transistor passing the output current. The base currents for these transistors are supplied by a third transistor of the other conductivity type the base of which is connected to the collector of a fourth transistor of the one conductivity type in common emitter connection the base of which is connected to the input. This method of driving ensures a high degree of accuracy and also permits the use of a small supply voltage. The circuit may be used to particular advantage in a current stabilizer.

3,813,608
AMPLIFIER DEVICE
Maurice Weiner, Ocean Township; John L. Carter, Ocean, and Sol Schneider, Little Silver, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Mar. 6, 1973, Ser. No. 338,477
Int. Cl. B03f *3/10*
U.S. Cl. 330—34 **7 Claims**

An electron beam semiconductor amplifier device having at least one array of parallelly connected, back-biased semiconductor target diodes of impedance low compared with that of the amplifier load disposed along a wave energy transmission means at a region thereof of impedance substantially equal to that of each of the target diodes. Each diode is disposed within a separate electron discharge device which further contains an electron gun and beam modulating means for directing a high energy, current-modulated electron beam onto said enclosed target diode. Each said electron discharge device has a portion extending externally of the grounded envelope for removably

mounting said electron discharge device to an enlarged

mounting said electron discharge device to an enlarged portion of one of the conductors of the transmission means. The beam electrons from each separate electron discharge device penetrate into the depletion region of the diode adjacent the bombarded surface. The interaction of the beam with the semiconductor diodes in each of the electron discharge devices produces an amplified current in a load circuit common to said diodes which is a function of the electron beam

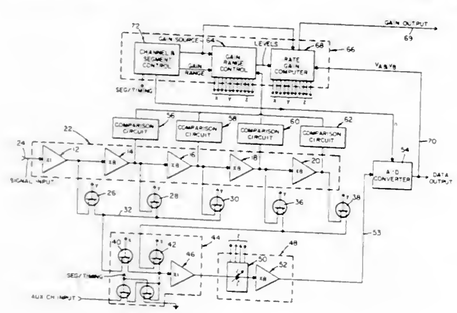


current in that electron discharge device. Wave energy generated by the current induced in each of the diodes by the impinging electron beam in the several electron discharge devices propagates along the transmission means to the load. The impedance of the transmission means can be varied progressively as the load is approached, to facilitate impedance matching of the low impedance diodes and the amplifier load.

3,813,609
MULTIPLE STAGE SAMPLE NORMALIZING AMPLIFIER WITH AUTOMATIC GAIN PREDICTION

Don Earl Wilkes, Houston; Charles Larry Thompson, Stafford, and Alan Fred Sedgwick, Houston, all of Tex., assignors to Petty-Ray Geophysical, Inc., Houston, Tex.

Filed Nov. 27, 1972, Ser. No. 309,653
Int. Cl. H03g *3/22*
U.S. Cl. 330—51 **18 Claims**

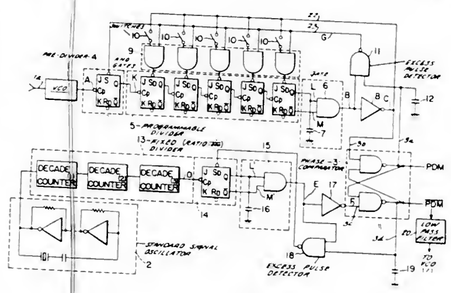


A series of fixed gain amplifier stages is selectively coupled by respective electronic switch means to pick-off amplifier means A comparison circuit is coupled between the output of each amplifier stage and amplifier control means. The amplifier control means includes a gain range control circuit which allows the amplifier to gain range continuously during selected portions of a given channel time period, i.e., continuously which selects the highest possible amplifier gain at which the amplifier output is in a linear region. The stages are continuously and selectively coupled to the pick-off amplifier means by the electronic switch means, in response to the gain range control circuit. The control means further includes a rate gain computer circuit coupled to the gain range control circuit and to an analog-to-digital converter, wherein the rate gain computer circuit provides gain prediction means for determining the gain of the amplifier at a subsequent selectable data sample time or times. The amplifier is allowed to gain range in response to the gain range control circuit prior to performing the gain prediction process, whereupon the rate gain computer circuit overrides the gain range control circuit and sets the electronic switch means to select the amplifier stage commensurate with the predicted gain prior to taking the data sample.

3,813,610
PHASE-LOCKED LOOP IN WHICH FREQUENCY DIVIDER RATIOS ARE ALTERED TO OBTAIN RAPID LOCK-IN

Masahiro Kimura, 6-1-246, 2 chome, Wakamatsu-Cho, Funabashi, Japan

Filed Feb. 14, 1973, Ser. No. 332,339
Claims priority, application Japan, Mar. 8, 1972, 47-023859
Int. Cl. H03b *3/04*
U.S. Cl. 331—1 A **10 Claims**

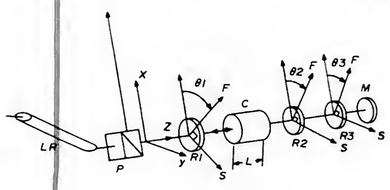


A phase locked loop for maintaining a voltage controlled oscillator within the locked-in range by means of excess pulse detectors provided for both high or low frequency deviations which function to significantly alter the dividing ratios of the dividing circuits respectively coupled to the voltage controlled oscillator and the standard signal oscillator to effect a rapid return to the locked-in state.

3,813,611
METHOD AND DEVICE FOR THE REALIZATION OF A NON-LINEAR RELEASE OF ENERGY IN HIGH POWER LASERS

Lars Erik Dahlstrom, Royal Institute of Technology, 100 44 Stockholm, Sweden

Filed Nov. 3, 1972, Ser. No. 303,346
Claims priority, application Sweden, Nov. 5, 1971, 14132/71
Int. Cl. H01s *3/11*
U.S. Cl. 331—94.5 Q **8 Claims**



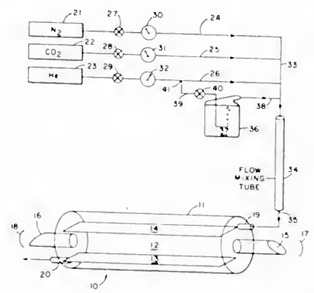
Several embodiments of a device for the non-linear release of energy from a laser cavity of the high power type is

described. In each a laser is connected to a release unit which includes a Glan prism, a Kerr-active medium and several retardation elements arranged to achieve the intended purpose.

3,813,612
METHOD AND APPARATUS FOR ENHANCING ELECTRICAL DISCHARGES IN GAS LASERS

Richard L. Schriever; Harold R. Johansen, both of Livermore, and Richard E. Sandy, Stevinson, all of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 18, 1973, Ser. No. 324,601
Int. Cl. H01s *3/22*
U.S. Cl. 331—94.5 G **8 Claims**

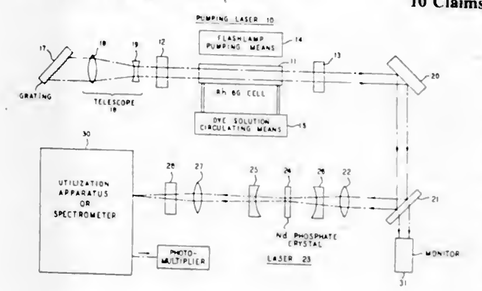


A method and apparatus for enhancing electrical discharges in gas lasers by adding small amounts of a low ionization potential gas to the main lasing gas mixture. The additive does two things: (1) allows a d.c. high pressure discharge, and (2) allows enhanced pulsed operation (i.e., double discharge). The enhancement method is particularly applicable to double discharge gas lasers utilizing gaseous lasing mixture of $He/N_2/Co$, for example, at atmospheric pressures, wherein the addition of an organic gas additive to the lasing mixture suppresses arcing and increases current. The method is carried out by metering small amounts of the additive into a flowing stream of lasing gaseous media, or by addition of the additive gas to a static volume of lasing gas.

3,813,613
LASER EMPLOYING A METALLIC PENTAPHOSPHATE

Hans Guenter Danielmeyer, Baden-Wurttemberg, Germany, and Heinz Paul Weber, Middletown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation-in-part of Ser. No. 220,448, Jan. 24, 1972, abandoned. This application Apr. 2, 1973, Ser. No. 347,189
Int. Cl. H01s *3/16*
U.S. Cl. 331—94.5 **10 Claims**

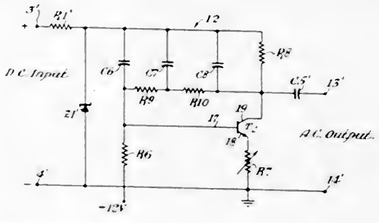


There are disclosed various embodiments of a laser in which the dielectric active medium is a rare earth pentaphosphate, for example, neodymium pentaphosphate. The neodymium pentaphosphate laser uses a crystal that is smaller than would be physically possible in prior art neodymium lasers. Another laser of this type employs a mixed crystal of neodymium pentaphosphate and lanthanum pentaphosphate and has the unusual property that no resonator is needed other than its naturally grown end surfaces. Both pulsed and continuous-wave lasers of this type have been operated. The crystals useful in the new lasers are practically insoluble in the more common solvents, are typically transparent from the ultraviolet into the far infrared except for the metal's absorption bands and have higher fluorescence efficiencies and narrower linewidths than would be expected for materials with such a high concentration of fluorescent ions.

3,813,614
A FAIL-SAFE R-C PHASE SHIFT OSCILLATING TYPE OF LEVEL DETECTOR

John O. G. Darrow, Murrysville, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Division of Ser. No. 1,970, Jan. 12, 1970, , Continuation of Ser. No. 706,914, Feb. 20, 1968, abandoned. This application Sept. 7, 1972, Ser. No. 287,103
Int. Cl. H03b *5/20*
U.S. Cl. 331—108 B **6 Claims**



A fail-safe level detector comprising a regenerative feedback oscillator and a voltage breakdown device interconnecting the output and common electrodes of the oscillator so that sufficient feedback for sustaining oscillations only occurs when a D.C. input causes the breakdown device to conduct and to assume its low dynamic impedance condition.

3,813,615
LOCAL OSCILLATOR FOR TELEVISION TUNER HAVING REDUCED OSCILLATION VOLTAGE VARIATION BETWEEN HIGH AND LOW FREQUENCY BANDS

Mitsunari Okazaki, Soma, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

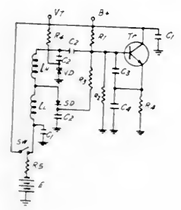
Filed July 13, 1973, Ser. No. 379,115
Claims priority, application Japan, July 28, 1972, 47-75683
Int. Cl. H03b *3/02, 5/12*
U.S. Cl. 331—109 **11 Claims**

A local oscillator circuit for a television tuner or the like includes a transistor and an oscillatory circuit connected thereto. Selector means are connected to the oscillatory circuit to cause the oscillatory circuit to operate at low and high band frequencies respectively. Separate biasing means are provided to bias the transistor at first and second voltage levels respectively, and bias control means are connected to the selector means to connect the appropriate biasing means to the transistor when the selector means adapts the oscillatory circuit to operate at a high band or a low band frequency. The bias control means comprises a switching diode connected between ground and the dividing point of high and low frequency band coils of the oscillatory circuit. A negative volt-

age source is connected through a high resistance to an end of the low band coil. The selector means

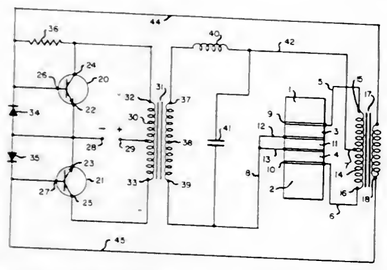
of which receives signals from said

age source is connected through a high resistance to an end of the low band coil. The selector means comprises a switch controlled by the channel selector shaft of the tuner and is



disposed between the end of the low band coil and a power source to control the switching diode such that the transistor bias voltage is regulated in accordance with the mode of operation of the circuit.

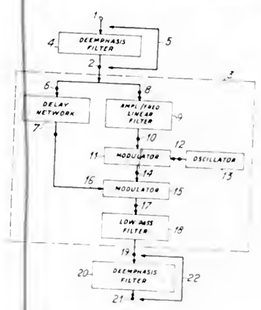
3,813,616
ELECTROMECHANICAL OSCILLATOR
John N. Antonevich, Jamestown, N.Y., assignor to Blackstone Corporation, Jamestown, N.Y.
Filed Mar. 22, 1973, Ser. No. 343,846
Int. Cl. H03b *5/36*
U.S. Cl. 331—116 R **5 Claims**



An electromechanical oscillator comprises an electronic amplifier driving an electromechanical transducer which includes a pair of like transducer units affixed to a bar having with the transducers natural frequencies of vibration. The units are affixed so that one of them is nearer a node than the other. An impedance is connected in series with each transducer unit, and the two series circuits are connected in parallel. The voltage across the two transducer unit-impedance junctions is fed back into the input of the electronic amplifier.

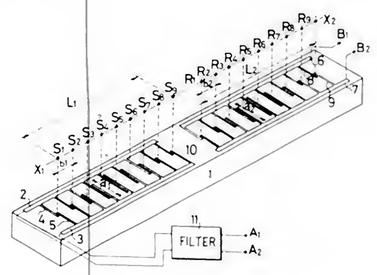
3,813,617
FREQUENCY TO AMPLITUDE MODULATED WAVE CONVERTER
Pierre J. Blancheville, Courbevoie; Guy Brun, Rennes, and Pham Tat Dat, Bagneux, all of France, assignors to Office De Radiodiffusion-Television Francaise, Paris, France
Filed Feb. 23, 1973, Ser. No. 335,299
Claims priority, application France, Feb. 28, 1972, 72.06662
Int. Cl. H03c *1/00*
U.S. Cl. 332—31 R **8 Claims**

A device for direct conversion of a frequency-modulated wave having a zero-modulation frequency f_1 into an amplitude-modulated wave having a carrier frequency f_o. It comprises two circuits having a common input, the first of which includes a first amplitude modulator carrier-supplied by a local oscillator of frequency f_o and has its output fed to one of the inputs of a second amplitude modulator, the other output of which receives signals from said common input through the second of said circuits. The output of the second modulator is connected to a load circuit through a low-pass filter. The device is further characterized in that one of said circuits in-



cludes a frequency filter having a transmission coefficient linearly varying as a function of frequency in the vicinity of frequency f_1, while the other channel includes a delay network.

3,813,618
SURFACE WAVE ELECTROMECHANICAL FILTER
Pierre Hartemann, and Eugene Dieulesaint, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed July 13, 1972, Ser. No. 271,231
Claims priority, application France, July 16, 1971, 71.26189
Int. Cl. H03h *9/26*
U.S. Cl. 333—72 **7 Claims**

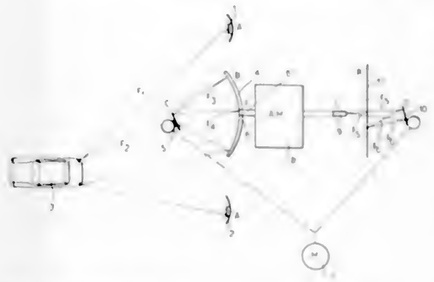


The invention relates to a narrow band surface wave electromechanical filter, comprising arrays of radiator elements constituted by two sets of comb-shaped electrodes deposited upon the surface of a piezoelectric substrate; one of said arrays serves to excite vibrational surface waves, and the other serves to receive them; the spacing of the radiator elements is constant in each array and equal to a whole number of times the mean wavelength of operation and are either equal, or different from one another, in the two arrays; this results in a high performance narrow band filtering device.

3,813,619
CURRENT-LIMITING CIRCUIT BREAKER
Leonide P. Koval, Far Rockaway, N.Y., assignor to General Electric Company, New York, N.Y.
Filed May 18, 1962, Ser. No. 195,739
Int. Cl. 401h *81/04*
U.S. Cl. 335—16 **4 Claims**

A circuit breaker including means for causing opening of the circuit therethrough upon the occurrence of (1) overload

current conditions existing for a predetermined time, and (2) minor short-circuit conditions, and also including means



providing a current-limiting action upon the occurrence of predetermined short-circuit conditions above a predetermined level.

3,813,620
MICROMINIATURE POLARIZED RELAY
Russell M. Adkins, Bateshurg, S.C., assignor to Westinghouse Air Brake Company, Swedesvale, Pa.
Filed Nov. 21, 1972, Ser. No. 308,494
Int. Cl. H01h *51/27*
U.S. Cl. 335—78 **10 Claims**



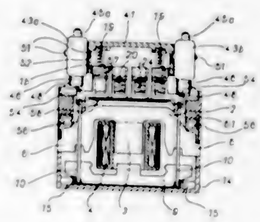
A microminiature polarized relay for sensing a given polarity of voltage includes an electromagnet and a pivotal armature movable between a first and a second position

The above change was made only to improve the form of the case. The electromagnet includes a magnetic frame, a core member, an energizable coil, and a magnetic shunt. Normally, the magnetic shunt exhibits a low value of reluctance when the coil of the electromagnet is not energized by the given polarity of voltage so that the armature normally assumes the first position. However, the magnetic shunt exhibits a high value of reluctance when the coil of the electromagnet is energized by the given polarity of voltage so that the armature moves to its second position. The movement of the armature causes the positions of a plurality of movable and stationary contacts to change so that a transfer switching action occurs

---

3,813,621
ALTERNATING-CURRENT PROTECTIVE DEVICE
Alex Blum, Suhr, Switzerland, assignor to Sprecher & Schuh AG, Aarau, Switzerland
Filed Aug. 29, 1973, Ser. No. 392,787
Claims priority, application Switzerland, Oct. 16, 1972, 15071/72
Int. Cl. H01h *51/30*
U.S. Cl. 335—99 **8 Claims**

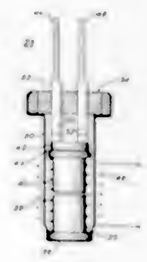
An alternating-current protective device comprising a housing, and a series of contact elements fixedly arranged in said housing, said fixedly arranged contact elements having movable contact bridges. A traverse serves for actuating said movable contact bridges. There is provided at least one separate contact element incorporating a contact element housing and a movable contact bridge. A plunger extends out of the contact element housing for actuating the movable contact bridge of said separate contact element. The separate contact element is positionable in the protective housing in a first position and in a second position turned through 180° with respect to the first position. The plunger of the separate contact element bears against an impact surface of the traverse. The plunger has two end surfaces arranged behind one another to define a front end surface and a rear end surface. These end surfaces are arranged at the plunger with respect to the impact



surface such that in the one position of the separate contact element the front end surface bears against the impact surface of the traverse for the early actuation of the separate contact element and in the other position of said separate contact element the rear end surface bears against the impact surface of the traverse for the late actuation of such separate contact element

---

3,813,622
AXIAL MOTION MAGNETICALLY ACTUATED SWITCH
Richard C. Remington, 10 Van Riper Ave., Pompton Plains, N.J. 07444
Filed Jan. 9, 1973, Ser. No. 322,107
Int. Cl. H01h *51/28*
U.S. Cl. 335—151 **1 Claim**

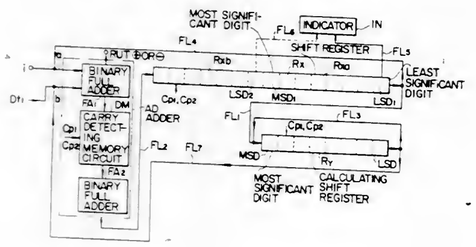


An axial motion switch which consists of a magnetic material armature attached to an end cap of a sealed vessel by means of a spring, flexible contact wire, or the like. The other end of the sealed vessel is provided with a magnetic, internally extended end cap which forms a pair of contacts with the free end of the armature. The two end caps are electrically insulated from each other by using a vessel of insulating material, such as glass or a metal vessel suitably insulated from the end caps. When the vessel is placed in a magnetic field of correct orientation, the armature is attracted axially by mutual magnetic pole induction to the internally extending end cap and the contact therebetween causes a low electrical resistance path to exist between the end caps of the switch device

3,813,623
SERIAL BCD ADDER
Kosei Nomiya,

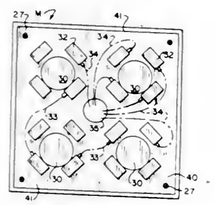
3,813,625
ELECTROMAGNETIC

3,813,623
SERIAL BCD ADDER
Kosei Nomiya, and Takao Tsuiki, both of Tokyo, Japan, assignors to Hitachi Ltd., Tokyo, Japan
Filed Dec. 21, 1972, Ser. No. 317,303
Claims priority, application Japan, Dec. 24, 1971, 46-104579
Int. Cl. G06f 7/50
U.S. Cl. 235—176
9 Claims



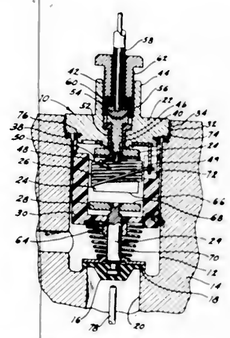
A digital processing system wherein a binary-coded decimal full adder forms along with a display shift register a loop-like circuit for circulating information signals. The system provides a series synchronism system which reduces the number of circuit elements.

3,813,624
MAGNETIC LOCK SWITCH
Ronald S. Deitch, 7695 E. Quincy, Apt. No. 207, Denver, Colo. 80237
Filed Apr. 9, 1973, Ser. No. 349,488
Int. Cl. H01h 41/14
U.S. Cl. 335—206
15 Claims



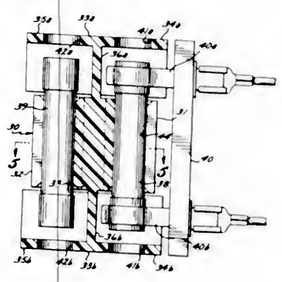
A magnetic lock switch for closing a circuit by means of a magnetic key. The switch is formed as a small packet having a flat face plate at one side. A plurality of shiftable magnets are carried within this packet adjacent to the face plate and each magnet is surrounded by a group of posts. A selected pair of adjacent posts in each group is electro-conductive and is connected to circuit wires. The magnet is electro-conductive at least at its peripheral edge so that whenever it is shifted to engage the two selected posts, it will act as a switch to close the circuit. By selecting various pairs of posts at the different magnet positions, a number of lock combinations are possible. The key is a flat member adapted to lie alongside the face plate of the packet and includes a magnetic component within it for each shiftable magnet within the packet. These components are located to shift the magnets to circuit closing positions.

3,813,625
ELECTROMAGNET WITH DETACHABLE CASTING AND NON-ROTATABLE ARMATURE
Howard R. Kinsella, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Feb. 21, 1973, Ser. No. 334,258
Int. Cl. H01f 7/16
U.S. Cl. 335—263
6 Claims



A thermocouple-energized electromagnet having a casing comprising a metal base and a molded plastic cover detachably connected thereto and conveniently removable to permit cleaning of the armature and pole faces. A yoke and winding are fixed to the base and a non-circular armature is slidably mounted in the cover. A non-circular interior cover wall surface prevents rotation of the armature, and a recess in the cover wall receives an element fixed to the base to insure that the cover is always replaced in the same angular relation to the yoke.

3,813,626
FUSE RETAINER AND EXTRACTOR
Henry A. Cetola, Yorba Linda, and Timothy J. Crosby, Anaheim, both of Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 15, 1972, Ser. No. 315,327
Int. Cl. H01h 85/14
U.S. Cl. 337—245
9 Claims



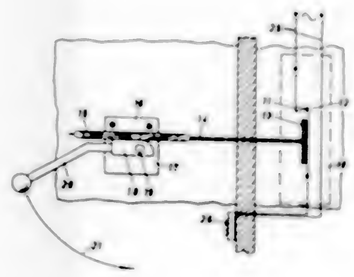
A fuse holder constructed from a dielectric material which is also elastic or partly elastic, such as plastic, formed to provide a cylinder split longitudinally and chamfered at either end to receive a cartridge fuse, such cylinder having attached thereto a handle to facilitate grasping of the fuse holder. At the distal ends, the handle extends to form insulating chambers partly surrounding the respective connector end caps of the fuse and opening along one lateral surface thereof to receive the corresponding spring clips of a fuse clip. The distally opposite surfaces of the respective housings are pierced to form openings concentric with the axis of the cylinder, said openings being sized to pass the fuse into the interior cavity of the cylinder. In another embodiment, the handle is formed to provide a second fuse holder substantially shaped in a similar manner as the first fuse holder, for holding a spare fuse for replacement.

3,813,627
CURRENT LIMITING FUSE HAVING IMPROVED LOW CURRENT INTERRUPTING CAPABILITY
Robert E. Koch, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.
Filed June 11, 1973, Ser. No. 369,051
Int. Cl. H01h 85/38
U.S. Cl. 337—274
6 Claims



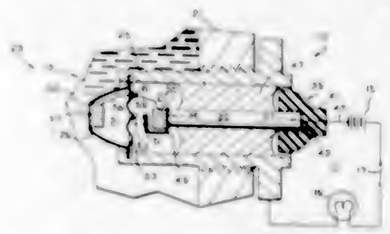
This current limiting fuse employs auxiliary spark gaps adjacent fusion points of at least one main fuse element for the purpose of reliably melting additional series arc gaps in that main fuse element when the fuse is subjected to a low magnitude overload current.

3,813,628
SAFETY DEVICE FOR SAUNA ROOMS
Sven Olof Jansson, Svarvaregatan 6, 302 50 Halmstad, Sweden
Filed July 18, 1973, Ser. No. 380,226
Claims priority, application Sweden, July 18, 1972, 9426/72
Int. Cl. H01h 3/24
U.S. Cl. 337—322
5 Claims



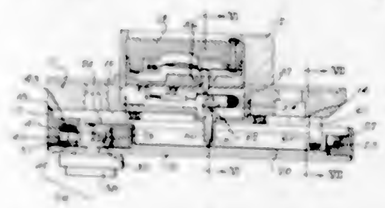
The control device for an electrically heated sauna room includes a liquid filled temperature sensing body located inside the sauna room and communicating with the control device proper located outside the room. The sensing body is made of elastically deformable material and may, in case of accident, be compressed by means of a lever, thus bringing about an immediate action upon the control device for breaking the current supply.

3,813,629
TEMPERATURE COMPENSATED FLUID LEVEL SENSOR
Nikolaus A. Szeverenyi, and David F. Thompson, both of Warren, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.
Filed Jan. 5, 1973, Ser. No. 321,133
Int. Cl. G08b 21/00
U.S. Cl. 337—324
8 Claims



There is described an apparatus for detecting the presence or absence of fluid. The apparatus comprises an electrical circuit and a sensor device electrically joined to the circuit. The sensor device comprises a housing member defining a first chamber, a tip member secured to the housing and forming a second chamber adjacent said first chamber, a diaphragm member forming a common closure for both chambers, heating means within the second chamber, a first contact within the first chamber, and a second contact affixed to the diaphragm also within the first chamber. This second contact is adapted for engaging the first contact when the temperature difference between the two chambers exceeds a predetermined level.

3,813,630
THERMOSTAT
James Welland Dalzell, 624-14th St., East, Brandon, Manitoba, Canada
Filed May 21, 1973, Ser. No. 362,228
Int. Cl. H01h 37/12
U.S. Cl. 337—360
9 Claims



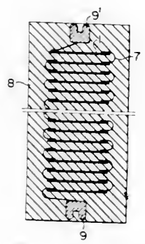
An ON, OFF switch for a load is controlled by a primary bimetallic plate or other temperature sensor, such as an hydraulic bulb. In addition to sensing the temperature of the controlled space, the primary sensor receives heat from a heater in series with the load or from the switch during the ON condition. A mechanical transmission interconnects the primary sensor and the switch. Connected in such transmission so as to be able to vary its effective length, is a secondary bimetallic plate or other temperature sensor. This secondary sensor receives from the switch some of the heat generated thereon by passage of the load current. In this way the secondary sensor at least in part compensates for the effect on the switch of the heating of the primary sensor. The advantage of this arrangement is reduction of "droop". There is a heater for heating the secondary sensor in the OFF condition of the switch. The combined effect of the two heaters and the two sensors is to enable a relatively high cycle rate and small "room swing" to be obtained at the same time as a relatively small "droop".

3,813,631
HIGH RESISTANCE RESISTOR

3,813,631
HIGH RESISTANCE RESISTOR DEVICE FOR DC HIGH VOLTAGE CIRCUITS

Youichi Matsuda, Hitachi; Hiroshi Suzuki, Hitachi; Nobuhiko Shito, Hitachi, and Yasushi Saito, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 25, 1973, Ser. No. 382,336
Claims priority, application Japan, Aug. 9, 1972, 47-79123; Aug. 9, 1972, 47-79124
Int. Cl. H01c 1/02
U.S. Cl. 338—320
5 Claims

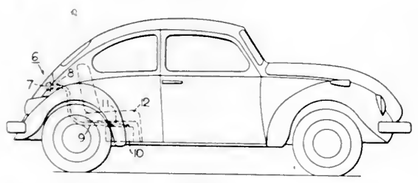


A high resistance resistor device for d.c. high voltage circuits in which a suitable number of film resistor elements required for providing the desired resistance value are electrically connected in series and are molded as a unit with an adhesive thermo-setting resin composition. Each film resistor element includes a linear resistive film consisting of a plurality of rectilinear portions formed on a refractory insulating substrate and a plurality of portions connecting the opposite ends of the rectilinear portions in series. The resistor film is coated with a glass layer for protection. These film resistor elements are superposed and spaced from each other by a predetermined distance, and the adhesive thermo-setting resin composition covers the surfaces of the film resistor elements for electrically insulating the resistive films of these elements from each other.

3,813,632
ADAPTER FOR A VEHICLE HAVING A BUILT-IN DIAGNOSTIC SYSTEM

Hugh S. Drewry, Wauwatosa, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 4, 1972, Ser. No. 311,888
Int. Cl. H01r 33/00, 13/64
U.S. Cl. 339—10
4 Claims

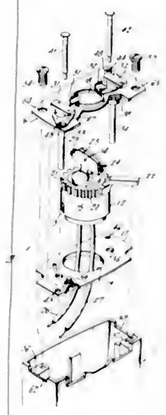


A family of adapters for a vehicle having a built-in diagnostic system utilizing a multi-wire electrical cable providing a plurality of connections to the operating parts of the vehicle. The cable terminates in a connector located in an accessible position on the vehicle to which the diagnostic machine is connected. Each adapter is provided with special elements to engage only that portion of the connector which is electrically connected to the particular operating parts of the vehicle to be tested. The adapter is provided with exposed conventional terminals constructed and arranged to permit connection to a conventional test or repair instrument for the particular operating part of the vehicle.

3,813,633
POWER TAP FOR CONTINUOUS OUTLET DUCT

Ralph C. Clement, Bellefontaine, Ohio, assignor to I-T-E Imperial Corporation, Spring House, Calif.

Filed Feb. 16, 1973, Ser. No. 333,024
Int. Cl. H01r 3/06
U.S. Cl. 339—14 R
11 Claims

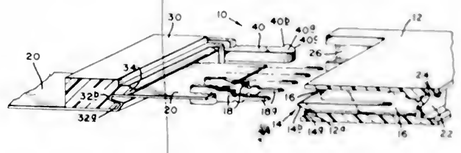


Removable device for tapping power from a continuous outlet duct having a stylized extruded housing is constructed with gear elements interconnecting the contact carrier and two mechanical retaining elements. A single manually operated lever is provided to operate the gear elements to simultaneously make electrical and mechanical holding connections between the power tap and the duct. Appropriately located spring fingers mounted to the power tap contact the duct housing to provide a positive ground connection, and cooperating polarizing formations of the power tap and duct protect against the making of improper electrical connections.

3,813,634
STRAIN RELIEF FOR FLAT CABLE OR THE LIKE

Jon Wigby, Sandy Hook, and Leonard St. Jacques, South Norwalk, both of Conn., assignors to Burndy Corporation, Norwalk, Conn.

Filed Dec. 29, 1972, Ser. No. 319,149
Int. Cl. H01r 13/58
U.S. Cl. 339—17 F
1 Claim



A strain relief construction for use with electrical connectors for flat ribbon cable or the like comprises two mating members having complementary tape confronting surfaces which are substantially S-shaped in cross section and substantial mirror images of each other. The two members are joined together with a portion of the flat cable clamped between the complementary surfaces and formed into a similar S-shaped curve thereby. The two members may, for example, form a cable plug or receptacle connector, or the strain relief construction may be used in other applications such as in making cable connections to printed circuit boards.

3,813,635
TERMINAL CONNECTOR

James Joseph Cooper, Jr., and Gary Lee Schurter, both of St. Louis, Mo., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Division of Ser. No. 80,339, Oct. 13, 1970, Pat. No. 3,699,497. This application June 9, 1972, Ser. No. 261,539
Int. Cl. H01r 13/60
U.S. Cl. 339—22 B
3 Claims

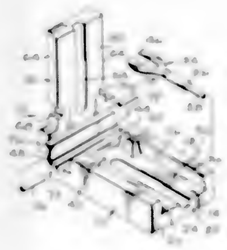


To provide a large contact area and rigid high pressure connection between a heavy power carrying terminal and a power distribution bus, capable of being thoroughly insulated with water-impervious material, a tapered or inverted frusto-conic socket is suitably machined or incised into the bus and a terminal having a similarly tapered shank is press-fitted into the socket. A clearance bore through the shank receives a bolt for connection through a receiver in the bus located beneath the conic socket. An arched washer may be used under the head of the bolt to maintain a high pressure engagement between the terminal shank and the bus during changing thermal or vibratory conditions. The entire connection area may then be jacketed with a double jacket, the jacket serving to insulate the bus and connection in a water-impervious, sealing fashion.

3,813,636
ELECTRICAL TERMINAL CONNECTOR

John R. Mason, Los Angeles, Calif., assignor to Dracon Industries, Chatsworth, Calif.

Filed Sept. 10, 1971, Ser. No. 179,314
Int. Cl. H01r 13/48
U.S. Cl. 339—59 R
10 Claims

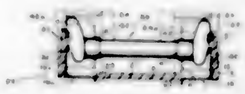


Electric terminal connector with base having receptacle therein accepts a pair of spade or forked wire connectors on the ends of different wires. Top fits into receptacle to clamp connectors together and totally enclose them for releasable and reusable fully insulated connector structure.

3,813,637
RETAINERS FOR ELECTRICAL COMPONENTS

Stephen J. Grebik, Roseville, and Roger B. Anthony, Utica, both of Mich., assignors to Essex International, Inc., Fort Wayne, Ind.

Filed June 28, 1972, Ser. No. 267,021
Int. Cl. H01r 13/50, 13/12
U.S. Cl. 339—59 R
16 Claims



Apparatus for retaining an electrical component such as a fuse comprises a walled, hollow body the front of which is split to form a yieldable socket for the accomodation of one end of the component and including a resilient arm extending from the rear wall to form a loop having a portion thereof lying between the front and rear walls in a position to engage the end of the component. The arm terminates in a free end which bears against the rear wall of the body. Retainers constructed according to the invention are adapted to be used in pairs and may be mounted in an insulated carrier block having resilient latch fingers which project into openings formed in the rear wall of each retainer. The retainer bodies may be used either in pairs or in gangs of pairs. When the bodies are ganged, each body is connected to a common conductor incorporating means for connecting it to an electrical circuit.

3,813,638
CABLE CONNECTOR

Joseph D. Kinnear, 3019 E. Miles Rd., Warren, Mich.

Continuation-in-part of Ser. No. 57,568, July 23, 1970, abandoned. This application Apr. 18, 1972, Ser. No. 245,138
Int. Cl. H01r 13/62
U.S. Cl. 339—64 R
32 Claims



An electrical connector having a pair of telescopically engageable housings in which the ends of single or double pole conductors to be connected are enclosed. A tulip-type connector is mounted on the enclosed end of one of the conductors for engagement with the end of the other conductor when the housings are telescopically engaged. The operative end face of the housing enclosing the tulip connector is constructed to present a dead front to prevent accidental contact with the live conductor with one's finger or a tool, such as a screwdriver. The housings and the ends of the conductors are constructed to minimize arcing between the conductors to a maximum extent when the connector is coupled and uncoupled under load.

3,813,639
ELECTRICAL CONNECTION FOR HIGH VOLTAGE ELECTRICAL SYSTEMS

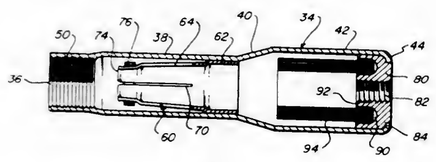
Gary Lee Schurter, Kirkwood, and Carlo Bruno DeLuca, Chesterfield, both of Mo., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Mar. 27, 1972, Ser. No. 238,562
Int. Cl. H01r 13/52
U.S. Cl. 339—111
16 Claims

Disclosed is a non-vented electrical connector designed to mate with a connection to a transformer or the like in a prima-

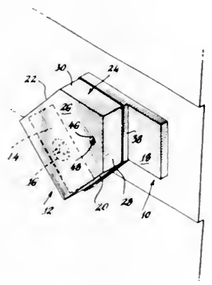
ry power distribution system. The connector will mate with

ry power distribution system. The connector will mate with and make electrical connection with a load break terminator as used in such systems, so that an electrical circuit carrying high currents at elevated voltage levels may be broken in the field without harm to the service personnel making and breaking the connection. The connector has internal members for suppressing the arc generated by high current, high voltage circuit openings and closures. In addition, the connector has internal structure for rapidly condensing and diffusing gases formed within the connector by an arc. In this way, the gas



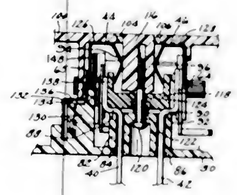
pressure developed in the connector is relieved to prevent pressure blowouts of the terminator. The gas condensing structure shown includes further, a multiple thickness tubular screen, which may be comprised of a length of fine mesh screen coiled into a tubular form. In addition, the connector has an internal scraping member which contacts the arc follower and removes surface contaminants to prevent such contaminants from adding to an arc and to prevent secondary arcing due to the presence of such contaminants in the path of an arc.

3,813,640
WEATHERPROOF ENCLOSURE FOR ELECTRICAL DEVICES
Vincent L. Carissimi, Fairfield, Conn., assignor to Harvey Hubbell Incorporated, Bridgeport, Conn.
Filed May 8, 1972, Ser. No. 251,418
Int. Cl. H01r *13/50*
U.S. Cl. 339—156 R **12 Claims**



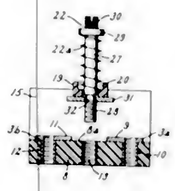
A weatherproof enclosure for electrical devices such as a receptacle which may be used with vertically or horizontally mounted outlet boxes for maintaining weatherproof protection of the electrical devices in either orientation. The enclosure includes a plate portion for abutting the surface outlet box or the wall in which an outlet box is flush-mounted, and a housing portion connected to the plate which includes a mounting wall in which the enclosed electrical device may be mounted extending at an angle to the axis of the plate. The mounting wall may be recessed within the housing so that the side, top and back walls of the housing form a protective skirt around the electrical device mounted therein.

3,813,641
ELECTRIC CONNECTING MECHANISM
Charles A. Balchunas, Hopkinton, Mass., assignor to General Electric Company, Bridgeport, Conn.
Division of Ser. No. 260,759, June 8, 1972, Pat. No. 3,754,107.
This application Feb. 12, 1973, Ser. No. 331,762
Int. Cl. H01r *13/50*
U.S. Cl. 339—170 **2 Claims**



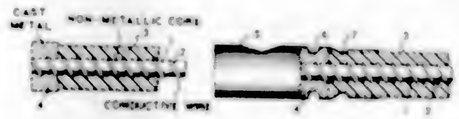
An electrical connecting mechanism wherein a pair of shouldered prongs are uniquely mounted in a housing for connecting the mechanism to a conventional wall mounted outlet box. The construction includes shoulders on the prongs which are sandwiched between bosses which are formed on a rear casing and a front cover of the housing. Electrical outlet receptacle spring contacts are placed over the wall prongs in the vicinity of the wall prongs so that the wall prongs and the receptacle spring contacts, are reliably connected to each other and positioned within the housing with the use of relatively few parts.

3,813,642
DISCONNECT TERMINAL BOARD
William M. Fisher, Springfield, Pa., assignor to General Electric Company, Philadelphia, Pa.
Filed Feb. 9, 1973, Ser. No. 330,990
Int. Cl. H01r *9/08*
U.S. Cl. 339—198 R **9 Claims**



A disconnect terminal board includes a bridging contact attached to an axially movable insulating plunger and adapted to engage a pair of spaced-apart stationary contacts. The plunger extends through an aperture in a guide member, and it is spring biased to a disconnected position in which it protrudes from the guide member, thereby visually indicating the disconnected state. The plunger includes a rotatable locking portion which cooperates with stationary clamping means to retain the plunger in a connected position upon moving the plunger against the spring bias to carry the bridging contact into engagement with the stationary contacts and then rotating the locking portion to a locked position.

3,813,643
TERMINATING OF ELECTRICAL CONDUCTORS
Marvin E. Hartz, Bradford Woods, Pa., assignor to Essex International, Incorporated, Fort Wayne, Ind.
Continuation-in-part of Ser. No. 193,284, Oct. 28, 1971, abandoned. This application May 14, 1973, Ser. No. 360,090
Int. Cl. H01r *11/04, 11/22, 43/00*
U.S. Cl. 339—223 S **27 Claims**



Terminating of an electrical conductor comprising a main conductive core having conductive means on its surface and enclosed within an insulating jacket is effected by stripping the insulating jacket from at least one end of the conductor and casting an electrically conductive anchor member on the exposed end of the conductor, the anchor member being formed from a molten metal which shrinks upon solidification to provide an exceptionally secure mechanical and electrical bond between the core and the anchor member. The exposed end of the conductor may be kinked prior to the casting of the member.

3,813,644
POSITIVE LOCK ELECTRICAL CONNECTOR AND RECEPTACLE ASSEMBLY
Bernard Edward Shlesinger, Jr., 9411 Macklin Ct., Alexandria, Va.
Filed Oct. 7, 1971, Ser. No. 187,334
Int. Cl. H01r *11/22*
U.S. Cl. 339—252 S **12 Claims**



An electrical connector and receptacle assembly comprising a receptacle, a plug insert having a receptacle engaging portion having a resilient bend therein, the receptacle engaging portion having forwarding and rearwardly projecting members extending from the bend, means on the plug insert for connecting the connector to an electrical lead, the receptacle having a recess having its walls conforming to the outside surface of the plug insert receptacle engaging portion, and the receptacle recess and plug insert receptacle engaging portion having cooperating detent means, the plug insert means being positioned on at least one of the projecting members.

3,813,645
SPARK PLUG TERMINAL
Howard A. Elliott, Detroit, and Stephen J. Grebik, Roseville, both of Mich., assignors to Essex International, Inc., Fort Wayne, Ind.
Filed Feb. 11, 1972, Ser. No. 225,581
Int. Cl. H01r *11/22*
U.S. Cl. 339—259 R **15 Claims**

A spark plug terminal having an initially tubular body portion between its ends is provided with an axially elongated indentation in one side thereof, the maximum depth of the groove being such that the inner surface of the indentation bears against the inner surface of the diametrically opposed side of the body portion and the width of the indentation being such that the sides of the latter engage the corresponding sides of the body portion. The body portion may remain axially straight or it may be bent between its ends to form an elbow, the direction of bending being such that the groove is at the inside of the elbow. One end of the terminal is provided with means for attaching it to a conductor and the opposite end of the terminal is provided with means for connecting it to the electrode of a spark plug. A sleeve or boot of dielectric material is assembled with the terminal.



3,813,646
PATTERN RECOGNITION DEVICES
David John Quarmby, London, England, assignor to Emi Limited, Hayes, Middlesex, England
Continuation of Ser. No. 91,777, Nov. 23, 1970, abandoned. This application Oct. 17, 1972, Ser. No. 298,380
Int. Cl. G06k *9/02*
U.S. Cl. 340—146.3 AE **4 Claims**

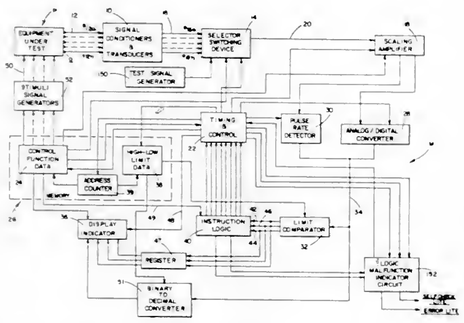


An input arrangement for the decision mechanism of a pattern recognition device includes a cathode ray tube arranged to execute a raster of successive scanning sweeps over an area which may include a pattern having an edge. Apparatus is provided for detecting an edge during one scanning sweep and for producing signals indicative of the position co-ordinates of the detected edge. A region of the area adjacent to the detected edge is searched during at least one subsequent sweep to detect an extension of the edge and apparatus is provided for producing further signals indicative of the position coordinates of any such extension. Analyzing means are provided to analyze said signals and to produce input signals respectively representing the position, length, orientation and curvature of a subsequentially circular arc indicative of said edge. Means are provided for applying said input signals to said decision mechanism.

3,813,647
APPARATUS AND METHOD FOR PERFORMING ON LINE-MONITORING AND FAULT-ISOLATION

Brian Hum Loo, Brea, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Feb. 28, 1973, Ser. No. 336,792
Int. Cl. G06f *11/00, 11/04;* **G05b** *23/02*
U.S. Cl. 340—172.5 **40 Claims**



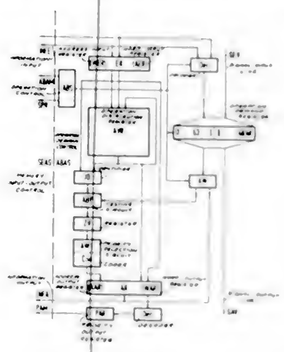
An electronic monitoring apparatus used in on-line performance monitoring and fault-isolation of complex prime systems through a programmed sequence of parameter measurements based on automatic logical decision functions. The monitoring apparatus which may be connected to external equipment is provided with a mechanism for manual selection of any test point on the external system which is to be measured. In addition, the apparatus includes means for displaying identification of the test point thus measured, the measured value thereof, as well as its low limits or its high limits. A timing control circuit in the apparatus permits measurement and comparison of signals from the external system with stored high and low limit tolerance data on a synchronized basis. The apparatus is capable of examining any of a plurality of parameters through test point selection on a controlled random selection basis. The apparatus also provides means for introducing simulation signals into the external system. Self-check sub-systems are incorporated into the apparatus to assure proper performance, prior to any monitoring and fault-isolation operations.

3,813,648
APPARATUS AND PROCESS FOR DISTRIBUTION OF OPERATION DEMANDS IN A PROGRAMMED CONTROLLED DATA EXCHANGE SYSTEM

Josef Huber, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 9, 1971, Ser. No. 151,448
Claims priority, application Germany, June 9, 1970, 2028345
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **4 Claims**

A process and apparatus are described for operating a program controlled data exchange system having at least one central memory constructed in the form of a multistorage unit containing programs necessary for the operation of the system. The system also has processing units which operate cyclically with the central memory over a memory input-output control according to the principles of demand and call-back. The reception, distribution and selection of operation demands sent by the processing units take place at a central location over an operation demand control in which an operation distribution register contains a specific association given through address and contents between storable information about the priority of an operation and the information about the processing unit carrying out an operation. For the targeted distribution of operation demands the information about the priority of an operation to be carried out serves as an internal register address for a seeking operation in the operation distribution register. The aforementioned seeking process results in information being available for the identification of the processing unit carrying out this operation. For the selection of operation demands the processing units initiate an associative seeking process, after the completion of an operation

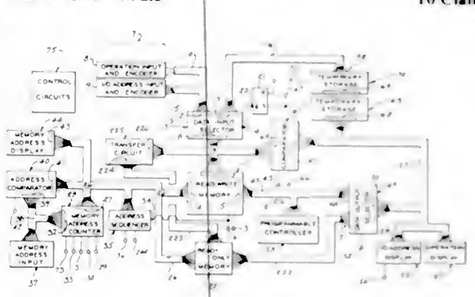


During the seeking process, the entire contents of the operation distribution register are available for a comparison process for which comparison the information identifying the demanding processing unit serves as comparison criteria. Resulting from this comparison, the information stored for this processing unit in the operation demand control about the highest priority of an operation is available.

3,813,649
CONTROLLER PROGRAM EDITOR

Odo J. Struger, Mayfield Heights; Valdis Grants, Lyndhurst, and William W. Searcy, Richmond Heights, all of Ohio, assignors to Allen Bradley Company, Milwaukee, Wis.

Filed Sept. 1, 1972, Ser. No. 285,381
Int. Cl. G06f *9/00*
U.S. Cl. 340—172.5 **10 Claims**

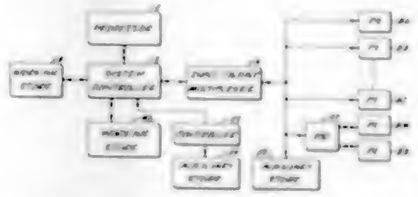


A program loader for a programmable controller includes a read-write memory into which an initial program is loaded, tested and edited. The programmable controller is operated and the condition of an input or output device which it controls is monitored each time an instruction containing the device's I/O address is read from the read-write memory. When the loader is operated in a SEARCH mode, the program is read in sequence from the read-write memory and each instruction is compared with an instruction manually inserted at an input circuit. When operated in a GAP or UNGAP mode, an empty line, or gap is either created or closed in the stored program by shifting a set of instructions one line in the read-write memory. The GAP and UNGAP operations are performed by sequentially reading out each instruction, and replacing it with the adjacent temporarily stored instruction.

3,813,650
METHOD FOR FABRICATING AND ASSEMBLING A BLOCK-ADDRESSABLE SEMICONDUCTOR MASS MEMORY

John C. Hunter, Phoenix, Ariz., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Dec. 26, 1972, Ser. No. 317,971
Int. Cl. G06f *1/00,* **G03c** *5/00,* **G11c** *7/00*
U.S. Cl. 340—172.5 **12 Claims**

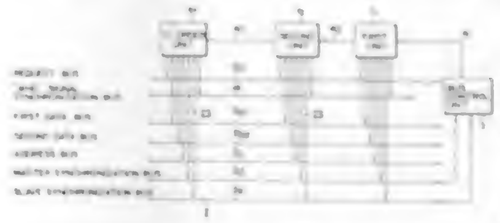


A block-addressable mass memory comprising wafer-size module of LSI semiconductor basic circuits. The basic circuits are intrinsically addressable and interconnected on the wafer by non-unique wiring bus portions formed in a universal pattern as part of each basic circuit. The basic circuits are tested and assigned an address if operable. A disconnect circuit isolates defective basic circuits from the bus. Assemblies utilizing both low and high yield wafers are formed.

3,813,651
DATA PROCESSING SYSTEM

Hirohide Yamada, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Dec. 26, 1972, Ser. No. 318,690
Claims priority, application Japan, Dec. 29, 1971, 46-705; Dec. 29, 1971, 46-707; Dec. 29, 1971, 46-2051
Int. Cl. G06f *9/00*
U.S. Cl. 340—172.5 **8 Claims**

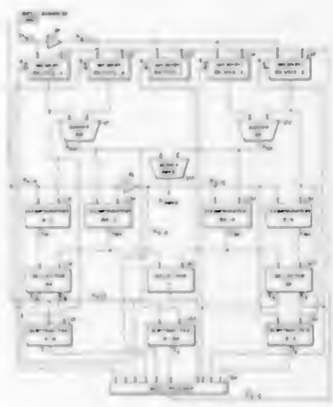


A data processing system comprising an assembly of buses for interconnecting a plurality of units, the units including data processing units, a memory unit and peripheral data processing units, the data processing units being connected in series with each other via a signal line and being further connected to said bus assembly in parallel relationship with each other. A bus control unit is provided for delivering a "who" signal (which is used for detecting a requesting unit) to the first one of said serially connected data processing units when said unit requests the use of said bus assembly. Further provided is an interface circuit unit which receives the "who" signal from the signal line and which, when any of the units does not make its own request for the use of the bus assembly upon receipt of the "who" signal, transmits said "who" signal to the immediately following unit and, when the first mentioned unit requests the use of the bus assembly for itself, prevents said "who" signal from being further transmitted, and selects another unit associated with the address signal delivered from said bus requesting unit and interconnects both units through said bus assembly.

3,813,652
MEMORY ADDRESS TRANSFORMATION SYSTEM

Ben R. Elmer, Glendale, and Melvin H. Eklund, Phoenix, both of Ariz., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Jan. 15, 1973, Ser. No. 323,586
Int. Cl. G11c *7/00*
U.S. Cl. 340—172.5 **4 Claims**

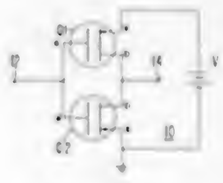


A system is disclosed in which an input binary address is transformed into a set of module select signals and a set of address signals whereby an aggregate of memory modules, each of which may contain a different number of storage cells, are combined to form a memory assembly which has a fixed number of storage cells. The address transformation system uses signals taken from the individual modules which represent the number of memory cells contained therein.

3,813,653
MEMORY CELL WITH REDUCED VOLTAGE SUPPLY WHILE WRITING

John I. Smith, Sunnyvale, and William R. McKinley, San Jose, both of Calif., assignors to Rolm Corporation, Cupertino, Calif.

Filed Dec. 18, 1972, Ser. No. 316,102
Int. Cl. G11c *11/40, 7/00*
U.S. Cl. 340—173 FF **36 Claims**

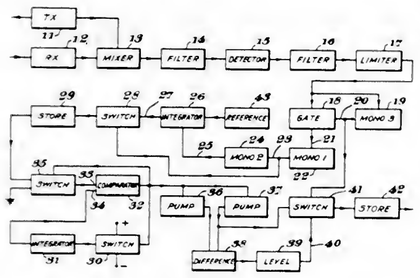


A semiconductor memory cell suitable for use in a memory matrix includes means for reducing the supply voltage to the flip-flop forming the memory cell during a write operation. The voltage is, however, maintained at a sufficiently high value to maintain the cell in a static mode of operation.

3,813,654
DIAGNOSTIC APPARATUS FOR FETAL HEARTBEAT MONITORING

David A. Clifton, Littlehampton, and Frederick D. Fielder, Bognor Regis, both of England, assignors to Sonicaid Limited, Bognor Regis, England

Filed Oct. 5, 1971, Ser. No. 186,691
Int. Cl. G01s 9/66; A61b 5/02
U.S. Cl. 340—3 D **18 Claims**

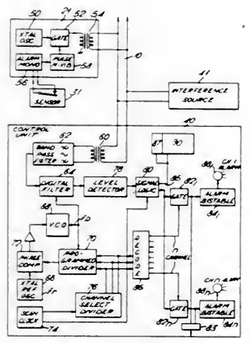


The invention relates to diagnostic apparatus including an ultrasonic transmitter and an ultrasonic receiver. The beat signal is passed through a filter to select a particular frequency which occurs once in each heartbeat cycle. A voltage is produced proportional to the time interval between adjacent pulses of this particular frequency and a second train of pulses having a much higher repetition frequency is produced, the frequency of this second pulse train varying inversely with said voltage. The second train is applied to two pump circuit, one of which produces a signal representing the instantaneous frequency of this pulse train and the other of which produces a signal representing the average value of this frequency. The instantaneous signal is applied to a track/store amplifier which is changed over from its tracking function to its storage function when the difference between the instantaneous and average values exceeds a predetermined minimum.

3,813,655
MONITORING SYSTEMS AND APPARATUS THEREFOR

Howard John Brandsom Allen, West Lothian, and James Neill Johnston, Edinburgh, both of Scotland, assignors to Microwave and Electronic System Limited, Newbridge, Midlothian, Scotland

Filed May 23, 1972, Ser. No. 256,047
Claims priority, application Great Britain, May 24, 1971, 16760/71
Int. Cl. H04q 9/00
U.S. Cl. 340—151 R **21 Claims**

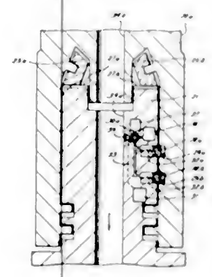


A central station monitors the condition of a group of remote sensors each of which is connected in a reporter unit which generates a characteristic frequency signal the modulation condition of which is changed when the sensor goes into the alarm condition. The central station scans the characteristic frequencies and detects the nature of the modulation received at each. The absence of a signal at any of these frequencies is also detected. The characteristic frequencies are generated by crystal-controlled oscillators and the central processor includes a digital filter locked to a crystal-controlled reference oscillator to give high immunity to noise. The wanted signals may be deliberately hidden in the signals of a noise or swept frequency source.

3,813,656
METHODS AND APPARATUSES FOR TRANSMISSION OF LONGITUDINAL AND TORQUE PULSE DATA FROM DRILL STRING IN WELL WHILE DRILLING

Joe R. Fowler, Houston, Tex., assignor to Texaco, Inc., New York, N.Y.

Filed Sept. 29, 1972, Ser. No. 293,610
Int. Cl. G01v 1/40
U.S. Cl. 340—18 LD **8 Claims**



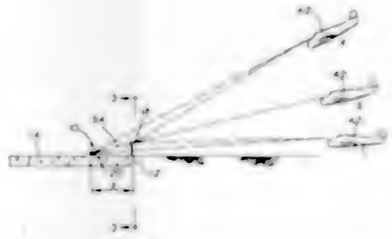
Two methods and two mechanisms for carrying out the methods are disclosed. The methods of (1) generating longitudinal or torque pulses at the lower end of a drilling assembly in the bottom of a wellbore at the natural frequency of the drilling assembly, and (2) monitoring the top of the drilling assembly for the longitudinal or torque pulses therein may be practiced by (1) a drill collar rotatably and detachably mounted on a drill bit on the lower end of a drilling assembly in a wellbore for being momentarily and precisely coupled and uncoupled during drilling for generation of longitudinal pulses in the drilling assembly at the natural frequency of the drilling assembly for being monitored at the surface, and (2), respectively, a drill collar rotatable by a plurality of controllable jets exhausting tangentially of the drill collar outer periphery for generating torque pulses in the drilling assembly at the natural frequency thereof for being monitored at the surface.

3,813,657
GLIDE SLOPE INDICATOR

Richard Dale Henry, Hockstown Grade Rd., R.D. No. 1, Clinton, Pa.

Filed Apr. 24, 1972, Ser. No. 246,983
Int. Cl. G08g 5/00
U.S. Cl. 340—26 **10 Claims**

A glide slope indicator consisting of an elevated rectangular light display is combined with two circular lights which are located at a lower elevation and are disposed laterally one at each side of the rectangular light display and are displaced from the rectangular light display in the direction of the landing aircraft along the length of the runway to form a subtended angle to the horizon, so that an aircraft on landing approach, will view the display and the combination of lights will appear colinear when the aircraft is on the proper glide slope approach. The two circular lights will appear above the rectangular light display at too steep a glide slope approach, and the two circular lights will appear below the level of the rectangular light display at too shallow glide slope approaches. The display provides a visual indication to aircraft on landing approaches so that the display at the proper glide slope approach will present the circular and rectangular lights as substantially colinear.



3,813,658
MOVABLE-OBJECT IDENTIFICATION SYSTEM

Edward Rich, Jr., College Park, Md., assignor to Walter I. Charlton, College Park, Md., a part interest

Filed Mar. 22, 1972, Ser. No. 236,924
Int. Cl. G06k 7/015, 7/08
U.S. Cl. 340—146.3 K **24 Claims**



A railroad car identification system is described herein which includes a magnetic identification record mounted on a railroad car and a stationary sensing means for reading information from the identification record as the railroad car passes the stationary sensing means. The system comprises a channeling means and a follower which is guided through the channeling means as the railroad car passes the stationary sensing means. In this manner the identification record is held in close proximity to a sensing element of the stationary sensing means. In one embodiment the channeling means is a part of the identification record and mounted on the railroad car and in another embodiment the follower is a part of the identification record and mounted on the railroad car. In both embodiments provision is made for modifying information on the identification record. Various modifications of both embodiments are described.

Also described herein is an electrical circuit for processing information read from the identification record. The circuit includes circuitry for storing such information on a shift register and circuitry for subsequently transferring such information to a computer.

3,813,659
MOVABLE-OBJECT IDENTIFICATION SYSTEM

Walter T. Charlton, College Park, Md., assignor to Edward Rich, Jr., College Park, Md., a part interest

Filed Mar. 22, 1972, Ser. No. 236,925
Int. Cl. G06k 7/015, 7/08
U.S. Cl. 340—146.3 K **7 Claims**



A railroad car identification system is described herein which includes a magnetic identification record mounted on a railroad car and a stationary sensing means for reading information from the identification record as the railroad car passes the stationary sensing means. The system comprises a channeling means and a follower which is guided through the channeling means as the railroad car passes the stationary sensing means. In this manner the identification record is held in close proximity to a sensing element of the stationary sensing means. In one embodiment the channeling means is a part of the identification record and mounted on the railroad car and in another embodiment the follower is a part of the identification record and mounted on the railroad car. In both embodiments provision is made for modifying information on the identification record. Various modifications of both embodiments are described.

Also described herein is an electrical circuit for processing information read from the identification record. The circuit includes circuitry for storing such information on a shift register and circuitry for subsequently transferring such information to a computer.

3,813,660
AN RF MAGNETO-RESISTIVE MAGNETIC DOMAIN DETECTOR

Carl F. Buhrer, Framingham, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

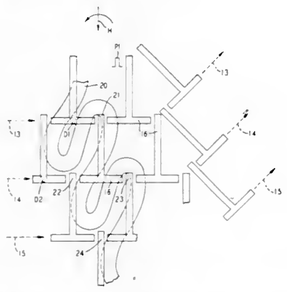
Filed Dec. 11, 1972, Ser. No. 314,052
Int. Cl. G11c 11/14, 19/00
U.S. Cl. 340—174 EB **8 Claims**



A cylindrical magnetic domain detector is formed of a pair of series coupled magneto-resistive elements, one of which is disposed in magnetic coupling relationship with a cylindrical magnetic domain memory position, while the other element serves as a reference magneto-resistive element to cancel out interfering noise signals from a rotating domain driving field. The series coupled magneto-resistive elements are connected in a bridge network which is excited by a high frequency RF signal source through a conveniently located transformer. The

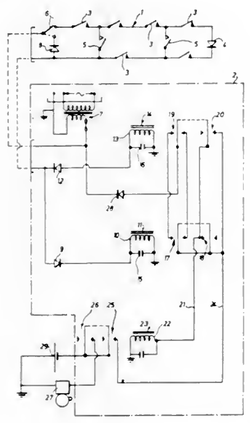
transformer is formed of a pair of closely spaced conductors printed on a circuit board on which the cylindrical magnetic domain memories are mounted.

3,813,661
SINGLE WALL DOMAIN LOGIC ARRANGEMENT
Irynej Danylchuk, Morris Plains; Joseph Edward Geusic, Berkeley Heights, and Terence John Nelson, New Providence, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed May 29, 1973, Ser. No. 364,696
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 TF **5 Claims**



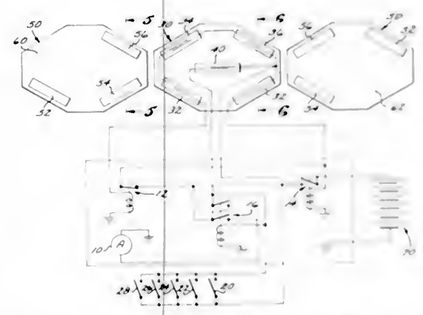
Single wall domain logic is achieved based on bubble-bubble interaction with good operating margins by expanding interacting domains to a known size as the interaction occurs.

3,813,662
ELECTRICAL ALARM SYSTEMS
Nigel W. Lewis, 74 St. James St., London, England
Filed Feb. 1, 1972, Ser. No. 222,517
Claims priority, application Great Britain, Feb. 4, 1971, 3870/71
Int. Cl. G08b *19/00*
U.S. Cl. 340—213 R **17 Claims**



This invention provides an alarm system comprising a loop which incorporates a rectifier element and which is connected to an alternating current supply. The loop may be arranged and adapted — for example by the inclusion of appropriate switches — to be responsive to any contingency, such as intruders or fire. A sensing circuit is connected to the loop and may for example include two relays so arranged that upon effective open-circuiting of the loop, in which both relays are de-energised, and effective short-circuiting of the loop rectifier element, in which both relays are energised, an alarm is activated.

3,813,663
ELECTRICAL LOCKING ALARM SYSTEM
Dale M. Perkins, 8137 E. Phlox St., Downey, Calif. 90241
Filed Nov. 10, 1972, Ser. No. 305,421
Int. Cl. G08b *13/08*
U.S. Cl. 340—274 **9 Claims**



A lock including magnetically actuated reed switches positioned in a predetermined position and operatively connected into an electrical circuit having an alarm actuated by trip switches, wherein the lock is set for alarm actuation by a key having magnets arranged in a pattern to coincide with said lock.

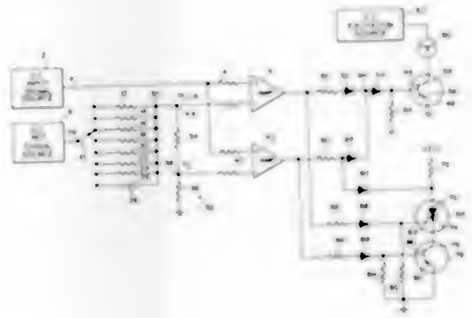
3,813,664
APPARATUS FOR SUPERVISING EQUIPMENT WITH WARNING LIGHTS
Wolf Geyer, Kirchweyhe, Germany, assignor to Vereinigte Flugtechnische Werke-Fokker Gesellschaft mit beschrankter Hafting, Breman, Germany
Filed May 24, 1972, Ser. No. 256,314
Claims priority, application Germany, May 29, 1971, 2126905
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 R **17 Claims**



Apparatus for supervising equipment wherein plural signal paths are provided respectively developing signals indicative of errors in parts of the equipment, having a plurality of warning lights each including several light emitting gallium-arsenide diodes, a transistor for controlling the diodes, a filter and a translucent plate in front of the diode. The warning lights are

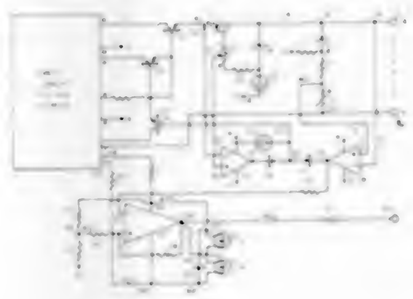
turned in response to the signals, a logic or-configuration receives these signals and turns on, a multivibrator which drives a main warning light, also including light emitting diodes, transistor, filter and translucent plate.

3,813,665
CONDITION WARNING MEMORY CIRCUIT
Walter Parfomak, Wallington; Richard John Anderson, Fairfield, and Alfred Levine, Waldwick, all of N.J., assignors to The Bendix Corporation, Teterboro, N.J.
Filed Oct. 2, 1972, Ser. No. 294,060
Int. Cl. H03b *5/20*, **G08b** *21/00*
U.S. Cl. 340—248 A **6 Claims**



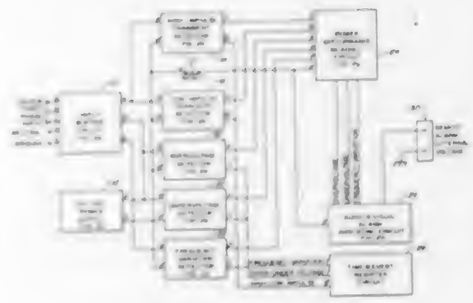
For use with a system for converting coded condition data to an analog signal corresponding to the condition, a memory type condition warning circuit having calibrating capabilities.

3,813,666
POWER SUPPLY MODE INDICATOR LAMP CIRCUIT
Joseph R. Gately, Woodside, N.Y., assignor to Forbro Design Corp., New York, N.Y.
Filed Mar. 2, 1973, Ser. No. 337,299
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 A **4 Claims**



Voltage and current mode indicator lamps are connected in series across the bias voltage supply of an operational amplifier. The junction between the two lamps is connected to the output terminal of the amplifier. One input is connected to a source of reference voltage and the other to the output of the error voltage amplifier. As long as the voltage amplifier is controlling the power supply output, the voltage mode lamp is on. When the control switches to current mode, the error voltage amplifier output changes and switches the voltage mode lamp off and the current mode lamp on.

3,813,667
THREE-PHASE POWER DISTURBANCE MONITOR
Maurice N. Smith, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed May 29, 1973, Ser. No. 364,844
Int. Cl. G08b *19/00*
U.S. Cl. 340—248 A **20 Claims**

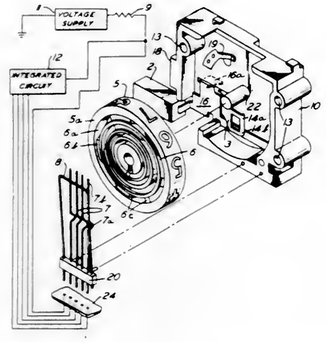


A three phase power disturbance monitor for sensing and recording anomalies occurring in electrical power systems which cause operational malfunctions in, and damage to, critical loads such as computers and synchronous communication equipment. The system senses and counts over and under voltage conditions, over and under frequency variations, and high or low threshold pulse transients. The monitor provides visual and audio warnings of power supply conditions which could damage equipment if left uncorrected for a period of time. The number of disturbances exceeding certain values is displayed on a digital counter. The monitor is equipped with a common input voltage section, a common 24 volt d.c. power supply and a front panel a.c. volt meter. Upper and lower threshold values for each condition are adjustable between certain limits determined from particular applications of the monitor. The audio and visual warning systems remain on if the disturbance continues to exceed a predetermined value for length of time. An external voltage feature has the capability of triggering a remote alarm system, powering down critical equipment and initiating the switching of critical loads to another power source.

3,813,668
ANALOG TO DIGITAL CONVERTER EMPLOYING GROOVED DISC
Donald Ross, Chalfont, Pa., assignor to Automatic Timing & Controls, Inc., King of Prussia, Pa.
Continuation of Ser. No. 251,922, May 10, 1972, abandoned. This application Oct. 1, 1973, Ser. No. 402,362
Int. Cl. H01h *19/58*, **H03k** *13/02*
U.S. Cl. 340—347 P **16 Claims**

A disc containing decimal numbers on its edge is mounted for step-by-step rotation in response to reciprocating action of a push-button. On one side of the disc grooves are formed corresponding to different binary places. Deep portions of the grooves correspond to binary zeros whereas shallower portions correspond to binary ones. A corresponding plurality of resilient sensing wires having protruding shoulder portions en-

gage the respective grooves. When the shoulders touch the shallower portions, they urge the wires laterally until they touch a switch connection thereby actuating a voltage



representative of a binary one. Projections are provided on the other side of the disc to prevent back-up or excess forward motion of rotation upon actuation of the push-button.

3,813,669

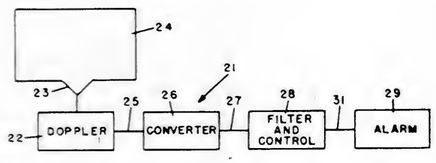
FREQUENCY FILTER CIRCUIT APPARATUS

Leonard Thomas Saunders, Milford, Mass., assignor to Walter Kidde & Company, Inc., Clifton, N.J.

Filed Mar. 27, 1972, Ser. No. 238,175

Int. Cl. G01s 9/02

U.S. Cl. 343—5 PD **23 Claims**



Disclosed is a sharp cutoff frequency filter. An alternating input signal derived from a source such as a Doppler detection system is fed to a threshold detector that provides a pulse output of a preselected first level when the alternating input voltage is below a predetermined input level and of a second preselected level during excursions of the alternating input above the predetermined threshold level. The two level pulse signal is next passed to a filter circuit. Within the filter, capacitive integration is provided such that energy is absorbed by a capacitor at a controlled rate when the pulse output is at the second preselected lvel and the capacitor is rapidly discharged when the threshold detector produces the first preselted output level. Thus, the energy stored in the capacitor is a measure of the total time that the second preselected digital output was produced in a particular cycle. A second threshold detector samples the energy stored in the capacitor and produces an output signal when energy in the capacitor exceeds a predetermined level. Thus, an output signal is supplied only if the alternating input signal possesses a minimum wave length and the filter circuit functions as a low pass filter. Another preferred embodiment is disclosed in which the quiescent output from the second threshold detector enables an output circuit to pass the pulse signal. The output circuit is disenabled only in the event that the alternating input signal possesses a wave length greater than a predetermined minimum length. Consequently, this second embodiment functions as a high pass filter. Additional related embodiments disclosed herein function as sharp cutoff notch and sharp cutoff band pass filters.

3,813,670

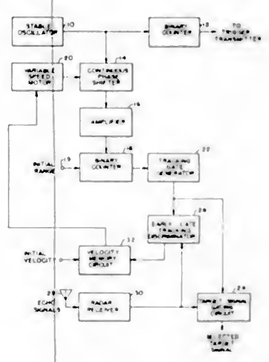
HIGH RESOLUTION RANGE TRACKING CIRCUIT

Frederick C. Alpers, Riverside, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 17, 1971, Ser. No. 210,263

Int. Cl. G01s 9/14

U.S. Cl. 343—7.3 **8 Claims**



A circuit to provide an automatic range tracking function in very high resolution (short pulse radar or missile seeker). A tracking gate is generated by feeding the output of the oscillator for the transmitter trigger generator through a continuous phase shifter and binary counter to generate a gating pulse. An early-late tracking discriminator updates a velocity memory circuit that feeds a variable speed drive motor to drive the continuous phase shifter which completes a closed tracking loop. The tracking discriminator can be of an adaptive type that tracks a particular desired point on a compound target.

3,813,671

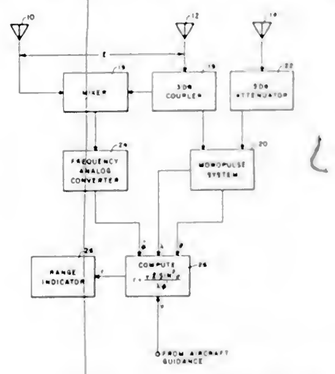
SYSTEM FOR MEASURING RANGE TO AN ELECTROMAGNETIC RADIATION SOURCE

David F. Scheets, Corona, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 16, 1968, Ser. No. 699,757

Int. Cl. G01s 5/12

U.S. Cl. 343—112 D **2 Claims**



A system for passively determining range to an electromagnetic radiation source. Three receiving antennas are utilized with two antennas widely spaced apart with two spaced one-half to one wavelength apart. The output signals from the two pairs of antenna having a common antenna are used to compute range.

3,813,672

AUTOMATICALLY CONTROLLED DIGITAL VHF DIRECTION FINDER

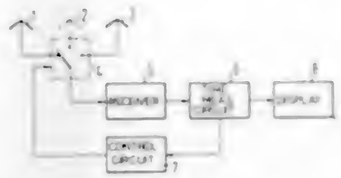
Werner Weisser, Huetlingstrasse 9, 7750 Konstanz, Germany

Continuation-in-part of Ser. No. 35,501, May 7, 1970, abandoned. This application Aug. 7, 1972, Ser. No. 278,705

Claims priority, application Germany, May 7, 1969, 1923351

Int. Cl. G01s 3/45

U.S. Cl. 343—113 R **3 Claims**



An automatically controlled digital VHF direction finding apparatus provided with two parallel antennae alternatively connected by a switch to a common receiving channel which produces an output signal to control the generation of a digital signal representing the phase difference between voltages induced in the antennae due to their being separated in space. The time interval is determined between two voltage points of equal value in the voltage generated in one antenna and between a given voltage point of the voltage generated in said one antenna and a voltage point of equal voltage of the voltage generated in the other antenna. A third antenna can be employed to increase the base of operation and for purposes of providing an error correcting signal, a cable of fixed length can be introduced into the circuits to provide a known increase of transit time.

3,813,673

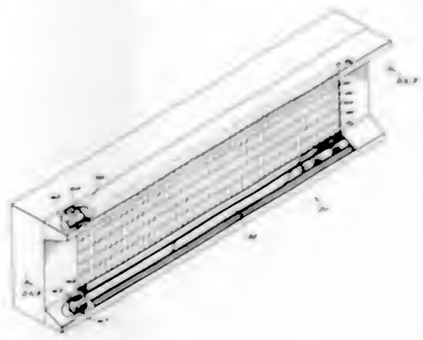
DISPLAY PANEL

Charles J. Holloman, Stamford, Conn., assignor to Trans-Lux Corporation, New York, N.Y.

Filed June 26, 1972, Ser. No. 266,303

Int. Cl. G08b 5/22

U.S. Cl. 340—373 **11 Claims**



A display panel consisting of a plurality of lines of display modules with each line having the capability of providing a plurality of characters which are produced by electrical signals through a magnetic transducer at a write position and removed by reset magnet with each line of display modules moving upwardly on an endless belt after completion of writing in a line and wherein the vertical movement of the belt is indexed in synchronism with the movement of the magnetic transducers between the write and non-write position.

3,813,674

CAVITY BACKED DIPOLE-SLOT ANTENNA FOR CIRCULAR POLARIZATION

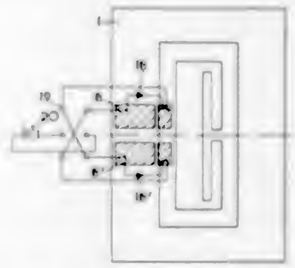
Michael John Sidford, Heckfield, England, assignor to The Secretary of State for Defence, London, England

Filed Jan. 4, 1973, Ser. No. 321,083

Claims priority, application Great Britain, Jan. 5, 1972, 393/72

Int. Cl. H01q 1/28, 13/18

U.S. Cl. 343—730 **6 Claims**



Aerial for receiving or transmitting circularly polarized electromagnetic radiation includes a dipole mounted substantially within the aperture of a slot and means for coupling the slot to the dipole asymmetrically. It may also include an electromagnetic cavity adjacent the coupled dipole and slot. In one embodiment the dipole is formed on one side of an insulating substrate and a narrow conductor is formed on the other side substantially opposite the dipole, with part of the dipole, the substrate, and the conductor together forming a stripline feed which may have a matching network formed by a further part of the dipole, the substrate, and the conductor.

3,813,675

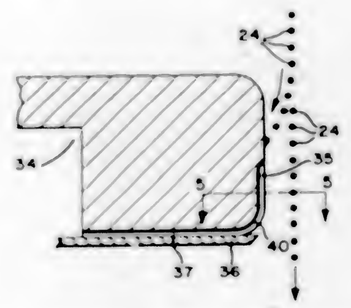
CATCHING APPARATUS FOR A JET DROP RECORDER

Jack J. Steffy, Waverly, and Peter L. Duffield, Kettering, both of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Mar. 28, 1973, Ser. No. 345,754

Int. Cl. G01d 15/18

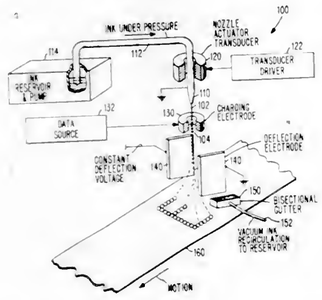
U.S. Cl. 346—75 **4 Claims**



There is disclosed a catcher for an array-type fluid jet recorder. The catcher has a catching face upon which intercepted droplets impinge and a series of facial channels for carrying away the intercepted liquid in discrete rivulets. The channels communicate with an internal liquid collection cavity to which the intercepted liquid is delivered. There are disclosed two embodiments of the catcher. In one embodiment the rivulet guiding channels are cut into the drop catching face. In the other embodiment a wire is wound in closely spaced turns around the body of the catcher. In this latter embodiment the spaces between the windings serve as liquid con-

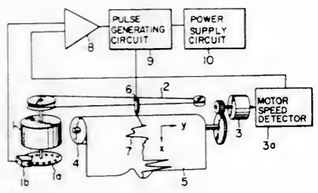
veying channels. In both embodiments of the invention the channels are mutually parallel and have a spacing equal to the spacing of the jets to be caught. The catcher is mounted in the recording head with the rivulet-guiding channels in alignment with the fluid jets so that each jet has its own channel for collection.

3,813,676
NON-SEQUENTIAL SYMBOL GENERATION SYSTEM FOR FLUID JET PRINTER
Bruce A. Wolfe, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 5, 1972, Ser. No. 295,302
Int. Cl. G01d *15/18*
U.S. Cl. 346—75 **3 Claims**



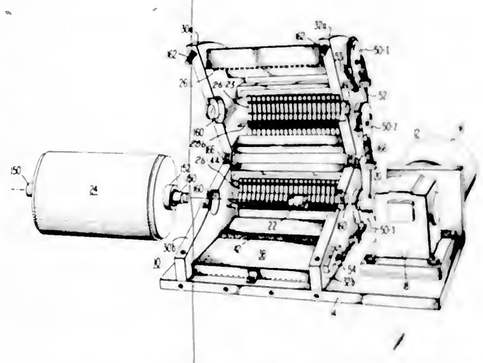
A fluid jet printing system includes a vibrating nozzle for emitting a stream of fluid which is broken into a series of uniform drops. The drops are charged by a voltage which is generated from a symbol code input by a symbol generator which produces a charging voltage representation for each drop of each symbol to be printed. The symbol generator includes a symbol storage means having stored in each location a representation of the charging voltage to be applied to each fluid drop. Deflection electrodes which supply an electric field for the purpose of deflecting charged fluid drops are positioned at an angle with respect to a base line for a row of symbols to provide greater flexibility and more accurate placement of fluid drops on a record media surface.

3,813,677
HEAT-SENSITIVE RECORD
Wataru Shimotsuma, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd, Osaka, Japan
Filed Feb. 20, 1973, Ser. No. 333,482
Claims priority, application Japan, Feb. 23, 1972, 47-18613; Mar. 8, 1972, 47-23852; May 2, 1972, 47-44000; May 16, 1972, 47-48757; Sept. 8, 1972, 47-90820
Int. Cl. G01d *15/10*
U.S. Cl. 346—76 R **10 Claims**



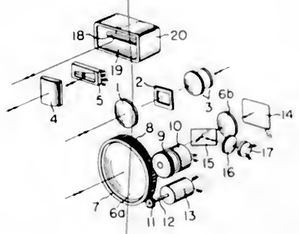
A heat-sensitive recorder using a thermal head, which is furnished with power in accordance with the speed of its movement relative to the recording sheet for the thermal control so as to obtain a uniform record quality.

3,813,678
HINGED DRUM SYSTEM
James Power Watson, Palm Beach, Fla., assignor to RCA Corporation, New York, N.Y.
Division of Ser. No. 202,343, Nov. 26, 1971, Pat. No. 3,747,081. This application Dec. 11, 1972, Ser. No. 314,004
Int. Cl. G11b *5/76*
U.S. Cl. 346—138 **6 Claims**



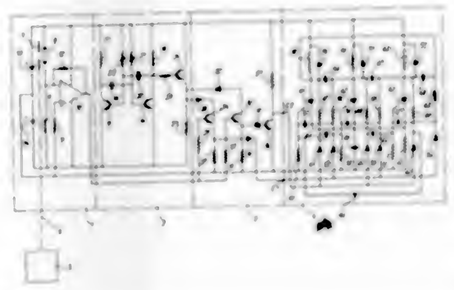
A magnetic drum has a plurality of record-reproduce heads along its surface. A common shaft having pins at precisely spaced intervals serves both to hold the heads in registration and to lift them from the surface of the drum. The device is journaled in bearings which serve as doweling to position split-end plates of the drum housing assembly. The drum is removable to permit interchangeability.

3,813,679
FOCUS DETECTOR DEVICE
Goro Hasegawa; Soichi Nakamoto, and Kazuya Hosoe, all of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 17, 1972, Ser. No. 298,185
Claims priority, application Japan, Nov. 2, 1971, 46-87411
Int. Cl. G03b *3/10*
U.S. Cl. 95—44 R **6 Claims**



A focus detector device of this invention employs flashlight as reference light so that the quantity of such light reflected by an object to be photographed is converted into an electrical signal and stored in a storage capacitor, whereby the focus detection may be effected in accordance with the quantity of the stored signal. The pre-flash is automatically actuated when the ambient light falls below a certain level. For focusing two photodiodes of logarithmic compression characteristics are used. A third photoelectric element meansures the amount of ambient light.

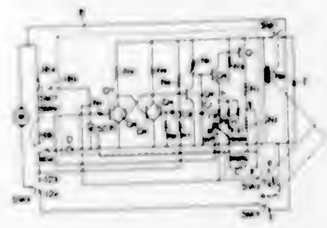
3,813,680
CAMERA HAVING INCREMENTALLY CONTROLLABLE APERTURE
Eduard Wagensonner, Aschheim, and Alfred Winkler, Muenchen, both of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Mar. 23, 1973, Ser. No. 344,369
Claims priority, application Germany, Mar. 25, 1972, 2214725
Int. Cl. G03b *7/08, 9/02*, **G01j** *1/44*
U.S. Cl. 95—10 CD **12 Claims**



A camera has light sensitive means which furnish a signal corresponding to the light available for an exposure. The camera has a diaphragm having an adjustable aperture. Electromagnetic step switch means are coupled to the diaphragm for changing the size of the aperture a predetermined increment in response to a predetermined number of control pulses. An astable multivibrator furnishes a sequence of control pulses. A differential amplifier furnishes an output signal when the size of the aperture differs from the desired size corresponding to the exposure signal. A first gate transmits the control pulses from the astable multivibrator to the input of the electronic step switch means when the output signal of the differential amplifier is positive, while a second gate transmits control pulses from the astable multivibrator to the electromagnetic step switch means when the differential amplifier output is negative. The two gates have outputs so-connected to the step switch means that an armature which is part of the step switch means rotates in a first direction in response to pulses applied from the first gate and in the opposite direction in response to pulses applied through the second gate. The aperture is opened further for one direction of rotation of the armature and closes when the armature rotates in the opposite direction.

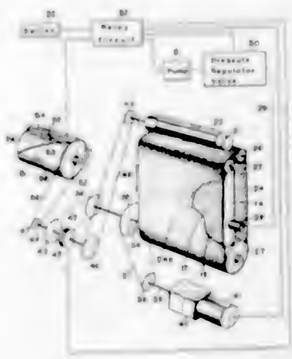
3,813,681
MOTOR DRIVEN PHOTOGRAPHIC CAMERA
Masayoshi Sahara, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Mar. 12, 1973, Ser. No. 340,138
Claims priority, application Japan, Mar. 13, 1972, 47-24706
Int. Cl. G03b *19/04*
U.S. Cl. 354—173 **12 Claims**

A motor driven camera having a motor for driving the shutter releasing and film-winding mechanisms and capable of periodically repeating a predetermined cycle of operation is provided with a mechanism for automatically prolonging the cycle of operation when it fails to provide a correct exposure due to insufficient luminosity of a subject which requires a longer exposure time. The mechanism includes a first operating member which initiates the timing in association with shutter release and is actuated when a time corresponding to the predetermined cycle of operation has occurred and a second operating member which is actuated in relation to the



completion of the exposure by the shutter, the motor operating the film winding mechanism when both of the first and second operating members are actuated.

3,813,682
PHOTOMECHANICAL CAMERA
Yukio Nishikawa; Yoshio Nagao, both of Kyoto; Yoshio Miyauchi, Shiga; Noriaki Mori, Shiga, and Shigenori Matsui, Shiga, all of Japan, assignors to Dainippon Screen Seizo Kabushiki-Kaisha, Kyoto, Japan
Filed Nov. 20, 1972, Ser. No. 308,267
Int. Cl. G03b *19/04*
U.S. Cl. 95—31 R **10 Claims**



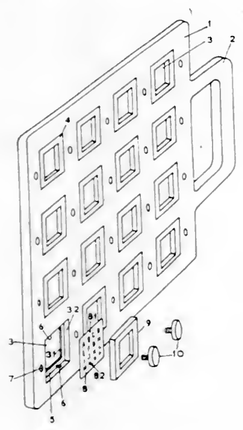
A photomechanical camera for use with a roll film has a vacuum suction box disposed in a camera housing and having a perforated front wall facing the lens system of the camera. An endless conveyor belt of a perforated material extends around the suction box and has a front run extending in substantially parallel and close contact relationship with the suction box front wall so that air is sucked into the suction box through the perforations in the belt and the suction box front wall. A length of film severed off and fed from the roll film onto the front run of the conveyor belt is sucked against the belt in the front run thereof and is conveyed toward an exposure position in which the center of the length of film in alignment with the optical axis of the lens system. Drive of the belt is so controlled that the motion of the belt is interrupted when the length of film is reached by the exposure position whereby the film is retained by the vacuum force in the exposure position during the exposure thereof.

3,813,683

CHARACTER MATRICES FOR PHOTOTYPESETTERS

Haydn V. Purdy, Down Cottage Down Pl., Windsor, and Ronald C. McIntosh, 17 Avenue Rd., St. Albans, both of England

Filed Aug. 10, 1970, Ser. No. 62,531
Int. Cl. G03b 15/00
U.S. Cl. 354—292 3 Claims



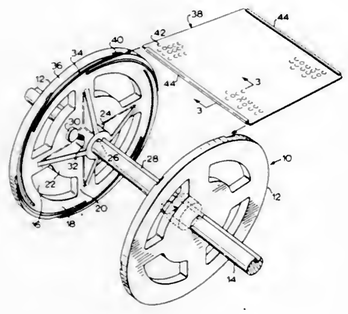
A character matrix array for a flying spot photographic character scanner is formed as a rigid plate of steel or the like with windows therein and a resilient gasket holds one or more arrays of character matrices on stable base films across the windows. The piece or pieces of film are prepunched with registration slots that fit registration pins in the frame.

3,813,684

REEL FOR PHOTOGRAPHIC SHEET MATE[illegible]L

Roy Ramsdale, Willowdale, Ontario, Canada, assignor to Alex L. Clark Limited, Islington, Ontario, Canada

Filed Apr. 13, 1972, Ser. No. 243,642
Int. Cl. G03d 3/00
U.S. Cl. 354—341 6 Claims



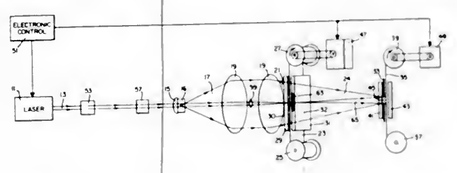
A reel for use in processing photographic sheet material, in which a pair of discs are axially mounted on a shaft. The discs have a plurality of opposed, convolute slots which receive the opposed edges of a flexible carrier on which the photographic material may be mounted.

3,813,685

HOLOGRAPHIC COLOR TELEVISION RECORD SYSTEM

Daniel S. St. John, Hockessin, Del., assignor to Holotron Corporation, Wilmington, Del.

Filed Dec. 11, 1969, Ser. No. 884,078
Int. Cl. H04n 9/02
U.S. Cl. 178—5.2 R 15 Claims



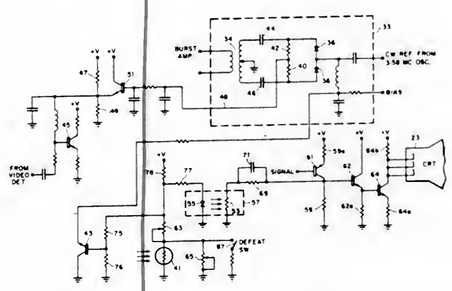
A method and apparatus for constructing and replaying an optical holographic record containing a plurality of very small holograms, each of which contains color information independent of the other holograms. Each piece of full color information, such as a frame of an ordinary color photographic movie, is recorded as an individual hologram. The record is a narrow, elongated flexible film with the holograms formed in a line along its length, each hologram touching those on either side thereof. One or more light sensitive detectors for converting an image into a time varying electronic signal are positioned to receive holographically reconstructed signals and transform them into a form acceptable to an ordinary color television set for displaying the color information thereon. One, two and three image detecting tube systems are disclosed. Several independent monochromatic components of a color information signal are carried on a single optical-electronic channel by modulation onto carrier frequencies either optically or electronically prior to construction of the hologram record. In a preferred embodiment described, the hologram record is constructed in a manner to reconstruct a board bandwidth luminance signal in a position spatially separated from the color component signal.

3,813,686

AMBIENT LIGHT RESPONSIVE CONTROL OF BRIGHTNESS, CONTRAST AND COLOR SATURATION

Eugene Peter Mierzwinski, Fort Wayne, Ind., assignor to The Magnovox Company, Ft. Wayne, Ind.

Continuation-in-part of Ser. No. 309,872, Nov. 27, 1972. This application Apr. 13, 1973, Ser. No. 350,853
Int. Cl. H04n 9/12
U.S. Cl. 358—27 14 Claims



A circuit deployed in a color television receiver for varying the brightness, contrast and color saturation of a displayed picture in accordance with variations in ambient light in the vicinity of a receiver screen is disclosed comprising a light sensing means mounted near the receiver screen and having an electrical parameter which varies in accordance with variations in the light incident on the light sensing means and

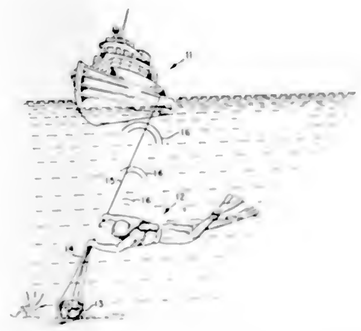
means responsive to those variations in the electrical parameter for varying the gains imparted to the luminance and chrominance signals in separately controlled diverse manners. In the disclosed preferred embodiment the light sensing means is a light dependent resistor such as a simple cadmium sulphide cell the resistance of which varies in response to changes in the light impinging thereon. These variations in resistance are used to control the gain of both the chrominance and the luminance amplifiers of the receiver with the luminance gain being changed with a first particular gain rate and the chrominance gain at a second particular gain rate with a given change in ambient light level. In a preferred embodiment, the luminance gain rate is approximately 50 percent greater than the chroma gain rate for a given change in ambient light, when such gains are measured in decibels.

3,813,687

INSTANT REPLAY HELIUM SPEECH UNSCRAMBLER USING SLOWED TAPE FOR CORRECTION

Fred G. Geil, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 29, 1972, Ser. No. 310,628
Int. Cl. G11b 15/44, 15/10, 1/04
U.S. Cl. 360—8 9 Claims



The helium speech processing device employs a cassette tape recording system which makes a sentence-by-sentence or phrase-by-phrase recording of the speech of a helium gas breathing diver and replays this recording at a reduced speed to provide increased intelligibility. The speed of replay is controllable by the diver and automatically in response to a depth sensing mechanism as well as a speed range control mechanism which is pre-set in dependence upon a particular gas mixture that the user is breathing.

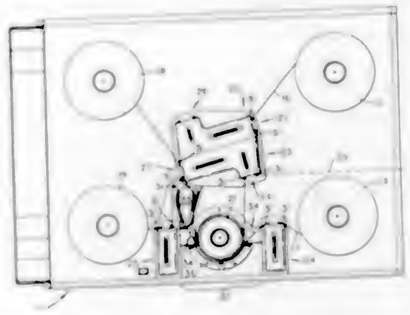
3,813,688

MAGNETIC TAPE DUPLICATOR

Dale P. Dolby, Los Altos, and Heinrich K. Sandrock, Palo Alto, both of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Mar. 29, 1971, Ser. No. 128,996
Int. Cl. G11b 5/02
U.S. Cl. 360—17 5 Claims

A master tape and a copy tape are brought into superimposed adhesion contact upon a rotating drive drum located within a signal transfer excitation zone that is defined by vacuum columns for isolating the tapes from outside disturbances such as different speed or tension changes that would cause the tapes to slip or misregister with respect to one another while the transfer is taking place. The necessary pressure for the adhesion contact is provided by air pressure means clamping the tapes against the drum. The disturbances introduced by the drum, if any, affect both tapes to the same degree, and the air pressure means produces no disturbances, so that the tapes remain in perfect registration during the transfer process.

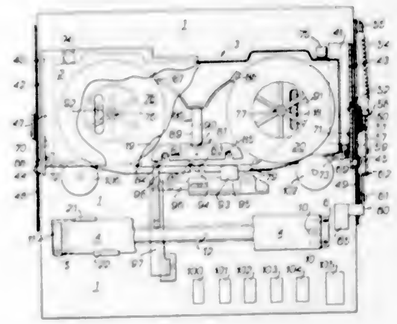


3,813,689

TAPE MACHINE WITH INDEX MEMBERS TO CONTROL TAPE TRANSPORT

Zoltan Josef Marfy, Hounslow, England, assignor to Clark and Smith Industries Limited, Wallington, Surrey, England

Filed Oct. 4, 1972, Ser. No. 294,827
Claims priority, application Great Britain, Oct. 4, 1971, 46142/71
Int. Cl. G11b 15/22, 27/34
U.S. Cl. 360—74 8 Claims

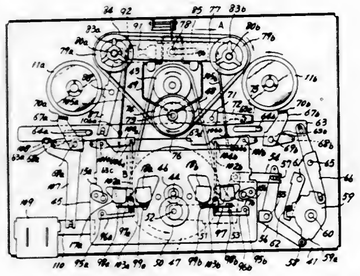


A tape displacement indicator assembly for a tape machine, particularly a magnetic record tape machine, which comprises two index members movable along adjacent paths on a scale and each arranged to be manually movable to any indicating positions on the scale, one of the index members being coupled with the tape drive mechanism of the machine for displacement in accordance with displacement of tape on the machine, and means responsive to movement of the index members to a predetermined relative position to de-actuate the tape drive mechanism of the machine. Also disclosed is a magazine-type magnetic record tape machine with a tape magazine loading tray and mechanism for use with a tape magazine having a pinch wheel mounted in the magazine.

3,813,690
TAPE RECIPROCATING DRIVE TYPE TAPE RECORDER

Toshiichiro Oka, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama City, Kanagawa-ken, Japan

Filed June 15, 1972, Ser. No. 263,289
Claims priority, application Japan, June 15, 1971, 46-42833
Int. Cl. G11b *15/26*
U.S. Cl. 360—90 6 Claims

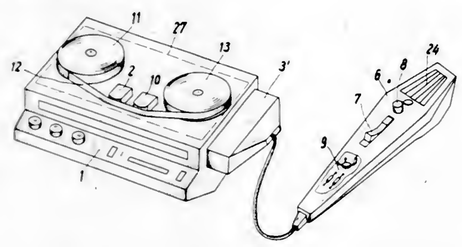


A tape reciprocating drive type tape recorder has two pulleys having a suitable degree of frictional resistance and rotatably mounted on the opposite ends of a swinging arm in a manner to confront two reel bases and means for transmitting rotational power in a regular direction or reverse direction to the two pulleys. The swinging arm swings in accordance with the rotational direction of the two pulleys, whereby, in accordance with the rotational direction thereof, one of the pulleys presses against the corresponding reel base to transmit rotational power thereto. By merely changing over the rotational direction of the pulleys, the two pulleys can be selectively caused to press against the reel bases.

3,813,691
OFFICE DICTATION/TRANSCRIPTION MACHINE

Reinhold Emmert, Furth, Germany, assignor to Grundig E.M.V. Elektro Mechanische Versuchsanstalt Max Grundig, Furth, Germany

Filed Oct. 2, 1972, Ser. No. 297,259
Claims priority, application Germany, Oct. 1, 1971, 2149046
Int. Cl. G11b *15/10, 27/36*
U.S. Cl. 360—90 6 Claims

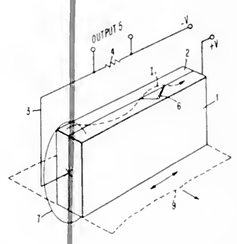


An office dictation/transcription machine of the type employing magnetic tape as the sound carrier. The machine has a main unit provided with erasing and playback/record heads and has a plurality of jacks electrically connected to the playback/record head and to the erasing head for the operative connection to the main unit of an accessory capable of activating the erasing head.

3,813,692
INTERNALLY BIASED MAGNETORESISTIVE MAGNETIC TRANSDUCER

George W. Brock, Boulder, and Frank B. Schelledy, Longmont, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 11, 1972, Ser. No. 296,742
Int. Cl. G11b *5/30*; H01c *7/16*
U.S. Cl. 360—113 14 Claims

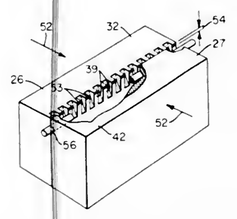


A magnetic transducer exhibiting the magnetoresistive (MR) effect includes at least two thin film layers. An MR film in electrical control with a higher resistivity layer is magnetically biased by a portion of the MR sense current shunted through the nonmagnetic layer.

3,813,693
MAGNETIC HEAD WITH PROTECTIVE POCKETS OF GLASS ADJACENT THE CORNERS OF THE GAP

Beverly R. Gooch, Sunnyvale, and Edward Schiller, San Jose, both of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Continuation of Ser. No. 67,784, Aug. 28, 1970, abandoned.
This application June 23, 1972, Ser. No. 265,939
Int. Cl. G11b *5/28*
U.S. Cl. 360—119 8 Claims



In a magnetic transducer formed of ferrite material, the detrimental effects of edge chipping adjacent the non-magnetic record/reproduce gap are avoided by forming protective pockets of glass material adjacent both corners of the gap. In this manner, otherwise vulnerable portions of the gap are isolated from chipping or granular pull-outs which tend to occur along the edges of magnetic head tips formed of ferrites or other similarly brittle magnetic materials.

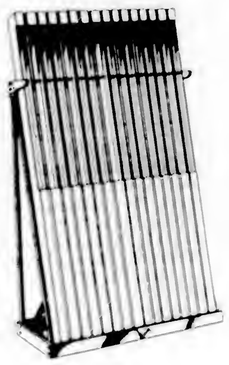
DESIGNS

MAY 28, 1974

231,683
DISPLAY STAND FOR STRIP MATERIAL

James T. Rash, Las Vegas, Nev., and Gary Peacock, Marion, Va., assignors to Mouldings, Inc., Marion, Va.

Filed Oct. 30, 1972, Ser. No. 301,759
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—188



231,684
CONDIMENT DISPENSER

Theodore M. Reyda, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 19, 1973, Ser. No. 342,760
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—54



231,685
BEVERAGE SERVER

Glenn B. Beckman, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 19, 1973, Ser. No. 342,762
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—59



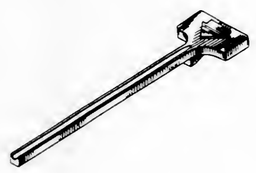
231,686
HEAD IMPLEMENT FOR CARPET SHAMPOO MACHINE

C. Bruce Hewson, Toronto, Ontario, Canada, assignor to York Lambton Corporation Ltd.

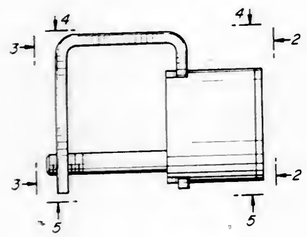
Filed Mar. 7, 1973, Ser. No. 338,948
Claims priority, application Canada Jan. 30, 1973
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D7—173



231,687
SHAVER ASSEMBLING TOOL
Edward J. Vrabel, Stratford, Conn., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Oct. 12, 1972, Ser. No. 299,732
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—14



231,688
U-SHAPED KEEPER LOCK FOR SEMI TRAILERS AND THE LIKE
John R. Gerlach, Monterey Park, Calif., assignor to Emhart Corporation, Bloomfield, Conn.
Filed Mar. 19, 1973, Ser. No. 342,732
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—114



231,689
DRAWBOLT
John B. Humphries, Stamford, Conn., assignor to The Excelsior Hardware Company, Stamford, Conn.
Filed May 11, 1973, Ser. No. 359,343
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—127



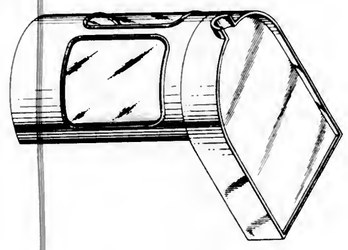
231,690
CAN OR SIMILAR ARTICLE
Thomas R. Stanley, Downers Grove, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed July 17, 1972, Ser. No. 272,274
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216



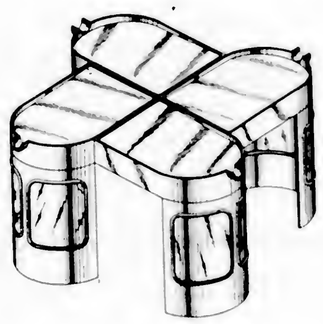
231,691
CAN OR SIMILAR ARTICLE
Thomas R. Stanley, Downers Grove, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed July 17, 1972, Ser. No. 272,275
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—216



231,692
SHELTER
Richard Dattner, 180 Cabrini Blvd., New York, N.Y. 10033
Filed Sept. 11, 1972, Ser. No. 287,932
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 D

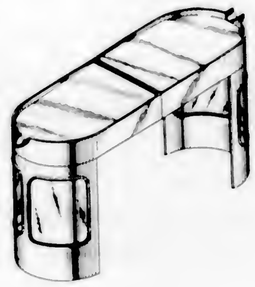


231,693
SHELTER
Richard Dattner, 180 Cabrini Blvd., New York, N.Y. 10033
Filed Sept. 11, 1972, Ser. No. 287,941
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 D

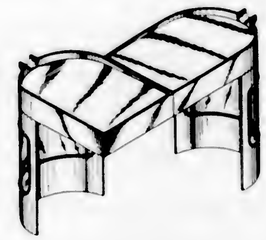


231,694
SHELTER
Richard Dattner, 180 Cabrini Blvd., New York, N.Y. 10033
Filed Sept. 11, 1972, Ser. No. 287,942
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 D

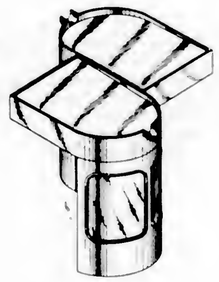
231,695
SHELTER
Richard Dattner, 180 Cabrini Blvd., New York, N.Y. 10033
Filed Sept. 11, 1972, Ser. No. 287,943
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 D

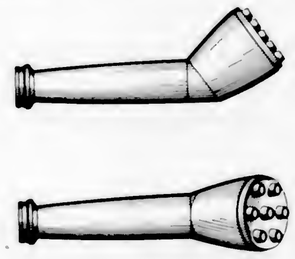


231,696
SHELTER
Richard Dattner, 180 Cabrini Blvd., New York, N.Y. 10033
Filed Sept. 11, 1972, Ser. No. 287,944
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D13—1 D

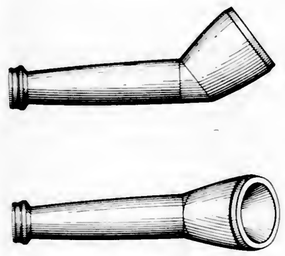


231,697
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,704
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34

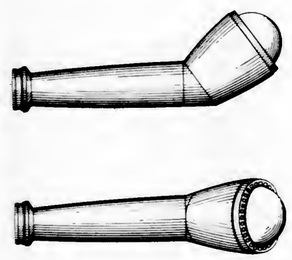




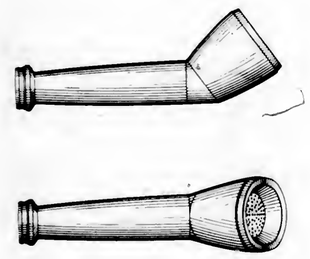
231,698
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,705
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



231,699
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,706
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



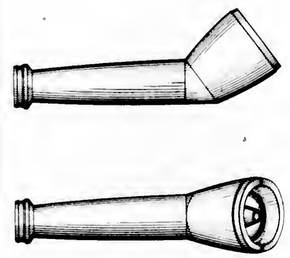
231,700
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,707
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



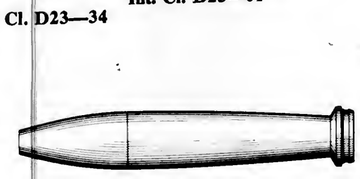
231,701
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,708
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



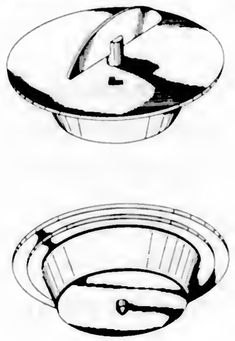
231,702
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,709
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



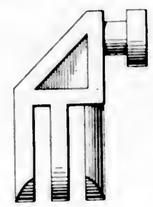
231,703
AERATION NOZZLE FOR A HYDROTHERAPY UNIT
Clifford E. Grube, Niles, Ill., assignor to Associated Mills, Incorporated
Filed July 26, 1973, Ser. No. 382,710
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



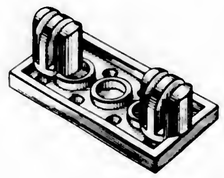
231,704
WHIRLING DEVICE FOR DEMONSTRATING PHYSICS
Kenneth Earl Wale, 62 Armstrong Ave., Hamilton 31, Ontario, Canada
Filed Nov. 27, 1972, Ser. No. 309,687
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1 R



231,705
JOINT FOR A TOY FIGURE
Godtfred Kirk Christiansen, Billund, Denmark, assignor to Interlego, A.G., Zurich, Switzerland
Filed Apr. 13, 1972, Ser. No. 243,904
Claims priority, application Denmark Oct. 15, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 FF



231,706
CONNECTING MEMBER FOR A TOY FIGURE
Godtfred Kirk Christiansen, Billund, Denmark, assignor to Interlego, A.G., Zurich, Switzerland
Filed Apr. 13, 1972, Ser. No. 243,908
Claims priority, application Denmark Oct. 15, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 GG



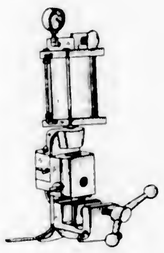
231,707
RETURN TOP
Leroy W. Mason, Werner F. Hellman, and Gerald A. Rau, Baraboo, Wis., assignors to Flambeau Products Corporation
Filed Apr. 9, 1973, Ser. No. 349,851
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 AH



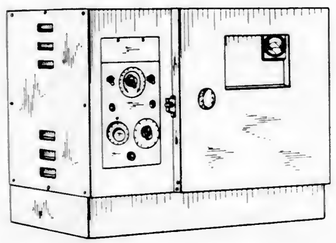
231,708
TABLE LIGHTER BASE
Peter C. Kenney, Wellesley, and Peter V. Tremblay, Hingham, Mass., assignors to The Gillette Company, Boston, Mass.
Filed Nov. 22, 1972, Ser. No. 308,818
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27 R



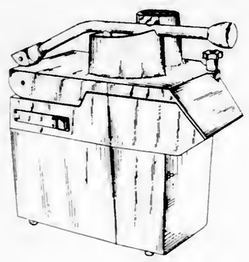
231,709
PNEUMATICALLY OPERATED INJECTION MOLDING INSTRUCTIONAL DEVICE
Francis Paul Pracilio, 966 Grant Ave., Pelham Manor, N.Y. 10803
Filed July 28, 1972, Ser. No. 276,139
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D54—8



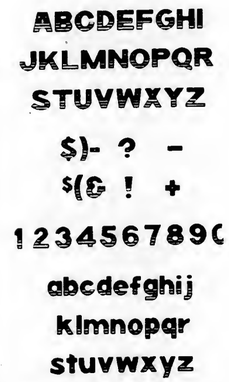
231,710
ROTATIONAL MOLDING INSTRUCTION DEVICE
Francis Paul Pracilio, 966 Grant Ave., Pelham Manor, N.Y. 10803
Filed July 28, 1972, Ser. No. 276,140
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D54—8



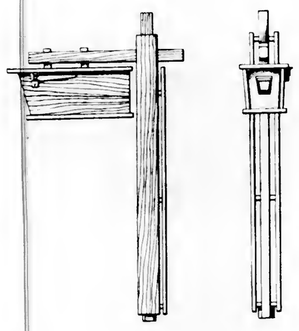
231,711
VEGETABLE CUTTER
Oliver Camille Henri Prevot, 1 Rue d'Assen, Aubusson, France
Continuation-in-part of abandoned design application Ser. No. 153,922, June 16, 1971. This application Apr. 25, 1973, Ser. No. 354,165
Claims priority, application France Dec. 26, 1970
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D55—1 A



231,712
TYPE FONT
John E. Snitzel, Rochester, N.Y., assignor to The Singer Company, New York, N.Y.
Filed May 26, 1972, Ser. No. 257,480
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D64—12 B



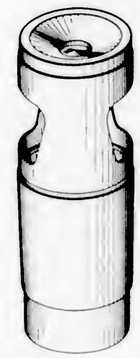
231,713
MAIL BOX OR SIMILAR ARTICLE
Duane H. Nesbitt, 2817 E. Serendipity Circle, Colorado Springs, Colo. 80917, and Jimmy P. Hayes, Colorado Springs, Colo.; said Hayes assignor to said Nesbitt
Filed Aug. 27, 1971, Ser. No. 175,793
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D74—9 R



231,714
IDENTIFICATION CLIP
Michael D. Arthur, 70 Lexington Drive, Beaconsfield, Quebec, Canada
Filed Aug. 21, 1972, Ser. No. 282,290
Claims priority, application Canada Feb. 21, 1972
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—2 B



231,715
ASH-TRAY
Walter Fieni, Paris, France, assignor to Societe Anonyme Francais du Ferodo, Paris, France
Filed Dec. 20, 1972, Ser. No. 316,720
Claims priority, application France June 23, 1972
Term of patent 14 years
Int. Cl. D27—*03*
U.S. Cl. D85—2 J



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 28TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A-Lok Corporation: *See—*
Ditcher, John, 3,813,107.

Aaron, Herbert S.; and Reiff, Louis P., to United States of America, Army. Catalytic hydrogenation of keto groups in heteropolycyclic compounds. 3,813,403, Cl. 260-292.000.

AB Centralsug: *See—*
Ekstrom, Per-Olof, 3,813,128.

AB Nora-Gomex: *See—*
Danielsen, Bo Sixten, 3,812,755.

AB Svensk Varmematning C.B-System: *See—*
Karlsson, Stig Ingvar, 3,812,713.

Abbott, William J.; and Rankin, Malcolm, to Witco Chemical Corporation. Damping media for energy absorbing devices. 3,812,937, Cl. 188-266.000.

Abe, Yasunori; Yamane, Nobuo; Itoh, Kensaku; Ishida, Shuichi; and Kobayashi, Hisabumi, to Nippon Kayaku Co., Ltd. p-Nitrodiphenyl ethers. 3,813,444, Cl. 260-607.00a.

Abe, Yoshihiko, to Mitsubishi Seiko Kabushiki Kaisha. Corrosion-resisting steel. 3,813,240, Cl. 75-126.00d.

Abernathy, William J.; and Snoddy, Lowell G., to United States of America, National Aeronautics and Space Administration. Insert facing tool. 3,813,183, Cl. 408-80.000.

Abex Corporation: *See—*
Ratkowski, Thomas A., 3,812,608.

Abrams, Richard Lee; and Glass, Alastair Malcolm, to Bell Telephone Laboratories Incorporated. Pyroelectric devices. 3,813,550, Cl. 250-338.000.

Abrex Specialty Coatings Ltd.: *See—*
Crowne, Francis R.; Tan, Chiong-Heng; and Vandenbroek, Martin A., 3,813,327.

ABU Aktiebolag: *See—*
Svensson, Hugo Ragnvald, 3,812,940.

ACF Industries, Incorporated: *See—*
Kolb, John P.; and Powell, Richard G., 3,812,980.

Acieries de Gennevilliers Anciens: *See—*
Bommart, Patrick Theodore, 3,813,502.

Adachi, Yoshiaki: *See—*
Hayashi, Yasuo; and Adachi, Yoshiaki, 3,813,424.

Adams, Harold W., to Reynolds Metals Company. Steel supported aluminum overhead conductors. 3,813,481, Cl. 174-130.000.

Adams, William, & Company Limited (Manufacturing Division): *See—*
Salmon, Paul Mervyn, 3,812,809.

Addressograph-Multigraph Corporation: *See—*
Ziska, John C., 3,812,778.

Adkins, Russell M., to Westinghouse Air Brake Company. Miniature polarized relay. 3,813,620, Cl. 335-78.000.

Advance Housing Corporation *See—*
Lerch, Adolph F.; Otis, Nick C.; and Montgomery, John D., 3,812,638.

Aerojet-General Corporation: *See—*
Cohen, Joseph; and Scotoni, Ralph, Jr., 3,812,785.

Agfa-Gevaert Aktiengesellschaft: *See—*
Geyken, Erwin; Dawidowitsch, Peter; and Ertl, Franz, 3,812,870.
Schranz, Karl-Wilhelm, Hunicke, Wolfgang; Brus, Gerhard H., Schon, Erwin; Busch, Josef, and Bruck, Herbert, 3,813,246.
Wagensonner, Eduard; and Winkler, Alfred, 3,813,680.
Zahn, Wolfgang; Fergg, Berthold; and Knapp, Walter, 3,813,158.

Agfa-Gevaert N.V.: *See—*
Laridon, Urbain Leopold; and Van Den Houte, Jozef Willy, 3,813,245.
Mannens, Marc Godfried; Jaeken, Jan; Janssens, Wilhelmus; and Priem, Jan Jozef, 3,813,255.

Aiki, Kunio: *See—*
Umeda, Jun-Ichi; Aiki, Kunio; Kurata, Kazuhiro; and Kusumoto, Hazime, 3,813,587.

Aisin Seiki Kabushiki Kaisha: *See—*
Inada, Masami, 3,813,130.

Aizu, Keiichiro: *See—*
Kumada, Akio; Ashida, Sakichi, Aizu, Keiichiro; and Koga, Masaahi, 3,813,144.

Ajamie, Amil J.: *See—*
Davidsohn, Uryon S.; Short, John P.; Combs, Clyde, Jr.; and Guerra, Edward E., 3,813,584.

Ajax Magnethermic Corporation: *See—*
Duca, William J., 3,813,470.

Akiyama, Tadashi, to Yamatake-Honeywell Company Limited. Yarn break detection system. 3,813,583, Cl. 317-148.50b.

Aktiebolaget Electrolux: *See—*
Klingspor, Christian Staffansson, 3,813,054.

Aktiebolaget Svenska Flaktfabriken: *See—*
de Feudis, Sergio, 3,813,127.
Westergren, Folke, 3,812,904.

Albrecht, Peter M., to National Cash Register Company, The. Circuit for measuring and evaluating optical radiation. 3,813,540, Cl. 250-206.000.

Albrecht, Raymond E.; Curran, Bernard E.; and Lindner, Robert G., to Robertson, H. H., Company. Sheet metal decking unit and composite floor construction utilizing the same. 3,812,636, Cl. 52-334.000.

Alexander, Doyle L.: *See—*
Shofner, Don L.; and Alexander, Doyle L., 3,813,212.

Alexander Manufacturing Company: *See—*
Heine, Charles A., 3,812,741.

Alger, Carl E., to Oklahoma Tool & Supply Company. Carpenter's tool. 3,813,081, Cl. 254-131.000.

Allan, George Graham, to Weyerhaeuser Company. Sustained release pesticide compositions and method of using. 3,813,236, Cl. 71-94.000.

Allen, Archelaius Dawson, to Dobson, Gullick, Limited. Mine roof supports. 3,812,681, Cl. 61-45.00d.

Allen, Howard John Brandsom; and Johnston, James Meill, to Microwave and Electronic System Limited. Monitoring systems and apparatus therefor. 3,813,655, Cl. 340-151.000.

Allen, John K., to Standard Oil Company (Indiana). Antimony tallate catalysis of foams prepared from carboxy-containing adduct polyols. 3,813,355, Cl. 260-2.5ab.

Allied Chemical Corporation: *See—*
Ryers, Arnold L., 3,813,464.
Wright, William Howell; Bingham, Alex John; and Fox, William Albert, 3,813,366.

Allis-Chalmers Corporation: *See—*
Drewry, Hugh S., 3,813,632.
Kemnitz, Robert H.; and Pollak, Robert J., 3,813,046.
Rockwell, Harvey W.; and Ringland, William L., 3,812,928.
Temple, William F.; and Johnston, David K., 3,813,184.
Torrence, James D.; and Graves, Fred L., 3,813,047.

Allister Manufacturing Company, Inc.: *See—*
Ellmore, John W., 3,813,590.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
Englund, Hakan; Eriksson, Ronny; and Nilsson, Bengt, 3,812,721.

Alpers, Frederick C., to United States of America, Navy. High resolution range tracking circuit. 3,813,670, Cl. 343-7.300.

Alps Electric Co., Ltd.: *See—*
Okazaki, Mitsunari, 3,813,615.

Alum Elec Structures, Inc.: *See—*
Priest, Charles E., 3,813,179.

Aluminum Company of America: *See—*
Willis, Wilburn C., 3,812,990.

Amaroso, James R.: *See—*
Coppock, Walter J.; Amaroso, James R.; and Griffith, John O., III, 3,813,338.

American Cyanamid Company: *See—*
Coscia, Anthony Thomas; and Williams, Laurence Lyman, 3,813,362.

American Flange & Manufacturing Co. Inc.: *See—*
Wolf, Edward M.; and Koll, Stanley J., 3,812,992.

American Home Products Corporation: *See—*
Douglas, George H., Faust, Warren R., and Smith, Herchel, 3,813,420.
McKinley, Wayne A.; and McGregor, William H., 3,813,382.
Mukai, Cromwell D.; and Weinstein, Bernard, 3,813,343.
Sellstedt, John H., Teller, Daniel M.; and Guinosso, Charles J., 3,813,386.

American Home Products Corporation, mesne: *See—*
Henniger, Peter Wolfgang, 3,813,385.

American Screen Process Equipment Company: *See—*
Cobb, Clyde C., 3,812,779.

Amerola Products Corporation: *See—*
Merola, Anthony, 3,813,090.

Ametek, Inc.: *See—*
Raznov, Jerry L., 3,813,066.

Ampex Corporation: *See—*
Dolby, Dale P.; and Sandrock, Heinrich K., 3,813,688.
Gooch, Beverly R.; and Schiller, Edward, 3,813,693.

Amrogowicz, Erich. Inlet and outlet closure. 3,812,998, Cl. 220-30.500.

Anchor Hocking Corporation. *See—*
Lush, John S., 3,812,949.

Anderson, Daniel J. Smoking habit control kit. 3,812,865, Cl. 131-171.00a.

Anderson, Ernest David; and Cowan, Larry Clyde, to Leesona Corporation. Fluid responsive control valves. 3,812,881, Cl. 137-596.140.

Anderson, Norman G., to United States of America, Atomic Energy Commission. Rotor having sample holding means. 3,813,031, Cl. 233-26.000.

Anderson, Richard John: *See—*
Parfomak, Walter; Anderson, Richard John; and Levine, Alfred, 3,813,665.

Anderson, Robert J., to Parachem Corporation. Wound dressings. 3,813,466, Cl. 424-28.000.

Anderson, Ronald Vernon, to International Telephone and Telegraph Corporation. High voltage in-line disconnect switch. 3,813,504, Cl. 200-48.00r.

Ando, Shigemi, to Mitsui Shipbuilding and Engineering Co., Ltd. Cargo vessel for carrying liquid cargo. 3,812,807, Cl. 114-74.00r.

Andreaggi, Joseph R., to Weston Instruments, Inc. Portable instrument. 3,813,004, Cl. 220-96.000.

Andrews, Kenneth John Maynard; and Tong, Brian Peter, to Hoffmann-La Roche Inc. Pyrimidotriazines. 3,813,393, Cl. 260-249.500.

Andrews Paper & Chemical Co., Inc.: *See—*
Muller, Peter, 3,813,261.

Anheuser-Busch, Incorporated: *See—*
Shieh, Kenneth K.; Donnelly, Brendan J.; and Lee, Howard A., 3,813,320.
Stubits, Marcella C., 3,813,221.

Anritsu Electric Co., Ltd.: *See—*
Kurosawa, Koichi; and Okubo, Ko, 3,813,483.

Anthony, Roger B.: *See—*
Brebik, Stephen J.; and Anthony, Roger B., 3,813,637.

Antonevich, John N., to Blackstone Corporation. Electromechanical oscillator. 3,813,616, Cl. 331-116.00r.

Application des Gaz: *See—*
Remane, Roger, 3,812,645.

Aquarian-Age-Inventor, Inc.: *See—*
Capper, Keith C., 3,813,075.

Aragozzini, Fabrizio: *See—*
Craveri, Renato; Manachini, Luigi; and Aragozzini, Fabrizio, 3,813,319.

Arai, Kosuke: *See—*
Watabe, Kaname; Arai, Kosuke; Taneda, Yasuo; and Naka, Kiyomi, 3,813,162.

Aramaki, Kuninori; Kawakami, Hiroshi; and Kawaguchi, Yasuharu, to Bridgestone Tire Company Limited. Device for recovering floating matter from water surface. 3,812,968, Cl. 210-242.000.

Arbenz, Heinz; and Caspar, Jakob, to Swiss Aluminum Ltd. Apparatus for preparing open sand molds suitable for casting large metal plates. 3,812,902, Cl. 164-208.000.

Arcata Graphics Corporation: *See—*
Swann, Clifford; and Siminski, Gerald W., 3,813,052.

Arita, Koshei. Apparatus for measuring the temperature of rotary bodies. 3,813,518, Cl. 219-471.000.

Armbruster, Frederick C.; Heady, Robert E.; and Cory, Robert P., to CPC International Inc. Production of xylose (dextrose) isomerase enzyme preparations. 3,813,318, Cl. 195-31.00f.

Armour and Company: *See—*
Drain, Albert Sterling, 3,813,467.

Armstrong, George W. Flow control valve and control system therefor. 3,813,015, Cl. 222-445.000.

Arndt, Werner. Knitted edging for a fabric or garment. 3,812,692, Cl. 66-172.00r.

Arnold, Orlan M.; and Vancini, Carlo A., to Peabody Engineering Corporation. Gas cleaning apparatus. 3,812,658, Cl. 55-239.000.

Arnold, Robert J.: *See—*
Gattuso, Marion J.; and Arnold, Robert J., 3,813,332.

Arps, Ronald Barthold, to International Business Machines Corporation. System for compression of digital data. 3,813,485, Cl. 178-6.800.

Asano, Hiroaki: *See—*
Kikuchi, Makoto; Asano, Hiroaki; Otsu, Ikuo; and Saeki, Toyoaki, 3,812,623.

Asher, John W.; and Herczog, Andrew, to Corning Glass Works. Frit capacitor and method for obtaining the dielectric constant thereof. 3,812,688, Cl. 65-18.000.

Ashida, Sakichi: *See—*
Kumada, Akio; Ashida, Sakichi; Aizu, Keiichiro; and Koga, Masaahi, 3,813,144.

Ashland Company of N. J., Inc.: *See—*
Kivlen, John A.; Orr, Richard L.; Chwab, William H.; and Macindoe, George F., 3,812,663.

Ashton, Larry J.: *See—*
Block, Leo; Ashton, Larry J.; and Vodraska, Kenneth F., 3,812,872.

Asta-Werke Aktiengesellschaft Chemische Fabrik: *See—*
Vogelsang, Dietrich; Scheffler, Gerhard; Brock, Norbert; and Lenke, Dieter, 3,813,384.

Ateliers Reunis Societe Anonyme: *See—*
Joseph, Raymond, 3,812,999.

Atlantic Richfield Company: *See—*
Curtin, Daniel J., 3,813,030.
Frisch, Kurt C.; Reegen, Sidney; and Dieter, Jerry A., 3,813,365.
Sheldahl, David B., 3,813,337.

Atlas Copco Aktiebolag: *See—*
Westerberg, Sven Peter Jonas, 3,812,744.

Auber, Benjamin B., to Columbia Broadcasting System, Inc. Quadraphonic reproducing system. 3,813,494, Cl. 179-1.0gq.

Auerbach, Melvin: *See—*
Saltman, William M.; and Auerbach, Melvin, 3,813,455.

Aumuller, Walter; Weyer, Rudi; and Heerdt, Ruth, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Benzenesulfonyl-semicarbazides and process for their manufacture. 3,813,398, Cl. 260-283.0sa.

Auphan, Michel Joseph: *See—*
Perilhou, Jean Robert; and Auphan, Michel Joseph, 3,812,597.

Auray, Didier Henri; Downey, Richard T.; and Macomber, Robert I. Desoldering device. 3,813,023, Cl. 228-19.000.

Austral Incinerator Corporation: *See—*
Bowles, Harry L., Jr., 3,812,795.

Auto-Place, Inc.: *See—*
Potter, Ronald D., 3,812,981.

Automated Equipment Corporation: *See—*
Radobenko, William, 3,813,022.

Automatic Timing & Controls, Inc.: *See—*
Ross, Donald, 3,813,668.

Automobiles Peugeot: *See—*
Quemerais, Philippe, 3,812,943.

Avco Everett Research Laboratory, Inc.: *See—*
Staal, John V., 3,813,511.

Aya, Masahiro; Miyamoto, Masao; Fukawawa, Nobuo; and Ohsuga, Shigeki, to Bayer Aktiengesellschaft. Thienylmethyl-N,N-disubstituted-carbamates. 3,813,405, Cl. 260-293.680.

Baburov, Valery Efremovich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich, 3,812,909.

Bach, Nicholas J.; and Farkas, Eugene, to Lilly, Eli, and Company. Preparation of phenolic ethers. 3,813,419, Cl. 260-397.50a.

Back, Stig Ove: *See—*
Mihic, Wlajko; and Back, Stig Ove, 3,812,560.

Backstrom, Sven Hjalmar; and Hellman, Per, to Stora Kopparbergs Bergslags Aktiebolag. Device for manufacture of a powder by atomizing a stream of molten metal. 3,813,196, Cl. 425-7.000.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Klocke, Hans Joachim; Stockburger, Dieter; Gierth, Volker; and Zeitler, Gerhard, 3,813,375.

Badische Anilin-& Soda-Fabrik Aktiengesellschaft: *See—*
Fischer, Adolf, 3,813,237.

Baker, Clinton F. Harvesting machine with crop saving attachment. 3,812,661, Cl. 56-14.400.

Bakos, Peter; and Knight, Diana J., to International Business Machines Corporation. Method for stripping resists from substrates. 3,813,309, Cl. 156-2.000.

Balchunas, Charles A., to General Electric Company. Wall plug-in time switch. 3,813,641, Cl. 339-170.000.

Baldwin, Mart G.; and Chaille, James L., to United States of America, Army, mesne. High burning rate NF propellants. 3,813,305, Cl. 149-19.300.

Baldyga, Eugene P.; and Griesing, John E., to Monsanto Company. Supporting a thin walled bottle during capping. 3,812,646, Cl. 53-42.000.

Banko, Anton, to Surgical Design Corporation. System for controlling fluid and suction pressure. 3,812,855, Cl. 128-276.000.

Barmag Barmer Maschinenfabrik Aktiengesellschaft: *See—*
Schippers, Heinz, 3,812,664.

Barnard, Benjamin R., to Maxson Corporation, The. Adjustable flat car. 3,812,791, Cl. 105-393.000.

Barnes, John Grober; Bizon, Emil; Murray, Charles Robertson; Rowley, Edward Kenneth; and Waugh, Clayton Thomas, to Canadian Industries Limited. Manufacture of plastic bags. 3,812,769, Cl. 93-35.00r.

Barnes, John I., III. Fine grade indicating system. 3,813,181, Cl. 404-84.000.

Barnes, William Geddes: *See—*
Ramsay, Melvin Murray; Barnes, William Geddes; and Bedgood, Michael Albert, 3,813,489.

Barnhart, John T. Air cleaning device. 3,812,656, Cl. 55-220.000.

Barnhart, Morris W.; and Russ, John C., to Edax International, Inc. X-ray scan area mapping system. 3,813,545, Cl. 250-306.000.

Barratt, Robert O.: *See—*
Polcer, John; Barratt, Robert O.; and Roberts, John, 3,812,824.
Polcer, John; Barratt, Robert O.; and Roberts, John, 3,812,825.

Barron, Charles D., to Jackson, Byron, Inc. Force measuring weighing device. 3,812,723, Cl. 73-434.000.

Barron, David Michael Arthur: *See—*
Smith, Robert William George; Barron, David Michael Arthur; and Wingrove, Arthur George, 3,813,058.

Barth, Ross E.: *See—*
Zahuranec, Emery J.; Bedo, Alfred; and Barth, Ross E., 3,812,963.

Bartlett, Kenneth G., to Singer Company, The. Digital high order interpolator. 3,813,529, Cl. 235-152.000.

Basiulis, Algerd, to Hughes Aircraft Company. Insulated cathode gun device. 3,813,571, Cl. 313-326.000.

Bastacky, Simon. Process for treating industrial wastes. 3,813,321, Cl. 204-149.000.

Battelle Development Corporation: *See—*
Stewart, Oliver M.; Maringer, Robert E.; and Mobley, Carroll E., Jr., 3,812,901.

Bauer, Friedrich, to Hoerbiger Ventilwerke Aktiengesellschaft. Compressor valve. 3,812,880, Cl. 137-516.150.

Bauger, Louis Jules: *See—*
Bouiller, Jean Georges; Gobin, Michel Roland; Lacroix, Armand Jean-Baptiste; and Bauger, Louis Jules, 3,813,185.

Bauger, Madeleine Henriette Aimee, and Olivier, Jeanne Denise: *See—*
Bouiller, Jean Georges; Gobin, Michel Roland; Lacroix, Armand Jean-Baptiste; and Bauger, Louis Jules, 3,813,185.

Baughman, Herbert W.; and Yetter, Harry G. Chisel plow. 3,812,919, Cl. 172-328.000.

Bauman, Gunther; Schmidt, Peter; Eisele, Hermann; and Wahl, Josef, to Bosch, Robert, GmbH. Electronic fuel consumption meter. 3,812,710, Cl. 73-114.000.

Baumann, Dieter: *See—*
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, 3,813,352.

Baumann, Hans D.; and Keith, Gareth Allan, to Masoneilan International, Inc. Quick change apparatus for effecting gas flow pressure reduction with low noise generator. 3,813,079, Cl. 251-127.000.

Baur, Hellmuth; and Schraft, Horst, to Werner & Pfleiderer, Firma. Continuous tunnel oven for baking and/or drying. 3,813,216, Cl. 432-230.000.

Baur, Rudolf: *See—*
Hofling, Erich; Baur, Rudolf; and Bloeck, Siegfried, 3,813,303.

Bayer Aktiengesellschaft: *See—*
Aya, Masahiro; Miyamoto, Masao; Fukawawa, Nobuo; and Ohsuga, Shigeki, 3,813,405.
Bock, Eugen; Dollhausen, Manfred; and Muller-Albrecht, Horst, 3,813,380.
Colln, Reimer, 3,813,457.
Heine, Hans-Georg; Fischler, Hans-Michael; and Hartmann, Willy, 3,813,432.
Sajben, Johannes Otto; Lippert, Axel; Stumpen, Klaus; and Grunewald, Rainer, 3,812,885.

Beach, William A.; and Schlauch, Richard M., to Sybron Corporation Settling rate tester. 3,812,966, Cl. 210-70.000.

Beck, Martin. Ganged sod harvesting apparatus. 3,812,918, Cl. 172-19.000.

Beck, Roger W.; and Yoder, Douglas J., to General Motors Corporation. Process for etching silicon wafers. 3,813,311, Cl. 156-17.000.

Bedgood, Michael Albert: *See—*
Ramsay, Melvin Murray; Barnes, William Geddes; and Bedgood, Michael Albert, 3,813,489.

Bedo, Alfred: *See—*
Zahuranec, Emery J.; Bedo, Alfred; and Barth, Ross E., 3,812,963.

Beegle, Donald W.: *See—*
Salmon, David; Weirzbicke, Edward J.; Langston, Benny, and Beegle, Donald W., 3,813,238.

Beer, Emanuel E.; and Jeltrup, Eric H., to Singer Company, The. Tilt limit detecting apparatus. 3,813,556, Cl. 250-575.000.

Beets, Roland H. C.: *See—*
Fader, John H.; Keijzer, Johan H., Graulus, Marcel J. R.; and Beets, Roland H. C., 3,812,938.

Bekedam, Martin. Closed condensate system. 3,813,037, Cl. 237-9.00r.

Bell & Howell Company: *See—*
Kral, Fred G., 3,813,521.

Bell, Lon E., to Technar Incorporated. Velocity responsive apparatus. 3,812,726, Cl. 73-503.000.

Bell Telephone Laboratories Incorporated. *See—*
Abrams, Richard Lee; and Glass, Alastair Malcolm, 3,813,550.
Danielmeyer, Hans Guenter; and Weber, Heinz Paul, 3,813,613.
Danylchuk, Irynej; Geusic, Joseph Edward; and Nelson, Terence John, 3,813,661.
Miller, Gabriel Lorimer; and Robinson, David Arthur Hall, 3,812,717.
Miller, Stewart Edward, 3,813,141.
Vazirani, Hargovind Nihchaldas, 3,813,322.

Bemiss, Robert P. Method of forming, filling and closing cartons, and specific cartons therefor. 3,812,641, Cl. 53-14.000.

Bendix Corporation, The: *See—*
Hoffman, Philip A.; and Davey, Frederick K., 3,812,712.
Knockeart, Ronald P., 3,813,140.
Parfomak, Walter; Anderson, Richard John; and Levine, Alfred, 3,813,665.
Rogne, Conrad O., Jr.; and Grant, Robert A., 3,813,126.
Troeger, Henry, 3,813,089.

Bendix Corporation, The, mesne: *See—*
Thorne-Booth, George M., 3,813,538.

Benerito, Ruth R.: *See—*
McKelvey, John B.; and Benerito, Ruth R., 3,813,421.

Benisek, Ladislav; Winterbottom, Kenneth; Shaw, Trevor; and Edmondson, Gerald Keith, to I.W.S. Nominee Company Limited and Ciba-Geigy AG. Process for modifying keratinous material, composition useful therein, and keratinous material bearing thereon said coposition. 3,813,220, Cl. 8-127.600.

Bennett, David F. Gas-liquid separator. 3,812,655, Cl. 55-204.000.

Bennett, Robert A., to Waterbury Lock & Specialty Co. Tape measuring unit and locking and releasing device therefor. 3,812,588, Cl. 33-138.000.

Benoiton, Norman L.; Tong, Jeffrey H. Y.; D'Ilorio, Antoine; and Petitclerc, Jean C., to Canadian Patents and Development Limited. Resolution of racemates of ring-substituted phenylalanines. 3,813,317, Cl. 195-29.000.

Benson, Robert W.; and Chapman, James Ronald, to Thermo Electron Corporation. Stress gage. 3,812,709, Cl. 73-67.50r.

Benteler, Helmut; Hartmann, Franz-Josef; and Hefendehl, Heinz. Multi-pass method and apparatus for cold-drawing of metallic tubes. 3,812,702, Cl. 72-283.000.

Benz, Ernst. Pickup needle. 3,813,101, Cl. 274-38.000.

Berends, Howard P., to Holland Hitch Company. Inverted fifth wheel coupler. 3,813,114, Cl. 280-434.000.

Berger, Abe: *See—*
De Zuba, George P.; Berger, Abe; and Selin, Terry G., 3,813,364.

Berman, Arnold: *See—*
Wachs, Marvin Richard; and Berman, Arnold, 3,813,497.

Bernazzani, Richard J., to United States of America, Army. Folding wire handle for cups. 3,813,003, Cl. 220-94.00r.

Bernstein, Bertram L. Waist-supporting garment. 3,812,862, Cl. 128-578.000.

Bertling, Rudolph B.; and Kerr, Edward R., to Pillsbury Company, The. Apparatus for stacking and packaging food products. 3,812,647, Cl 53-62.000.

Bezzubov, Kheino Ioanovich: *See—*
Koost, Oliver Augustovich; and Bezzubov, Kheino Ioanovich, 3,812,699.

Biancamaria, Joseph, to Lhomme (Societe Anonyme). Accurately dimensioned smooth-surfaced multi-layer cardboard tubes and method of and apparatus for making the same. 3,813,026, Cl. 229-4.500.

Bierwiler, Martha. Animated children's marionette theatre. 3,812,611, Cl. 46-13.000.

Bieser, Herbert J., to Universal Oil Products Company. Process for separating para-xylene. 3,813,452, Cl. 260-674.0sa.

Bingham, Alex John: *See—*
Wright, William Howell, Bingham, Alex John; and Fox, William Albert, 3,813,366.

Binsfeld, George H., to Construction Forms, Inc. Concrete form vibrator clamp unit. 3,813,068, Cl. 248-14.000.

Bird Corporation: *See—*
Bird, Forrest M.; and Pohndorf, Henry L., 3,812,878.

Bird, Forrest M.; and Pohndorf, Henry L., to Bird Corporation. Failsafe breathing circuit and valve assembly for use therewith. 3,812,878, Cl. 137-512.000.

Bird Island, Inc.: *See—*
Wildhaber, Ernest, 3,812,759.
Wildhaber, Ernest, 3,812,760.

Bissell, Henry M.: *See—*
Cruse, William Marion, 3,812,631.

Bissonet, Claude. Writing pad holder with identification and print means. 3,812,781, Cl. 101-298.000.

Bivens, David J., to Bivens Winchester Corporation. Vehicle washing apparatus. 3,812,550, Cl. 15-21.00e.

Bivens Winchester Corporation: *See—*
Bivens, David J., 3,812,550.

Bizon, Emil: *See—*
Barnes, John Grober; Bizon, Emil; Murray, Charles Robertson, Rowley, Edward Kenneth; and Waugh, Clayton Thomas, 3,812,769.

Blackmon, William G., to Steamatic, Inc. Cleaning apparatus for carpets and the like. 3,812,552, Cl. 15-321.000.

Blackstone Corporation: *See—*
Antonevich, John N., 3,813,616.

Blancheville, Pierre J.; Brun, Guy; and Dat, Pham Tat, to Office de Radiodiffusion-Television Francaise. Frequency to amplitude modulated wave converter. 3,813,617, Cl. 332-31.00r.

Blanding, Curtis J., to Singer Company, The. High-speed function generator. 3,813,528, Cl. 235-152.000.

Blankenship, Milton O. Poultry handling system. 3,812,822, Cl. 119-17.000.

Block, Leo; Ashton, Larry J.; and Vodraska, Kenneth F., to Raypak, Inc. System to prevent freezing of heating units such as boilers. 3,812,872, Cl. 137-62.000.

Bloeck, Siegfried: *See—*
Hofling, Erich; Baur, Rudolf; and Bloeck, Siegfried, 3,813,303.

Blonder, Isaac S., to Blonder-Tongue Laboratories, Inc. Method of and apparatus for scramble-encoded transmission and decoded reception for over the air and cable subscription television and the like. 3,813,482, Cl. 178-5.100.

Blonder-Tongue Laboratories, Inc.: *See—*
Blonder, Isaac S., 3,813,482.

Blum, Alex, to Sprecher & Schuh AG. Alternating-current protective device. 3,813,621, Cl. 335-99.000.

Boassy, Emil J.: *See—*
Shanni, Vincent; and Boassy, Emil J., 3,812,633.

Bock, Eugen; Dollhausen, Manfred; and Muller-Albrecht, Horst, to Bayer Aktiengesellschaft. Contact adhesive mixtures. 3,813,380, Cl. 260-77.5ap.

Boegli, Serge: *See—*
Burrus, Charles; and Boegli, Serge, 3,812,768.

Boehm, Walter G.; and Torrance, Gordon A., to Webb, Jervis B., Company. Cooling system for rod or bar coils. 3,813,087, Cl. 266-2.00a.

Boehringer, Raymond H.; Wilson, Ronald M.; and Margeson, Mark A., to Emery Industries, Inc. Acid-terminated hydroxy ester compounds as lubricating oil additives. 3,813,339, Cl. 252-56.00s.

Bogatov, Nikolai Alexandrovich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich;

Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich, 3,812,909.

Bohannan, Lawson E. Candy container removably connected to a child's cap. 3,813,016, Cl. 224-5.00r.

Boice, William Knight, to General Electric Company. Stabilizing means for an A-C motor drive. 3,813,589, Cl. 318-227.000.

Boillot, Pierre, to Institut de Recherches de la Siderurgie Francaise (IRSID). Device for degassing a sample. 3,812,705, Cl. 73-19.000.

Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin; and Zeller, Josef, to Schloemann Aktiengesellschaft and Concast AG. Method of operating a multi-roll casting machine during and after freezing of the liquid core of the strand. 3,812,900, Cl. 64-76.000.

Bommart, Patrick Theodore, to Acieries de Gennevilliers Anciens and Etablissements C. Delachaux. Conductor rails for energising electrical machinery. 3,813,502, Cl. 191-30.000.

Bonarrigo, Joseph F.: *See—*
Butler, Richard A., Jr.; and Bonarrigo, Joseph F., 3,813,053.

Boonstra, Alexander Hendrik; and Schampers, Paulus Phillippus Maria, to U.S. Philips Corporation. Method of doping the surface of a metal-oxygen compound. 3,813,292, Cl. 117-215.000.

Boothe, Jerry Emile; Sharpe, Andrew Jackson, Jr.; and Seese, Kathleen Ann, to Calgon-Corporation. Electroconductive paper. 3,813,264, Cl. 117-201.000.

Borelli, Ronald F., to Honeywell Information Systems, Inc. Electrographic forms print station. 3,812,780, Cl. 101-216.000.

Borg-Warner Corporation: *See—*
Wiese, Winfred J., 3,813,103.

Borrel, Philippe: *See—*
Masotti, Robert; Rieux, Jean-Philippe; Borrel, Philippe; and Lehureau, Jean, 3,813,282.

Bosch, Robert, GmbH: *See—*
Bauman, Gunther; Schmidt, Peter; Eisele, Hermann; and Wahl, Josef, 3,812,710.
Espenschied, Helmut; and Weyer, Herbert, 3,812,942.

Bossler, Robert B., Jr., to Kaman Aerospace Corporation. Bolt head which measures and maintains preload. 3,812,758, Cl. 85-62.000.

Bouiller, Jean Georges; Gobin, Michel Roland; Lacroix, Armand Jean-Baptiste; and Bauger, Louis Jules; deceased (by Bauger, Madeleine Henriette Aimee, and Olivier, Jeanne Denise; administrators), to Societe Nationale d:Etude et de Construction de Moteurs d'viation. Support structure for rotor blades of turbomachines. 3,813,185, Cl. 416-198.000.

Bowler, Colin E. J.: *See—*
Tice, James B.; and Bowler, Colin E. J., 3,813,593.

Bowles, Harry L., Jr., to Austral Incinerator Corporation. Incinerator. 3,812,795, Cl. 110-8.00c.

Boyd, James W.: *See—*
Misdom, Theodore H., Jr.; and Boyd, James W., 3,813,027.

Boyle, John Terence Arnoit; and Saunders, John Christopher, to Wyeth, John, & Brother Limited. Derivatives of 3- amino-1,2,4-triazoles. 3,813,400, Cl. 260-295.0am.

Bozer, Keith B.; and Brown, Lloyd H., to Quaker Oats Company, The. Method for curing a furfuryl alcohol binder. 3,813,371, Cl. 260-88.500.

Brach, Walter H., 20% to Lee, Raymond, Organization, The. Device for holding chuck key and for drilling straight and perpendicular holes. 3,813,182, Cl. 408-72.000.

Bradbury, James J. Screw-driver. 3,812,894, Cl. 154-50.00r.

Bradley, Allen, Company: *See—*
Struger, Odo J.; Grants, Valdis; and Searcy, William W., 3,813,649.

Brakebill, Harold G.: *See—*
Lewis, Jay L.; Puster, Louis M.; and Brakebill, Harold G., 3,813,034.

Branson, Charles D.; and Genbauffe, Francis S., to Robertshaw Controls Company. Oven control system and parts therefor or the like. 3,813,078, Cl. 251-28.000.

Branson Instruments Incorporated: *See—*
Holze, Ernest P., Jr.; and Culp, Donald R., 3,813,006.
Kramer, George C., 3,813,021.

Braun Aktiengesellschaft: *See—*
Roth, Johann, 3,813,153.

Bray, Donald T., to Desalination Systems, Inc. Porous backing material for semipermeable membrane cartridges. 3,813,334, Cl. 210-321.000.

Brebik, Stephen J.; and Anthony, Roger B., to Essex International, Inc. Retainers for electrical components. 3,813,637, Cl. 339-59.00r.

Breglia, John Eugene. Personal protective device. 3,812,583, Cl. 30-164.900.

Breitfuss, Thomas K. Intergrally combined preformed core and cast-in-place outer component section for pipeline assemblies. 3,812,884, Cl. 138-105.000.

Brennan, Francis P. Packing brace for washing machines. 3,812,959, Cl. 206-320.00m.

Breslow, Jeffrey D.: *See—*
Glass, Marvin I.; Breslow, Jeffrey D.; and Jaworski, Eugene, 3,812,613.

Breuer, Wolfgang, to Maschinenfabrik Reinhausen Gebruder Scheubeck K.G. Transfer switch for tap-changing regulating transformers. 3,813,503, Cl. 200-11.0tc.

Bridgestone Tire Company Limited: *See—*
Aramaki, Kuninori; Kawakami, Hiroshi; and Kawaguchi, Yasuharu, 3,812,968.

Bristol-Myers Company: *See—*
Naito, Takayuki; and Okumura, Jun, 3,813,376.
Naito, Takayuki; and Okumura, Jun, 3,813,390.
Naito, Takayuki; Okumura, Jun; and Kamachi, Hajime, 3,813,391.

British & Foreign Tobacco Company Limited: *See—*
Solomon, Arieh, 3,813,025.

Broadbent, Arnold; and Frost, Peter, to Talentum Developments Limited. Fire detection apparatus. 3,813,551, Cl. 250-338.000.

Brochard, Claude; and Cossart, Rene, to Creusot-Loire. Driving system of the spindle of a milling lathe. 3,812,764, Cl. 90-11.00r.

Brock, George W.; and Shelledy, Frank B., to International Business Machines Corporation. Internally biased magnetoresistive magnetic transducer. 3,813,692, Cl. 360-113.000.

Brock, Norbert: *See—*
Vogelsang, Dietrich; Scheffler, Gerhard; Brock, Norbert; and Lenke, Dieter, 3,813,384.

Brody, Ernest O., to Lancaster Colony Corporation. Flower basket with water receptacle and detachable handle. 3,812,617, Cl. 47-41.000.

Brooker, Leslie G. S.; Fumia, Arthur, Jr.; and Heseltine, Donald W., to Eastman Kodak Company. Certain hemioxonal dyes. 3,813,397, Cl. 260-268.00c.

Brosens, Pierre J.: *See—*
Miskolczy, Gabor; Shefsiek, Paul K.; and Brosens, Pierre J., 3,813,210.

Brouneus, Harold A., to Corning Glass Works. Electric heating unit. 3,813,520, Cl. 219-543.000.

Brouwers, Karel J.; and Heinle, Preston J., to Motorola, Inc. Thermally stabilized thermosetting plastic material and article. 3,813,379, Cl. 260-28.000.

Brown, Absalom; deceased (by Brown, Mary Eleanore; administratrix), 85% to Creek, Ellis A. and 10% to Brown, Frank E. Admission control system and means. 3,812,674, Cl. 60-327.000.

Brown, Frank E.: *See—*
Brown, Absalom, 3,812,674.

Brown, Grant M., to Kysor Industrial Corporation. Refrigerated display case. 3,812,684, Cl. 62-89.000.

Brown, Kenard D. Method and apparatus for removing products of combustion from a stream of gaseous fluid. 3,812,654, Cl. 55-92.000.

Brown, Lloyd H.: *See—*
Bozer, Keith B.; and Brown, Lloyd H., 3,813,371.

Brown, Mary Eleanore: *See—*
Brown, Absalom, 3,812,674.

Brown, Omar L., to Fraze, Ermal C., mesne. Metal forming. 3,812,803, Cl. 113-121.00c.

Brown, Ted R. Air conditioning process. 3,812,685, Cl. 62-93.000.

Browning, Gordon D.: *See—*
Day, Alan M.; and Browning, Gordon D., 3,812,774.

Brownstein, Ronald G.: *See—*
Burgess, Lester E.; and Brownstein, Ronald G., 3,813,281.

BRS, Inc.: *See—*
Keastle, Berthold, 3,812,605.

Bruck, Herbert: *See—*
Schranz, Karl-Wilhelm; Hunicke, Wolfgang; Brus, Gerhard H.; Schon, Erwin; Busch, Josef; and Bruck, Herbert, 3,813,246.

Bruckner Apparatebau GmbH: *See—*
Bruckner, Kurt, 3,812,599.

Bruckner, Kurt, to Bruckner Apparatebau GmbH. Apparatus for the treatment of textile fabric. 3,812,599, Cl. 34-216.000.

Brun, Guy: *See—*
Blancheville, Pierre J.; Brun, Guy; and Dat, Pham Tat, 3,813,617.

Brus, Gerhard H.: *See—*
Schranz, Karl-Wilhelm; Hunicke, Wolfgang; Brus, Gerhard H.; Schon, Erwin; Busch, Josef; and Bruck, Herbert, 3,813,246.

Brushwyler, Gordon R.: *See—*
Merrell, Kenneth C.; Scott, Timothy F.; Brushwyler, Gordon R.; Koegel, James H.; and Poindexter, William E., 3,813,325.

Brynda, Vaclav: *See—*
Marsalek, Milan; Junek, Jan; Brynda, Vaclav; Burysek, Frantisek; Hortlik, Frantisek; Ripka, Josef; and Lanta, Jiri, 3,812,667.

Buckingham, Eliot K.: *See—*
Campbell, Gary; and Buckingham, Eliot K., 3,812,737.

Buckles, Richard G.: *See—*
Michaels, Alan S.; Buckles, Richard G.; and Keller, Michael P., 3,812,854.

Buhler, Andreas, to Castle Brass Works (Proprietary) Limited. Valve for proportioning fluid flow. 3,812,875, Cl. 137-454.600.

Buhrer, Carl F., to GTE Laboratories Incorporated. Electro-optic variable phase diffraction grating and modulator. 3,813,142, Cl. 350-96.0wg.

Buhrer, Carl F., to GTE Laboratories Incorporated. RF magneto-resistive magnetic domain detector. 3,813,660, Cl. 340-174.0eb.

Bull, Brian S.: *See—*
Proni, Oscar; and Bull, Brian S., 3,812,707.

Bunnell, Arthur K., to Carling O'Keefe Limited. Bottle carrying case. 3,812,996, Cl. 220-21.000.

Burch, Darrell E.; Gates, Francis J.; Gryvnak, David A.; and Pembrook, John D., to Philco-Ford Corporation. Light beam alternator having a single rotating mirror. 3,813,146, Cl. 350-285.000.

Burdick Corporation, The: *See—*
Partridge, Leslie W., 3,812,845.

Burford, John Reginald: *See—*
Murphy, Brian Egmont; Burford, John Reginald; and Wassilieff, Alexander, 3,812,859.

Burgess, Lester E.; and Brownstein, Ronald G., to Gulf & Western Industrial Products Company. Composite flexible armor. 3,813,281, Cl. 161-159.000.

Burmah Oil Trading Limited: *See—*
Elliott, John Scotchford; Jayne, Gerald John Joseph; Crook, Monty Frederick; and Harrington, Colin John, 3,813,341.

Burndy Corporation: *See—*
Wigby, Jon; and St. Jacques, Leonard, 3,813,634.

Burnett, Jimmy D., to United States of America, Army. Propellant composition containing polymers of vinyl ferrocene. 3,813,307, Cl. 149-19.910.

Burnham, Horace James, to Defence, The Secretary of State for. Retraction mechanism for a protruding part of a vehicle. 3,813,113, Cl. 280-150.00r.

Burr, John W.; Fricke, Hans D.; and Sobieniak, Mathew G., to Textron, Inc. Rocket fuel supply system. 3,812,671, Cl. 60-39.470.

Burrus, Charles; and Boegli, Serge, to Burrus, F. J., & Cie. Method and device for producing a cigarette filter unit. 3,812,768, Cl. 93-1.00c.

Burrus, F. J., & Cie: *See—*
Burrus, Charles; and Boegli, Serge, 3,812,768.

Burysek, Frantisek: *See—*
Marsalek, Milan; Junek, Jan; Brynda, Vaclav; Burysek, Frantisek; Hortlik, Frantisek; Ripka, Josef; and Lanta, Jiri, 3,812,667.

Busch, Josef: *See—*
Schranz, Karl-Wilhelm; Hunicke, Wolfgang; Brus, Gerhard H.; Schon, Erwin; Busch, Josef; and Bruck, Herbert, 3,813,246.

Bustard, John Shaw: *See—*
Jones, Alan; and Bustard, John Shaw, 3,812,952.

Butler Automatic, Inc.: *See—*
Butler, Richard A., Jr.; and Bonarrigo, Joseph F., 3,813,053.

Butler, Richard A., Jr.; and Bonarrigo, Joseph F., to Butler Automatic, Inc. Web winding machines. 3,813,053, Cl. 242-58.400.

Buzby, Wayne R.: *See—*
King, Richard L.; and Buzby, Wayne R., 3,813,531.

Cabax Mills: *See—*
Woodruff, Curtis H., 3,812,964.

Cadiou, Jean, to Societe Anonyme Automobiles Citroen. Seats having head-rests. 3,813,151, Cl. 297-396.000.

Cahn, Robert L. Conveyor apparatus. 3,812,786, Cl. 104-88.000.

Caldwell, Robert J.: *See—*
Katz, Alex J.; and Caldwell, Robert J., 3,813,150.

Calgon-Corporation: *See—*
Boothe, Jerry Emile; Sharpe, Andrew Jackson, Jr.; and Seese, Kathleen Ann, 3,813,264.

Cam-Stat Incorporated: *See—*
Hewitt, William Lloyd, 3,813,581.

Campbell, Gary; and Buckingham, Eliot K., to Lockwood Corporation. Worm gear construction. 3,812,737, Cl. 74-425.000.

Campbell, Kenneth J., to United States of America, Navy, Bandwidth measurement system. 3,813,599, Cl. 325-67.000.

Campbell, Peter. Workholder. 3,812,629, Cl. 51-216.00r.

Canadian Industries Limited: *See—*
Barnes, John Grober; Bizon, Emil; Murray, Charles Robertson; Rowley, Edward Kenneth; and Waugh, Clayton Thomas, 3,812,769.

Canadian Marconi Company: *See—*
Denoncourt, Gilles J., 3,813,604.

Canadian Patents and Development Limited: *See—*
Benoiton, Norman L.; Tong, Jeffrey H. Y.; D'Iorio, Antoine; and Petitclerc, Jean C., 3,813,317.

Canfield, Robert C.; Neta, Thomas E.; and Wiesenborn, Robert F., to Monsanto Company. Process for alkylation of aromatic compounds. 3,813,451, Cl. 260-671.00p.

Canon Kabushiki Kaisha: *See—*
Hasegawa, Goro; Nakumoto, Soichi; and Hosoe, Kazuya, 3,813,679.
Kitajima, Nobuo; Masaki, Tatsuo; and Kondo, Hideyo, 3,813,243.

Canty, John M. Light piping unit for pressure vessel. 3,813,514, Cl. 219-354.000.

Caparone, Michael J., to Robertshaw Controls Company. Heating control system. 3,813,033, Cl. 236-9.00r.

Capper, Keith C., to Aquarian-Age-Inventor, Inc. Combination book holder and book stand. 3,813,075, Cl. 248-461.000.

Caprari, Fausto, to RCA Corporation. Series regulated power supply for arc discharge lamps utilizing incandescent lamps. 3,813,576, Cl. 315-205.000.

Carborundum Company, The: *See—*
Juhasz, Charles, 3,812,816.

Cargo, Charles H.: *See—*
Lauck, Robert B.; Meyer, Lawrence L.; and Cargo, Charles H., 3,812,925.

Carissimi, Vincent L., to Hubbell, Harvey, Incorporated. Weatherproof enclosure for electrical devices. 3,813,640, Cl. 339-156.00r.

Carling O'Keefe Limited: *See—*
Bunnell, Arthur K., 3,812,996.

Carlsen, W. John, to General Telephone & Electronics Laboratories. Image-plane carrier hologram recording system using spherical wavefronts. 3,813,139, Cl. 350-3.500.

Carlson, Carl J., Jr.: *See—*
Merrick, Jim I.; Carlson, Carl J., Jr.; and Carlson, Donald W., 3,812,961.

Carlson, Donald W.: *See—*
Merrick, Jim I.; Carlson, Carl J., Jr.; and Carlson, Donald W., 3,812,961.

Carnelius Company, The: *See—*
Hassell, David A.; and McMillin, John R., 3,813,010.

Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., to Gulf Research & Development Company. Process for regenerating metal oxides used in the removal of arsenic from gaseous streams. 3,812,652, Cl. 55-68.000.

Carr, Peter, to Occidental Energy Development Company, mesne. Process of charging and discharging a metal halogen cell. 3,813,301, Cl. 136-86.00a.

Carter, John L.: *See—*
Weiner, Maurice; Carter, John L.; and Schneider, Sol, 3,813,608.

Carton for plurality of containers: *See—*
Samsing, Rolf, A., 3,812,958.

Cartwright, Howard. Recovery cable connector for diver-swimmer. 3,813,177, Cl. 403-27.000.

Cartwright, William Francis, to Celanese Corporation. Tabacco replacement material. 3,812,864, Cl. 131-2.000.

Caspar, Jakob: *See—*
Arbenz, Heinz; and Caspar, Jakob, 3,812,902.

Castle Brass Works (Proprietary) Limited. *See—*
Buhler, Andreas, 3,812,875.

Cavett, John Dill; and Hopkins, Robert Sherman, Jr., to RCA Corporation. Video stripper. 3,813,488, Cl. 178-7.100.

CCI Aerospace Corporation: *See—*
Escher, William J. D., 3,812,672.

Celanese Corporation. *See—*
Cartwright, William Francis, 3,812,864
Di Edwardo, Andrew H.; and Gump, Klaus H., 3,813,219
Jamison, Saunders Eliot, 3,812,615.
Juelke, Charles V.; and Trapasso, Louis E., 3,813,454.

Cense, Adriaan; and Van Straaten, Jan, to U.S. Philips Corporation. Integrated threshold circuit for stages with different control ranges. 3,813,603, Cl. 325-319.000.

Central City Micro Foundry Ltd.: *See—*
Droege, Lee John, Reardon, Michael J.; and Wilhite, Alan Roy, 3,813,310.

Ceraver: *See—*
Moussou, Jean, 3,813,217.

Cetola, Henry A.; and Crosby, Timothy J., to Robertshaw Controls Company. Fuse retainer and extractor. 3,813,626, Cl. 337-245.000.

CFS Corporation: *See—*
Straughan, Clemens F., 3,813,272.

Chaille, James L.: *See—*
Baldwin, Mart G.; and Chaille, James L., 3,813,305.

Chakrabarty, Ananda M., to General Electric Company. Microorganisms having multiple compatible degradative energy-generating plasmids and preparation thereof. 3,813,316, Cl. 195-28.00r.

Champeau, William J.: *See—*
Ray, Robert L.; Champeau, William J.; and Mc Atee, Kerry D., 3,813,197.

Champion, Inc.: *See—*
Shanni, Vincent; and Boassy, Emil J., 3,812,633.

Chang, Ifay F.; and Dreyfus, Russell W., to International Business Machines Corporation. Addressable photochromic memory display device. 3,813,554, Cl. 250-461.000.

Chaplin, John B., to Textron Inc. Air cushion vehicle control device. 3,812,930, Cl. 180-117.000.

Chapman, James Ronald: *See—*
Benson, Robert W.; and Chapman, James Ronald, 3,812,709.

Charlton, Walter F.: *See—*
Rich, Edward, Jr., 3,813,658.

Charlton, Walter T., 1/2 to Rich, Edward, Jr. Movable-object identification system. 3,813,659, Cl. 340-146.30k.

Charrin, Paul J.: *See—*
Sears, Edward G., 3,813,170.

Chaudhari, Praveen, to International Business Machines Corporation. Creep resistant superplastic alloys. 3,813,241, Cl. 75-178.00a.

Checheljuk, Yakov Zinovievich. *See—*
Pshenichny, Gennady Ivanovich; Checheljuk, Yakov Zinovievich, and Gryazev, Ivan Ivanovich, 3,812,567.

Chemed Corporation, mesne: *See—*
Fleck, Elmer E., 3,813,223.

Chemische Werke Huls Aktiengesellschaft: *See—*
Witte, Helmut; and Seeliger, Wolfgang, 3,813,378.

Chevalier, Gabriel; and Gatel, Gilbert, to Societe Generale de Constructions Electriques et Mecaniques. High security digital conversion and transmission scheme for a closed loop control system. 3,813,530, Cl. 235-153.00a.

Chevron Research Company: *See—*
Goldschmidt, Alfred, 3,813,336.

Chicago Bridge & Iron Company: *See—*
Laverman, Royce Jay, 3,812,683.

Chigir, Leonid Nikolaevich: *See—*
Neshumaev, Anatoly Dmitrievich; Goncharov, Boris Konstantinovich; Smolyar, Anatoly Alexeevich; and Chigir, Leonid Nikolaevich, 3,812,763.

Chiolle, Antonio; Credali, Lino; Longi, Paolo; Greco, Francesco; and D'Angelo, Romano, to Montecatini Edison S.p.A. Copolymers of alkenylsulfonates and cation permoselective membranes based thereon. 3,813,354, Cl. 260-2.20r.

Chmela, Frank P.: *See—*
Kufner, Kenneth L.; Pellegrino, Thomas P.; and Chmela, Frank P., 3,812,569.

Chmielewska, Danuta: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.

Chore-Time Equipment, Inc.: *See—*
Kaiser, Steven A., 3,812,772.

Chow, Silver H.: *See—*
Huber, Wolfgang; Chow, Silver H.; and Saifer, Mark G., 3,813,289.

Chubu Kikai Co., Ltd.: *See—*
Kamikawa, Kousaku; and Kawabe, Seikichi, 3,812,644.

Chwab, William H.: *See—*
Kivlen, John A.; Orr, Richard L.; Chwab, William H.; and Macindoe, George F., 3,812,663.

Ciba-Geigy AG: *See—*
Benisek, Ladislav; Winterbottom, Kenneth; Shaw, Trevor; and Edmondson, Gerald Keith, 3,813,220.
Duerr, Dieter; and Nikles, Erwin, 3,813,436.
Duerr, Dieter; Hitz, Hans Rudolf; Duennenberger, Max; and Schellenbaum, Max, 3,813,437.
Emden, Helmut Huber; Hubele, Adolf; and Klahre, Guenter, 3,813,399.
Hubele, Adolf, 3,813,429.

Ciba-Geigy Corporation: *See—*
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, 3,813,352.
Rutz, Hans; and Gubler, Kurt, 3,813,235.

Cincinnati Milacron Inc.: *See—*
Kelly, Ralph; and Ritter, Edmond Jean, 3,813,350.

Citation Manufacturing Company, Inc.: *See—*
Farque, Claud Anthony, 3,812,929.

Citizen Watch Company Limited: *See—*
Nikaido, Akira; Nakajima, Fumio; Onda, Mitsuo; Machida, Takayasu; and Toida, Takashi, 3,812,670.

Cladingboel, James David. Transport of woodchips. 3,812,984, Cl. 214-15.00b.

Clancy, David, to Colgate-Palmolive Company. Automatic packaging machines. 3,812,649, Cl. 53-187.000.

Clark, Alex L., Limited: *See—*
Ramsdale, Roy, 3,813,684.

Clark and Smith Industries, Limited: *See—*
Marfy, Zoltan Josef, 3,813,689.

Clarke, Robert L.; and Daum, Sol J., to Sterling Drug Inc. Tropane-2-carboxylates and derivatives. 3,813,404, Cl. 260-292.000.

Clausen, Edward M.; and Clemmer, Robert G., to General Electric Company. Ultrasonically etched photoflash lamp. 3,813,205, Cl. 431-94.000.

Clauss, Richard J., to Oxy Metal Finishing Corporation. Composite nickel iron electroplate and method of making said electroplate. 3,812,566, Cl. 29-183.500.

Clemens, David H.; and Lange, Raymond J., to Rohm & Haas Company. Preparation of ion exchange resins from acrolein copolymers. 3,813,353, Cl. 260-2.10c.

Clement, Ralph C., to I-T-E Imperial Corporation. Power tap for continuous outlet duct. 3,813,633, Cl. 339-14.00r.

Clemmer, Robert G.: *See—*
Clausen, Edward M.; and Clemmer, Robert G., 3,813,205.

Clifton, David A.; and Fielder, Frederick D., to Sonicaid Limited. Diagnostic apparatus for fetal heartbeat monitoring. 3,813,654, Cl. 340-3.00d.

Coatings Engineering Corporation: *See—*
Knott, James M., 3,812,640.

Cobb, Clyde C., to American Screen Process Equipment Company. Automatic multi-color printing arrangement. 3,812,779, Cl. 101-115.000.

Coberley, Daniel A., to Hurletron Incorporated. Industrial machine controller. 3,813,524, Cl. 235-92.00t.

Coca-Cola Company, The: *See—*
Wurl, Wilhelm, 3,812,991.

Cochrane, Robin Adam, to Girling Limited. Hydraulic flow control valve assemblies. 3,812,675, Cl. 60-413.000.

Cohen, Joseph; and Scotoni, Ralph, Jr., to Aerojet-General Corporation. Propellant formed cure-shrinkable propellant material. 3,812,785, Cl. 102-100.000.

Cohen, Leonard D., to GTE Laboratories Incorporated. Modulated microwave source. 3,813,600, Cl. 325-126.000.

Cohen, Noal; Rosenberger, Michael; and Saucy, Gabriel, to Hoffmann-La Roche Inc. Cycloalkyl [f] [1] benzopyrans. 3,813,417, Cl. 260-345.200.

Colgate-Palmolive Company: *See—*
Clancy, David, 3,812,649.
Hunter, Robert Tweedy, Jr.; and Marder, Herman Lowell, 3,813,359.

Colln, Reimer, to Bayer Aktiengesellschaft. Preparation of N-unsubstituted (thiono)-(thiol)-phosphoric (phosphonic) acid O-ester mono-amides. 3,813,457, Cl. 260-971.000.

Colombo, Arturo, to Sitam Societa' Industriale Telai Automatici Milano S.r.l. Fastener. 3,812,556, Cl. 24-230.0ak.

Colortex S.A.: *See—*
Risse, Jean, 3,813,083.

Colt Industries Operating Corporation: *See—*
Michaud, Orean E., 3,812,591.

Columbia Broadcasting System, Inc.: *See—*
Auber, Benjamin B., 3,813,494.
Foss, Norman A.; and Ward, Samuel A., 3,813,541.

Combs, Clyde, Jr.: *See—*
Davidsohn, Uryon S.; Short, John P.; Combs, Clyde, Jr.; and Guerra, Edward E., 3,813,584.

Combustion Equipment Associates, Inc.: *See—*
Vandenhoeck, J. Paul, 3,812,660.

Cominassi, Adolphe: *See—*
Lievremont, Henri; and Cominassi, Adolphe, 3,813,356.

Communications Satellite Corporation: *See—*
Maillet, Wilfrid G., 3,813,496.
Wachs, Marvin Richard; and Berman, Arnold, 3,813,497.

Compagnie de Saint-Gobain: *See—*
Jochim, Friedrich; Peetz, Dieter; Karla, Heinz; and Luerssen, Hermann, 3,813,519.

Compton, Jerry L.; and Seitz, David R., to Globe Tool and Engineering Company, The. Armature winding method and apparatus. 3,812,577, Cl. 29-597.000.

Compupop, Inc.: *See—*
Day, Alan M.; and Browning, Gordon D., 3,812,774.

Concast AG: *See—*
Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin; and Zeller, Josef, 3,812,900.

Condux-Werk, Herbert A. Merges KG: *See—*
Lehr, Heinz, 3,813,048.

Cone, George W.; and Kinzie, James E., to Garrett Comtronics Corporation. Clock calculator. 3,813,533, Cl. 235-156.000.

Conerly, Howard Jeffery, to International Telephone and Telegraph Corporation. Memory control for toll systems. 3,813,495, Cl. 179-7.0mm.

Conger, Marvin T., to Goodyear Tire & Rubber Company, The. Method of molding embossed foamed polymethane laminates. 3,813,463, Cl. 264-45.000.

Conner, Michael E., to United States of American, Army. Matched pair of enhancement mode MOS transistors. 3,813,586, Cl. 317-234.00r.

Connors, John D.: *See—*
Moore, William C.; and Connors, John D., 3,812,847.

Conrad, Rene. Scalloped belt engaging tangent for ribbing on centering and idler tracking rollers. 3,812,732, Cl. 74-240.000.

Consolidated Edison Company of New York, Inc.: *See—*
Fischer, Frank E., 3,813,477.

Construction Forms, Inc.: *See—*
Binsfeld, George H., 3,813,068.

Continental Can Company, Inc.: *See—*
Hougen, Gary A.; and Kloc, Henry F., 3,813,001.

Cook, Richard S., to PPG Industries, Inc. Fluidized solids reactor with refractory lining. 3,813,225, Cl. 23-284.000.

Cooper, James Joseph, Jr.; and Schurter, Gary Lee, to International Telephone and Telegraph Corporation. Terminal connector. 3,813,635, Cl. 339-22.00b.

Cooperman, Isadore Nathan. Cleaning compositions. 3,813,342, Cl. 252-170.000.

Copeland Corporation: *See—*
King, Robert W., 3,813,195.

Coppock, Walter J.; Amaroso, James R.; and Griffith, John Q., III, to Sun Oil Company of Pennsylvania. Textile-machinery lubricant composition. 3,813,338, Cl. 252-42.100.

Cornelison, James J.: *See—*
Johnson, Edgar G., Jr.; and Cornelison, James J., 3,813,167.

Corning Glass Works: *See—*
Asher, John W.; and Herczog, Andrew, 3,812,688.
Brouneus, Harold A., 3,813,520.
Forker, Ray B., Jr.; and Panzarino, Joseph N., 3,813,232.
Reade, Richard F., 3,812,689.
Teter, Michael P., 3,813,173.

Cory, Robert P.: *See—*
Armbruster, Frederick C.; Heady, Robert E.; and Cory, Robert P., 3,813,318.

Coscia, Anthony Thomas; and Williams, Laurence Lyman, to American Cyanamid Company. Water-soluble polyamidepolyamines containing phenylene linkages and processes for the manufacture thereof. 3,813,362, Cl. 260-29.20n.

Cossart, Rene: *See—*
Brochard, Claude; and Cossart, Rene, 3,812,764.

Coulter Electronics, Inc.: *See—*
Proni, Oscar; and Bull, Brian S., 3,812,707.

Courtot, Louis B., to Weatherhead Company, The. Flexible cable assembly. 3,812,738, Cl. 74-501.00r.

Coville, Patrick; and Laurencier, Andre, to U.S. Philips Corporation. Heat transferring device. 3,812,908, Cl. 165-105.000.

Cowan, Gerald DeG.: *See—*
Cowan, John Vincent; Cowan, Gerald DeG.; and Cowan, John Gerald, 3,812,708.

Cowan, John Gerald: *See—*
Cowan, John Vincent; Cowan, Gerald DeG.; and Cowan, John Gerald, 3,812,708.

Cowan, John Vincent; Cowan, Gerald DeG.; and Cowan, John Gerald, to Scanning Systems, Inc. Method and apparatus for testing wheels and defect detection in wheels. 3,812,708, Cl. 73-67.50r.

Cowan, Larry Clyde: *See—*
Anderson, Ernest David; and Cowan, Larry Clyde, 3,812,881.

Cowham, Michael John; and Wadlow, David Edward, to Image Analysing Computers Limited. Detection devices for image analysis systems. 3,813,487, Cl. 178-7.100.

CPC International Inc.: *See—*

Armbruster, Frederick C.; Heady, Robert E.; and Cory, Robert P., 3,813,318.

Craftool Company, Inc., The: *See—*
Stars, William K., 3,812,887.

Crain, Philip W. Apparatus for applying medication or the like to human nasal passages. 3,812,853, Cl. 128-173.000.

Crandlemire, Roger C. Case inverter. 3,812,982, Cl. 214-1.0qa.

Crast, Leonard Bruce, Jr. 7-D-(δ-Amino-α-phenyl-,2-thiengl-and 3-thienyl-and 3-thienyl-acetamido) [-3-]S-(2-methyl-1,2,3-thiazole-4-yl)thiomethyl[-3-cephem-4-carloxylic acids. 3,813,388, Cl. 260-239.100.

Craveri, Renato; Manachini, Luigi; and Aragozzini, Fabrizio, to Societa Italiana Resine S.I.R. S.p.A. Process for the manufacture of proteases. 3,813,319, Cl. 195-65.000.

Crawford Fitting Company: *See—*
Zahuranec, Emery J.; Bedo, Alfred, and Barth, Ross E., 3,812,963.

Credali, Lino: *See—*.
Chiolle, Antonio; Credali, Lino; Longi, Paolo; Greco, Francesco; and D'Angelo, Romano, 3,813,354.

Creek, Ellis A.: *See—*
Brown, Absalom, 3,812,674.

Creusot-Loire: *See—*
Brochard, Claude; and Cossart, Rene, 3,812,764.

Crompton & Knowles Corporation. *See—*
Feeman, James F., 3,813,402.

Cronin, John C. Grounded gas insulated bus enclosure-combined enclosure joint backup ring and contamination control device. 3,813,475, Cl. 174-21.00c.

Crook, Monty Frederick: *See—*
Elliott, John Scotchford; Jayne, Gerald John Joseph; Crook, Monty Frederick; and Harrington, Colin John, 3,813,341.

Crosby, Timothy J.: *See—*
Cetola, Henry A.; and Crosby, Timothy J., 3,813,626.

Crown Cork & Seal Company, Inc.: *See—*
Kneusel, Raymond H. P.; and Potts, Vinson S., 3,812,696.

Crowne, Francis R.; Tan, Chiong-Heng, and Vandenbroek, Martin A., to Abrex Specialty Coatings Ltd. Tank for electro-coating continuous strip. 3,813,327, Cl. 204-300.000.

Cruse, William Marion, 1/3 to Bissell, Henry M. Stage platform control system. 3,812,631, Cl. 52-1.000.

Cryplex Industries, Inc.: *See—*
Feinberg, Robert S., 3,813,256.

C.S.S. Machine and Tool Company, Inc.: *See—*
Faure, Alphonse W., 3,812,690.

Culp, Donald R.: *See—*
Holze, Ernest P., Jr.; and Culp, Donald R., 3,813,006.

Cunningham, Ernest R., to Grip-Pak, Inc. Container package 3,812,962, Cl. 206-427.000.

Curran, Bernard E.: *See—*
Albrecht, Raymond E., Curran, Bernard E.; and Lindner, Robert G., 3,812,636.

Curtin, Daniel J., to Atlantic Richfield Company. Method for tar sands bitumen froth treatment. 3,813,030, Cl. 233-18.000.

Curtis, David M., to Xerox Corporation. Platen cover. 3,813,161, Cl. 355-75.000.

Curtiss-Wright Corporation. *See—*
Jones, Charles; and Raye, Alexander H., 3,812,574.

Curtz, William C.; and Matson, Merkham J. Rotational balancer. 3,812,724, Cl. 73-458.000.

Dabney, Douglas H. Saddle stirrup for use by a leg amputee. 3,812,650, Cl. 54-47.000.

Dahlstrom, Lars Erik. Method and device for the realization of a non-linear release of energy in high power lasers. 3,813,611, Cl. 331-94.50q.

Daido Seiko Kabushiki Kaisha: *See—*
Eguchi, Isamu; and Hiratake, Susumu, 3,813,469.

Daimler-Benz Aktiengesellschaft: *See—*
Stolz, Albert, 3,812,687.

Dainippon Screen Seizo Kabushiki-Kaisha. *See—*
Nishikawa, Yukio; Nagao, Yoshio; Miyauchi, Yoshio; Mori, Noriaki; and Matsui, Shigenori, 3,813,682.

Dairy Cap Corporation: *See—*
Feldman, Jerome M., 3,812,994.

Daiwa Can Company, Ltd.: *See—*
Yoshioka, Tsuyoshi; and Nishiyama, Sumio, 3,812,993.

Dalton, Charles Robert. Compressed liquid gas filling system. 3,812,888, Cl. 141-39.000.

Dalzell, James Welland. Thermostat. 3,813,630, Cl. 337-360.000.

Dane, Dan H., to United States of America, National Aeronautics and Space Administration. Sprag solenoid brake. 3,812,936, Cl. 188-171.000.

D'Angelo, Romano: *See—*
Chiolle, Antonio; Credali, Lino; Longi, Paolo; Greco, Francesco, and D'Angelo, Romano, 3,813,354.

Danielmeyer, Hans Guenter; and Weber, Heinz Paul, to Bell Telephone Laboratories, Incorporated. Laser employing a metallic pentaphosphate. 3,813,613, Cl. 331-94.500.

Danielsen, Bo Sixten, to AB Nora-Gomex. Product, preferably a rotatable working tool, E. G., a saw blade. 3,812,755, Cl. 83-835.000.

Danylchuk, Irynej; Geusic, Joseph Edward; and Nelson, Terence John, to Bell Telephone Laboratories, Incorporated. Single wall domain logic arrangement. 3,813,661, Cl. 340-174.0tf.

Darby, Lloyd Claude. Batsman box for a baseball diamond. 3,813,097, Cl. 273-25.000.

Darda, Helmut. Energy storing drive means. 3,812,933, Cl. 185-37.000.

Darrow, John O. G., to Westinghouse Air Brake Company. Fail-safe R-C phase shift oscillating type of level detector. 3,813,614, Cl. 331-108.00b.

Dat, Pham Tat: *See—*
Blancheville, Pierre J.; Brun, Guy; and Dat, Pham Tat, 3,813,617.

Daum, Sol J.: *See—*
Clarke, Robert L.; and Daum, Sol J., 3,813,404.

Davey, Frederick K.: *See—*
Hoffman, Philip A.; and Davey, Frederick K., 3,812,712.

Davidsohn, Uryon S., deceased (by Ajamie, Amil J., administrator), Short, John P., Combs, Clyde, Jr.; and Guerra, Edward E. Solid state integrated circuits. 3,813,584, Cl. 317-235.00d.

Davis, Arthur. Simulated planetarium projector. 3,813,156, Cl. 353-119.000.

Davis, Calvin R.: *See—*
Von Tresckow, Hans-Udo; and Davis, Calvin R., 3,812,790.

Davis, Richard E. Removable ladder apron construction. 3,812,932, Cl. 182-126.000.

Dawidowitsch, Peter: *See—*
Geyken, Erwin, Dawidowitsch, Peter; and Ertl, Franz, 3,812,870.

Day, Alan M.; and Browning, Gordon D., to Compupop, Inc. Automatic popcorn popping machine. 3,812,774, Cl. 99-323.800.

Dayco Corporation: *See—*
Ray, Robert L., Champeau, William J.; and Mc Atee, Kerry D., 3,813,197.

Dayton Progress Corporation. *See—*
Smith, Robert E., 3,812,895.

de Feudis, Sergio, to Aktiebolaget Svenska Flaktfabriken. Apparatus for the intermittent transferring of packaged refuse or laundry articles. 3,813,127, Cl. 302-27.000.

De Meester, Emiel Petrus Juliaan: *See—*
Jan Verstegen, Judicus Marinus Pieter; and De Meester, Emiel Petrus Juliaan, 3,813,569.

De Plasse, Noel, to Sublistatic Holding S.A. Temporary supports, their preparation and their use in dry dyeing and in dry printing by hot transfer. 3,813,218, Cl. 8-2.500.

De Quesada, Jorge: *See—*
Yang, Yue-Chyou, and De Quesada, Jorge, 3,812,637.

De Vries, Jan Lolke, and Lienburg, Alt, to U.S. Philips Corporation. Circuit arrangement for generating a variable magnetic field 3,813,573, Cl. 315-13.00c.

De Zuba, George P.; Berger, Abe; and Selin, Terry G., to General Electric Company. Self-bonding, heat-curable silicone rubber 3,813,364, Cl. 260-37.0sb

Dean, Clarence T., III. Spell and learn educational toy. 3,813,471, Cl. 35-35.00h.

DeBoer, Jacob, to U.S. Philips Corporation. Noise reduction circuit 3,813,559, Cl. 307-237.000

Decoto Aircraft, Inc.: *See—*
Hallesy, Harold W.; and Revenig, Howard C., 3,813,065.

Deere & Company: *See—*
Nelson, Roger John, 3,813,188.

Defence, The Secretary of State for: *See—*
Burnham, Horace James, 3,813,113.

Deitch, Ronald S. Magnetic lock switch. 3,813,624, Cl. 335-206.000

delle Porta, Paolo, Giorgi, Tiziano; Kindl, Bruno; and Zucchinelli, Mario, to S.A.E.S. Getters S.p.A. Process for producing a capacitor. 3,813,266, Cl. 117-212.000.

Delta Plastics Limited. *See—*
Murphy, Brian Egmont; Burford, John Reginald; and Wassilieff, Alexander, 3,812,859.

DeLuca, Carlo Bruno: *See—*
Schurter, Gary Lee, and DeLuca, Carlo Bruno, 3,813,639.

Denoncourt, Gilles J., to Canadian Marconi Company. Digital discriminator. 3,813,604, Cl. 329-122.000.

Derman, Karl Gustav Einar, to Forsheda Ideutveckling AB. Locking and sealing ring. 3,813,102, Cl. 277-9.000.

Desalination Systems, Inc.: *See—*
Bray, Donald T., 3,813,334.

Dessau, Ralph M.: *See—*
Heiba, El Ahmadi I.; and Dessau, Ralph M., 3,813,416.

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Heimberger, Werner; and Weigert, Wolfgang, 3,813,410.

Di Edwardo, Andrew H.; and Gump, Klaus H., to Celanese Corporation. Process for the thermal stabilization of polyacrylonitrile fibers and films. 3,813,219, Cl. 8-115.500.

Diagnostic Data, Inc.: *See—*
Huber, Wolfgang; Chow, Silver H.; and Saifer, Mark G., 3,813,289.

Dialled Despatches Limited. *See—*
Smith, Robert William George; Barron, David Michael Arthur; and Wingrove, Arthur George, 3,813,058.

Diamond International Corporation: *See—*
Horvath, William, 3,812,989.

Dickson, Wayne D. Shoulder pack power unit for propelling water skis or surf boards. 3,812,813, Cl. 115-70.000.

Dieter, Jerry A.: *See—*
Frisch, Kurt C.; Reegen, Sidney; and Dieter, Jerry A., 3,813,365.

Dieulesaint, Eugene. *See—*
Hartemann, Pierre, and Dieulesaint, Eugene, 3,813,618.

Dillon, W. C., & Company, Inc.: *See—*

Schultheis, Harry Baldwin, 3,812,589.

Dinger, Edward H., to General Electric Company. DC motor speed control circuit. 3,813,591, Cl. 318-331.000.

Dionite Luggage Inc.: *See—*
Pelletier, Simon, 3,812,939.

D'Iorio, Antoine: *See—*
Benoiton, Norman L.; Tong, Jeffrey H. Y.; D'Iorio, Antoine; and Petitclerc, Jean C., 3,813,317.

DiStefano, Thomas H.; Laibowitz, Robert B.; and Rosenberg, Robert, to International Business Machines Corporation. Self-healing electrode for uniform negative corona. 3,813,549, Cl. 250-324.000.

Ditcher, John, to A-Lok Corporation. Gasket seal between sewer pipe and manhole opening. 3,813,107, Cl. 277-189.000.

Dobson, Gullick, Limited: *See—*
Allen, Archelaiüs Dawson, 3,812,681.

Doerfler, Roger E., to Kelsey-Hayes Company. Control valve. 3,812,678, Cl. 60-591.000.

Doherty, George O. P., to Lilly, Eli, and Company. Process for the preparation of 1-hydroxy-2-(1,1-difluoroalkyl) benzimidazoles and 1-hydroxy-2-(1,1-difluoroalkyl)1H-imidazo (4,5,-b) pyridines. 3,813,407, Cl. 260-296.00b.

Doherty, George O. P.; and Fuhr, Kenneth H., said Doherty, now by change of name O'Doherty, George O., P., assors. to Lilly, Eli, and Company. 1H-Imidazo(4,5,-b) pyridine compounds. 3,813,408, Cl. 260-296.00h.

Doin, Bernard; and Plantif, Bernard, to Societe Nationale des Poudres et Explosifs, mesne. Gas generator with coolant expulsion means. 3,813,007, Cl. 222-4.000.

Dolby, Dale P.; and Sandrock, Heinrich K., to Ampex Corporation. Magnetic tape duplicator. 3,813,688, Cl. 360-17.000.

Dollhausen, Manfred: *See—*
Bock, Eugen; Dollhausen, Manfred; and Muller-Albrecht, Horst, 3,813,380.

Donnelly, Brendan J.: *See—*
Shieh, Kenneth K.; Donnelly, Brendan J.; and Lee, Howard A., 3,813,320.

Doohan, Majorie T. Jewelry organizing cabinet. 3,813,138, Cl. 312-309.000.

Dori, Hisashi, to Yoshida Kogyo Kabushiki Kaisha. Slider holder. 3,812,571, Cl. 29-207.5sl.

Douglas, Ellwood S.: *See—*
Doyle, Richard C.; Wahlgren, Wallace W.; and Douglas, Ellwood S., 3,813,579.

Douglas, George H.; Faust, Warren R.; and Smith, Herchel, to American Home Products Corporation. 13-Polycarbon alkyl-3,11,17,20,21-pentaoxygenated-18-norpregnenes. 3,813,420, Cl. 260-397.450.

Dow Chemical Company, The: *See—*
Gurklis, Peter J., 3,813,002.
Hatch, Melvin J.; Yoshimine, Masao; Smith, Hugh B.; and Schmidt, Donald L., 3,813,413.
Heinemeyer, Ben W., 3,813,040.
Schmidt, Donald L.; Smith, Hugh B.; and Walles, Wielm E., 3,813,363.

Downey, Richard T.: *See—*
Auray, Didier Henri; Downey, Richard T.; and Macomber, Robert L., 3,813,023.

Doyle, Richard C.; Wahlgren, Wallace W.; and Douglas, Ellwood S., to Rucker Company, The. Electric receptacle assembly with ground fault protection. 3,813,579, Cl. 317-18.00d.

Dracon Industries: *See—*
Mason, John R., 3,813,636.

Drain, Albert Sterling, to Armour and Company. Method of packing fresh pork carcasses. 3,813,467, Cl. 426-393.000.

Draughon, Roland C.; Jensen, Paul D.; and Jensen, Donald E. Concrete plank mold for a molding machine. 3,813,076, Cl. 249-50.000.

Drewry, Hugh S., to Allis-Chalmers Corporation. Adapter for a vehicle having a built-in diagnostic system. 3,813,632, Cl. 339-10.000.

Dreyfus, Russell W.: *See—*
Chang, Ifay F.; and Dreyfus, Russell W., 3,813,554.

Drobich, Oleg Pavlovich; Pritomanov, Alexei Evgenievich; Rokutov, Viktor Petrovich; Kirvalidze, Nikolai Spiridonovich; Gerzmava, Dusheli Vladimirovich; and Mandzjuk, Boris Valentinovich. Lubricant composition for the hot pressing of metals and a method forthe preparation thereof. 3,813,335, Cl. 252-14.000.

Droege, Lee John; Reardon, Michael J.; and Wilhite, Alan Roy, to Central City Micro Foundry Ltd. Method for the manufacture of flat costume jewelry. 3,813,310, Cl. 156-3.000.

Drugmand, Lester D., to Emerson Electric Co. Method of making electric heating elements. 3,812,580, Cl. 29-611.000.

Du Pont, S. T.: *See—*
Kleine, Jean Jacques, 3,813,041.

Duca, William J., to Ajax Magnethermic Corporation. Horizontal coreless induction furnaces. 3,813,470, Cl. 13-29.000.

Duennenberger, Max: *See—*
Duerr, Dieter; Hitz, Hans Rudolf; Duennenberger, Max; and Schellenbaum, Max, 3,813,437.

Duerr, Dieter; and Nikles, Erwin, to Ciba-Geigy AG. Phenylurea derivatives and process for their manufacture. 3,813,436, Cl. 260-553.00a.

Duerr, Dieter; Hitz, Hans Rudolf; Duennenberger, Max; and Schellenbaum, Max, to Ciba-Geigy AG. N-2-Ethylhexyl-N'-aryl ureas. 3,813,437, Cl. 260-553.00a.

Duffield, Peter L.: *See—*
Steffy, Jack J.; and Duffield, Peter L., 3,813,675.

Duffty, Bryant: *See—*
Jasinski, Stanley C.; Wenstrup, Leo J.; and Duffty, Bryant, 3,812,892.

Dumas, Christ J. Enhanced low capacity socket. 3,813,570, Cl. 313-318.000.

Duncan, Robert Campbell; and Kokx, Darrel Dayfield, to Procter & Gamble Company, The. Hydro-dissociative agglomerate tampon. 3,812,856, Cl. 128-285.000.

Dunn, Elman R., to Litton Industries, Inc. Grinding apparatus with infeed control. 3,812,624, Cl. 51-115.000.

Dunn, Phillip D.: *See—*
Hamerdinger, Randolph W.; and Dunn, Phillip D., 3,812,905.

DuPont, S. T.: *See—*
Malamoud, Jean Gaston, 3,813,208.

Dyer, Clarence H.; Gaunt, Conrad L.; and Jarvis, Edward D., to General Motors Corporation. Method for insulating a preformed electical coil. 3,813,294, Cl. 117-218.000.

Dyna Logics, Inc.: *See—*
Lanahan, John H., 3,812,545.

East Bay Municipal Utility District: *See—*
LeVitt, Richard M., 3,813,597.

Eastman Kodak Company: *See—*
Brooker, Leslie G. S.; Fumia, Arthur, Jr.; and Heseltine, Donald W., 3,813,397.
Holland, Kenneth W., 3,812,665.
Hollister, Kenneth Robert; and Perry, Ernest John, 3,813,251.
Minsk, Louis Morton; and Staples, Jon Tewsbury, 3,813,247.
Villard, George, 3,813,244.

Eaton Corporation: *See—*
Hill, Donald C., 3,813,106.
Lauck, Robert B.; Meyer, Lawrence L.; and Cargo, Charles H., 3,812,925.
Meyer, Lawrence L., 3,812,557.
Patel, Kiritkumar R., 3,812,944.
Scott, Arthur A., 3,812,832.

Eaton Yale td.: *See—*
Jasinski, Stanley C.; Wenstrup, Leo J.; and Duffty, Bryant, 3,812,892.

Ebauches S.A.: *See—*
Wiget, Fridolin, 3,812,669.

Eberle, Fritz: *See—*
Koplow, Harold Stanley; Eberle, Fritz; Ho, Shu-Kuang; and Lesnick, Edward, 3,812,945.

Ebner, Heinrich: *See—*
05/28/74; Ebner, Heinrich; and Enenkel, Anton, 3,813,086.

Ed. Geistlich Sohne A.G. fur Chemische Industrie: *See—*
Pfirrmann, Rolf Wilheim; and Hofstetter, Emil, 3,813,387.

Edax International, Inc.: *See—*
Barnhart, Morris W.; and Russ, John C., 3,813,545.

Edcliff Instruments: *See—*
Pitzer, Robert L., 3,812,727.

Edmondson, Gerald Keith: *See—*
Benisek, Ladislav; Winterbottom, Kenneth; Shaw, Trevor; and Edmondson, Gerald Keith, 3,813,220.

Edwards, Harrison F.; and Pannullo, Louis A., to Lewis Engineering Company, The. Electromagnetic motive device. 3,813,566, Cl. 310-36.000.

Eggert, Thomas F.: *See—*
Westergren, George A.; Koland, David G.; and Eggert, Thomas F., 3,812,659.

Eguchi, Isamu; and Hiratake, Susumu, to Daido Seiko Kabushiki Kaisha. Method for heating vacuum degassing container. 3,813,469, Cl. 13-9.000.

Eisele, Hermann: *See—*
Bauman, Gunther; Schmidt, Peter; Eisele, Hermann; and Wahl, Josef, 3,812,710.

Eisen- und Drahtwerk Erlau Aktiengesellschaft: *See—*
Witzel, Gunter; and Muller, Anton, 3,812,896.

Eklund, Melvin H.: *See—*
Elmer, Ben R.; and Eklund, Melvin H., 3,813,652.

Ekstrom, Per-Olof, to AB Centralsug. Garbage disposal system. 3,813,128, Cl. 302-39.000.

Electrothermal Engineering Limited: *See—*
Ward, Henry Arthur John, 3,813,215.

Elektriska Svetsnings AB: *See—*
Jorneskog, Karl Oskar Inge, 3,813,213.

Elektroschmelzwerk Kempten GmbH: *See—*
Lipp, Alfred, 3,813,252.

Elkins, Johnny C.; and Theriot, Gilbert A., said Elkins assor. to said Theriot, Gilbert A. Indexing means for wall panel openings. 3,812,587, Cl. 33-138.000.

Elliott Brothers (London) Limited: *See—*
Whalen, Francis Cuthbert, 3,812,715.

Elliott, Howard A.; and Grebik, Stephen J., to Essex International, Inc. Spark plug terminal. 3,813,645, Cl. 339-259.00r.

Elliott, John Scotchford; Jayne, Gerald John Joseph; Crook, Monty Frederick; and Harrington, Colin John, to Burmah Oil Trading Limited. Derivatives of glycols, glycol ethers and glycol esters. 3,813,341, Cl. 252-77.000.

Ellmore, John W., to Allister Manufacturing Company, Inc. Automatic reversing control equipment. 3,813,590, Cl. 318-266.000.

Elmer, Ben R.; and Eklund, Melvin H., to Honeywell Information Systems, Inc. Memory address transformation system. 3,813,652, Cl. 340-172.500.

Emden, Helmut Huber; Hubele, Adolf; and Klahre, Guenter, to Ciba-Geigy AG. 8-Oxyquinoline- and 8-oxyquinaldine acrylates. 3,813,399, Cl. 260-287.00x.

Emerson Electric Co.: *See—*
Drugmand, Lester D., 3,812,580.
Kinsella, Howard R., 3,813,625.

Emery Industries, Inc.: *See—*
Boehringer, Raymond H.; Wilson, Ronald M.; and Margeson, Mark A., 3,813,339.

EMI Limited: *See—*
Green, Ian MacDonald, 3,813,490.

Emmert, Reinhold, to Grundig E.M.V. Elektro-Mechanische Versuchsanstalt Max Grundig. Office dictation/transcription machine. 3,813,691, Cl. 360-90.000.

Emoto, Kazuhiro: *See—*
Futaki, Kiyoshi; Tsukahara, Hirokazu; and Emoto, Kazuhiro, 3,813,248.

Emura, Tomoyuki: *See—*
Ito, Ikoh; Sekihara, Takeshi; and Emura, Tomoyuki, 3,813,373.

Enenkel, Anton: *See—*
05/28/74; Ebner, Heinrich; and Enenkel, Anton, 3,813,086.

Engelfried, Werner, to Terrot, C., & Soehne. Jack and needle actuator for a circular knitting machine. 3,812,691, Cl. 66-50.00r.

Engelhardt, Bernard H.: *See—*
Mintz, Marcus; and Engelhardt, Bernard H., 3,812,642.

Engelhart, Donald Spencer; and Engelhart, Ned Henry. Method of and means for flash drying naturally occurring oilseeds. 3,812,585, Cl. 34-10.000.

Engelhart, Donald Spencer; and Engelhart, Ned Henry. Method of and means for flash drying naturally occurring oilseeds. 3,812,595, Cl. 34-10.000.

Engelhart, Ned Henry: *See—*
Engelhart, Donald Spencer, and Engelhart, Ned Henry, 3,812,585.
Engelhart, Donald Spencer, and Engelhart, Ned Henry, 3,812,595.

Engineering Corporation of America: *See—*
Hauskins, John B., Jr., 3,812,931.

English Electric Valve Company, Limited: *See—*
Scholz, Hans, 3,813,572.

Englund, Hakan; Eriksson, Ronny; and Nilsson, Bengt, to Allmanna Svenska Elektriska Aktiebolaget. Means for taking samples out of a reaction vessel containing alkaline liquid under pressure. 3,812,721, Cl. 73-422.00r.

Epping, Winfried: *See—*
Ridder, Hubert; Epping, Winfried; and Icking, Paul, 3,812,823

Eriksson, Ronny: *See—*
Englund, Hakan; Eriksson, Ronny; and Nilsson, Bengt, 3,812,721.

Erni Limited: *See—*
Quarmby, David John, 3,813,646.

Ertl, Franz: *See—*
Geyken, Erwin; Dawidowitsch, Peter; and Ertl, Franz, 3,812,870

Ervast, Armas, to Messrs. Tiwi Oy. Method and apparatus for cutting veneer produced by means of turning on a lathe into sheets with uniform fibre configuration. 3,812,893, Cl. 144-326.000.

Ervin, Gerald A., 40? to Ford, Samuel W. Flexible electrically conductive chain and method of making the same. 3,813,478, Cl. 174-70.00r.

Escher, William J. D., to CCI Aerospace Corporation. Supercharged ejector ramjet aircraft engine. 3,812,672, Cl. 60-244.000.

Espenschied, Helmut; and Weyer, Herbert, to Bosch, Robert, G.m.b.H. Hydraulic system. 3,812,942, Cl. 192-91.00r.

Essex International, Inc.: *See—*
Brebik, Stephen J.; and Anthony, Roger B., 3,813,637.
Elliott, Howard A.; and Grebik, Stephen J., 3,813,645.
Hartz, Marvin E., 3,813,643.

Etablissements C. Delachaux: *See—*
Bommart, Patrick Theodore, 3,813,502.

Ethiopian Science Foundation. *See—*
Lemma, Aklilu; Parkhurst, Robert M.; and Skinner, William A., Jr., 3,813,383.

Evans, Delme, to Lilly Industries, Limited. 7H-thiazolo-[3,2-a]pyrimidin-7-ones. 3,813,360, Cl. 260-25.00a.

Evans, Thomas Ernest: *See—*
Flint, George Norman; Evans, Thomas Ernest; and Hart, Anthony Christopher, 3,813,239.

Ezekiel, Aaron David; Thurston, Elvin Frederick William; Harper, Michael Frederick; and Wood, Malcolm Barlow, to Ilford Limited. Light sensitive photographic material. 3,813,249, Cl. 96-67.000.

Faber-Castell, A. W.: *See—*
Katz, Otto, 3,813,175.

Factory Mutual Research Corporation: *See—*
Livingston, William L., 3,812,915.

Fader, John H.; Keijzer, Johan H.; Graulus, Marcel J. R., and Beets, Roland H. C., to Monroe Belgium N.V. Shock absorber. 3,812,938, Cl. 188-322.000.

Falletta, Thomas S.; and Pugliese, Paul Jones, to Harcourt Brace Jovanovich, Inc. Box for tape reels. 3,812,960, Cl. 206-387.000.

Fantozzi, Louis J., to Xerox Corporation. Control logic for trouble detection and recovery. 3,813,157, Cl. 355-14.000.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Aumuller, Walter; Weyer, Rudi; and Heerdt, Ruth, 3,813,398.
Hartwimmer, Robert, and Weiss, Eduard, 3,813,449.
Muller-Schiedmayer, Gunther; Muller, Heinz; Hubner, Herbert; and Ulm, Klaus, 3,813,441.
Neines, Helmut, 3,813,253.

Farkas, Eugene: *See—*
Bach, Nicholas J.; and Farkas, Eugene, 3,813,419.

Farque, Claud Anthony, to Citation Manufacturing Company, Inc. Self-propelled golf cart. 3,812,929, Cl. 180-98.000.

Faure, Alphonse W., to C.S.S. Machine and Tool Company, Inc. Adjustable air-cylinder support for 90 degree push-out in glassware forming equipment. 3,812,690, Cl. 65-260.000.

Faust, Warren R.: *See—*
Douglas, George H.; Faust, Warren R.; and Smith, Herchel, 3,813,420.

Feeman, James F., to Crompton & Knowles Corporation. Blue anthraquinone acid dyes. 3,813,402, Cl. 260-372.000.

Feinberg, Robert S., to Cryplex Industries, Inc. Method of making a heat resistant, vapor free cooking utensil. 3,813,256, Cl. 117-47.00h.

Feldman, Jeffrey M.: *See—*
Harrison, Stanley; and Feldman, Jeffrey M., 3,813,011.

Feldman, Jerome M., to Dairy Cap Corporation. Tamper-proof closure cap. 3,812,994, Cl. 215-256.000.

Fellwock, Charles G.; Hortin, Kenneth L.; and Tillman, Harry L., to Whirlpool Corporation. Refrigerator cabinet. 3,813,137, Cl. 312-214.000.

Fenske, Howard D. Laterally and vertically shiftable auger loaders. 3,812,607, Cl. 37-4.000

Ferchland, Harold W., to General Motors Corporation. Method of making a porous laminated metal-bonded cutting wheel. 3,813,230, Cl. 51-297.000

Fergg, Berthold: *See—*
Zahn, Wolfgang; Fergg, Berthold; and Knapp, Walter, 3,813,158.

Feucht, Robert H., and Jones, Lawrence R., to Goodyear Tire & Rubber Company, The. Method and apparatus for making hose. 3,813,313, Cl. 156-156.000.

Fielder, Frederick D.: *See—*
Clifton, David A.; and Fielder, Frederick D., 3,813,654.

Fischer, Adolf, to Badische Anilin-& Soda-Fabrik Aktiengesellschaft. Herbicide. 3,813,237, Cl. 71-117.000.

Fischer, Frank E., to Consolidated Edison Company of New York, Inc. Electric power cable apparatus for transmitting power from a floating structure. 3,813,477, Cl. 174-70.00r.

Fischer, Herbert Corliss, and Fischer, Herbert Corliss, Jr. Prestressed elements. 3,813,098, Cl. 273-72.00r.

Fischer, Herbert Corliss, Jr.: *See—*
Fischer, Herbert Corliss, and Fischer, Herbert Corliss, Jr., 3,813,098.

Fischler, Hans-Michael: *See—*
Heine, Hans-Georg; Fischler, Hans-Michael; and Hartmann, Willy, 3,813,432.

Fisher Controls Company, Inc.: *See—*
Tiffany, Floyd L., 3,813,578.

Fisher, William M., to General Electric Company. Disconnect terminal board. 3,813,642, Cl. 339-198.00r.

Fisker, Jens Erik; and Sondergaard, Per, to Pedershaab Maskinfabrik A/S. Device for molding pipe having a spigot end. 3,813,203, Cl. 425-441.000.

Fleck, Elmer E., to Chemed Corporation, mesne. Screw-on type closure for a bubbler tube. 3,813,223, Cl. 23-259.000.

Fleischhacker, Joseph F., and Hruby, Thomas W., to Tescom Corporation. Pressure regulator assembly. 3,812,877, Cl. 137-505.420.

Fletcher Brothers (Castings) Limited: *See—*
Fletcher, Thomas Sydney, 3,813,069.

Fletcher, Thomas Sydney, to Fletcher Brothers (Castings) Limited. Mounting device for furniture. 3,813,069, Cl. 248-188.100.

Flint, George Norman; Evans, Thomas Ernest; and Hart, Anthony Christopher, to International Nickel Company, Inc., The. Corrosion-resistant nickel-iron alloy. 3,813,239, Cl. 75-122.000.

Flottorp, Thomas. Boot and shoe asemblies. 3,812,601, Cl. 36-2.50c.

Folson, Henry J.: *See—*
Forssell, Dag C. G.; and Folson, Henry J., 3,812,805.

Forbes, Hampton E., Jr., to Westvaco Corporation. Multi-product carton. 3,812,957, Cl. 206-45.140.

Forbro Design Corporation: *See—*
Gately, Joseph R., 3,813,666

Ford, Samuel W.: *See—*
Ervin, Gerald A., 3,813,478.

Forester, John K.: *See—*
Hines, Robin H.; Hollinshead, William L.; and Forester, John K., 3,813,165.

Forker, Ray B., Jr.; and Panzarino, Joseph N., to Corning Glass Works. Process for making carbon-containing glasses. 3,813,232, Cl. 65-23.000.

Forsheda Ideutveckling AB. *See—*
Derman, Karl Gustav Einar, 3,813,102.

Forssell, Dag C. G.; and Folson, Henry J., to Vector Company. Inflatable pontoon boat. 3,812,805, Cl. 114-61.000.

Foss, Norman A.; and Ward, Samuel A., to Columbia Broadcasting System, Inc. MOS photodiode. 3,813,541, Cl. 250-211.00j.

Foster, Beatrice D. Shield for downwardly diverting exhaled gases from anesthesiologist. 3,813,092, Cl. 269-322.000.

Foster, Berry W. Rotary vane device for compressor, motor or engine. 3,813,191, Cl. 417-406.000.

Foster Wheeler Corporation: *See—*
Polcer, John; Barratt, Robert O.; and Roberts, John, 3,812,824

Polcer, John; Barratt, Robert O.; and Roberts, John, 3,812,825.
Fowler, Joe R., to Texaco Inc. Methods and apparatuses for transmission of longitudinal and torque pulse data from drill string in well while drilling. 3,813,656, Cl. 340-18.01d.
Fox, William Albert: *See—*
Wright, William Howell; Bingham, Alex John; and Fox, William Albert, 3,813,366.
Foxboro Company, The: *See—*
Prescott, Robert C., 3,812,767.
Francis, G. V.: *See—*
Robertson, Robert C.; and Francis, G. V., 3,812,632.
Frank, Helmut; Maus, Otfrid; and Tary, Endre, to Schenck, Carl, Maschinenfabrik GmbH. Balancing apparatus. 3,812,725, Cl. 73-462.000.
Franzen, G.; Hillenkamp, Franz; Kaufman, Raimund; and Remy, Ernst, to Remy, Ernst. Method for evaporating, destroying, exciting and/or ionizing specimen material limited to micro-regions and arrangement for carrying out this method. 3,813,544, Cl. 250-281.00.
Fraze, Ermal C., mesne: *See—*
Brown, Omar L., 3,812,803.
Frederick, Eugene G.; Morse, Albert I.; and Simmonds, Robert C., Jr., to USM Corporation. Shoe molds. 3,813,201, Cl. 425-242.000.
Freeman, Jerry H., to Reflect-O-Lite Manufacturing Company. Light fixture for vehicles. 3,813,535, Cl. 240-57.000.
French, David Walter, to Johns-Manville Corporation. Plastic pipe thrust resistant joint. 3,813,115, Cl. 285-92.000.
Fricke, Hans D.: *See—*
Burr, John W.; Fricke, Hans D.; and Sobieniak, Mathew G., 3,812,671.
Fricklas, Richard Leon: *See—*
Olszyk, Bernard John; and Fricklas, Richard Leon, 3,813,280.
Friesner, Charles E., to Industrial Plastic Specialties Company. Apparatus for producing trim strip assembly. 3,813,199, Cl. 425-113.000.
Frings, Heinrich, Firma: *See—*
05/28/74; Ebner, Heinrich; and Enenkel, Anton, 3,813,086.
Frisch, Kurt C.: *See—*
Wood, Louis L.; Kehr, Clifton L.; and Frisch, Kurt C., 3,812,618.
Wood, Louis L.; and Frisch, Kurt C., 3,812,619.
Frisch, Kurt C.; Reegen, Sidney; and Dieter, Jerry A., to Atlantic Richfield Company. High molecular weight cyclic nitrile adduct compositions. 3,813,365, Cl. 260-77.50r.
Frost, Peter: *See—*
Broadbent, Arnold; and Frost, Peter, 3,813,551.
Fuhr, Kenneth H.: *See—*
Doherty, George O. P.; and Fuhr, Kenneth H., 3,813,408.
Fuji Photo Film Co., Ltd.: *See—*
Honjo, Satoru; Fukushima, Osamu; and Osada, Chiaki, 3,813,267.
Takamura, Yoshihiko; Nakajima, Yosuke; Ohi, Reiichi; and Miyazako, Takushi, 3,813,250.
Fujisawa, Kiyoji: *See—*
Mino, Mineo; Fujisawa, Kiyoji; and Tanabe, Kenzo, 3,813,484.
Fujisawa Pharmaceutical Co., Ltd.: *See—*
Tensho, Akira; Kamiya, Takashi; Yoshihisa, Saito; Hashimoto, Masashi; and Hideo, Seki, 3,813,394.
Fujishige, Sadao, to Sankyo Kogaku Kogyo Kabushiki Kaisha. Still and slow motion control unit for a projector. 3,813,154, Cl. 352-169.000.
Fukawawa, Nobuo: *See—*
Aya, Masahiro; Miyamotò, Masao; Fukawawa, Nobuo; and Ohsuga, Shigeki, 3,813,405.
Fukaya, Takeshi: *See—*
Seino, Hiroshi; Suzuno, Shingichi; Takeya, Yoshiaki; Tobita, Tsutomu; and Fukaya, Takeshi, 3,812,565.
Fukuda, Kinya: *See—*
Kawaguchi, Kiyoshi; Miyamatsu, Yasunori; Kamoi, Arao; and Fukuda, Kinya, 3,812,697.
Miyamatsu, Yasunori; Kamoi, Arao; and Fukuda, Kinya, 3,812,701.
Fukunari, Sunao: *See—*
Nakanishi, Michio; Munakata, Tomohiko; Setoguchi, Shinro; and Fukunari, Sunao, 3,813,395.
Fukuroi, Takeo, to Yoshida Kogyo Kabushiki Kaisha. Method and apparatus for removing interlocking elements from slide fastener chain. 3,812,573, Cl. 29-427.000.
Fukushima, Osamu: *See—*
Honjo, Satoru; Fukushima, Osamu; and Osada, Chiaki, 3,813,267.
Fullaway, Altan Vanstone, to Weyerhaeuser Company. Log handling apparatus. 3,812,951, Cl. 198-34.000.
Fumia, Arthur, Jr.: *See—*
Brooker, Leslie G. S.; Fumia, Arthur, Jr.; and Heseltine, Donald W., 3,813,397.
Funabashi, Shinichiro: *See—*
Murayama, Naohiro; Katto, Takayuki; and Funabashi, Shinichiro, 3,813,461.
Funahashi, Takaji. Self-inking roller. 3,812,782, Cl. 101-367.000.
Funakoshi Pharmaceutical Co., Ltd.: *See—*
Itokawa, Hideji, 3,812,586.
Futaki, Kiyoshi; Tsukahara, Hirokazu; and Emoto, Kazuhiro, to Mitsubishi Paper Mills, Ltd. Organic photoconductive composition comprising an organic photoconductive compound and a sensitizing compound having an active methylene group. 3,813,248, Cl. 96-1.50.
GAF Corporation: *See—*
Szymber, Oleg; and Shim, Norman, 3,813,155.
Gall, Martin; and Hester, Jackson B., Jr., to Upjohn Company, The. Certain triazolyl benzhydrol compounds. 3,813,412, Cl. 260-308.00r.
Gambaretto, Gian Paolo; Tlaamini, Gianpietro; and Palma, Giancarlo, to Montecatini Edison S.p.A. Process for the chlorination of polymeric materials. 3,813,370, Cl. 260-88.20s.
Garrett Comtronics Corporation: *See—*
Cone, George W.; and Kinzie, James E., 3,813,533.
Gatel, Gilbert: *See—*
Chevalier, Gabriel; and Gatel, Gilbert, 3,813,530.
Gately, Joseph R., to Forbro Design Corporation. Power supply mode indicator lamp circuit. 3,813,666, Cl. 340-248.00a.
Gates, Francis J.: *See—*
Burch, Darrell E.; Gates, Francis J.; Gryvnak, David A.; and Pembrook, John D., 3,813,146.
Gates Rubber Company, The: *See—*
Kerst, Al F., 3,813,456.
Stechel, Elmer A.; Schaffer, William G.; and Payne, Roger A., 3,813,314.
Gatsis, John G., to Universal Oil Products Company. Solvent extraction of coal utilizing a peteropoly acid catalyst. 3,813,329, Cl. 208-9.000.
Gattuso, Marion J.; and Arnold, Robert J., to Universal Oil Products Company. Color stabilization of petroleum distillates. 3,813,332, Cl. 208-290.000.
Gaunt, Conrad L.: *See—*
Dyer, Clarence H.; Gaunt, Conrad L.; and Jarvis, Edward D., 3,813,294.
Gebel, Kurt M.; and Price, Ralph E., to Landis Tool Company. Pressure indicating device for hydrostatic bearings. 3,812,627, Cl. 51-238.00r.
Gebr. Schmeing: *See—*
Ridder, Hubert; Epping, Winfried; and Icking, Paul, 3,812,823.
Gebruder Linck: *See—*
Reuter, Alfred, 3,812,891.
Gebrueder Buehler AG: *See—*
Manser, Josef, 3,813,082.
Geil, Fred G., to United States of America, Navy. Instant replay helium speech unscrambler using slowed tape for correction. 3,813,687, Cl. 360-8.000.
Geiser, Edward M., to Universal Oil Products Company. Lubricating oil composition. 3,813,228, Cl. 44-58.000.
Genbauffe, Francis S.: *See—*
Branson, Charles D.; and Genbauffe, Francis S., 3,813,078.
General Electric Company: *See—*
Balchunas, Charles A., 3,813,641.
Boice, William Knight, 3,813,589.
Chakrabarty, Ananda M., 3,813,316.
Clausen, Edward M.; and Clemmer, Robert G., 3,813,205.
De Zuba, George P.; Berger, Abe; and Selin, Terry G., 3,813,364.
Dinger, Edward H., 3,813,591.
Fisher, William M., 3,813,642.
Klappert, Willi, 3,812,554.
Koch, Robert E., 3,813,627.
Koval, Leonide P., 3,813,619.
Lipstein, Norman J., 3,813,260.
Mason, Lowell M., 3,812,570.
Mitchell, Graham R., 3,813,506.
Nickstadt, Gerhard, 3,812,736.
O'Connell, William J., 3,813,358.
Polcer, John; Barratt, Robert O.; and Roberts, John, 3,812,824.
Polcer, John; Barratt, Robert O.; and Roberts, John, 3,812,825.
Rinehart, Dean C., 3,813,193.
Scheldorf, Owen H., 3,813,192.
Scott, Stanley J.; Noroski, William J.; and Rublack, Wilfred D., 3,813,568.
Tice, James B.; and Bowler, Colin E. J., 3,813,593.
Titus, Charles H.; and Wittle, J. Kenneth, 3,812,620.
Traver, Frank J., 3,813,425.
General Motors Corporation: *See—*
Beck, Roger W.; and Yoder, Douglas J., 3,813,311.
Dyer, Clarence H.; Gaunt, Conrad L.; and Jarvis, Edward D., 3,813,294.
Ferchland, Harold W., 3,813,230.
General Telephone & Electronics Laboratories: *See—*
Carlsen, W. John, 3,813,139.
General Tire & Rubber Company, The: *See—*
Molbert, Robert A., 3,813,269.
George Lithograph Company: *See—*
Schlegel, P. L., Jr., 3,813,159.
Gergely, Alex S., to Phillip Morris Incorporated. Jam prevention unit for extrusion process apparatus. 3,813,200, Cl. 425-140.000.
Gertsch AG: *See—*
Gertsch, Ernst; and Gertsch, Ulrich, 3,812,602.
Gertsch, Ernst; and Gertsch, Ulrich, to Gertsch AG. Ski boot. 3,812,602, Cl. 36-2.5al.
Gertsch, Ulrich: *See—*
Gertsch, Ernst; and Gertsch, Ulrich, 3,812,602.
Gerzmava, Dusheli Vladimirovich: *See—*
Drobich, Oleg Pavlovich; Pritomanov, Alexei Evgenievich; Rokutov, Viktor Petrovich; Kirvalidze, Nikolai Spiridonovich; Gerzmava, Dusheli Vladimirovich; and Mandzjuk, Boris Valentinovich, 3,813,335.
Gesellschaft fur Kernforschung mbH: *See—*
Malang, Siegfried, 3,813,287.

Geusic, Joseph Edward: *See—*
Danylchuk, Irynej; Geusic, Joseph Edward; and Nelson, Terence John, 3,813,661.
Geyer, Wolf, to Vereinigte Flugtechnische Werke-Fekker Gelleschaft mit beschrankter Haftung. Apparatus for supervising equipment with warning lights. 3,813,664, Cl. 340-248.00r.
Geyken, Erwin; Dawidowitsch, Peter; and Ertl, Franz, to Agfa-Gevaert Aktiengesellschaft. Apparatus for processing photographic material or the like. 3,812,870, Cl. 134-122.000.
Gierth, Volker: *See—*
Klocke, Hans Joachim; Stockburger, Dieter; Gierth, Volker; and Zeitler, Gerhard, 3,813,375.
Gikow, Emanuel, to United States of America, Army. Printed circuit board vibration snubber. 3,813,582, Cl. 317-101.00h.
Gilbert, John W.; and Panagrossi, Ahmed, to International Paper Company, mesne. Retention catheter. 3,812,860, Cl. 128-349.00b.
Gilbert, Ronald Edward; and Monley, Richard Leo, Jr., to Gulf Research & Development Company. Sandpaper. 3,813,231, Cl. 51-298.000.
Giles, Grady E.: *See—*
Kitterman, Richard E.; and Giles, Grady E., 3,813,525.
Gillette Company, The: *See—*
Samsing, Rolf, A., 3,812,958.
Gilliam, Clarence W., to United States of America, Navy. Chemical lighting device having interlocking ampoules. 3,813,534, Cl. 240-2.250.
Gilliland, William J. Holder for handled tools to be sharpened 3,812,740, Cl. 76-82.000.
Gillis, Marina N.; and Mazzeo, Michael P., to Thiokol Chemical Corporation. Non-discoloring thermosetting polyurethane lacquer 3,813,361, Cl. 260-29.2tw.
Gillman Industries, Inc.: *See—*
Ziegler, Arnold H.; and Schweitzer, George J., 3,812,800.
Giorgi, Tiziano: *See—*
delle Porta, Paolo; Giorgi, Tiziano; Kindl, Bruno; and Zucchinelli, Mario, 3,813,266.
Girling Limited: *See—*
Cochrane, Robin Adam, 3,812,675.
Giunta, Grace G. Skin conditioning article. 3,812,849, Cl. 128-67.000.
Givens, Edwin N.; Plank, Charles J., and Rosinski, Edward J., to Mobil Oil Corporation. Process for aromatizing olefins in the presence of easily cracked paraffins. 3,813,330, Cl. 208-66.000.
G.K. Systems, Inc.: *See—*
Gregory, Robert B., 3,813,204.
Glass, Alastair Malcolm: *See—*
Abrams, Richard Lee; and Glass, Alastair Malcolm, 3,813,550.
Glass, Emmett F.: *See—*
Yound, Robert G.; Trible, Paul S.; and Glass, Emmett F., 3,812,777.
Glass, John P., trading as Cava Industries: *See—*
Hollander, Edward F., Jr., 3,813,224.
Glass, Marvin & Associates: *See—*
Glass, Marvin I.; Breslow, Jeffrey D.; and Jaworski, Eugene, 3,812,613.
Glass, Marvin I.; Breslow, Jeffrey D.; and Jaworski, Eugene, to Glass, Marvin & Associates Educational figure toy. 3,812,613, Cl. 46-119.000.
Glassman, Terrence A. Storage assembly. 3,812,977, Cl. 211-177.000.
Glenfield & Kennedy Limited: *See—*
Miller, Eric, 3,812,871.
Globe Tool and Engineering Company, The: *See—*
Compton, Jerry L.; and Seitz, David R., 3,812,577.
Globe-Union Inc.: *See—*
Kirchberger, Walter Carl, 3,813,024.
Gobin, Michel Roland: *See—*
Bouiller, Jean Georges, Gobin, Michel Roland; Lacroix, Armand Jean-Baptiste; and Bauger, Louis Jules, 3,813,185.
Godfrey, John J., to Grace, W. R., & Co. Transvinylation catalyst 3,813,348, Cl. 252-431.00n.
Golban, Eduard Vasilievich. *See—*
Rogalsky, Anatoly Viktorovich, Markevich, Vitaly Mikhailovich, Kheifets, Georgy Naumovich, Zaichenko, Jury Leonidovich, Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich, Golban, Eduard Vasilievich, Pechennik, Leonid Naumovich, Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich, Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich, and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Goldman, Arthur J.; Rowe, D. Garth; and Jones, Cecil Roy, to Transfer Systems Incorporated. Fuel element with failure indicator. 3,813,286, Cl. 176-19.00r.
Goldschmidt, Alfred, to Chevron Research Company. Reaction products of amines and dithiophosphoric acids or salts 3,813,336, Cl. 252-32.70e.
Gommesen, Hans, to Smidth, S. L., & Co. Cooler tubes for rotary kiln 3,813,211, Cl. 432-80.000.
Goncharov, Boris Konstantinovich: *See—*
Neshumaev, Anatoly Dmitrievich; Goncharov, Boris Konstantinovich; Smolyar, Anatoly Alexeevich; and Chigir, Leonid Nikolaevich, 3,812,763.
Gooch, Beverly R.; and Schiller, Edward, to Ampex Corporation. Magnetic head with protective pockets of glass adjacent the corners of the gap. 3,813,693, Cl. 360-119.000.
Goodman, Mallard S. Detachable spiked shoe protective cover. 3,812,603, Cl. 36-2.5an.
Goodrich, B. F., Company, The: *See—*
Smith, Dean G., 3,813,104.
Goodyear Tire & Rubber Company: *See—*
Saltman, William M.; and Auerbach, Melvin, 3,813,455.
Goodyear Tire & Rubber Company, The: *See—*
Conger, Marvin T., 3,813,463.
Feucht, Robert H.; and Jones, Lawrence R., 3,813,313.
Neubert, Terry C., 3,813,259.
Perry, Dale C., 3,813,374.
Riggs, Robert S., 3,813,271.
St Cyr, David R., 3,813,357.
West, James C., 3,813,257
Wideman, Lawson G., 3,813,453.
Gould Inc. *See—*
Toaz, Milton W., 3,812,563.
Grace, W. R., & Co. *See—*
Godfrey, John J., 3,813,348.
Marans, Nelson S., 3,813,434.
Wood, Louis L.; Kehr, Clifton L.; and Frisch, Kurt C., 3,812,618.
Wood, Louis L.; and Frisch, Kurt C., 3,812,619.
Grant, Jon Halloran; and Pauly, Raymond W., to Hughes Aircraft Company. Current mode switch for high speed digital-to-analog conversion. 3,813,560, Cl. 307-253.000.
Grant, Robert A.: *See—*
Rogne, Conrad O., Jr.; and Grant, Robert A., 3,813,126.
Grants, Valdis: *See—*
Struger, Odo J.; Grants, Valdis; and Searcy, William W., 3,813,649.
Graulus, Marcel J. R.: *See—*
Fader, John H.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,812,938.
Graves, Fred L.: *See—*
Torrence, James D.; and Graves, Fred L., 3,813,047.
Greason, Craig P. Continuous web with separable segmented envelopes and order coupons 3,813,028, Cl. 229-70.000.
Grebik, Stephen J.: *See—*
Elliott, Howard A.; and Grebik, Stephen J., 3,813,645.
Greco, Francesco: *See—*
Chiolle, Antonio; Credali, Lino; Longi, Paolo; Greco, Francesco, and D'Angelo, Romano, 3,813,354.
Green, Ian MacDonald, to EMI Limited. Colour television cameras 3,813,490, Cl. 178-5.4st.
Greene, Helen R. Soil-loosening rotary hoe 3,812,920, Cl. 172-/350.000.
Greenhalgh, Howard N. Parachutist's glider 3,813,061, Cl. 244-16.000.
Gregory, Robert B., to G.K. Systems, Inc. Lip adjustment for extrusion die. 3,813,204, Cl. 425-466.000.
Greiffenstern, Karl Von, to Polysius AG. Hammer crusher 3,813,045, Cl. 241-88.400.
Greis, Ingemar Joel, to Kommaditobolaget United Sterling (Sweden) AB & Co. Hot gas engine with co-axial cylinder bores of differing diameter. 3,812,677, Cl. 60-517.000.
Griesing, John E.: *See—*
Baldyga, Eugene P.; and Griesing, John E., 3,812,646.
Griffith, John Q., III: *See—*
Coppock, Walter J.; Amaroso, James R.; and Griffith, John Q., III, 3,813,338.
Griffiths, Franklin E. Rotary engine. 3,812,828, Cl. 123-8.450.
Grip-Pak, Inc.: *See—*
Cunningham, Ernest R., 3,812,962.
Grodziskie Zaklady Farmaceutyczne "Polfa" Przedsiebiorstwo Panstwowe *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.
Grodzitsky, Evgeny Fedorovich: *See—*
Rogalsky, Anatoly Viktorovich, Markevich, Vitaly Mikhailovich, Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich, Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich, Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich, Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich, Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Gromek, Joseph *See—*
Nemeth, Edward; and Gromek, Joseph, 3,812,568.
Grossman, Sidney J., to United States of America, Army. Laser transceiver. 3,813,553, Cl. 250-347.000.
Grothe, Horst: *See—*
Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin; and Zeller, Josef, 3,812,900.
Grundig E.M.V. Elektro-Mechanische Versuchsanstalt Max Grundig. *See—*
Emmert, Reinhold, 3,813,691.
Grunewald, Rainer. *See—*
Sajben, Johannes Otto; Lippert, Axel, Stumpen, Klaus; and Grunewald, Rainer, 3,812,885.
Gryazev, Ivan Ivanovich: *See—*
Pshenichny, Gennady Ivanovich; Checheljuk, Yakov Zinovievich, and Gryazev, Ivan Ivanovich, 3,812,567.
Gryvnak, David A.: *See—*
Burch, Darrell E.; Gates, Francis J.; Gryvnak, David A.; and Pembrook, John D., 3,813,146.
GTE Laboratories Incorporated: *See—*
Buhrer, Carl F., 3,813,142.
Buhrer, Carl F., 3,813,660.

Cohen, Leonard D., 3,813,600.
GTE Sylvania Incorporated: *See—*
Szeverenyi, Nikolaus A.; and Thompson, David F., 3,813,629.
Gubler, Kurt: *See—*
Rutz, Hans; and Gubler, Kurt, 3,813,235.
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., to United States of America, Agriculture. Boll-weevil sex attractant. 3,813,443, Cl. 260-586.00r.
Guerin, Daniel L. G., to Leflaive, Vincent Rene, Peltier, Guy and Manceau, Marcel. Injection moulding machine. 3,813,014, Cl. 222-413.000.
Guerra, Edward E.: *See—*
Davidsohn, Uryon S.; Short, John P.; Combs, Clyde, Jr.; and Guerra, Edward E., 3,813,584.
Guilleux, Robert. Detector apparatus. 3,813,565, Cl. 307-308.000.
Guinosso, Charles J.: *See—*
Sellstedt, John H.; Teller, Daniel M.; and Guinosso, Charles J., 3,813,386.
Gulf & Western Industrial Products Company: *See—*
Burgess, Lester E.; and Brownstein, Ronald G., 3,813,281.
Gulf Research & Development Company: *See—*
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., 3,812,652.
Gilbert, Ronald Edward; and Monley, Richard Leo, Jr., 3,813,231.
Massoth, Franklin E.; and Young, John E., Jr., 3,812,653.
Wuenschel, Paul C., 3,812,912.
Gump, Klaus H.: *See—*
Di Edwardo, Andrew H.; and Gump, Klaus H., 3,813,219.
Gunby, Leslie, to PPG Industries, Inc. Bipolar electrolytic diaphragm cell having friction welded conductor/connector means. 3,813,326, Cl. 204-268.000.
Gurklis, Peter J., to Dow Chemical Company, The. Welded joint assembly. 3,813,002, Cl. 220-63.00r.
Gutierrez, Julian. Inter-actuating record holding structure. 3,812,975, Cl. 211-40.000.
Haas, Helmut: *See—*
Langmaack, Jurgen; and Haas, Helmut, 3,813,084.
Haas, Werner; and Isensee, Klaus-Staffen, to Siemens Aktiengesellschaft. Device for transmitting predetermined volumes of liquid from one container to another container. 3,812,890, Cl. 141-94.000.
Habermeier, Jurgen; Porret, Daniel; and Baumann, Dieter, to Ciba-Geigy Corporation. Epoxide resin mixtures. 3,813,352, Cl. 260-2.0ep.
Hackney, Thomas P., Jr.; and Kirwan, George B., to Hennessy Products, Incorporated. Transport merchandise container. 3,813,117, Cl. 292-54.000.
Hagen, James M.; and Haigh, Clayton M., to Xerox Corporation. Microfilm cartridge and adapter apparatus. 3,813,056, Cl. 242-197.000.
Haigh, Clayton M.: *See—*
Hagen, James M.; and Haigh, Clayton M., 3,813,056.
Hala, Alfred A. Method of fabricating a combination water and insulated wall assembly. 3,812,635, Cl. 52-741.000.
Hallesy, Harold W.; and Revenig, Howard C., to Decoto Aircraft, Inc. Locking mechanisms and actuator assemblies of coaxial locked remotely at selected locations after motions of a nearly complete circumferential one piece chamfered locking ring. 3,813,065, Cl. 244-115.000.
Hallock, Robert L., Jr. Sheet metal nail and apparatus for testing. 3,812,817, Cl. 116-114.00r.
Hallwood, Harry, to Midwesco-Enterprise, Inc. Cryogenic insulation. 3,812,886, Cl. 138-149.000.
Hamanaka, Wahei: *See—*
Nagata, Tadayoshi; and Hamanaka, Wahei, 3,812,796.
Hamburger, Edward O. Externally adjustable cam timer. 3,812,734, Cl. 74-243.0pc.
Hamerdinger, Randolph W.; and Dunn, Phillip D., to Xerox Corporation. Dynamic barrier for heat pipe. 3,812,905, Cl. 165-32.000.
Hampel, Gerald. Eyeglass frame. 3,813,152, Cl. 351-153.000.
Hanna, Daniel C. Wraparound brushing device. 3,812,549, Cl. 15-21.00d.
Hanson, Henry Lloyd. Locking device for hangers perforated boards. 3,813,070, Cl. 248-223.000.
Harada, Yasoo: *See—*
Tarui, Yasuo; Komiya, Yoshio; and Harada, Yasoo, 3,813,585.
Harcourt Brace Jovanovich, Inc.: *See—*
Falletta, Thomas S.; and Pugliese, Paul Jones, 3,812,960.
Hardee, Dicky D.: *See—*
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., 3,813,443.
Hardy, Williuam C.; Schultze, Edward F.; and Shepard, John C., to Sun Oil Company. Method of formation consolidation. 3,812,913, Cl. 166-288.000.
Harper, Michael Frederick: *See—*
Ezekiel, Aaron David; Thurston, Elvin Frederick William; Harper, Michael Frederick; and Wood, Malcolm Barlow, 3,813,249.
Harrington, Colin John: *See—*
Elliott, John Scotchford; Jayne, Gerald John Joseph; Crook, Monty Frederick; and Harrington, Colin John, 3,813,341.
Harrington, Richard H. Rotatable strobascopic toy. 3,812,614, Cl. 46-228.000.
Harrison, Stanley; and Feldman, Jeffrey M. Aerosol can for dispensing materials in fixed volumetric ratio. 3,813,011, Cl. 222-136.000.
Hart, Anthony Christopher: *See—*
Flint, George Norman; Evans, Thomas Ernest; and Hart, Anthony Christopher, 3,813,239.
Hartemann, Pierre; and Dieulesaint, Eugene, to Thomson-CSF. Surface wave electromechanical filter. 3,813,618, Cl. 333-72.000.
Hartmann, Franz-Josef: *See—*
Benteler, Helmut; Hartmann, Franz-Josef; and Hefendehl, Heinz, 3,812,702.
Hartmann, Willy: *See—*
Heine, Hans-Georg; Fischler, Hans-Michael; and Hartmann, Willy, 3,813,432.
Hartwimmer, Robert; and Weiss, Eduard, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of fluorocarbon waxes. 3,813,449, Cl. 260-653.10r.
Hartz, Marvin E., to Essex International, Inc. Terminating of electrical conductors. 3,813,643, Cl. 339-223.00s.
Hasegawa, Goro; Nakamoto, Soichi; and Hosoe, Kazuya, to Canon Kabushiki Kaisha. Focus detector device. 3,813,679, Cl. 354-24.000.
Hasegawa, Yo: *See—*
Ikeda, Mitsusuke; Sato, Hisanao; Torii, Etsuko; Morimoto, Kazuhisa; and Hasegawa, Yo, 3,813,242.
Hashimoto, Masashi: *See—*
Tensho, Akira; Kamiya, Takashi; Yoshihisa, Saito; Hashimoto, Masashi; and Hideo, Seki, 3,813,394.
Hassell, David A.; and McMillin, John R., to Carnelius Company, The. Beverage dispenser. 3,813,010, Cl. 222-129.100.
Hastings, Edward D.: *See—*
Roland, David H.; and Hastings, Edward D., 3,812,978.
Hatch, Bruce O., to Thermal Dynamics Corporation. Electric arc torches. 3,813,510, Cl. 219-121.00p.
Hatch, Melvin J.; Yoshimine, Masao; Smith, Hugh B.; and Schmidt, Donald L., to Dow Chemical Company, The. Hydroxyarylmethylenesulfonium zwitterions. 3,813,413, Cl. 260-330.500.
Hatsukano, Yoshikazu; Nomiya, Kosei; and Torii, Shuichi, to Hitachi, Ltd. Flip-flop circuit. 3,813,564, Cl. 307-279.000.
Haughwitz, Rudiger D., to Squibb, E. R., & Sons, Inc. Benzimidazolinone compounds. 3,813,409, Cl. 260-306.700.
Hauni-Werke Korber & Co. KG: *See—*
Rudszinat, Willy; and Ludszeweit, Dieter, 3,812,950.
Haupt, Hans O. Vehicle wheel alignment checking apparatus. 3,812,592, Cl. 33-203.130.
Hauskins, John B., Jr., to Engineering Corporation of America. Sound barrier. 3,812,931, Cl. 181-33.00e.
Hayashi, Yasuo; and Adachi, Yoshiaki, to Kureha Kagaku Kogyo Kabushiki Kaisha. Process of the manufacture of dialkyltin oxide. 3,813,424, Cl. 260-429.700.
Hayes, Charles M., to Universal Oil Products Company. Manufacture of adsorbent composite. 3,813,347, Cl. 252-428.000.
Hayes, Harold B., to Lilly, Eli, and Company. Process for 7-aminocephalosporanic acid. 3,813,389, Cl. 260-243.00c.
Heady, Robert E.: *See—*
Armbruster, Frederick C.; Heady, Robert E.; and Cory, Robert P., 3,813,318.
Hedin, Paul A.: *See—*
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., 3,813,443.
Hedman, Clarence L., Jr.; and Vartanian, Perry H., Jr., to SCM Corporation. Voltage-controlled liquid crystal X-Y display device. 3,813,145, Cl. 350-160.0lc.
Hedman, Jan-Olof, to Telefonaktiebolaget LM Ericsson. Electret microphone. 3,812,575, Cl. 29-594.000.
Heerdt, Ruth: *See—*
Aumuller, Walter; Weyer, Rudi; and Heerdt, Ruth, 3,813,398.
Hefendehl, Heinz: *See—*
Benteler, Helmut; Hartmann, Franz-Josef; and Hefendehl, Heinz, 3,812,702.
Heiba, El Ahmadi I.; and Dessau, Ralph M., to Mobil Oil Corporation. Substituted Gamma-butyrolactones derived from C_{16} and greater unsaturated acids. 3,813,416, Cl. 260-343.600.
Heilweil, Israel J.; and Srinivasan, Sundaresa, to Mobil Oil Corporation. Growth and recovery of cells of a hydrocarbon-utilizing microorganism. 3,813,290, Cl. 195-28.00r.
Heimberger, Werner; and Weigert, Wolfgang, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. 7-Aza-6,8-dioxa-bicyclo 3,2,1 octane. 3,813,410, Cl. 260-307.00f.
Heine, Charles A., to Alexander Manufacturing Company. Bottle cap remover. 3,812,741, Cl. 81-3.400.
Heine, Desire: *See—*
Lindeborg, Georg D.; and Heine, Desire, 3,812,985.
Heine, Hans-Georg; Fischler, Hans-Michael; and Hartmann, Willy, to Bayer Aktiengesellschaft. Substituted 1-hydroxy cyclopropane-1-carboxylic acids. 3,813,432, Cl. 260-514.00h.
Heinemeyer, Ben W., to Dow Chemical Company, The. Plastic railway crosstie. 3,813,040, Cl. 238-84.000.
Heinle, Preston J.: *See—*
Brouwers, Karel J.; and Heinle, Preston J., 3,813,379.
Heitland, Herbert; and Manderscheid, Peter, to Volkswagenwerk Aktiengesellschaft. Thermo regulated catalytic cleaner for exhaust gas. 3,813,226, Cl. 23-288.00f.

Helgeson, Peter L. Raytheon Company Portable camp stove. 3,812,839, Cl. 126-38.000.
Hellman, Per: *See—*
Backstrom, Sven Hjalmar; and Hellman, Per, 3,813,196.
Heltzen, John H. Collapsible luggage pouch for motorcycles. 3,813,018, Cl. 224-33.00r.
Hennessy Products, Incorporated: *See—*
Hackney, Thomas P., Jr.; and Kirwan, George B., 3,813,117.
Henniger, Peter Wolfgang, to American Home Products Corporation, mesne. 6-[(Lower alkylidene) iminooxycarbonamide]-penicillanic acids and method of their preparation. 3,813,385, Cl. 260-239.100.
Henry, Richard Dal. Glide slope indicator. 3,813,657, Cl. 340-26.000.
Herbenar, Edward J.; and Pozolo, Kenneth R., to TRW, Inc. Wear indicating joint. 3,813,178, Cl. 403-27.000.
Hercules Incorporated: *See—*
Simmons, Ronald L., 3,813,458.
Skidmore, Paul H., 3,813,308.
Thomson, J. Brent, 3,813,351.
Herczog, Andrew: *See—*
Asher, John W.; and Herczog, Andrew, 3,812,688.
Hermann, Gunter, to Masserschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Vehicle shock absorption system and high-pressure gas producing device therefor. 3,813,112, Cl. 280-15.0ab.
Hersey Products, Inc., mesne: *See—*
Kitterman, Richard E.; and Giles, Grady E., 3,813,525.
Hershman, Arnold: *See—*
Paulik, Frank E.; Hershman, Arnold, Knox, Walter R., and Roth, James F., 3,813,428.
Herter, George L., to Herter's, Inc. One piece wad column and shot cup. 3,812,784, Cl. 102-95.000.
Herter's, Inc.: *See—*
Herter, George L., 3,812,784.
Heseltine, Donald W. *See—*
Brooker, Leslie G. S.; Fumia, Arthur, Jr., and Heseltine, Donald W., 3,813,397.
Hesener, Walter. *See—*
Weick, Heinz Hermann, Trueb, Viktor, and Hesener, Walter, 3,813,275.
Hester, Jackson B., Jr.: *See—*
Gall, Martin, and Hester, Jackson B., Jr., 3,813,412.
Hewitt, William Lloyd, to Cam-Stat Incorporated. Spark igniter for a plurality of gas burners. 3,813,581, Cl. 317-96.000.
Heynick, Louis N.: *See—*
Spindt, Charles A.; and Heynick, Louis N., 3,812,559.
Heyworth, Eugene R. Visual runway distance marker. 3,813,064, Cl. 244-114.00r.
Hideo, Seki: *See—*
Tensho, Akira; Kamiya, Takashi; Yoshihisa, Saito; Hashimoto, Masashi; and Hideo, Seki, 3,813,394.
Higashiyama, Kenji; and Hirata, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Device for measuring an activity of cobaltous ions. 3,813,324, Cl. 204-195.00m.
Higgs, Kenneth O., Richmond, Robert C.; and Marsch, Lawrence F., to Texaco Inc. Consistometer. 3,812,706, Cl. 73-59.000.
Hill, Donald C., to Eaton Corporation. Piston ring. 3,813,106, Cl. 277-173.000.
Hillenkamp, Franz. *See—*
Franzen, G.; Hillenkamp, Franz; Kaufman, Raimund; and Remy, Ernst, 3,813,544.
Hilti Aktiengesellschaft *See—*
Schmuck, Peter, 3,813,567
Himmler, Conrad R., to Indramat-Gesellschaft fur Industrie Rationalisierung und Automatisier mbH. Device for adjusting the stroke volume of hydraulic units. 3,812,765, Cl. 91-387.000.
Hindermann, Erich A. Screw conveyor. 3,812,956, Cl. 198-213.000.
Hines, Robin H.; Hollinshead, William L.; and Forester, John K., to Laser Systems & Electronics, Inc. Digital distance measuring apparatus employing modulated light beam. 3,813,165, Cl. 356-5.000.
Hirano, Katsuhiko, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument with rhythm selection pulse generator. 3,813,472, Cl. 84-1.030.
Hirata, Hiroshi. *See—*
Higashiyama, Kenji; and Hirata, Hiroshi, 3,813,324.
Hiratake, Susumu. *See—*
Eguchi, Isamu, and Hiratake, Susumu, 3,813,469.
Hitachi, Ltd.: *See—*
Hatsukano, Yoshikazu; Nomiya, Kosei; and Torii, Shuichi, 3,813,564.
Honkawa, Tadashi, 3,813,168.
Kumada, Akio; Ashida, Sakichi, Aizu, Keiichiro, and Koga, Masaahi, 3,813,144.
Matsuda, Youichi; Suzuki, Hiroshi, Shito, Nobuhiko, and Saito, Yosushi, 3,813,631.
Nomiya, Kosei, and Torii, Shuichi, 3,813,563.
Nomiya, Kosei; and Tsuiki, Takao, 3,813,623.
Sakamoto, Yoshio, and Iguchi, Shinsuke, 3,813,606.
Umeda, Jun-Ichi; Aiki, Kunio; Kurata, Kazuhiro; and Kusumoto, Hazime, 3,813,587.
Hitachi Powdered Metals Company: *See—*
Seino, Hiroshi; Suzuno, Shingichi; Takeya, Yoshiaki, Tobita, Tsutomu; and Fukaya, Takeshi, 3,812,565.
Hitz, Hans Rudolf. *See—*
Duerr, Dieter; Hitz, Hans Rudolf; Duennenberger, Max; and Schellenbaum, Max, 3,813,437.
Hix Automation Incorporated: *See—*
Hix, Clifford A.; and Hix, Daniel H., 3,813,270.
Hix, Clifford A.; and Hix, Daniel H., to Hix Automation Incorporated. Heat transfer machine. 3,813,270, Cl. 156-382.000.
Hix, Daniel H.: *See—*
Hix, Clifford A.; and Hix, Daniel H., 3,813,270.
Ho, Shu-Kuang: *See—*
Koplow, Harold Stanley; Eberle, Fritz; Ho, Shu-Kuang; and Lesnick, Edward, 3,812,945.
Hoerbiger Ventilwerke Aktiengesellschaft: *See—*
Bauer, Friedrich, 3,812,880.
Hoffman, Philip A.; and Davey, Frederick K., to Bendix Corporation, The. Wind direction monitor scale converter. 3,812,712, Cl. 73-188.000.
Hoffmann-La Roche Inc.: *See—*
Andrews, Kenneth John Maynard; and Tong, Brian Peter, 3,813,393.
Cohen, Noal, Rosenberger, Michael, and Saucy, Gabriel, 3,813,417.
Oxbond, John Mervyn; and Wickens, James Charles, 3,813,427.
Saucy, Gabriel, 3,813,411.
Uskokovic, Milan Radoje; and Williams, Thomas Henry, 3,813,442.
Hofling, Erich, Baur, Rudolf, and Bloeck, Siegfried, to Swiss Aluminium Ltd. Method of treating an aluminum surface. 3,813,303, Cl. 148-6.15r.
Hofmeister, Helmut, Laurent, Henry, Prezewowsky, Klaus, and Wiechert, Rudolf, to Schering Aktiengesellschaft. Process for the preparation of 6-keto-delta 1,3,5,(10) steroids. 3,813,418, Cl. 260-397.400.
Hofstetter, Emil. *See—*
Pfurrmann, Rolf Wilhelm, and Hofstetter, Emil, 3,813,387.
Holland Hitch Company. *See—*
Berends, Howard P., 3,813,114.
Holland, Kenneth W., to Eastman Kodak Company. Method and apparatus for forming random slubs in yarn. 3,812,665, Cl. 57-34.00b.
Hollander, Edward F., Jr., to Glass, John P., trading as Cava Industries. Whisker oven and method. 3,813,224, Cl. 23-273.0sp.
Hollinshead, William L.: *See—*
Hines, Robin H.; Hollinshead, William L.; and Forester, John K., 3,813,165.
Hollister, Kenneth Robert, and Perry, Ernest John, to Eastman Kodak Company. Peptizers for photographic emulsions. 3,813,251, Cl. 96-114.000.
Holloman, Charles J., to Trans-Lux Corporation. Display panel. 3,813,673, Cl. 340-373.000.
Hollyhead, William Brian. *See—*
Pioli, Alexander Joseph Peter; Hollyhead, William Brian; and Todd, Peter Frank, 3,813,423.
Holotron Corporation. *See—*
St. John, Daniel S., 3,813,685.
Holze, Ernest P., Jr., and Culp, Donald R., to Branson Instruments Incorporated. Replaceable welding tip for vibratory welding apparatus. 3,813,006, Cl. 228-1.000.
Honeywell Information Systems, Inc. *See—*
Borelli, Ronald F., 3,812,780.
Elmer, Ben R.; and Eklund, Melvin H., 3,813,652.
Hunter, John C., 3,813,650.
King, James L., 3,813,032.
King, Richard L.; and Buzby, Wayne R., 3,813,531.
Ryberg, Arlen W., 3,813,592.
Honjo, Satoru; Fukushima, Osamu; and Osada, Chiaki, to Fuji Photo Film Co., Ltd. Process for fixing electrophotographic images. 3,813,267, Cl. 156-236.000.
Honkawa, Tadashi, to Hitachi, Ltd. Two-wavelength spectrophotometer. 3,813,168, Cl. 356-97.000.
Hopkins, Robert Sherman, Jr.: *See—*
Cavett, John Dill, and Hopkins, Robert Sherman, Jr., 3,813,488.
Horsley, William J., to Interspace Corporation. Coupling for plain end pipes. 3,813,116, Cl. 285-236.000.
Hortin, Kenneth L. *See—*
Fellwock, Charles G.; Hortin, Kenneth L.; and Tillman, Harry L., 3,813,137.
Hortlik, Frantisek: *See—*
Marsalek, Milan; Junek, Jan; Brynda, Vaclav; Burysek, Frantisek; Hortlik, Frantisek; Ripka, Josef; and Lanta, Jiri, 3,812,667.
Horton, Herbert D. Method and apparatus for straightening tubular elements. 3,812,700, Cl. 72-79.000.
Horton, Robert A., to Precision Metalsmiths, Inc. Method for forming ceramic shell molds. 3,812,898, Cl. 164-25.000.
Horvath, William, to Diamond International Corporation. Safety cap. 3,812,989, Cl. 215-9.000.
Hosoe, Kazuya. *See—*
Hasegawa, Goro; Nakamoto, Soichi; and Hosoe, Kazuya, 3,813,679.
Hougen, Gary A., and Kloc, Henry F., to Continental Can Company, Inc. Latching arrangement for ring pull tab of an easy opening container. 3,813,001, Cl. 220-54.000.
Houma Valve Service, Inc. *See—*
Saudelier, Morris A., 3,812,722.
Howe, Robert K., to Monsanto Company. Ortho-toluidine plant regulants. 3,813,234, Cl. 71-76.000.
Hruby, Thomas W. *See—*
Fleischhacker, Joseph F.; and Hruby, Thomas W., 3,812,877.
Hubbell, Harvey, Incorporated. *See—*

Carissimi, Vincent L., 3,813,640.
Hubbs, Kenneth R. Reflective deer warning device. 3,813,143, Cl. 350-97.000.
Hubele, Adolf: *See—*
Emden, Helmut Huber; Hubele, Adolf; and Klahre, Guenter, 3,813,399.
Hubele, Adolf, to Ciba-Geigy AG. Oxime ethers. 3,813,429, Cl. 260-471.00r.
Huber, Josef, to Siemens Aktiengesellschaft. Apparatus and process for distribution of operation demands in a programmed controlled data exchange system. 3,813,648, Cl. 340-174.500.
Huber, Wolfgang; Chow, Silver H.; and Saifer, Mark G., to Diagnostic Data, Inc. Orgotein from red blood cells. 3,813,289, Cl. 195-4.000.
Hubner, Herbert: *See—*
Muller-Schiedmayer, Gunther; Muller, Heinz; Hubner, Herbert; and Ulm, Klaus, 3,813,441.
Hughes Aircraft Company: *See—*
Basiulis, Algerd, 3,813,571.
Grant, Jon Halloran; and Pauly, Raymond W., 3,813,560.
Hughes, Patrick A.; and Russell, David S. Secure data transmission apparatus. 3,813,493, Cl. 179-1.50s.
Hughes, Peter Graham; and Verge, John Pomfret, to Lilly Industries Limited. Certain 5-nitrothiazol-2-yl oxazole and imidazole derivatives. 3,813,401, Cl. 260-302.00h.
Hulls, Leonard Robin, to RCA Corporation. Magnetic reed sensor suitable for use in ignition timing systems. 3,813,596, Cl. 324-16.00r.
Hultsch, Gunther. Coffee making machine with grinding device and centrifuge drum. 3,812,773, Cl. 99-290.000.
Hunicke, Wolfgang: *See—*
Schranz, Karl-Wilhelm; Hunicke, Wolfgang; Brus, Gerhard H.; Schon, Erwin; Busch, Josef; and Bruck, Herbert, 3,813,246.
Hunter, John C., to Honeywell Information Systems, Inc. Method for fabricating and assembling a block-addressable semiconductor mass memory. 3,813,650, Cl. 340-172.500.
Hunter, Robert Tweedy, Jr.; and Marder, Herman Lowell, to Colgate-Palmolive Company. Textile sizing, water and oil repellent composition starch-fluoro polymer. 3,813,359, Cl. 260-17.4st.
Hurco Manufacturing Company, Inc.: *See—*
Roch, Gerald V., 3,812,695.
Hurletron Incorporated: *See—*
Coberley, Daniel A., 3,813,524.
Hurwitz, Mathew. Trolling propeller with self adjusting hydrodynamic spoilers. 3,812,812, Cl. 115-34.00r.
I-T-E Imperial Corporation: *See—*
Clement, Ralph C., 3,813,633.
Icking, Paul: *See—*
Ridder, Hubert; Epping, Winfried; and Icking, Paul, 3,812,823.
Ierymenko, Paul Francis, 254803 Investments Limited. Electric guitar system. 3,813,473, Cl. 84-1.160.
Iguchi, Shinsuke: *See—*
Sakamoto, Yoshio; and Iguchi, Shinsuke, 3,813,606.
Iijima, Tetsuya: *See—*
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,812,739.
Ikeda, Mitsusuke; Sato, Hisanao; Torii, Etsuko; Morimoto, Kazuhisa; and Hasegawa, Yo, to Matsushita Electric Industrial Co., Ltd. Process for improving a photosensitivity of an electrophotographic element. 3,813,242, Cl. 96-1.00r.
Ilford Limited: *See—*
Ezekiel, Aaron David; Thurston, Elvin Frederick William; Harper, Michael Frederick; and Wood, Malcolm Barlow, 3,813,249.
Illinois Tool Works Inc.: *See—*
Owen, Ronald Charles, 3,813,123.
Saari, Oliver Edward, 3,812,746.
Sygnator, Henry Anton, 3,812,639.
Image Analysing Computers Limited: *See—*
Cowham, Michael John; and Wadlow, David Edward, 3,813,487.
Knowles, William Ralph, 3,813,486.
Imperial Chemical Industries, Limited: *See—*
Pioli, Alexander Joseph Peter; Hollyhead, William Brian; and Todd, Peter Frank, 3,813,423.
Wilson, William, 3,812,668.
Imperial-Eastman Corporation, mesne: *See—*
Kowal, Leonard J., 3,812,704.
Inada, Masami, to Aisin Seiki Kabushiki Kaisha. Antiskid control system. 3,813,130, Cl. 303-21.00f.
Index-Werke KG Hahn & Tessky: *See—*
Wanner, Max; and Schaefer, Erich, 3,812,983.
Indramat-Gesellschaft fur Industrie Rationalisierung und Automatisier mbH: *See—*
Himmler, Conrad R., 3,812,765.
Industrial Knitting, Inc.: *See—*
Mintz, Marcus; and Engelhardt, Bernard H., 3,812,642.
Industrial Plastic Specialties Company: *See—*
Friesner, Charles E., 3,813,199.
Industrial Science & Technology, Agency of: *See—*
Tarui, Yasuo; Komiya, Yoshio; and Harada, Yasoo, 3,813,585.
Industrie Pirelli Societa per Azioni: *See—*
Priaroggia, Paolo Gazzana, 3,813,476.
Sarracino, Marcello, 3,812,666.
Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft: *See—*
Miller, Harry B., 3,813,051.
Industrie-Werke Karlsruhe Augsbury Aktiengesellschaft: *See—*
Miller, Harry B., 3,813,020.
Institut de Recherches de la Siderurgie Francaise (IRSID): *See—*
Boillot, Pierre, 3,812,705.
Instituut Voor Bewaring en Verwerking Van Landbouxprodukten: *See*—
Sijbring, Pieter Herman, 3,812,775.
International Business Machines Corporation: *See—*
Arps, Ronald Barthold, 3,813,485.
Bakos, Peter; and Knight, Diana J., 3,813,309.
Brock, George W.; and Shelledy, Frank B., 3,813,692.
Chang, Ifay F.; and Dreyfus, Russell W., 3,813,554.
Chaudhari, Praveen, 3,813,241.
DiStefano, Thomas H.; Laibowitz, Robert B.; and Rosenberg, Robert, 3,813,549.
Krick, Paul John; and Pleshko, Peter, 3,813,558.
Kudsi, Bader S.; and Mahurin, Ballard Terry, 3,813,516.
Rosenberg, Robert, 3,813,263.
Vora, Madhukar B.; and Wu, Leon L., 3,813,513.
Wolfe, Bruce A., 3,813,676.
International Nickel Company, Inc., The: *See—*
Flint, George Norman; Evans, Thomas Ernest; and Hart, Anthony Christopher, 3,813,239.
International Paper Company, mesne: *See—*
Gilbert, John W.; and Panagrossi, Ahmed, 3,812,860.
International Standard Electric Corporation: *See—*
Olivero, Olivero, 3,813,479.
Ramsay, Melvin Murray; Barnes, William Geddes; and Bedgood, Michael Albert, 3,813,489.
International Telephone and Telegraph Corporation: *See—*
Anderson, Ronald Vernon, 3,813,504.
Conerly, Howard Jeffery, 3,813,495.
Cooper, James Joseph, Jr.; and Schurter, Gary Lee, 3,813,635.
Mears, James William, 3,812,914.
Schurter, Gary Lee; and DeLuca, Carlo Bruno, 3,813,639.
Terrell, Melvin Leon, 3,812,879.
International Telephone and Telegraph Industries, Inc.: *See—*
Winter, Klaus, 3,813,187.
Interspace Corporation: *See—*
Horsley, William J., 3,813,116.
Intertherm, Inc.: *See—*
Stock, Edwin Henry, 3,812,698.
Investments Limited: *See—*
Ierymenko, Paul Francis, 3,813,473.
Ippolito, Anthony C., to Wurlitzer Company, The. Electronic musical instrument circuit. 3,813,474, Cl. 84-1.170.
Isaacson, Leland H. Urethra magnetic valve structure. 3,812,841, Cl. 128-1.00r.
Isensee, Klaus-Staffen: *See—*
Haas, Werner; and Isensee, Klaus-Staffen, 3,812,890.
Ishida, Shuichi: *See—*
Abe, Yasunori; Yamane, Nobuo; Itoh, Kensaku; Ishida, Shuichi; and Kobayashi, Hisabumi, 3,813,444.
Ito, Ikoh; Sekihara, Takeshi; and Emura, Tomoyuki, to Sumitomo Chemical Company, Ltd. Method for producing high bulk density polyvinyl chloride. 3,813,373, Cl. 260-92.80w.
Itoh, Kensaku: *See—*
Abe, Yasunori; Yamane, Nobuo; Itoh, Kensaku; Ishida, Shuichi; and Kobayashi, Hisabumi, 3,813,444.
Itokawa, Hideji, to Funakoshi Pharmaceutical Co., Ltd. Chromatogram reading instrument. 3,812,586, Cl. 33-1.00c.
Iwata, Motoji: *See—*
Kurata, Yutaka; and Iwata, Motoji, 3,812,965.
Iwatana & Co., Ltd.: *See—*
Nagata, Tadayoshi; and Hamanaka, Wahei, 3,812,796.
I.W.S. Nominee Company Limited: *See—*
Benisek, Ladislav; Winterbottom, Kenneth; Shaw, Trevor; and Edmondson, Gerald Keith, 3,813,220.
Jackson, Byron, Inc.: *See—*
Barron, Charles D., 3,812,723.
Jackson, William B. Portable knockdown oven. 3,812,836, Cl. 126-9.00r.
Jacobs, Richard L., to Sherwin-Williams Company, The. Production of trifluoromethylnitrophenols and related compounds. 3,813,446, Cl. 260-622.00r.
Jaegers, Leopold, to Trennjaeger Maschinen-and Sagelfabrik. Saw for cold metals. 3,812,752, Cl. 83-478.000.
Jaeken, Jan: *See—*
Mannens, Marc Godfried; Jaeken, Jan; Janssens, Wilhelmus; and Priem, Jan Jozef, 3,813,255.
Jamison, Saunders Eliot, to Celanese Corporation. Method of coating soil with an agricultural mulch. 3,812,615, Cl. 47-9.000.
Jan Verstegen, Judicus Marinus Pieter; and De Meester, Emiel Petrus Juliaan, to U.S. Philips Corporation. Luminescent screen and mercury vapor discharge lamp containing same. 3,813,569, Cl. 313-108.00r.
Janson, Sven Olof. Safety device for sauna rooms. 3,813,628, Cl. 337-322.000.
Janssens, Wilhelmus: *See—*
Mannens, Marc Godfried; Jaeken, Jan; Janssens, Wilhelmus; and Priem, Jan Jozef, 3,813,255.
Japan Storage Battery Co., Ltd.: *See—*
Shima, Shunji; Kadowaki, Hideyoshi; Muto, Eiji; Okazaki, Ichiro; and Matsumura, Koichi, 3,813,300.
Jarvis, Edward D.: *See—*
Dyer, Clarence H.; Gaunt, Conrad L.; and Jarvis, Edward D., 3,813,294.

Jasinski, Stanley C.; Wenstrup, Leo J.; and Duffty, Bryant, to Eaton Yale td. Tree harvester and method. 3,812,892, Cl. 144-309.0ac.
Jaworski, Eugene: *See—*
Glass, Marvin I.; Breslow, Jeffrey D.; and Jaworski, Eugene, 3,812,613.
Jayne, Gerald John Joseph: *See—*
Elliott, John Scotchford; Jayne, Gerald John Joseph, Crook, Monty Frederick; and Harrington, Colin John, 3,813,341.
Jefferson, Raymond. Aerofoil assembly. 3,813,059, Cl. 244-12.00c
Jeltrup, Eric H.: *See—*
Beer, Emanuel E.; and Jeltrup, Eric H., 3,813,556
Jensen, Donald E.: *See—*
Draughon, Roland C.; Jensen, Paul D.; and Jensen, Donald E., 3,813,076.
Jensen, Ellsworth O.: *See—*
Shelton, Ray T.; and Jensen, Ellsworth O., 3,813,262
Jensen, Paul D.: *See—*
Draughon, Roland C.; Jensen, Paul D.; and Jensen, Donald E., 3,813,076.
Jochim, Friedrich; Peetz, Dieter, Karla, Heinz; and Luerssen, Hermann, to Compagnie de Saint-Gobain. Electrically heated glass window. 3,813,519, Cl. 219-522.000.
Joh, Yasushi; and Sugimori, Teruhiko, to Mitsubishi Rayon Company Limited. Method of manufacturing acrylonitrile polymers having an excellent whiteness. 3,813,372, Cl. 260-88.70r.
Johansen, Harold R.: *See—*
Schriever, Richard L., Johansen, Harold R., and Sandy, Richard E., 3,813,612.
Johns-Manville Corporation: *See—*
French, David Walter, 3,813,115.
Olszyk, Bernard John, and Fricklas, Richard Leon, 3,813,280.
Johnson, Edgar G., Jr.; and Cornelison, James J. Light filter unit having snap-action device for shifting filter means into and out of operative position. 3,813,167, Cl. 356-74.000.
Johnson, Kenneth P. Thermal refrigeration process and apparatus 3,812,682, Cl. 62-6.000
Johnson, Ralph B., to Texas Instruments, Incorporated. Image rotation device for an infrared scanning system or the like. 3,813,552, Cl. 250-347.000
Johnson Service Company: *See—*
Laakaniemi, Richard N., and Stahl, Robert R., 3,812,873
Johnston, David K.: *See—*
Temple, William F., and Johnston, David K., 3,813,184
Johnston, James Meill: *See—*
Allen, Howard John Brandsom, and Johnston, James Meill, 3,813,655.
Jolliff, Norman E.: *See—*
Von Kaler, Roland L., and Jolliff, Norman E., 3,812,735
Jones, Alan, and Bustard, John Shaw, to Parson, Les, & Sons (Engineers) Limited. Article conveying apparatus. 3,812,952, Cl. 198-57.000.
Jones, Cecil Roy: *See—*
Goldman, Arthur J., Rowe, D. Garth, and Jones, Cecil Roy, 3,813,286
Jones, Charles, and Raye, Alexander H., to Curtiss-Wright Corporation. Apparatus for processing the trochoidal housing surfaces of rotary piston mechanisms. 3,812,574, Cl. 29-560.000
Jones, J. A., Construction Company: *See—*
Roland, David H.; and Hastings, Edward D., 3,812,978
Roland, David H., 3,813,124
Jones, Lawrence R.: *See—*
Feucht, Robert H., and Jones, Lawrence R., 3,813,313
Jorneskog, Karl Oskar Inge, to Elektriska Svetsnings AB. Furnace plant for the drying or baking of coated arc welding rods. 3,813,213, Cl. 432-121.000.
Joseph, Raymond, to Ateliers Reunis Societe Anonyme Crate 3,812,999, Cl. 220-41.000.
Joshi, Vishnuprakash, to Licentia Patent-Verwaltungs-G.m.b.H. Method of manufacturing a barrier layer field effect transistor 3,813,291, Cl. 117-212.000
Joslyn Mfg. and Supply Co.: *See—*
Kawiecki, Chester J., 3,813,577
Juelke, Charles V., and Trapasso, Louis E., to Celanese Corporation. Flame-retardant polyesters. 3,813,454, Cl. 260-873.000
Juhasz, Charles, to Carborundum Company, The. Differential pressure indicator with internal reset. 3,812,816, Cl. 116-70.000
Junek, Jan: *See—*
Marsalek, Milan; Junek, Jan; Brynda, Vaclav, Burysek, Frantisek, Hortlik, Frantisek; Ripka, Josef, and Lanta, Jiri, 3,812,667
Kabel- und Metallwerke Gutehoffnungschutte Aktiengesellschaft: *See*—
Prinzhorn, Klaus, 3,812,578
Kabushiki Kaisha Komatsu Seisakusho: *See—*
Kawamura, Ryohei, 3,812,927
Nagata, Yoshihiro; Yoda, Tadashi, and Tanaka, Yoshinobu, 3,812,804.
Kabushiki Kaisha Suwa Seikosha: *See—*
Tomita, Chuji; Kasai, Kazutomo, and Okonogi, Itaru, 3,813,227
Kadowaki, Hideyoshi: *See—*
Shima, Shunji; Kadowaki, Hideyoshi, Muto, Eiji, Okazaki, Ichiro, and Matsumura, Koichi, 3,813,300
Kaestner, Paul T. Device for determining position and focus of an optical member. 3,813,169, Cl. 356-127.000.
Kahn, Samuel, to Universal Oil Products Company. Preparation of coumarin. 3,813,414, Cl. 260-343.20r.
Kaiser, Steven A., to Chore-Time Equipment, Inc. Ventilator. 3,812,772, Cl. 98-110.000.
Kaletin, Vladislav Mikhailovich, and Morokin, Anatoly Afonasievich. Car conveyer. 3,812,954, Cl. 198-138.000
Kamachi, Hajime: *See—*
Naito, Takayuki, Okumura, Jun, and Kamachi, Hajime, 3,813,391
Kaman Aerospace Corporation: *See—*
Bossler, Robert B., Jr., 3,812,758
Kamata, Tokumaro: *See—*
Katagiri, Keizo, Sakaguchi, Mamoru, and Kamata, Tokumaro, 3,813,278
Kamikawa, Kousaku, and Kawabe, Seikichi, to Chubu Kikai Co., Ltd and Nisseki Plastic Chemical Co., Ltd., The. Method for packaging flowable materials and apparatus for manufacturing packaging bags. 3,812,644, Cl. 53-29.000
Kamiya, Takashi: *See—*
Tensho, Akira, Kamiya, Takashi, Yoshihisa, Saito, Hashimoto, Masashi, and Hideo, Seki, 3,813,394
Kamo, Mitsunori, to Mitsubishi Pencil Co., Ltd. Ever-sharp pencil. 3,813,176, Cl. 401-94.000
Kamogawa, Yoshiro, and Tuchiya, Takao, to Nippon Steel Corporation. Automated steel section rolling control system and method for operating same. 3,812,693, Cl. 72-13.000
Kamoi, Arao: *See—*
Kawaguchi, Kiyoshi, Miyamatsu, Yasunori, Kamoi, Arao, and Fukuda, Kinya, 3,812,697
Miyamatsu, Yasunori, Kamoi, Arao, and Fukuda, Kinya, 3,812,701
Kanda, Shozo: *See—*
Sakumoto, Hideki, Namoto, Yoshiteru, Ushihara, Masaharu, Tanigawa, Shizuhiko, and Kanda, Shozo, 3,813,057
Karla, Heinz: *See—*
Jochim, Friedrich, Peetz, Dieter, Karla, Heinz, and Luerssen, Hermann, 3,813,519
Karlsson, Stig Ingvar, to AB Svenskt Varmematning C.B-System. Method and apparatus for measuring thermal properties of a flowing medium. 3,812,713, Cl. 73-193.00r
Karol, Frederick J., to Union Carbide Corporation. Ethylene polymerization with ammonia modified catalyst. 3,813,381, Cl. 260-88.20r
Kasai, Kazutomo: *See—*
Tomita, Chuji, Kasai, Kazutomo, and Okonogi, Itaru, 3,813,227
Katagiri, Keizo, Sakaguchi, Mamoru, and Kamata, Tokumaro, to Nippon Kakoh Seishi K.K. Self-sticking material and a process for producing the same. 3,813,278, Cl. 161-82.000
Katto, Takayuki: *See—*
Murayama, Naohiro, Katto, Takayuki, and Funabashi, Shinichiro, 3,813,461
Katz, Alex J., and Caldwell, Robert J., to Mohasco Industries, Inc. Chair with backrest movable up and down and hardware therefor. 3,813,150, Cl. 297-353.000
Katz, Otto, to Faber-Castell, A. W. Mechanical pencil. 3,813,175, Cl. 401-65.000
Kaufman, Raimund: *See—*
Franzen, G., Hillenkamp, Franz, Kaufman, Raimund, and Remy, Ernst, 3,813,544
Kawabe, Seikichi: *See—*
Kamikawa, Kousaku, and Kawabe, Seikichi, 3,812,644
Kawaguchi, Kiyoshi, Miyamatsu, Yasunori, Kamoi, Arao, and Fukuda, Kinya, to Toyo Kohan Co., Ltd. Method and an apparatus of leveling a metal strip. 3,812,697, Cl. 72-60.000
Kawaguchi, Yasuharu: *See—*
Aramaki, Kuninori, Kawakami, Hiroshi, and Kawaguchi, Yasuharu, 3,812,968
Kawakami, Hiroshi: *See—*
Aramaki, Kuninori, Kawakami, Hiroshi, and Kawaguchi, Yasuharu, 3,812,968
Kawakami, Koichi, to Yoshida Kogyo Kabushiki Kaisha. Apparatus for producing fastener-element-free gaps in a continuous slider fastener chain. 3,812,754, Cl. 83-622.000
Kawakita, Chihiro: *See—*
Yokokawa, Toshiki, and Kawakita, Chihiro, 3,813,508
Kawamura, Ryohei, to Kabushiki Kaisha Komatsu Seisakusho. Endless track type tractor. 3,812,927, Cl. 180-54.00a
Kawasaki Jukogyo Kabushiki Kaisha: *See—*
Sugimoto, Takao, and Takagi, Izumi, 3,812,731
Kawiecki, Chester J., to Joslyn Mfg. and Supply Co. Overvoltage protection apparatus having fusible ring and short circuit means operated thereby. 3,813,577, Cl. 317-16.000
Kean, George W. Cage-type rotary spit. 3,812,776, Cl. 99-421.00h
Keastle, Berthold, to BRS, Inc. Sport shoe with interchangeable gripping elements. 3,812,605, Cl. 36-67.00d
Keating, Francis J. Guarded finger nail clippers. 3,812,868, Cl. 312-75.400
Keating, Francis J. Emergency pump system powered by lawnmower. 3,813,190, Cl. 417-236.000
Kehr, Clifton L.: *See—*
Wood, Louis L., Kehr, Clifton L., and Frisch, Kurt C., 3,812,618
Keijzer, Johan H.: *See—*
Fader, John H., Keijzer, Johan H., Graulus, Marcel J. R., and Beets, Roland H. C., 3,812,938

Keith, Gareth Allan: *See—*
Baumann, Hans D.; and Keith, Gareth Allan, 3,813,079.
Keller, Michael P.: *See—*
Michaels, Alan S.; Buckles, Richard G.; and Keller, Michael P., 3,812,854.
Kelly, Donald V. Sliding window lock. 3,813,120, Cl. 292-251.000.
Kelly, Ralph; and Ritter, Edmond Jean, to Cincinnati Milacron Inc. Mildness additive. 3,813,350, Cl. 252-547.000.
Kelsey-Hayes Company: *See—*
Doerfler, Roger E., 3,812,678.
Kemnitz, Robert H.; and Pollak, Robert J., to Allis-Chalmers Corporation. Gyratory crusher with capacity regulator. 3,813,046, Cl. 241-202.000.
Kempkes, Helmut. Vehicle equipped with a floodlight installation. 3,813,536, Cl. 240-67.000.
Kendall Company, The: *See—*
Marshall, Preston F.; and Silvi, James J., 3,812,553.
Kendrick, Lucian A., Jr., to Tennessee Valley Authority. Production of suspension fertilizers from wet-process orthophosphoric acids. 3,813,233, Cl. 71-34.000.
Keneko, Kozo: *See—*
Miyajima, Nobuo; Keneko, Kozo; Ohnuki, Iwao; and Noboru, Okubo, 3,813,088.
Kerr, Edward R.: *See—*
Bertling, Rudolph B.; and Kerr, Edward R., 3,812,647.
Kerst, Al F., to Gates Rubber Company, The. Process for preparing amino-substituted phosphonates. 3,813,456, Cl. 260-968.000.
Kerwin, Daniel, to Meyercord Co., The. Machine and method for applying indicia to articles. 3,813,268, Cl. 156-238.000.
Kesselring, Fritz, to Siemens Aktiengesellschaft. Synchronous puffer circuit breaker. 3,813,507, Cl. 200-148.00a.
Ketterer, Stanley J., to Singer Company, The. Electromechanical disc adder mechanisms. 3,812,729, Cl. 74-56.000.
Kheifets, Georgy Naumovich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Kidde, Walter, & Company, Inc.: *See—*
Saunders, Leonard Thomas, 3,813,669.
Kiejzik, Paul A. Micro-film jacket-notching device. 3,812,753, Cl. 83-522.000.
Kikuchi, Makoto; Asano, Hiroaki; Otsu, Ikuo; and Saeki, Toyoaki, to Toyoda Koki Kabushiki Kaisha. Internal grinding machine. 3,812,623, Cl. 51-5.00d.
Kimura, Masahiro. Phase-locked loop in which frequency divider ratios are altered to obtain rapid lock-in. 3,813,610, Cl. 331-1.00a.
Kindl, Bruno: *See—*
delle Porta, Paolo; Giorgi, Tiziano; Kindl, Bruno; and Zucchinelli, Mario, 3,813,266.
King, James L., to Honeywell Information Systems Inc. Method for testing MOS memory store device. 3,813,032, Cl. 235-153.0ac.
King, Richard L.; and Buzby, Wayne R., to Honeywell Information Systems, Inc. Diagnostic checking apparatus. 3,813,531, Cl. 235-153.0ak.
King, Robert W., to Copeland Corporation. Induction system for rotary mechanism. 3,813,195, Cl. 418-86.000.
Kinkade, William A.; and Roe, Clyde B. Process for making gypsum board. 3,813,312, Cl. 156-39.000.
Kinnear, Joseph D. Cable connector. 3,813,638, Cl. 339-64.00r.
Kinsella, Howard R., to Emerson Electric Co. Electromagnet with detachable casting and nonrotatable armature. 3,813,625, Cl. 335-263.000.
Kinzie, James E.: *See—*
Cone, George W.; and Kinzie, James E., 3,813,533.
Kirchberger, Walter Carl, to Globe-Union Inc. Battery assembly machine. 3,813,024, Cl. 228-58.000.
Kirvalidze, Nikolai Spiridonovich: *See—*
Drobich, Oleg Pavlovich; Pritomanov, Alexei Evgenievich; Rokutov, Viktor Petrovich; Kirvalidze, Nikolai Spiridonovich; Gerzmava, Dusheli Vladimirovich; and Mandzjuk, Boris Valentinovich, 3,813,335.
Kirwan, George B.: *See—*
Hackney, Thomas P., Jr.; and Kirwan, George B., 3,813,117.
Kitajima, Nobuo; Masaki, Tatsuo; and Kondo, Hideyo, to Canon Kabushiki Kaisha. Electrophotographic photosensitive member. 3,813,243, Cl. 96-1.500.
Kitterman, Richard E.; and Giles, Grady E., to Hersey Products, Inc., mesne. Counter and preset unit. 3,813,525, Cl. 235-92.0pe.
Kivlen, John A.; Orr, Richard L.; Chwab, William H.; and Macindoe, George F., to Ashland Company of N. J., Inc. Harvesting apparatus. 3,812,663, Cl. 56-328.000.
Klahre, Guenter: *See—*
Emden, Helmut Huber; Hubele, Adolf; and Klahre, Guenter, 3,813,399.
Klappert, Willi, to General Electric Company. Crimp locked outer turn for induction core. 3,812,554, Cl. 24-20.0ee.
Kleiman, Isaac Noe. Christmas tree. 3,813,277, Cl. 161-24.000.
Kleine, Jean Jacques, to Du Pont, S. T. Apparatus for storing a liquid for its distribution in the gaseous state. 3,813,041, Cl. 239-55.000.

Kling, Georg, to Pohlig-Heckel-Bleichert Vereinigte Maschinenfabriken Aktiengesellschaft. Conveyor comprising a plurality of drive means for successively driving a load carrier. 3,812,787, Cl. 104-96.000.
Klingspor, Christian Staffansson, to Aktiebolaget Electrolux. Cord-winding structure for mobile electrical appliance. 3,813,054, Cl. 242-86.50r.
Kloc, Henry F.: *See—*
Hougen, Gary A.; and Kloc, Henry F., 3,813,001.
Klocke, Hans Joachim; Stockburger, Dieter; Gierth, Volker; and Zeitler, Gerhard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Making powders of ethylene polymers. 3,813,375, Cl. 260-94.9od.
Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Langmaack, Jurgen; and Haas, Helmut, 3,813,084.
Knapp, Walter: *See—*
Zahn, Wolfgang; Fergg, Berthold; and Knapp, Walter, 3,813,158.
Knell, Bernhard: *See—*
Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin; and Zeller, Josef, 3,812,900.
Kneusel, Raymond H. P.; and Potts, Vinson S., to Crown Cork & Seal Company, Inc. Method of and apparatus for forming container bodies. 3,812,696, Cl. 72-57.000.
Knight, Diana J.: *See—*
Bakos, Peter; and Knight, Diana J., 3,813,309.
Knippenberg, Wilhelmus Franciscus; and Verspui, Gerrit, to U.S. Philips Corporation. Method of producing crystalline silicon carbide whiskers. 3,813,340, Cl. 252-62.30c.
Knockeart, Ronald P., to Bendix Corporation, The. Rotating prism scanning system having range compensation. 3,813,140, Cl. 350-7.000.
Knott, James M., to Coatings Engineering Corporation. Method and apparatus for packaging wire mesh material. 3,812,640, Cl. 53-14.000.
Knowles, William Ralph, to Image Analysing Computers Limited. Image analysis. 3,813,486, Cl. 178-7.100.
Knox, Walter R.: *See—*
Paulik, Frank E.; Hershman, Arnold; Knox, Walter R.; and Roth, James F., 3,813,428.
Knyazhinsky, Zakhar Osipovich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Kobayashi, Hisabumi: *See—*
Abe, Yasunori; Yamane, Nobuo; Itoh, Kensaku; Ishida, Shuichi; and Kobayashi, Hisabumi, 3,813,444.
Kobayashi, Yugoro, to Ricoh Co., Ltd. Copying machine of the penetration printing type. 3,813,163, Cl. 355-109.000.
Kobosko, Anna: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.
Koch, Robert E., to General Electric Company. Current limiting fuse having improved low current interrupting capability. 3,813,627, Cl. 337-274.000.
Koegel, James H.: *See—*
Merrell, Kenneth C.; Scott, Timothy F.; Brushwyler, Gordon R.; Koegel, James H.; and Poindexter, William E., 3,813,325.
Koei Chemical Co., Ltd.: *See—*
Wada, Yasuo; and Watanabe, Nanao, 3,813,406.
Koga, Masaahi: *See—*
Kumada, Akio; Ashida, Sakichi; Aizu, Keiichiro; and Koga, Masaahi, 3,813,144.
Kohjin Co., Ltd.: *See—*
Oshima, Akira; Tsuboshima, Kazuhiko; and Takahashi, Nobuhito, 3,813,438.
Kokx, Darrel Dayfield: *See—*
Duncan, Robert Campbell; and Kokx, Darrel Dayfield, 3,812,856.
Koland, David G.: *See—*
Westergren, George A.; Koland, David G.; and Eggert, Thomas F., 3,812,659.
Kolb, John P.; and Powell, Richard G., to ACF Industries, Incorporated. Valve means for railway car trainline. 3,812,980, Cl. 213-76.000.
Kolic, Edwin S. Hose clamp. 3,813,077, Cl. 251-9.000.
Koll, Stanley J.: *See—*
Wolf, Edward M.; and Koll, Stanley J., 3,812,992.
Kollitz, Gerhard. Apparatus for cleaning and massaging. 3,812,848, Cl. 128-36.000.
Kollmorgen Corporation: *See—*
Walker, Richard A.; and Weisner, Ralph M., 3,813,172.
Kolozsi, William A.: *See—*
Skowron, Carl S.; and Kolozsi, William A., 3,813,164.
Komai, Saburo: *See—*
Wada, Takeo; and Komai, Saburo, 3,813,346.
Komiya, Yoshio: *See—*
Tarui, Yasuo; Komiya, Yoshio; and Harada, Yasoo, 3,813,585.
Kommaditobolaget United Sterling (Sweden) AB & Co.: *See—*
Greis, Ingemar Joel, 3,812,677.
Kondo, Hideyo: *See—*
Kitajima, Nobuo; Masaki, Tatsuo; and Kondo, Hideyo, 3,813,243.

Konvalin, Robert L. Body restraint. 3,812,852, Cl. 128-134.000.
Koost, Oliver Augustovich, and Bezzubov, Kheino Ioanovich. Working head of a rotary swaging machine. 3,812,699, Cl. 72-76.000.
Koplow, Harold Stanley; Eberle, Fritz; Ho, Shu-Kuang; and Lesnick, Edward, to Wang Laboratories, Inc. Typewriter system. 3,812,945, Cl. 197-19.000.
Kopp, Georg, to SIG Schweizerische Industrie-Gesellschaft. Pusher device for attachment to a chain conveyor. 3,812,955, Cl. 198-170.000.
Korotkov, Mikhail Mikhailovich; Suldin, Stanislav Mikolaevich; and Vasin, Alexandr Ivanovich. Automatic stabilization system for hydrofoil craft. 3,812,806, Cl. 114-66.50h.
Koshaev, Alexei Petrovich. Gear-cutting machine. 3,812,762, Cl. 90-10.000.
Kotuby, Paul M., and Velicka, Alvydas, to Risdon Manufacturing Company, The. Aerosol metering valve. 3,813,013, Cl. 222-402.200.
Koval, Leonide P., to General Electric Company. Current-limiting circuit breaker. 3,813,619, Cl. 335-16.000.
Kowal, Leonard J., to Imperial-Eastman Corporation, mesne. Apparatus for making up an expandable insert fitting. 3,812,704, Cl. 72-392.000.
Koziol, Leonard L. Portable greenhouse. 3,812,616, Cl. 47-17.000.
Kral, Fred G., to Bell & Howell Company. Control sensor. 3,813,521, Cl. 235-61.11d.
Kramer, George C., to Branson Instruments, Incorporated. Electronic safety control curcuit. 3,813,021, Cl. 228-1.000.
Kranz, Jeremiah J. Choke means. 3,812,610, Cl. 42-79.000.
Kraus, Henry. Adjustable back support. 3,813,148, Cl. 297-231.000.
Krauth, Axel, and Muller, Norbert, to Nuken, G.m.b.H. Nuclear fuel tablet containing uranium carbide, plutonium carbide and plutonium nitride, sulfide or phosphide. 3,813,344, Cl. 252-301.10r.
Krick, Paul John, and Pleshko, Peter, to International Business Machines Corporation. Directional, non-volatile bistable resistor logic circuits. 3,813,558, Cl. 307-221.00r.
Krieter, Horst, to Westinghouse Bremsen- und Apparatebau. Apparatus for controlling the quantity of flow in a fluid medium. 3,812,876, Cl. 137-501.000.
Kritbruksbolaget i Malmo AB: *See—*
Stern, Leif Einar, 3,812,973.
Kudsi, Bader S., and Mahurin, Ballard Terry, to International Business Machines Corporation. Apparatus for temperature control for a heated rotating cylinder. 3,813,516, Cl. 219-471.000.
Kuenzel, Robert R. Safety attachment. 3,812,815, Cl. 116-28.00r.
Kufner, Kenneth L., Pellegrino, Thomas P., and Chmela, Frank P., to Molex Incorporated. Method and apparatus for mounting terminal pins. 3,812,569, Cl. 29-203.00b.
Kumada, Akio, Ashida, Sakichi, Aizu, Keiichiro, and Koga, Masaahi, to Hitachi, Ltd. Method and device for color modulation. 3,813,144, Cl. 350-150.000.
Kumanogo, Tadaki: *See—*
Miki, Yasuhiro, and Kumanogo, Tadaki, 3,813,284.
Kurata, Kazuhiro: *See—*
Umeda, Jun-Ichi, Aiki, Kunio, Kurata, Kazuhiro, and Kusumoto, Hazime, 3,813,587.
Kurata, Yutaka, and Iwata, Motoji, to Nippon Gakki Seizo Kabushiki Kaisha. Method for automatically sorting block-type objects of different categories and apparatus therefor. 3,812,965, Cl. 209-74.00m.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Hayashi, Yasuo, and Adachi, Yoshiaki, 3,813,424.
Murayama, Naohiro, Katto, Takayuki, and Funabashi, Shinichiro, 3,813,461.
Kurosawa, Koichi, and Okubo, Ko, to Anritsu Electric Co., Ltd. Facsimile system. 3,813,483, Cl. 178-6.000.
Kusumoto, Hazime: *See—*
Umeda, Jun-Ichi, Aiki, Kunio, Kurata, Kazuhiro, and Kusumoto, Hazime, 3,813,587.
Kycia, Henryk, Chmielewska, Danuta, Rolak, Hanna, Michno, Zbigniew, Zaniuk, Jan, Surgiewicz, Janusz, Stefaniak, Ferdynand, Lenkowski, Przemyslaw, and Kobosko, Anna, to Grodziskie Zaklady Farmaceutyczne "Polfa" Przedsiebiorstwo Panstwowe. Process for the reparation of 3-(beta dialkylamino-ethyl)-4-alkyl-7-carbethoxymethoxycoumarins. 3,813,415, Cl. 260-343.20r.
Kysor Industrial Corporation: *See—*
Brown, Grant M., 3,812,684.
La Belle, Clayton J. Collapsible pallet for freight and cargo. 3,812,792, Cl. 108-56.000.
La Mar Laboratories, Inc.: *See—*
La Vietes, J. R., 3,813,222.
La Vietes, J. R., to La Mar Laboratories, Inc. Method of determining ovulation time in urine and fertility in females. 3,813,222, Cl. 23-230.00b.
Laakaniemi, Richard N., and Stahl, Robert R., to Johnson Service Company. Fluid signal limiting device. 3,812,873, Cl. 137-84.000.
Lacroix, Armand Jean-Baptiste: *See—*
Bouiller, Jean Georges, Gobin, Michel Roland, Lacroix, Armand Jean-Baptiste, and Bauger, Louis Jules, 3,813,185.
Lagnston, Earl M., to Tokeim Corporation. Liquid dispenser with electronic computing and display system. 3,813,527, Cl. 235-151.340.
Laibowitz, Robert B.: *See—*
DiStefano, Thomas H., Laibowitz, Robert B., and Rosenberg, Robert, 3,813,549.
Laing, John, and Son Limited: *See—*
Lowen, Michael David, and Newby, Ronald, 3,812,749.

Laird, John L., to Products Research & Chemical Corporation. Air powered sealant dispenser including flexible tubular conduits as valve means. 3,813,012, Cl. 222-326.000.
Laliberte, Carolyn Doris: *See—*
McAnespie, Donald, and Laliberte, Robert Justin, 3,813,019.
Laliberte, Robert Justin: *See—*
McAnespie, Donald, and Laliberte, Robert Justin, 3,813,019.
Lampinen, Leo Kalevi. Air pollution device. 3,812,657, Cl. 55-223.000.
Lanahan, John H., to Dyna Logics, Inc. Adjustable toilet tank flush valve. 3,812,545, Cl. 4-67.00a.
Lancaster Colony Corporation: *See—*
Brody, Ernest O., 3,812,617.
Landis Tool Company: *See—*
Gebel, Kurt M., and Price, Ralph E., 3,812,627.
Landwehrkamp, Hans, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Apparatus for continuously winding thread onto bobbins. 3,813,050, Cl. 242-18.00a.
Lange, Raymond J.: *See—*
Clemens, David H., and Lange, Raymond J., 3,813,353.
Langmaack, Jurgen, and Haas, Helmut, to Klockner-Humboldt-Deutz Aktiengesellschaft. Vibrating device with a heat insulated treatment chamber, particularly a vibrating mill. 3,813,084, Cl. 259-72.000.
Langston, Benny: *See—*
Salmon, David, Weitzbucke, Edward J., Langston, Benny, and Beegle, Donald W., 3,813,238.
Lanta, Jiri: *See—*
Marsalek, Milan, Junek, Jan, Brynda, Vaclav, Burysek, Frantisek, Hortlik, Frantisek, Ripka, Josef, and Lanta, Jiri, 3,812,667.
Lapierre, Philippe D.: *See—*
Lefebvre, Michel S. M., and Lapierre, Philippe D., 3,812,598.
Laridon, Urbain Leopold, and Van Den Houte, Jozef Willy, to Agfa-Gevaert N.V. Photochromic composition containing polyhalogenated compound, spiropyran compound and sensitizer and the use thereof. 3,813,245, Cl. 96-48.00r.
Larson, Raymond B., and Wogoman, Frank W., to Wells Electronics, Inc. Method for forming electrical joints between intermediate parts of an elongated conductor and selected conductive elements on an electrical assembly. 3,812,581, Cl. 29-628.000.
Laser Systems & Electronics, Inc.: *See—*
Hines, Robin H., Hollinshead, William L., and Forester, John K., 3,813,165.
Laserplane Corporation: *See—*
Teach, Ted L., and Ramsay, James D., 3,813,171.
Lasoen, Jean J., to Massey-Ferguson Inc. Draft sensing unit for tractor. 3,812,916, Cl. 172-7.000.
Latinen, George A., deceased (by Latinen, May V., administratrix), to Monsanto Company. Wiped film devolatilization process. 3,812,897, Cl. 159-49.000.
Latinen, George A., deceased (by Latinen, May V., administratrix), to Monsanto Company. Continuous mass polymerization process. 3,813,369, Cl. 260-80.600.
Latinen, May V.: *See—*
Latinen, George A., 3,812,897.
Latinen, George A., 3,813,369.
Latrobe Steel Company: *See—*
Schlatter, Rene, 3,812,899.
Lauck, Robert B., Meyer, Lawrence L., and Cargo, Charles H., to Eaton Corporation. Hydrostatic transmission control system. 3,812,925, Cl. 180-6.480.
Laurencier, Andre: *See—*
Coville, Patrick, and Laurencier, Andre, 3,812,908.
Laurent, Henry: *See—*
Hofmeister, Helmut, Laurent, Henry, Prezewowsky, Klaus, and Wiechert, Rudolf, 3,813,418.
Laurent, Roger, to Poma 2000 S.A., mesne. Transport installation with independent vehicles. 3,812,788, Cl. 104-130.000.
Laverman, Royce Jay, to Chicago Bridge & Iron Company. Method for storing a subcooled liquid. 3,812,683, Cl. 62-45.000.
Lawrence Brothers, Inc.: *See—*
Lawrence, Edwin F., III, and McNinch, Delmar D., 3,813,149.
Lawrence, Edwin F., III, and McNinch, Delmar D., to Lawrence Brothers, Inc. Pivotal mounting device for stadium seats and the like. 3,813,149, Cl. 297-335.000.
Laycock, Geoffrey, to Underground Mining Machinery Limited. Production of coated roadstone. 3,812,821, Cl. 118-418.000.
Lear Motors Corporation: *See—*
Lear, William P., 3,812,826.
Lear Siegler, Inc.: *See—*
Wootten, John A., and Rives, George S., 3,812,843.
Lear, William P., to Lear Motors Corporation. Combustor for power vapor generators. 3,812,826, Cl. 122-250.00r.
Leaver, Bernard, and Mercer, Willard, to United Kingdom Atomic Energy Authority. Nuclear reactor fuel assembly spacer grid. 3,813,288, Cl. 176-78.000.
Lee, Henry B., Orem, Donald E., and Wycoff, Paul L., to Ransburg Corporation. Spraying machine. 3,812,728, Cl. 74-25.000.
Lee, Howard A.: *See—*
Shieh, Kenneth K., Donnelly, Brendan J., and Lee, Howard A., 3,813,320.
Lee, Raymond, Organization, The: *See—*
Brach, Walter H., 3,813,182.
Leesona Corporation: *See—*
Anderson, Ernest David, and Cowan, Larry Clyde, 3,812,881.

Lefebvre, Michel S. M.; and Lapierre, Phili...

Lefebvre, Michel S. M.; and Lapierre, Philippe D., to Omnium de Prospective Industrielle S.A. Apparatus for drying damp web material. 3,812,598, Cl. 34-155.000.
Leflaive, Vincent Rene: *See—*
Guerin, Daniel L. G., 3,813,014.
Lehr, Heinz, to Condux-Werk, Herbert A. Merges KG. Cutting mill. 3,813,048, Cl. 241-224.000.
Lehureau, Jean: *See—*
Masotti, Robert; Rieux, Jean-Philippe; Borrel, Philippe; and Lehureau, Jean, 3,813,282.
Leihgeber, Bucket Booms: *See—*
Leihgeber, Joseph Q., 3,812,979.
Leihgeber, Joseph Q., to Leihgeber, Bucket Booms. Lift boom for a front loader tractor. 3,812,979, Cl. 212-35.00r.
Lemma, Aklilu; Parkhurst, Robert M.; and Skinner, William A., Jr., to Ethiopian Science Foundation. Method of producing a molluscicide from endod. 3,813,383, Cl. 260-236.500.
Lenke, Dieter: *See—*
Vogelsang, Dietrich; Scheffler, Gerhard; Brock, Norbert; and Lenke, Dieter, 3,813,384.
Lenkowski, Przemyslaw: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.
Lenning, David Lees, to United Kingdom Atomic Energy Authority. Heat exchangers. 3,812,907, Cl. 165-83.000.
Lenz, Karl Egon. Combination opener and pouring device for cans and the like. 3,813,009, Cl. 222-90.000.
Lerch, Adolph F.; Otis, Nick C.; and Montgomery, John D., to Advance Housing Corporation. Method of assembling a building. 3,812,638, Cl. 52-747.000.
Lerner, Irwin S.: *See—*
Lerner, Irwin S.; and Walla, Joann R. (said Walla assor. to said), 3,813,465.
Lerner, Irwin S.; and Walla, Joann R., said Walla assor. to said Lerner, Irwin S. Cytological preservative and mucolytic composition. 3,813,465, Cl. 424-3.000.
Lesnick, Edward: *See—*
Koplow, Harold Stanley; Eberle, Fritz; Ho, Shu-Kuang; and Lesnick, Edward, 3,812,945.
Leszczak, Nicholas: *See—*
Spanel, Abram N.; Wittler, Bernard H.; and Leszczak, Nicholas, 3,812,799.
Levine, Alfred: *See—*
Parfomak, Walter; Anderson, Richard John; and Levine, Alfred, 3,813,665.
LeVitt, Richard M., to East Bay Municipal Utility District. Tachometer for low speed measurement. 3,813,597, Cl. 324-176.000.
Lewis Engineering Company, The: *See—*
Edwards, Harrison F.; and Pannullo, Louis A., 3,813,566.
Lewis, Jay L.; Puster, Louis M.; and Brakebill, Harold G., to Robertshaw Controls Company. Temperature responsive device and method of making the same. 3,813,034, Cl. 236-87.000.
Lewis, Nigel W. Electrical alarm systems. 3,813,662, Cl. 340-213.00r.
Lewis, Paul E., to McDonnell Douglas Corporation. Combination container and skid support. 3,812,995, Cl. 220-1.500.
Lewis, Robert W. Miter clamp vise and saw. 3,812,751, Cl. 83-471.300.
Leybold-Heraeus-Verwaltung GmbH. *See—*
Wilmanns, Ingo, 3,812,596.
Lhomme (Societe Anonyme): *See—*
Biancamaria, Joseph, 3,813,026.
Liber, Michel, to Seilib. Rotatable catch. 3,813,118, Cl. 292-54.000.
Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
Joshi, Vishnuprakash, 3,813,291.
Lieberman, Gilbert. Lampshade and lamp combination and means for joining one with the other. 3,813,537, Cl. 240-108.00r.
Liemburg, Alt. *See—*
De Vries, Jan Lolke; and Liemburg, Alt, 3,813,573.
Lievremont, Henri; and Cominassi, Adolphe. Fire-retardant material or conglomerate containing filler consisting essentially of magnesium silicate. 3,813,356, Cl. 260-2.50f.
Lilly, Eli, and Company: *See—*
Bach, Nicholas J.; and Farkas, Eugene, 3,813,419.
Doherty, George O. P., 3,813,407.
Doherty, George O. P.; and Fuhr, Kenneth H. (said Doherty, now by change of name O'Doherty, George O., P., assors. to), 3,813,408.
Hayes, Harold B., 3,813,389.
Lilly Industries, Limited: *See—*
Evans, Delme, 3,813,360.
Hughes, Peter Graham; and Verge, John Pomfret, 3,813,401.
Lindeborg, Georg D.; and Heine, Desire, to Norba Aktiebolag. Compressing feed screw. 3,812,985, Cl. 214-83.320.
Lindner, Robert G.: *See—*
Albrecht, Raymond E.; Curran, Bernard E.; and Lindner, Robert G., 3,812,636.
Linn, Wallace Leon. Engine. 3,812,827; Cl. 123-8.010.
Lintner, Michael A.; and Long, Louis, Jr., to United States of America, Army. p-[1-(Nonylthio)ethyl]benzenesulfonates. 3,813,431, Cl. 260-505.00r.
Lipp, Alfred, to Elektroschmelzwerk Kempten GmbH. Sintered refractory material. 3,813,252, Cl. 252-520.000.
Lippert, Axel: *See—*
Sajben, Johannes Otto; Lippert, Axel; Stumpen, Klaus; and Grunewald, Rainer, 3,812,885.
Lipstein, Norman J., to General Electric Company. Method for purging dip forming crucible environment. 3,813,260, Cl. 117-114.00r.
Litton Industries, Inc.: *See—*
Dunn, Elman R., 3,812,624.
Livingston, William L., to Factory Mutual Research Corporation. Discharge head having constant force plug retaining member. 3,812,915, Cl. 169-38.000.
LKB Medical AB: *See—*
Olofsson, Sven; and Tysk, Jan, 3,812,714.
Lockwood Corporation: *See—*
Campbell, Gary; and Buckingham, Eliot K., 3,812,737.
Long, Leo E. Punching bag and mount therefor including automatic spring return for the punching bag. 3,813,095, Cl. 272-78.000.
Long, Louis, Jr.: *See—*
Lintner, Michael A.; and Long, Louis, Jr., 3,813,431.
Longi, Paolo: *See—*
Chiolle, Antonio; Credali, Lino; Longi, Paolo; Greco, Francesco; and D'Angelo, Romano, 3,813,354.
Longoni, Angelo: *See—*
Losco, Giuseppe; Reggio, Antonino; Michieli, Giannantonio; and Longoni, Angelo, 3,813,440.
Loo, Brian Hum, to Northrop Corporation. Apparatus and method for performing on linemonitoring and fault-isolation. 3,813,647, Cl. 340-172.500.
L'Oreal: *See—*
Morane, Bruno Pierre, 3,812,866.
Losco, Giuseppe; Reggio, Antonino; Michieli, Giannantonio; and Longoni, Angelo, to Montedison S.p.A. Oxime carbamate exerting a pesticidal action. 3,813,440, Cl. 260-566.0ac.
Loustau, Jean. Method for constructing a honeycomb structure and a device for carrying out said method. 3,813,273, Cl. 156-469.000.
Louwaard, Richardus Theodorus Gerardus: *See—*
Wijnant, Petrus Leo Clemens; and Louwaard, Richardus Theodorus Gerardus, 3,813,134.
Lovett, John R. Method of applying a roller sleeve on a conveyor roller. 3,812,562, Cl. 29-148.40d.
Lowen, Micharl David; and Newby, Ronald, to Laing, John, and Son Limited. Severing and dispensing fibrous material. 3,812,749, Cl. 83-66.000.
LRC, Inc.: *See—*
Williams, Heyward Sturges; and Robbins, Robert, 3,813,561.
LTV Aerospace Corporation: *See—*
Nelson, Roy A., 3,812,789.
Ludszeweit, Dieter: *See—*
Rudszinat, Willy; and Ludszeweit, Dieter, 3,812,950.
Luerssen, Hermann: *See—*
Jochim, Friedrich; Peetz, Dieter; Karla, Heinz, and Luerssen, Hermann, 3,813,519.
Luginbuhl, Pierre, to Schweizerische Industrie-Gesellschaft. Device for separating and conveying of articles, for example, chocolate bars. 3,812,948, Cl. 198-29.00r.
Lukasczyk, Hans, to Volkswagenwerk Aktiengesellschaft. Gauge for shiftable synchronizing swivel joints. 3,812,594, Cl. 33-174.00r
Lukowicz, Nick. Pneumatic drive system for a sewing machine 3,812,801, Cl. 112-121.140.
Lundgren, William E. Temple roll. 3,812,561, Cl. 29-121.00a.
Lush, John S., to Anchor Hocking Corporation. Crack-off apparatus for glass articles. 3,812,949, Cl. 198-21.000.
Lutz, George H. Heating system. 3,813,036, Cl. 237-2.00r
Lyon, James. Differential beak trimmer. 3,812,857, Cl. 128-303 100
Mac Engineering & Equipment Company, Inc.: *See—*
McAlpine, Charles H., 3,813,214.
Machida, Takayasu: *See—*
Nikaido, Akira; Nakajima, Fumio; Onda, Mitsuo; Machida, Takayasu; and Toida, Takashi, 3,812,670.
Machine Tool Divisional Services Limited: *See—*
Southworth, Christopher John Morrison, 3,812,761.
Macindoe, George F.: *See—*
Kivlen, John A.; Orr, Richard L.; Chwab, William H.; and Macindoe, George F., 3,812,663.
Macomber, Robert I.: *See—*
Auray, Didier Henri; Downey, Richard T.; and Macomber, Robert I., 3,813,023.
Magnavox Company, The: *See—*
Mierzwinski, Eugene Peter, 3,813,686.
Mahurin, Ballard Terry: *See—*
Kudsi, Bader S.; and Mahurin, Ballard Terry, 3,813,516.
Maillet, Wilfrid G., to Communications Satellite Corporation. TDMA bursts acquisition system. 3,813,496, Cl. 179-15.0bs.
Makhlouf, Joseph M., to PPG Industries, Inc. Thermosetting non gelled hydroxyl functional coating on an inked metallic article. 3,813,254, Cl. 117-12.000.
Malamoud, Jean Gaston, to DuPont, S. T. Flint lighters with a rotary knurled wheel. 3,813,208, Cl. 431-277.000.
Malang, Siegfried, to Gesellschaft fur Kernforschung mbH. Nuclear reactor fuel element. 3,813,287, Cl. 176-68.000.
Manachini, Luigi: *See—*
Craveri, Renato; Manachini, Luigi; and Aragozzini, Fabrizio, 3,813,319.
Manceau, Marcel: *See—*
Guerin, Daniel L. G., 3,813,014.
Manderscheid, Peter: *See—*

Heitland, Herbert, and Manderscheid, Peter, 3,813,226
Mandzjuk, Boris Valentinovich *See—*
Drobich, Oleg Pavlovich, Pritomanov, Alexei Evgenievich; Rokutov, Viktor Petrovich, Kirvalidze, Nikolai Spiridonovich, Gerzmava, Dusheli Vladimirovich, and Mandzjuk, Boris Valentinovich, 3,813,335
Mann, Henry, Inc *See—*
Tepper, Leonard, 3,812,703
Mannens, Marc Godfried, Jacken, Jan, Janssens, Wilhelmus, and Priem, Jan Jozef, to Agfa-Gevaert N.V. Ultraviolet absorbing polymers compositions and filter 3,813,255, Cl 117-33 300
Mansei Kogyo Kabushiki Kaisha *See—*
Moriya, Nobuyoshi, 3,813,206
Manser, Josef, to Gebrueder Buehler AG Combined mixer, kneader and presser particularly for food precessing 3,813,082, Cl 259-6 000
Marans, Nelson S , to Grace, W R , & Co Preparation of pure glycine 3,813,434, Cl 260-534 00e
Marcona Corporation *See—*
Sims, Wilbert Norman, and Miscovich, John A , 3,813,125
Marder, Herman Lowell *See—*
Hunter, Robert Tweedy, Jr , and Marder, Herman Lowell, 3,813,359
Marfy, Zoltan Josef, to Clark and Smith Industries, Limited Tape machine with index members to control tape transport 3,813,689, Cl 360-74 000
Margeson, Mark A *See—*
Boehringer, Raymond H , Wilson, Ronald M , and Margeson, Mark A , 3,813,339
Maringer, Robert E *See—*
Stewart, Oliver M , Maringer, Robert E , and Mohley, Carroll E , Jr , 3,812,901
Markevich, Vitaly Mikhailovich *See—*
Rogalsky, Anatoly Viktorovich, Markevich, Vitaly Mikhailovich Kheifets, Georgy Naumovich, Zaschenko, Jury Leonidovich Baburov, Valery Efremovich, Pavlovsky, Vladimir Petrovich Golban, Eduard Vasilievich, Pechennik, Leonid Naumovich Knyazhinsky, Zakhar sipovich Bogatov, Nikolai Alexandrovich Raichuk, Jury Isaakovich, Zaritsky, Vaktor Nikolaevich, and Grodzitsky, Evgeny Fedorovich, 3,812,909
Marks, Alvin M Electro-optical dipolar material 3,813,265, Cl 117-211 000
Maroney, William J , to Sybron Corporation Apparatus for fluid treatment 3,812,969, Cl 210-274 000
Marsalek, Milan, Junek, Jan, Brynda, Vaclav Hurysek, Frantisek, Hertlik, Frantisek, Ripka, Josef, and Lanta, Jiri, to Vyzkumny Ustav Bavlnarsky Ringless spinning of separated staple fibres 3,812,667, Cl 57 58 890
Marsch, Lawrence F *See—*
Higgs, Kenneth O , Richmond, Robert C , and Marsch, Lawrence F , 3,812,706
Marshall, Preston F , and Silvi, James J , to Kendall Company, The Reorientation of fibers in a fluid stream 3,812,553, Cl 19-156 300
Martin, Anthony N , to United Aircraft Corporation Automatic aircraft engine pressure ratio control system 3,813,063, Cl 244-77 00d
Martinie, Howard M , to SKF Industries Inc Self orienting contoured hollow ball for high speed bearing 3,813,135, Cl 308-188 000
Marumo, Hideo Surface modifier for synthetic high polymers 3,813,422, Cl 260-429 00r
Marvin, Stuart R Article collecting device 3,813,121, Cl 294-1 00r
Marx, Donald J , to United States of America Army and Optical displacement indicator 3,813,166, Cl 356-28 000
Masaki, Tatsuo *See—*
Kitajima, Nobuo, Masaki, Tatsuo, and Kondo, Hideyo, 3,813,243
Maschinenfabrik Reinhausen Gebruder Scheubeck K G *See—*
Breuer, Wolfgang, 3,813,503
Maschke, Marvin Walter, to Stolle Corporation, The Driving or idler drum for article feeding belt 3,812,953, Cl 198-131 000
Mason, Daniel W , and Nester, Henry H , deceased (by Nester, Dianne L , special administratrix), to Owens Illinois, Inc Dielectric materials 3,813,295, Cl 117-221 000
Mason, John R , to Dracon Industries Electrical terminal connector 3,813,636, Cl 339-59 00r
Mason, Lowell M , to General Electric Company Apparatus for handling magnetic cores and performing winding procedures 3,812,570, Cl 29-205 00d
Masoneilan International, Inc *See—*
Baumann, Hans D , and Keith, Gareth Allan 3,813,079
Masotti, Robert, Rieux, Jean-Philippe, Borrel Philippe, and Lehureau, Jean, to Progil Laminating process including cathode sputtering of carbon substrate 3,813,282, Cl 161-164 000
Massachusetts Institute of Technology *See—*
Szoke, Abraham, 3,813,605
Masserschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung *See—*
Hermann, Gunter, 3,813,112
Massey-Ferguson Inc *See—*
Lasoen, Jean J , 3,812,916
Massie, Stephen N , to Universal Oil Products Company Preparation of dihydroxybiphenyls 3,813,445, Cl 260-620 000
Massie, Stephen N., to Universal Oil Products Company Nuclear chlorination of alkyl substituted aromatic compounds 3,813,448, Cl 260-650 00r
Massoth, Franklin E *See—*
Carr, Norman L , Massoth, Franklin E , Stahlfeld, Donald L., and Young, John E , Jr , 3,812,652
Massoth, Franklin E , and Young, John E , Jr , to Gulf Research & Development Company Process for reducing the arsenic content of gaseous hydrocarbon streams by use of supported copper or copper oxide 3,812,653, Cl 55-68 000
Masuelli, Frank J *See—*
Picard, Jean P , Satriana, Daniel R , and Masuelli, Frank J , 3,813,439
Matson, Merkham J *See—*
Curtz, William C , and Matson, Merkham J , 3,812,724
Matsuda, Youichi, Suzuki, Hiroshi, Shito, Nobuhiko, and Saito, Yosushi, to Hitachi, Ltd High resistance resistor device for DC high voltage circuits 3,813,631, Cl 338-320 000
Matsui, Shigenori *See—*
Nishikawa, Yukio, Nagao, Yoshio, Miyauchi, Yoshio, Mori Noriaki, and Matsui Shigenori, 3,813,682
Matsumoto, Hirofumi *See—*
Nakada, Masahiko, and Matsumoto, Hirofumi, 3,813,085
Matsumura, Koichi *See—*
Shima, Shunji, Kadowaki, Hideyoshi, Muto, Eiji, Okazaki, Ichiro, and Matsumura, Koichi, 3,813,300
Matsushita Electric Industrial Co , Ltd *See—*
Higashiyama, Kenji, and Hirata, Hiroshi, 3,813,324
Ikeda, Mitsusuke, Sato, Hisanao, Torii, Etsuko, Morimoto, Kazuhisa, and Hasegawa, Yo, 3,813,242
Mino, Mineo, Fujisawa, Kiyoji, and Tanabe, Kenzo, 3,813,484
Sakumoto, Hideki, Namoto, Yoshiteru, Ushihara, Masaharu, Tanigawa, Shizuhiko, and Kanda, Shozo, 3,813,057
Saruwatari, Shigeto, 3,812,818
Sato, Kohei, 3,813,574
Shimotsuma, Wataru, 3,813,677
Matzner, Markus and McGrath, James E , to Union Carbide Corporation Lactam polymerization with halogen substituted aromatic initiators 3,813,367, Cl 260-78 000
Mauri, Marcello Massi, and Moggi, Pietro Antonio, to Snam Progetti, S.p.A. Oxidative dehydrocyclization process of imines 3,813,377, Cl 260-279 00r
Maus, Otfrid *See—*
Frank, Helmut, Maus, Otfrid, and Tary, Endre, 3,812,725
Maxson Corporation, The *See—*
Barnard, Benjamin R , 3,812,791
Mazzeo, Michael P *See—*
Gillis, Marina N , and Mazzeo, Michael P , 3,813,361
Mc Atee, Kerry D *See—*
Ray, Robert L , Champeau, William J , and Mc Atee, Kerry D , 3,813,197
McAlpine, Charles H , to Mac Engineering & Equipment Company Inc Drying oven for lead battery plates 3,813,214, Cl 432-144 000
McAnespie, Donald, and Laliberte, Robert Justin, deceased (by Laliberte, Carolyn Doris, executrix), to Midland-Ross Corporation Web stabilizing device 3,813,019, Cl 226-97 000
McCarthy, Donald Delbert Counting system for articles in a stream lined stack 3,813,522, Cl 235-98 00r
McCormick, Alan G Fuel injection system and associated structure 3,812,829, Cl 123-32 0vn
McDonnell Douglas Corporation *See—*
Lewis, Paul E , 3,812,995
Watson, Fred D , and Mehr, John L , 3,813,526
McGrath, James E *See—*
Matzner, Markus and McGrath, James E , 3,813,367
McGraw-Edison Company *See—*
McStrack, Darrel D , and Schroeder, James E , 3,813,296
McGregor, William H *See—*
McKinley, Wayne A , and McGregor, William H , 3,813,382
McGruder, Ivory Battery operated coffee maker 3,813,517, Cl 219-438 000
McIntosh, Ronald C *See—*
Purdy, Haydn V , and McIntosh, Ronald C , 3,813,683
McIntyre, Edwin L Positive contact rotary thermocouple unit 3,812,716, Cl 73-341 000
McKelvey, John B , and Benerito, Ruth R , to United States of America, Agriculture Use of epoxides in the preparation of higher fatty acid anhydrides 3,813,421, Cl 260-398 000
McKie, Joseph *See—*
Shaw, Alexander, and McKie, Joseph, 3,812,743
McKinley, Wayne A , and McGregor, William H , to American Home Products Corporation Analogs of luteinizing hormone releasing factor substituted in position 9 3,813,382, Cl 260-112 500
McKinley, William R *See—*
Smith, John I , and McKinley, William R , 3,813,653
McMillin, John R *See—*
Hassell, David A , and McMillin, John R , 3,813,010
McNally, Violet M Combination shipping and cooking container 3,812,997, Cl 220-22 000
McNinch, Delmar D *See—*
Lawrence, Edwin F , III, and McNinch, Delmar D , 3,813,149
McQueen, Malcolm M Seal 3,813,105, Cl 277-164 000
McStrack, Darrel D , and Schroeder, James E , to McGraw-Edison Company Insulating coating for electrical devices 3,813,296, Cl 117-229 000
Mead Corporation, The *See—*
Steffy, Jack J , and Duffield, Peter L , 3,813,675
Mears, James William, to International Telephone and Telegraph Corporation Automatic on-off sprinkler 3,812,914, Cl 169-20 000

Meletti, Adolph; and Tamarin, Bernard J., to Vacuum Cleaner Corporation of America. Electrical cord-reel apparatus. 3,813,501, Cl. 191-12.20r.
Menichelli, Vincent J.: *See—*
Yang, Lien C.; and Menichelli, Vincent J., 3,812,783.
Mercer, Willard: *See—*
Leaver, Bernard; and Mercer, Willard, 3,813,288.
Merkle, Frank P., Jr. Mounting means for a refractory shield. 3,812,798, Cl. 110-99.00r.
Merola, Anthony, to Amerola Products Corporation. Clamp. 3,813,090, Cl. 269-217.000.
Merola, Vincent Anthony. Footwear upper protector for cycle riders. 3,812,606, Cl. 36-72.00r.
Merrell, Kenneth C.; Scott, Timothy F.; Brushwyler, Gordon R.; Koegel, James H.; and Poindexter, William E., to Robertshaw Controls Company. Continuous respirmometer apparatus. 3,813,325, Cl. 204-195.00b.
Merrick, Jim I.; Carlson, Carl J., Jr.; and Carlson, Donald W., to Triad Fastener Corporation. Screw package. 3,812,961, Cl. 206-338.000.
Merrow Machine Company, The: *See—*
Pierce, Bernard N., 3,812,802.
Messrs. Tiwi Oy: *See—*
Ervast, Armas, 3,812,893.
Metrolab, Inc.; a subsidiary of Cubic Corporation: *See—*
Roes, John B., 3,812,579.
Metzger, Harold M. Couch. 3,813,091, Cl. 269-322.000.
Meyer, Karl Arthur. Cam action tangential tracking tone arm pivot mechanism. 3,813,100, Cl. 274-23.00a.
Meyer, Lawrence L.: *See—*
Lauck, Robert B.; Meyer, Lawrence L.; and Cargo, Charles H., 3,812,925.
Meyer, Lawrence L., to Eaton Corporation. Holding clamp. 3,812,557, Cl. 24-263.00a.
Meyer, Ulrich, to Vereinigte Flugtechnische Werke-Fokker, Gesellsschaft mit beschrankter Haftung. Automatically controlled brake actuator for unmanned vehicles. 3,812,750, Cl. 188-106.00p.
Meyercord Co., The: *See—*
Kerwin, Daniel, 3,813,268.
Michaels, Alan S.; Buckles, Richard G.; and Keller, Michael P. Ultrasonic nebulizer. 3,812,854, Cl. 128-194.000.
Michaud, Orean E., to Colt Industries Operating Corporation. Multifunction thread gage. 3,812,591, Cl. 33-199.000.
Michieli, Giannantonio: *See—*
Losco, Giuseppe; Reggio, Antonino; Michieli, Giannantonio; and Longoni, Angelo, 3,813,440.
Michno, Zbigniew: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.
Microwave and Electronic System Limited: *See—*
Allen, Howard John Brandsom; and Johnston, James Meill, 3,813,655.
Midland-Ross Corporation: *See—*
McAnespie, Donald; and Laliberte, Robert Justin, 3,813,019.
Midwesco-Enterprise, Inc.: *See—*
Hallwood, Harry, 3,812,886.
Mierzwinski, Eugene Peter, to Magnavox Company, The. Ambient light responsive control of brightness, contrast and color saturation. 3,813,686, Cl. 358-27.000.
Mihic, Wlajko; and Back, Stig Ove, to Mircona AB. Tool holder assembly. 3,812,560, Cl. 29-96.000.
Miki, Yasuhiro; and Kumanogo, Tadaki, to Pioneer Electronic Corporation. Fibrous vibration plate for loudspeaker and production thereof. 3,813,284, Cl. 162-219.000.
Miller, Eric, to Glenfield & Kennedy Limited Hydraulic installation. 3,812,871, Cl. 137-1.000.
Miller, Gabriel Lorimer; and Robinson, David Arthur Hall, to Bell Telephone Laboratories, Incorporated. Semiconductor diode thermometry. 3,812,717, Cl. 73-362.0sc.
Miller, Harry B., to Industrie-Werke Karlsruhe Augsbury Aktiengesellschaft. Yarn aspirator. 3,813,020, Cl. 226-97.000.
Miller, Harry B., to Industrie-Werke Karlsruhe Augsburg Aktiengesellschaft. Bobbin-supporting chuck. 3,813,051, Cl. 242-46.400.
Miller, Stewart Edward, to Bell Telephone Laboratories, Incorporated. Single material optical fiber structures including thin film supporting members. 3,813,141, Cl. 350-96.0wg.
Mino, Mineo; Fujisawa, Kiyoji; and Tanabe, Kenzo, to Matsushita Electric Industrial Co., Ltd. Magnetic tape reproducing system for stop motion video with audio. 3,813,484, Cl. 178-6.6fs.
Minolta Camera Kabushiki Kaisha: *See—*
Naya, Mikio, 3,813,543.
Sahara, Masayoshi, 3,813,681.
Minsk, Louis Morton; and Staples, Jon Tewsbury, to Eastman Kodak Company. Photographic element containing non-diffusing polymeric development accelerators. 3,813,247, Cl. 96-68.000.
Mintz, Marcus; and Engelhardt, Bernard H., to Industrial Knitting, Inc. Method and apparatus for packaging a product. 3,812,642, Cl. 53-21.00r.
Minyard, James P.: *See—*
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., 3,813,443.
Mio, Takeshi: *See—*
Tanaka, Kyoichi; Mio, Takeshi; and Tanaka, Toyoyasu, 3,813,447.
Mircona AB: *See—*
Mihic, Wlajko; and Back, Stig Ove, 3,812,560.
Miscovich, John A.: *See—*
Sims, Wilbert Norman; and Miscovich, John A., 3,813,125.
Misdom, Theodore H., Jr.; and Boyd, James W., to Packaging Corporation of America. Carton construction. 3,813,027, Cl. 229-45.000.
Miskolczy, Gabor; Shefsiek, Paul K.; and Brosens, Pierre J., to Thermo Electron Corporation. Cement kiln and method. 3,813,210, Cl. 432-15.000.
Mitchell, Graham R., to General Electric Company. Vacuum-type circuit breaker with improved ability to interrupt capacitance currents. 3,813,506, Cl. 200-144.00b.
Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Yokoyama, Nobuo; and Ujihara, Takasumi, 3,812,771.
Mitsubishi Paper Mills, Ltd.: *See—*
Futaki, Kiyoshi; Tsukahara, Hirokazu; and Emoto, Kazuhiro, 3,813,248.
Mitsubishi Pencil Co., Ltd.: *See—*
Kamo, Mitsunori, 3,813,176.
Mitsubishi Rayon Company Limited: *See—*
Joh, Yasushi; and Sugimori, Teruhiko, 3,813,372.
Mitsubishi Seiko Kabushiki Kaisha: *See—*
Abe, Yoshihiko, 3,813,240.
Mitsui Shipbuilding and Engineering Co., Ltd.: *See—*
Ando, Shigemi, 3,812,807.
Miyajima, Nobuo; Keneko, Kozo; Ohnuki, Iwao; and Noboru, Okubo. Furnace body supporting structure for blast furnaces. 3,813,088, Cl. 266-25.000.
Miyamatsu, Yasunori: *See—*
Kawaguchi, Kiyoshi; Miyamatsu, Yasunori; Kamoi, Arao; and Fukuda, Kinya, 3,812,697.
Miyamatsu, Yasunori; Kamoi, Arao; and Fukuda, Kinya, to Toyo Kohan Co., Ltd. Method and an apparatus of leveling a metal strip. 3,812,701, Cl. 72-163.000.
Miyamoto, Masao: *See—*
Aya, Masahiro; Miyamoto, Masao; Fukawawa, Nobuo, and Ohsuga, Shigeki, 3,813,405.
Miyauchi, Yoshio: *See—*
Nishikawa, Yukio; Nagao, Yoshio; Miyauchi, Yoshio, Mori, Noriaki; and Matsui, Shigenori, 3,813,682.
Miyazako, Takushi: *See—*
Takamura, Yoshihiko; Nakajima, Yosuke; Ohi, Reiichi, and Miyazako, Takushi, 3,813,250.
Mobil Oil Corporation: *See—*
Givens, Edwin N.; Plank, Charles J.; and Rosinski, Edward J., 3,813,330.
Heiba, El Ahmadi I.; and Dessau, Ralph M., 3,813,416.
Heilweil, Israel J.; and Srinivasan, Sundaresa, 3,813,290.
Weisz, Paul B.; and Silvestri, Anthony J., 3,813,331.
Mobley, Carroll E., Jr.: *See—*
Stewart, Oliver M.; Maringer, Robert E.; and Mobley, Carroll E., Jr., 3,812,901.
Mochizuki, Matsuji. Airplane. 3,813,060, Cl. 244-13.000.
Moe, James A.; and Ross, Thomas J. Vending machine module 3,813,005, Cl. 221-90.000.
Moeller, Axel, to Moeller Manufacturing Co., Inc. Controlled expansion marine plug. 3,812,810, Cl. 114-197.000.
Moeller Manufacturing Co., Inc.: *See—*
Moeller, Axel, 3,812,810.
Moggi, Pietro Antonio: *See—*
Mauri, Marcello Massi; and Moggi, Pietro Antonio, 3,813,377.
Mohan, William L.; and Willits, Samuel P., to Spartanics, Ltd. Pitch matching detecting and counting system. 3,813,523, Cl. 235-92.0sb.
Mohasco Industries, Inc.: *See—*
Katz, Alex J.; and Caldwell, Robert J., 3,813,150.
Mohr, John L.: *See—*
Watson, Fred D.; and Mohr, John L., 3,813,526.
Mohr, Robert G.; and Olree, Adrian R., to Steelcase Inc. Dual torsion bar chair control. 3,813,073, Cl. 248-373.000.
Molbert, Robert A., to General Tire & Rubber Company, The. Method of making fiberglass thermoplastic sheets. 3,813,269, Cl. 156-272.000.
Molex Incorporated: *See—*
Kufner, Kenneth L.; Pellegrino, Thomas P., and Chmela, Frank P., 3,812,569.
Monley, Richard Leo, Jr.: *See—*
Gilbert, Ronald Edward; and Monley, Richard Leo, Jr., 3,813,231.
Monroe Belgium N.V.: *See—*
Fader, John H.; Keijzer, Johan H.; Graulus, Marcel J. R., and Beets, Roland H. C., 3,812,938.
Monsanto Company: *See—*
Baldyga, Eugene P.; and Griesing, John E., 3,812,646.
Canfield, Robert C.; Neta, Thomas E.; and Wiesenborn, Robert F., 3,813,451.
Howe, Robert K., 3,813,234.
Latinen, George A., 3,812,897.
Latinen, George A., 3,813,369.
Paulik, Frank E.; Hershman, Arnold; Knox, Walter R.; and Roth, James F., 3,813,428.
Phillips, Wendell Gary, 3,813,426.
Wood, Alvin P.; and Ratts, Kenneth Wayne, 3,813,435.
Montecatini Edison S.p.A.: *See—*
Chiolle, Antonio; Credali, Lino; Longi, Paolo; Greco, Francesco; and D'Angelo, Romano, 3,813,354.

Gambaretto, Gian Paolo, Tlaamini, Gianpietro, and Palma, Giancarlo, 3,813,370.
Montedison S.p.A.: *See—*
Losco, Giuseppe, Reggio, Antonino, Michieli, Giannantonio and Longoni, Angelo, 3,813,440.
Montgomery, John D.: *See—*
Lerch, Adolph F., Otis, Nick C., and Montgomery, John D., 3,812,638.
Moore, Francis M. Attaching bracket with receptacle holder 3,813,072, Cl. 248-313.000.
Moore, William C., and Connors, John D., to Welch Allyn Inc. Combination battery handle-case for a pair of attached, outfolding illuminated medical instruments. 3,812,847, Cl. 128-9.000.
Morane, Bruno Pierre, to L'Oreal. Hair curler. 3,812,866, Cl. 132-40.000.
Mordehai, Avraham Ben. Rotary water sprinkler. 3,813,043, Cl. 239-204.000.
Mori, Noriaki: *See—*
Nishikawa, Yukio, Nagao, Yoshio, Miyauchi, Yoshio, Mori, Noriaki, and Matsui, Shigenori, 3,813,682.
Mori, Yoichi, Okazaki, Nobuo, Ohtsuka, Kunio, and Iijima, Tetsuya, to Nissan Motor Company, Limited. Gear train arrangements. 3,812,739, Cl. 74-763.000.
Morimoto, Kazuhisa: *See—*
Ikeda, Mitsusuke, Sato, Hisanao, Torii, Etsuko, Morimoto, Kazuhisa, and Hasegawa, Yo, 3,813,242.
Moriya, Nobuyoshi, to Mansei Kogyo Kabushiki Kaisha. Cigarette lighter. 3,813,206, Cl. 431-143.000.
Mork, Halbert Louis, to TRW Inc. Attitude stabilization system. 3,813,067, Cl. 244-3.220.
Morokin, Anatoly Afonasievich: *See—*
Kaletin, Vladislav Mikhailovich, and Morokin, Anatoly Afonasievich, 3,812,954.
Morozov, Vyacheslav Vyacheslavovich. Device for air distribution in premises. 3,812,770, Cl. 98-40.00d.
Morrison, Alexander Robley. Grain refining compounds. 3,813,302, Cl. 148-6.15r.
Morse, Albert I.: *See—*
Frederick, Eugene G., Morse, Albert I., and Simmonds, Robert C., Jr., 3,813,201.
Mortensen, Donald G., to Wayne Manufacturing Company. Street sweeper broom drive. 3,812,551, Cl. 15-179.000.
Moto-Naute, Inc.: *See—*
Veilleux, Joseph C., 3,812,814.
Motorola, Inc.: *See—*
Brouwers, Karel J., and Heinle, Preston J., 3,813,379.
Ring, Charles M., 3,813,588.
Moussou, Jean, to Ceraver. Furnace for the thermic treatment of products supported by a gas cushion. 3,813,217, Cl. 432-258.000.
Muehlberg, Harriet W.: *See—*
Muehlberg, John R., and Muehlberg, Harriet W., 3,812,539.
Muehlberg, John R., and Muehlberg, Harriet W. Sleeping garment. 3,812,539, Cl. 2-69.500.
Mukai, Cromwell D., and Weinstein, Bernard, to American Home Products Corporation. Dimethyl sulfoxide containing cleaner compositions. 3,813,343, Cl. 252-111.000.
Muller, Anton: *See—*
Witzel, Gunter, and Muller, Anton, 3,812,896.
Muller, Heinz: *See—*
Muller-Schiedmayer, Gunther, Muller, Heinz, Huhner, Herbert, and Ulm, Klaus, 3,813,441.
Muller, Norbert: *See—*
Krauth, Axel, and Muller, Norbert, 3,813,344.
Muller, Peter, to Andrews Paper & Chemical Co., Inc. Transparentized fibrous materials and process for making same. 3,813,261, Cl. 117-153.000.
Muller-Albrecht, Horst: *See—*
Bock, Eugen, Dollhausen, Manfred, and Muller-Albrecht, Horst, 3,813,380.
Muller-Schiedmayer, Gunther, Muller, Heinz, Huhner, Herbert, and Ulm, Klaus, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the continuous preparation of quaternary ammonium compounds. 3,813,441, Cl. 260-567.600.
Mulvaney, Charles S. Book stand. 3,813,074, Cl. 248-452.000.
Munakata, Tomohiko: *See—*
Nakanishi, Michio, Munakata, Tomohiko, Setoguchi, Shinro, and Fukunari, Sunao, 3,813,395.
Munchback, George E.: *See—*
Walton, Richard R., and Munchback, George E., 3,813,094.
Murayama, Naohiro, Katto, Takayuki, and Funahashi, Shinichiro, to Kureha Kagaku Kogyo Kabushiki Kaisha. Process for producing porous articles of polytetrafluoroethylene. 3,813,461, Cl. 264-41.000.
Muroki, Takumi, and Tadokoro, Tomoo, to Toyo Kogyo Co., Ltd. Forced draft cooling system for an exhaust gas purifying device. 3,812,673, Cl. 60-286.000.
Murphy, Brian Egmont, Burford, John Reginald, and Wassilieff, Alexander, to Delta Plastics Limited. Animal ear tag applicators. 3,812,859, Cl. 128-330.000.
Murray, Charles Robertson: *See—*
Barnes, John Grober, Biron, Emil, Murray, Charles Robertson, Rowley, Edward Kenneth, and Waugh, Clayton Thomas, 3,812,769.
Mutchler, Paul A., to United States of America, Army, mesne. Oven combustion products distribution system. 3,812,838, Cl. 126-21.00a.
Muto, Eiji: *See—*
Shima, Shunji, Kadowaki, Hideyoshi, Muto, Eiji, Okazaki, Ichiro, and Matsumura, Koichi, 3,813,300.
Nadella: *See—*
Pitner, Alfred, 3,813,136.
Nagano, Tomoji: *See—*
Shimota, Masahiko, and Nagano, Tomoji, 3,812,808.
Nagao, Yoshio: *See—*
Nishikawa, Yukio, Nagao, Yoshio, Miyauchi, Yoshio, Mori, Noriaki, and Matsui, Shigenori, 3,813,682.
Nagata, Tadayoshi, and Hamanaka, Wahei, to Iwatana & Co., Ltd. Refuse incinerator. 3,812,796, Cl. 110-10.000.
Nagata, Yoshihiro, Yoda, Tadashi, and Tanaka, Yoshinobu, to Kabushiki Kaisha Komatsu Seisakusho. Apparatus for floating a vehicle for underwater operation. 3,812,804, Cl. 114-16.00r.
Naito, Takayuki, and Okumura, Jun, to Bristol-Myers Company. 7-(O-Aminomethylphenylacetamido)-3-(3-hydroxypyridazin-6-ylthiomethyl)-3-cephem-4-carboxylic acid. 3,813,376, Cl. 260-243.00c.
Naito, Takayuki, and Okumura, Jun, to Bristol-Myers Company. 7-(O-Aminomethylphenylthioacetamido)-3-(hydroxypyridazin-6-ylthiomethyl)-3-cephem-4-carboxylic acids. 3,813,390, Cl. 260-243.00c.
Naito, Takayuki, Okumura, Jun, and Kamachi, Hajime, to Bristol-Myers Company. 7-[β-(o-Aminomethylphenyl)propionamido]-3-(tetrazolo[4,5-b]pyridazin-6-ylthiomethyl)-3-cephem-4-carboxylic acid. 3,813,391, Cl. 260-243.00c.
Naka, Kiyomi: *See—*
Watabe, Kaname, Arai, Kosuke, Taneda, Yasuo, and Naka, Kiyomi, 3,813,162.
Nakada, Masahiko, and Matsumoto, Hirofumi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Arrangement for regulating a choke valve in a carburetor. 3,813,085, Cl. 261-39.00b.
Nakajima, Fumio: *See—*
Nikaido, Akira, Nakajima, Fumio, Onda, Mitsuo, Machida, Takayasu, and Toida, Takashi, 3,812,670.
Nakajima, Yosuke: *See—*
Takamura, Yoshihiko, Nakajima, Yosuke, Ohi, Reiichi, and Miyazako, Takushi, 3,813,250.
Nakamoto, Soichi: *See—*
Hasegawa, Goro, Nakamoto, Soichi, and Hosoe, Kazuya, 3,813,679.
Nakanishi, Michio, Munakata, Tomohiko, Setoguchi, Shinro, and Fukunari, Sunao, to Yoshitomi Pharmaceutical Industries, Ltd. 4-Aryl alkyl piperazino thienobenzo thiazepines. 3,813,395, Cl. 260-268.0tr.
Namoto, Yoshiteru: *See—*
Sakumoto, Hideki, Namoto, Yoshiteru, Ushihara, Masaharu, Tanigawa, Shizuhiko, and Kanda, Shozo, 3,813,057.
National Cash Register Company, The: *See—*
Albrecht, Peter M., 3,813,540.
Terbay, Joseph J., and Taylor, Richard P., 3,812,946.
National Controls, Inc.: *See—*
Rock, Frank C., 3,812,923.
National Research Development Corporation: *See—*
Shaw, Alexander, and McKie, Joseph, 3,812,743.
Nausbaum, Irving, to New Age Mirror and Tile Industries, Inc. Glass cutting device. 3,812,748, Cl. 83-12.000.
Naya, Mikio, to Minolta Camera Kabushiki Kaisha. Pattern detecting apparatus. 3,813,543, Cl. 250-562.000.
Neises, Helmut, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Dry mixtures for producing acid resistant cement and mortar compositions. 3,813,253, Cl. 106-84.000.
Nelson, Carl S., Jr., to Opsonar Organ Corporation, mesne. Musical recording with re-entry track. 3,813,498, Cl. 179-100.30r.
Nelson, Roger John, to Deere & Company. Pump assembly for power steering system. 3,813,188, Cl. 417-202.000.
Nelson, Roy A., to LTV Aerospace Corporation. Transportation system. 3,812,789, Cl. 104-130.000.
Nelson, Terence John: *See—*
Danylchuk, Irynej, Gruse, Joseph Edward, and Nelson, Terence John, 3,813,661.
Nemeth, Edward, and Gromek, Joseph, to VIP Machinery Inc. Apparatus for the application of shrink tubing. 3,812,568, Cl. 29-203.00d.
Neshumaev, Anatoly Dmitrievich, Goncharov, Boris Konstantinovich, Smolyar, Anatoly Alexeevich, and Chipir, Leonid Nikolaevich. Cutting tool. 3,812,563, Cl. 90-11.00a.
Nester, Dianne L.: *See—*
Mason, Daniel W., and Nester, Henry H., deceased, 3,813,295.
Nester, Henry H., deceased: *See—*
Mason, Daniel W., and Nester, Henry H., deceased, 3,813,295.
Neta, Thomas E.: *See—*
Canfield, Robert C., Neta, Thomas E., and Wiesenborn, Robert F., 3,813,451.
Neubert, Terry C., to Goodyear Tire & Rubber Company, The. Preparation of resin encapsulated crumb rubber. 3,813,259, Cl. 117-100.00c.
New Age Mirror and Tile Industries, Inc.: *See—*
Nausbaum, Irving, 3,812,748.
New York Wire Mills Corporation, mesne: *See—*
Nordgren, Alfred A., 3,813,512.

Newby, Ronald: *See—*
Lowen, Michael David; and Newby, Ronald, 3,812,749.
Nickstadt, Gerhard, to General Electric Company. Reversing mechanism. 3,812,736, Cl. 74-404.000.
Nigg, Fritz; and Risse, Jean-Claude, to Tesa S.A. Electronic sensor. 3,812,590, Cl. 33-172.00e.
Nihon-Yohin Co., Ltd.: *See—*
Sato, Tomoyoshi, 3,812,604.
Nikaido, Akira; Nakajima, Fumio; Onda, Mitsuo; Machida, Takayasu; and Toida, Takashi, to Citizen Watch Company Limited. Converter drive circuit in an electronic timepiece. 3,812,670, Cl. 58-23.00r.
Nikles, Erwin: *See—*
Duerr, Dieter; and Nikles, Erwin, 3,813,436.
Nilsson, Bengt: *See—*
Englund, Hakan; Eriksson, Ronny; and Nilsson, Bengt, 3,812,721.
Nippon Air Brake Co., Ltd., The: *See—*
Takagi, Makoto, 3,812,874.
Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Hirano, Katsuhiko, 3,813,472.
Kurata, Yutaka; and Iwata, Motoji, 3,812,965.
Nippon Kakoh Seiski K.K.: *See—*
Katagiri, Keizo; Sakaguchi, Mamoru; and Kamata, Tokumaro, 3,813,278.
Nippon Kayaku Co., Ltd.: *See—*
Abe, Yasunori; Yamane, Nobuo; Itoh, Kensaku; Ishida, Shuichi; and Kobayashi, Hisabumi, 3,813,444.
Nippon Steel Corporation: *See—*
Kamogawa, Yoshiro; and Tuchiya, Takao, 3,812,693.
Nippondenso Co., Ltd.: *See—*
Yamaguchi, Terumoto, 3,812,576.
Nishikawa, Yukio; Nagao, Yoshio; Miyauchi, Yoshio; Mori, Noriaki; and Matsui, Shigenori, to Dainippon Screen Seizo Kabushiki-Kaisha. Photomechanical camera. 3,813,682, Cl. 354-211.000.
Nishiyama, Sumio: *See—*
Yoshioka, Tsuyoshi; and Nishiyama, Sumio, 3,812,993.
Nissan Motor Company, Limited: *See—*
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,812,739.
Nissan Motor Company, Ltd.: *See—*
Seino, Hiroshi; Suzuno, Shingichi; Takeya, Yoshiaki; Tobita, Tsutomu; and Fukaya, Takeshi, 3,812,565.
Nisseki Plastic Chemical Co., Ltd., The: *See—*
Kamikawa, Kousaku; and Kawabe, Seikichi, 3,812,644.
Nissel, John Edward. Package orienting apparatus. 3,812,648, Cl. 53-124.00a.
Noble, Peter M., to Westinghouse Air Brake Company. Railway skate car retarder. 3,812,934, Cl. 188-62.000.
Noboru, Okubo: *See—*
Miyajima, Nobuo; Keneko, Kozo; Ohnuki, Iwao; and Noboru, Okubo, 3,813,088.
Nomiya, Kosei: *See—*
Hatsukano, Yoshikazu; Nomiya, Kosei; and Torii, Shuichi, 3,813,564.
Nomiya, Kosei; and Torii, Shuichi, to Hitachi, Ltd. Flip-flop circuit. 3,813,563, Cl. 307-279.000.
Nomiya, Kosei; and Tsuiki, Takao, to Hitachi, Ltd. Serial BCD adder. 3,813,623, Cl. 235-176.000.
Norba Aktiebolag: *See—*
Lindeborg, Georg D.; and Heine, Desire, 3,812,985.
Nordgren, Alfred A., to New York Wire Mills Corporation, mesne. Welding tip assembly. 3,813,512, Cl. 219-158.000.
Norman, Marvin Neil, to RCA Corporation. High voltage protection circuit. 3,813,580, Cl. 317-23.000.
Noroski, William J.: *See—*
Scott, Stanley J.; Noroski, William J.; and Rublack, Wilfred D., 3,813,568.
Northrop Corporation: *See—*
Loo, Brian Hum, 3,813,647.
Noryd, Nils Eric. Fastener assembly for handrails. 3,813,071, Cl. 248-251.000.
Nowak, George R. Photographic projection device. 3,813,160, Cl. 355-71.000.
Nowak, Matthew; and Tirellis, Gus George, to United States of America, Army. Optical ammunition inspection system and method. 3,813,174, Cl. 356-241.000.
Nuken, G.m.b.H.: *See—*
Krauth, Axel; and Muller, Norbert, 3,813,344.
Nygaard, James L., to Texas Instruments Incorporated. Automatic slice processing. 3,812,947, Cl. 198-19.000.
O'Brill, Robert. Frangible concrete-joint sealant package. 3,813,180, Cl. 404-48.000.
Occidental Energy Development Company, mesne: *See—*
Carr, Peter, 3,813,301.
O'Connell, William J., to General Electric Company. Polycarbonate molding composition comprising an aromatic polycarbonate graft copolymer and a modifier. 3,813,358, Cl. 260-16.000.
Office de Radiodiffusion-Television Francaise: *See—*
Blancheville, Pierre J.; Brun, Guy; and Dat, Pham Tat, 3,813,617.
Ogawa, Masahiro, to Toyota Jidosha Kogyo Kabushika Kaisha. Electrodeposition coating method. 3,813,323, Cl. 204-181.000.
Ohi, Reiichi: *See—*
Takamura, Yoshihiko; Nakajima, Yosuke; Ohi, Reiichi; and Miyazako, Takushi, 3,813,250.
Ohnuki, Iwao: *See—*
Miyajima, Nobuo; Keneko, Kozo; Ohnuki, Iwao; and Noboru, Okubo, 3,813,088.
Ohsuga, Shigeki: *See—*
Aya, Masahiro; Miyamoto, Masao; Fukawawa, Nobuo, and Ohsuga, Shigeki, 3,813,405.
Ohtsuka, Kunio: *See—*
Mori, Yoichi; Okazaki, Nobuo; Ohtsuka, Kunio; and Iijima, Tetsuya, 3,812,739.
Oka, Toshiichiro, to Victor Company of Japan, Ltd. Tape reciprocating drive type tape recorder. 3,813,690, Cl. 360-90.000.
Okazaki, Ichiro: *See—*
Shima, Shunji; Kadowaki, Hideyoshi; Muto, Eiji; Okazaki, Ichiro, and Matsumura, Koichi, 3,813,300.
Okazaki, Mitsunari, to Alps Electric Co., Ltd. Local oscillator for television tuner having reduced oscillation voltage variation between high and low frequency bands. 3,813,615, Cl. 331-109.000.
Okazaki, Nobuo: *See—*
Mori, Yoichi; Okazaki, Nobuo, Ohtsuka, Kunio; and Iijima, Tetsuya, 3,812,739.
OKI Electric Industry Co., Ltd.: *See—*
Yokokawa, Toshiki; and Kawakita, Chihiro, 3,813,508.
Oklahoma Tool & Supply Company: *See—*
Alger, Carl E., 3,813,081.
Okonogi, Itaru: *See—*
Tomita, Chuji; Kasai, Kazutomo; and Okonogi, Itaru, 3,813,227
Okubo, Ko: *See—*
Kurosawa, Koichi; and Okubo, Ko, 3,813,483
Okumura, Jun: *See—*
Naito, Takayuki; and Okumura, Jun, 3,813,376.
Naito, Takayuki; and Okumura, Jun, 3,813,390.
Naito, Takayuki; Okumura, Jun, and Kamachi, Hajime, 3,813,391.
Olivero, Oliviero, to International Standard Electric Corporation Coaxial cable joint. 3,813,479, Cl. 174-88.00c.
Olofsson, Sven; and Tysk, Jan, to LKB Medical AB. Method and device for measuring the flow rate of an intermittent fluid flow. 3,812,714, Cl. 73-194.00r.
Olree, Adrian R.: *See—*
Mohr, Robert G.; and Olree, Adrian R., 3,813,073.
Olson, Verne A. Liquid dispensing apparatus. 3,813,008, Cl. 222-70.000.
Olson, Wayne L. Vibrating rock polisher. 3,812,625, Cl. 51-163.000
Olszyk, Bernard John; and Fricklas, Richard Leon, to Johns-Manville Corporation. Bituminous roofing products and process. 3,813,280, Cl. 161-151.000.
Omnium de Prospective Industrielle S.A.: *See—*
Lefebvre, Michel S. M.; and Lapierre, Philippe D., 3,812,598
Onda, Mitsuo: *See—*
Nikaido, Akira; Nakajima, Fumio, Onda, Mitsuo, Machida, Takayasu; and Toida, Takashi, 3,812,670.
Opsonar Organ Corporation, mesne. *See—*
Nelson, Carl S., Jr., 3,813,498.
Optical displacement indicator: *See—*
Mary, Donald J., 3,813,166.
Orem, Donald E.: *See—*
Lee, Henry B.; Orem, Donald E.; and Wycoff, Paul L., 3,812,728
Oringer, Maurice Jules, to Sybron Corporation. Dental electrosurgical unit. 3,812,858, Cl. 128-303.140.
Orr, Richard L.: *See—*
Kivlen, John A.; Orr, Richard L., Chwab, William H., and Macindoe, George F., 3,812,663.
Osada, Chiaki: *See—*
Honjo, Satoru; Fukushima, Osamu; and Osada, Chiaki, 3,813,267
Osbond, John Mervyn; and Wickens, James Charles, to Hoffmann-La Roche Inc. Chrysanthemic acid esters. 3,813,427, Cl. 260-468.00h
Oshima, Akira; Tsuboshima, Kazuhiko; and Takahashi, Nobuhito, to Kohjin Co., Ltd. Process for preparing N-substituted acrylamides 3,813,438, Cl. 260-561.00n.
Ostrom, Charles R. Mail box. 3,813,029, Cl. 232-17.000
Otis, Nick C.: *See—*
Lerch, Adolph F.; Otis, Nick C.; and Montgomery, John D., 3,812,638.
Otsu, Ikuo: *See—*
Kikuchi, Makoto; Asano, Hiroaki; Otsu, Ikuo; and Saeki, Toyoaki, 3,812,623.
Owen, Ronald Charles, to Illinois Tool Works Inc. Extruded plastic container carrier. 3,813,123, Cl. 294-87.200.
Owens-Illinois, Inc.: *See—*
Mason, Daniel W.; and Nester, Henry H., deceased, 3,813,295
Oxy Metal Finishing Corporation: *See—*
Clauss, Richard J., 3,812,566.
Packaging Corporation of America: *See—*
Misdom, Theodore H., Jr.; and Boyd, James W., 3,813,027.
Pagani, Girogio, to Snam Progetti, S.p.A. Process for the production of a reducing gas for blast furnace. 3,813,229, Cl. 48-196.00r.
Pagano, Ralph R. Form fitting coat construction. 3,812,540, Cl. 2-93.000.
Palachek, Charles V.; and Underhill, William K., Jr., to Textron Incorporated. Rotor blade shear reinforcement. 3,813,186, Cl. 416-226.000.
Palma, Giancarlo: *See—*
Gambaretto, Gian Paolo; Tlaamini, Gianpietro; and Palma, Giancarlo, 3,813,370.
Panagrossi, Ahmed: *See—*

Gilbert, John W., and Panagrossi, Ahmed, 3,812,860
Panhard, Jean, to Societe de Constructions Mecaniques Panhard & Levasser. Armored vehicles having a cooled engine. 3,812,906, Cl. 165-44.000
Panici, James. Protection system for box car doors. 3,813,119, Cl. 292-122.000
Pannullo, Louis A.: *See—*
Edwards, Harrison F., and Pannullo, Louis A., 3,813,566
Panzarino, Joseph N.: *See—*
Forker, Ray B., Jr., and Panzarino, Joseph N., 3,813,232
Parachem Corporation: *See—*
Anderson, Robert J., 3,813,466
Parfomak, Walter, Anderson, Richard John, and Levine, Alfred, to Bendix Corporation, The. Condition warning memory circuit. 3,813,665, Cl. 340-248.a
Parkhurst, Robert M.: *See—*
Lemma, Aklilu, Parkhurst, Robert M., and Skinner, William A., Jr., 3,813,383
Parson, Les, & Sons (Engineers) Limited: *See—*
Jones, Alan, and Bustard, John Shaw, 3,812,952
Parsons, James W. Sander cleaner. 3,812,622, Cl. 51-5.000
Partridge, Leslie W., to Burdick Corporation, The. Patient cord assembly. 3,812,845, Cl. 128-2.06r
Pate Manufacturing Company: *See—*
Resech, Raymond W., 3,812,634
Patel, Kiritkumar R., to Eaton Corporation. Centrifugal clutch. 3,812,944, Cl. 192-105.00b
Paulik, Frank E., Hershman, Arnold, Knox, Walter R., and Roth, James F., to Monsanto Company. Production of monocarboxylic acids. 3,813,428, Cl. 260-532.000
Pauly, Raymond W.: *See—*
Grant, Jon Halloran, and Pauly, Raymond W., 3,813,560
Pavlovsky, Vladimir Petrovich: *See—*
Rogalsky, Anatoly Viktorovich, Markevich, Vitaly Mikhailovich, Kheifets, Georgy Naumovich, Zaichenko, Jury Leonidovich, Baburov, Valery Efremovich, Pavlovsky, Vladimir Petrovich, Golban, Eduard Vasilievich, Pechennik, Leonid Naumovich, Knyazhinsky, Zakhar Iosipovich, Bogatov, Nikolai Alexandrovich, Raichuk, Jury Isaakovich, Zaritsky, Viktor Nikolaevich, and Grodzitsky, Evgeny Fedorovich, 3,812,909
Payne, Roger A.: *See—*
Steckel, Elmer A., Schaffer, William G., and Payne, Roger A., 3,813,314
Peabody Engineering Corporation: *See—*
Arnold, Orlan M., and Vancini, Carlo A., 3,812,658
Pechennik, Leonid Naumovich: *See—*
Rogalsky, Anatoly Viktorovich, Markevich, Vitaly Mikhailovich, Kheifets, Georgy Naumovich, Zaichenko, Jury Leonidovich, Baburov, Valery Efremovich, Pavlovsky, Vladimir Petrovich, Golban, Eduard Vasilievich, Pechennik, Leonid Naumovich, Knyazhinsky, Zakhar Iosipovich, Bogatov, Nikolai Alexandrovich, Raichuk, Jury Isaakovich, Zaritsky, Viktor Nikolaevich, and Grodzitsky, Evgeny Fedorovich, 3,812,909
Peddinghaus, Paul Carl. Bending machine for metal rods. 3,812,694, Cl. 72-21.000
Pedershaab Maskinfabrik A/S: *See—*
Fisker, Jens Erik, and Sondergaard, Per, 3,813,203
Peetz, Dieter: *See—*
Jochim, Friedrich, Peetz, Dieter, Karla, Heinz, and Luerssen, Hermann, 3,813,519
Pellegrino, Thomas P.: *See—*
Kufner, Kenneth L., Pellegrino, Thomas P., and Chmiela, Frank P., 3,812,569
Pelletier, Simon, to Dionite Luggage Inc. Soft sided hand luggage. 3,812,939, Cl. 190-49.000
Peltier, Guy: *See—*
Guerin, Daniel L. G., 3,813,014
Pembrook, John D.: *See—*
Burch, Darrell E., Gates, Francis J., Grysnak, David A., and Pembrook, John D., 3,813,146
Pennar, Leonard J. Means for moving a television screen. 3,813,491, Cl. 178-7.810
Pennwalt Corporation: *See—*
Shapiro, Leonard, 3,812,564
Perilhou, Jean Robert, and Auphan, Michel Joseph, to U.S. Philips Corporation. Oven. 3,812,597, Cl. 34-105.000
Perkins, Dale M. Electrical locking alarm system. 3,813,663, Cl. 340-274.000
Perry, Dale C., to Goodyear Tire & Rubber Company, The. Polymerization of conjugated diolefins with catalysts containing carbon oxysulfide. 3,813,374, Cl. 260-94.300
Perry, Ernest John: *See—*
Hollister, Kenneth Robert, and Perry, Ernest John, 3,813,251
Peter, Joseph E., to Wolf Machine Company, The, mesne. Safety guard for a cloth cutting machine. 3,812,594, Cl. 30-273.000
Peters, Ronald L. Disposable electrode. 3,812,861, Cl. 128-418.000
Petigara, Ramesh B.: *See—*
Yale, Harry L., and Petigara, Ramesh B., 3,813,396
Petitclerc, Jean C.: *See—*
Benoiton, Norman L., Tong, Jeffrey H. Y., D'Iorio, Antoine, and Petitclerc, Jean C., 3,813,317
Petrolite Corporation: *See—*
Turner, Delber W., 3,813,328
Petrusek, Victor. Toy glider. 3,812,612, Cl. 46-79.000
Petty-Ray Geophysical Inc.: *See—*
Wilkes, Don Earl, Thompson, Charles Larry, and Sedgwick, Alan Fred, 3,813,609
Pfirrmann, Rolf Wilhelm, and Hofstetter, Emil, to Ed. Geistlich Sohne A.G. fur Chemische Industrie. Sulphamoylphenyl pyrrolidinones. 3,813,387, Cl. 260-239.600
Philco-Ford Corporation: *See—*
Burch, Darrell E., Gates, Francis J., Grysnak, David A., and Pembrook, John D., 3,813,146
Phillip Morris Incorporated: *See—*
Gergely, Alex S., 3,813,200
Phillips, Donald K., to Sterling Drug Inc. 1-Aryl-2-alkyl or -alkenyl-3,4-dihydronaphthalenes. 3,813,430, Cl. 260-479.00r
Phillips Petroleum Company: *See—*
Shofner, Don L., and Alexander, Doyle L., 3,813,212
Phillips, Wendell Gary, to Monsanto Company. S, S-2-Chloroalkyl thioperoxycarbamates and their manufacture. 3,813,426, Cl. 260-455.00r
Picard, Jean P., Satriana, Daniel R., and Masuelli, Frank J., to United States of America, Army. Process for preparation of triaminoguanidine and its salts. 3,813,439, Cl. 260-564.00f
Pickford, Holland & Company Limited: *See—*
Shaw, Gordon Brian, 3,813,468
Pickrell, John W. Readily detachable water ski towline pay-out and retrieval apparatus. 3,813,055, Cl. 242-86.50a
Pieper, Helmut, and Teber, Gustav, to Vereinigte Flugtechnische Werke-Fokker Gesellschaft mit beschrankter Haftung. Method for evaporating silver on titanium and its alloys. 3,813,258, Cl. 117-71.000m
Pierce, Bernard N., to Merrow Machine Company, The. Sewing machine noise and vibration reduction. 3,812,802, Cl. 112-218.00r
Pike, John E., and Schneider, William P., to Upjohn Company, The. 16-Methyl and ethyl PGE, and 16,16-dimethyl and diethyl. 3,813,433, Cl. 260-514.00d
Pillsbury Company, The: *See—*
Bertling, Rudolph B., and Kerr, Edward R., 3,812,647
Pimsleur, Joel L. Camera holster. 3,813,017, Cl. 224-26.00r
Pioli, Alexander Joseph Peter, Hollyhead, William Brian, and Todd, Peter Frank, to Imperial Chemical Industries, Limited. Organometallic compounds and uses thereof. 3,813,423, Cl. 260-429.300
Pioneer Electronic Corporation: *See—*
Miki, Yasuhiro, and Kumanogo, Tadaki, 3,813,284
Pipe Machinery Company, The: *See—*
Theuerkauf, Fred, 3,812,548
Pitner, Alfred L., to Nadella. Radial needle bearing assembly. 3,813,138, Cl. 308-213.000
Pitzer, Robert L., to Edcliff Instruments. Accelerometer. 3,812,727, Cl. 73-516.00r
Plank, Charles J.: *See—*
Givens, Edwin N., Plank, Charles J., and Rosinski, Edward J., 3,813,330
Plantif, Bernard: *See—*
Dion, Bernard, and Plantif, Bernard, 3,813,007
Pleshko, Peter: *See—*
Krick, Paul John, and Pleshko, Peter, 3,813,558
Plura, Georg, to Strommuller, L. & C., G.m.b.H. Method of treating fluid in a continuous manner. 3,813,333, Cl. 210-33.000
Pneumatic Scale Corporation: *See—*
Vergobbi, Robert W., 3,812,643
Pohlig-Heckel-Bleichert Vereinigte Maschinenfabriken Aktiengesellschaft: *See—*
Kling, Georg, 3,812,787
Pohndorf, Henry L.: *See—*
Bird, Forrest M., and Pohndorf, Henry L., 3,812,878
Poindexter, William L.: *See—*
Merrell, Kenneth C., Scott, Timothy F., Brushwyler, Gordon R., Koegel, James H., and Poindexter, William L., 3,813,325
Polacek, Emil. Jar opener. 3,812,742, Cl. 81-33.320
Polcer, John, Barratt, Robert O., and Roberts, John, to Foster Wheeler Corporation and General Electric Company. Sodium heated steam generator. 3,812,824, Cl. 122-32.000
Polcer, John, Barratt, Robert O., and Roberts, John, to Foster Wheeler Corporation and General Electric Company. Sodium heated helical coil arrangement. 3,812,825, Cl. 122-34.000
Pollak, Robert J.: *See—*
Kemnitz, Robert H., and Pollak, Robert J., 3,813,046
Pollysius AG: *See—*
Greiffenstern, Karl Von, 3,813,045
Poma 2.000 S.A., mesne: *See—*
Laurent, Roger, 3,812,789
Porret, Daniel: *See—*
Habermeier, Jurgen, Porret, Daniel, and Baumann, Dieter, 3,813,352
Potin, Marcel, to Societe Financiere Francaise de Licences et Brevets. Process for making the stops of a slide fastener. 3,813,459, Cl. 264-23.000
Potter, Harland C.: *See—*
Wacken, Robert H., and Potter, Harland C., 3,812,797
Potter Instrument Company, Inc.: *See—*
Potter, John T., 3,813,492
Potter, John T., to Potter Instrument Company, Inc. Copier system. 3,813,492, Cl. 178-30.000
Potter, Ronald D., to Auto-Place, Inc. Double-reach attachment for lifting and swinging work-transfer device. 3,812,981, Cl. 214-1.0bb
Potts, Vinson S.: *See—*
Kneusel, Raymond H. P., and Potts, Vinson S., 3,812,696

Powell, Richard G.: *See—*
Kolb, John P.; and Powell, Richard G., 3,812,980.
Pozolo, Kenneth R.: *See—*
Herbenar, Edward J.; and Pozolo, Kenneth R., 3,813,178.
PPG Industries, Inc.: *See—*
Cook, Richard S., 3,813,225.
Gunby, Leslie, 3,813,326.
Makhlouf, Joseph M., 3,813,254.
Prather, Alfred G. B. Fan-like tail section for man-powered glider aircraft. 3,813,062, Cl. 244-16.000.
Precision Metalsmiths, Inc.: *See—*
Horton, Robert A., 3,812,898.
Prescott, Robert C., to Foxboro Company, The. Planar pressure-responsive elements. 3,812,767, Cl. 92-48.000.
Prezewowsky, Klaus: *See—*
Hofmeister, Helmut; Laurent, Henry; Prezewowsky, Klaus; and Wiechert, Rudolf, 3,813,418.
Priaroggia, Paolo Gazzana, to Industrie Pirelli Societa per Azioni. Underwater oil-filled electrical cable installation with means locally supporting the cable above the bed of the water. 3,813,476, Cl. 174-37.000.
Price, Ralph E.: *See—*
Gebel, Kurt M.; and Price, Ralph E., 3,812,627.
Priem, Jan Jozef: *See—*
Mannens, Marc Godfried; Jaeken, Jan; Janssens, Wilhelmus; and Priem, Jan Jozef, 3,813,255.
Priest, Charles E., to Alum Elec Structures, Inc. Structures formed from structural members. 3,813,179, Cl. 403-348.000.
Pringle, William L., to United States Steel Corporation, mesne. Disc brake wear take up device. 3,812,935, Cl. 188-71.800.
Prinzhorn, Klaus, to Kabel- und Metallwerke Gutehoffnungschutte Aktiengesellschaft. Method of preparing two wave guides of differing cross section for interconnection. 3,812,578, Cl. 29-600.000.
Pritomanov, Alexei Evgenievich: *See—*
Drobich, Oleg Pavlovich; Pritomanov, Alexei Evgenievich; Rokutov, Viktor Petrovich; Kirvalidze, Nikolai Spiridonovich; Gerzmava, Dusheli Vladimirovich; and Mandzjuk, Boris Valentinovich, 3,813,335.
Procter & Gamble Company, The. *See—*
Duncan, Robert Campbell; and Kokx, Darrel Dayfield, 3,812,856.
Wolfson, Alan B., 3,813,349.
Products Research & Chemical Corporation: *See—*
Laird, John E., 3,813,012.
Progil: *See—*
Masotti, Robert; Rieux, Jean-Philippe; Borrel, Philippe; and Lehureau, Jean, 3,813,282.
Proni, Oscar; and Bull, Brian S., to Coulter Electronics, Inc. Hematocrit tube measuring apparatus. 3,812,707, Cl. 73-61.400.
Proudian, Andrew P., to Xonics, Inc. Process of making a subtracted image radiographic record. 3,813,546, Cl. 250-315.000.
Pryor, Harold A.: *See—*
Pryor, Roy R., and Pryor, Harold A., 3,813,038.
Pryor, Roy R., and Pryor, Harold A. Railroad tie. 3,813,038, Cl. 238-37.000.
Pshenichny, Gennady Ivanovich; Checheljuk, Yakov Zinovievich; and Gryazev, Ivan Ivanovich. Stand for assembling and pressing magnetic circuits of power transformers. 3,812,567, Cl. 29-203.00d.
Pugliese, Paul Jones: *See—*
Falletta, Thomas S.; and Pugliese, Paul Jones, 3,812,960.
Purdy, Haydn V.; and McIntosh, Ronald C. Character matrices for phototypesetters. 3,813,683, Cl. 354-292.000.
Puster, Louis M.: *See—*
Lewis, Jay L.; Puster, Louis M.; and Brakebill, Harold G., 3,813,034.
Pyle, John A. Boat, transporting, launching and retrieving trailer. 3,812,988, Cl. 214-505.000.
Quaker Oats Company, The: *See—*
Bozer, Keith B.; and Brown, Lloyd H., 3,813,371.
Quarmby, David John, to Erni Limited. Pattern recognition devices. 3,813,646, Cl. 340-146.3ae.
Quemerais, Philippe, to Regie Nationale des Usines Renault and Automobiles Peugeot. Cam operated friction clutch. 3,812,943, Cl. 192-93.00a.
Radobenko, William, to Automated Equipment Corporation. Wire bonder apparatus. 3,813,022, Cl. 228-3.000.
Ragland, Douglas, to Ragland Manufacturing and Construction Company. Adjustable door frame assembly. 3,812,621, Cl. 49-505.000.
Ragland Manufacturing and Construction Company: *See—*
Ragland, Douglas, 3,812,621.
Rahdener Maschinenfabrik August Kolbus: *See—*
Taupin, Jean Marie, 3,813,093.
Raichuk, Jury Isaakovich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Ramey, Robert M., to Teledyne, Inc. Gas fired patio heater with a manual igniter. 3,813,207, Cl. 431-255.000.
Ramsay, James D.: *See—*
Teach, Ted L.; and Ramsay, James D., 3,813,171.
Ramsay, Melvin Murray; Barnes, William Geddes; and Bedgood, Michael Albert, to International Standard Electric Corporation. Low light television camera. 3,813,489, Cl. 178-7.200.
Ramsdale, Roy, to Clark, Alex L., Limited. Reel for photographic sheet material. 3,813,684, Cl. 354-341.000.
Rankin, Malcolm: *See—*
Abbott, William J.; and Rankin, Malcolm, 3,812,937.
Ransburg Corporation: *See—*
Lee, Henry B.; Orem, Donald E.; and Wycoff, Paul L., 3,812,728
Ratkowski, Thomas A., to Abex Corporation. Dipper bucket corner member with integral shroud. 3,812,608, Cl. 37-141.00t.
Ratts, Kenneth Wayne: *See—*
Wood, Alvin P.; and Ratts, Kenneth Wayne, 3,813,435.
Ray, Robert L.; Champeau, William J.; and Mc Atee, Kerry D., to Dayco Corporation. Apparatus for making an endless power transmission belt. 3,813,197, Cl. 425-111.000.
Raye, Alexander H.: *See—*
Jones, Charles; and Raye, Alexander H., 3,812,574.
Raypak, Inc.: *See—*
Block, Leo; Ashton, Larry J.; and Vodraska, Kenneth F., 3,812,872.
Raznov, Jerry L., to Ametek, Inc. Time and altitude sensing release mechanism. 3,813,066, Cl. 244-150.000.
RCA Corporation: *See—*
Caprari, Fausto, 3,813,576.
Cavett, John Dill; and Hopkins, Robert Sherman, Jr., 3,813,488.
Hulls, Leonard Robin, 3,813,596.
Norman, Marvin Neil, 3,813,580.
Sheng, Abel Ching Nam, 3,813,595.
Watson, James Power, 3,813,678.
Reactor Centrum Nederland (Stichting): *See—*
Wijnant, Petrus Leo Clemens; and Louwaard, Richardus Theodorus Gerardus, 3,813,134.
Reade, Richard F., to Corning Glass Works. Method of making glass-ceramic articles. 3,812,689, Cl. 65-33.000.
Reardon, Michael J.: *See—*
Droege, Lee John; Reardon, Michael J.; and Wilhite, Alan Roy, 3,813,310.
Reed, Samuel F., Jr., to United States of America, Army, mesne. Propellants containing copolymers of dienes and polymerizable ferrocene or carborane compounds. 3,813,304, Cl. 149-19.200.
Reed, Samuel F., Jr., to United States of America, Army, mesne. Propellant composition using carboxy-terminated copolymers of butadiene and ferrocene derivatives. 3,813,306, Cl. 149-19.900
Reegen, Sidney: *See—*
Frisch, Kurt C.; Reegen, Sidney; and Dieter, Jerry A., 3,813,365
Reflect-O-Lite Manufacturing Company: *See—*
Freeman, Jerry H., 3,813,535.
Reggio, Antonino: *See—*
Losco, Giuseppe, Reggio, Antonino; Michieli, Giannantonio, and Longoni, Angelo, 3,813,440.
Regie Nationale des Usines Renault: *See—*
Quemerais, Philippe, 3,812,943.
Reich, James F. Toolholder with tinerchangeable inserts for a tangent chaser. 3,812,547, Cl. 10-101.000.
Reiff, Louis P.: *See—*
Aaron, Herbert S.; and Reiff, Louis P., 3,813,403.
Reiland, Bernard F., to Textron, Inc. Threaded fastener with torque control head. 3,812,757, Cl. 85-61.000.
Reiman, Reuben H. Corrective foot splint. 3,812,850, Cl. 128-80.00a
Reindl, Adole, to United States of America, Army. Digital transmission system. 3,813,601, Cl. 325-141.000.
Remane, Roger, to Application des Gaz. Method of filling containers with pressurized fluid and closing by means of a discharge valve assembly. 3,812,645, Cl. 53-37.000.
Reminton, Richard C. Axial motion magnetically actuated switch 3,813,622, Cl. 335-151.000.
Rempel, Robert Henry. Rack. 3,812,976, Cl. 211-60.00t.
Remy, Ernst: *See—*
Franzen, G.; Hillenkamp, Franz; Kaufman, Raimund, and Remy, Ernst, 3,813,544.
Resech, Raymond W., to Pate Manufacturing Company. Flashing base with adjustable cant. 3,812,634, Cl. 52-741.000
Reuter, Alfred, to Gebruder Linck. Tool heads for use in machining timber. 3,812,891, Cl. 144-3.00r.
Revenig, Howard C.: *See—*
Hallesy, Harold W.; and Revenig, Howard C., 3,813,065
Rexnord Inc.: *See—*
Strehlow, Robert W., 3,812,889.
Von Tresckow, Hans-Udo; and Davis, Calvin R., 3,812,790
Rexon Electronics, Inc.: *See—*
Stuart, Richard L., 3,813,598.
Rexroth, G. L., GmbH: *See—*
Scholz, Joerg, 3,813,194.
Reynolds Metals Company: *See—*
Adams, Harold W., 3,813,481.
Rich, Edward, Jr.: *See—*
Charlton, Walter T., 3,813,659.
Rich, Edward, Jr., 1/2 to Charlton, Walter F. Movable-object identification system. 3,813,658, Cl. 340-146.30k.
Richmond, Robert C.: *See—*
Higgs, Kenneth O.; Richmond, Robert C.; and Marsch, Lawrence F., 3,812,706.

Rick, Michael Edward, to Sybron Corporation. Dental apparatus 3,813,147, Cl. 297-191.000
Ricoh Co., Ltd.: *See—*
Kobayashi, Yugoro, 3,813,163
Yanagawa, Nobuyuki, 3,812,730
Yanagawa, Nobuyuki, 3,812,941
Ridder, Hubert, Epping, Winfried, and Icking, Paul, to Gebr. Schmeing. Device for supplying fluid feed into feeders. 3,812,823, Cl. 119-54.000
Rieux, Jean-Philippe: *See—*
Masotti, Robert; Rieux, Jean-Philippe; Borrel, Philippe; and Lehureau, Jean, 3,813,282
Riggs, Robert S., to Goodyear Tire & Rubber Company, The. Belt building drum. 3,813,271, Cl. 156-417.000
Rinehart, Dean C., to General Electric Company. Rotary compressor including means for reducing vane slot wear. 3,813,193, Cl. 418-63.000
Ring, Charles M., to Motorola, Inc. Efficient power darlington device configuration. 3,813,588, Cl. 317-235.00r
Ringland, William L.: *See—*
Rockwell, Harvey W., and Ringland, William L., 3,812,928
Rinnai Kabushiki Kaisha: *See—*
Takase, Tadayoshi, 3,812,837
Ripka, Josef: *See—*
Marsalek, Milan, Junek, Jan; Brynda, Vaclav; Burysek, Frantisek; Hortlik, Frantisek; Ripka, Josef; and Lanta, Jiri, 3,812,667
Risdon Manufacturing Company, The: *See—*
Kotuby, Paul M., and Velicka, Alvydas, 3,813,013
Risley, James A. Flush tank water saver. 3,812,544, Cl. 4-18.000
Risse, Jean, to Celortex S.A. Fluid propeller. 3,813,083, Cl. 259-8.100
Risse, Jean-Claude: *See—*
Nigg, Fritz, and Risse, Jean-Claude, 3,812,590
Ritter, Edmond Jean: *See—*
Kelly, Ralph, and Ritter, Edmond Jean, 3,813,350
Rives, George S.: *See—*
Wootton, John A., and Rives, George S., 3,812,843
Robbins, Robert: *See—*
Williams, Heyward Sturges, and Robbins, Robert, 3,813,561
Roberts, Arthur H. Process for the manufacture of molded articles 3,813,462, Cl. 264-45.000
Roberts, John: *See—*
Polcer, John, Barratt, Robert O., and Roberts, John, 3,812,824
Polcer, John, Barratt, Robert O., and Roberts, John, 3,812,825
Roberts, Walter L., to Superior Continental Corporation. Alarm system utilizing telephone talking pairs. 3,813,500, Cl. 179-175.20c
Robertshaw Controls Company: *See—*
Branson, Charles D., and Genbauffe, Francis S., 3,813,078
Caparone, Michael J., 3,813,033
Cetola, Henry A., and Crosby, Timothy J., 3,813,628
Lewis, Jay L., Puster, Louis M., and Brakebill, Harold G., 3,813,034
Merrell, Kenneth C., Scott, Timothy F., Brushwyler, Gordon R., Koegel, James H., and Poindexter, William E., 3,813,325
Shopsky, Harvey J., 3,812,718
Shopsky, Harvey J., 3,812,719
Shopsky, Harvey J., 3,812,720
Robertson, H. H., Company: *See—*
Albrecht, Raymond E.; Curran, Bernard E.; and Lindner, Robert G., 3,812,616
Robertson, Robert C., and Francis, G. V. Dome structure. 3,812,632 Cl. 52-81.000
Robinson, David Arthur Hall: *See—*
Miller, Gabriel Lorimer, and Robinson, David Arthur Hall, 3,812,717
Roblin Industries, Inc.: *See—*
Ruger, Verlyn C., 3,813,111
Roch, Gerald V., to Hurco Manufacturing Company, Inc. Back gauge for press brake. 3,812,695, Cl. 72-36.000
Rock, Frank C., to National Controls, Inc. Weight display system and method. 3,812,923, Cl. 177-1.000
Rockwell, Harvey W., and Ringland, William L., to Allis-Chalmers Corporation Electric powered wheel. 3,812,928, Cl. 180-65.000
Rodriguez, Bernard. Rope retaining cleat with automatic release. 3,812,811, Cl. 114-218.000
Rodriguez, Paul L. Method for locating blood vessels for catheterization. 3,812,842, Cl. 128-2.000
Rodriguez, Paul L. IV arm rest and support. 3,812,851, Cl. 128-133.000
Roe, Clyde B.: *See—*
Kinkade, William A., and Roe, Clyde B., 3,813,512
Roes, John B., to Metrolab, Inc., a subsidiary of Cubic Corporation. Method of manufacturing magnetic drum memory apparatus 3,812,579, Cl. 29-603.000
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich; and Grodzitsky, Evgeny Fedorovich. Apparatus for heating and cooling long cylindrical parts. 3,812,909, Cl. 165-120.000
Rogers, Jack. Portable valve seat facer. 3,812,628, Cl. 51-241.0vs
Rogers, Kenneth Mathew. Method and device for controlling a multiposition valve. 3,813,080, Cl. 251-285.000
Rogers, Richard L., to Texas Royal Manufacturing Company. Boat trailer. 3,812,986, Cl. 214-84.000
Roppe, Conrad O., Jr., and Grant, Robert A., to Bendix Corporation, The. Continuously operable underground mining vehicle. 3,813,126, Cl. 299-33.000
Rohm & Haas Company: *See—*
Clemens, David H., and Lange, Raymond J., 3,813,353
Sioma, Edward M., 3,813,539
Rokutov, Viktor Petrovich: *See—*
Drobich, Oleg Pavlovich; Pritomanov, Alexei Evgenievich; Rokutov, Viktor Petrovich; Kirvalidze, Nikolai Spiridonovich; Gerzmava, Dusheli Vladimirovich; and Mandzjuk, Boris Valentinovich, 3,813,335
Rolak, Hanna: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surpiewicz, Janusz; Stefaniak, Ferdynand; Lentkowski, Przemyslaw; and Kotbasko, Anna, 3,813,415
Roland, David H., and Hastings, Edward D., to Jones, J. A., Construction Company. Crane safety barrier. 3,812,978, Cl. 213-1.000
Roland, David H., to Jones, J. A. Construction Company. Safety prop for dump truck bodies. 3,813,124, Cl. 298-17.00b
Rolm Corporation: *See—*
Smith, John L., and McKinley, William R., 3,813,653
Rondello, William R. Modular chart. 3,812,600, Cl. 35-7.00r
Ronnebeg, Henning. Machine for application for adhesive or other liquid. 3,812,820, Cl. 118-3.000
Rosenberg, Robert: *See—*
DiStefano, Thomas H., Laibowitz, Robert B., and Rosenberg, Robert, 3,813,549
Rosenberg, Robert, to International Business Machines Corporation. Method for reducing electromigration damage at metal interfaces 3,813,263, Cl. 117-201.000
Rosenberger, Michael: *See—*
Cohen, Neal; Rosenberger, Michael; and Saucy, Gabriel, 3,813,417
Rosenblum, Jesse. Liquid filter and method for fabricating same 3,812,972, Cl. 210-489.000
Rosinski, Edward J.: *See—*
Givens, Edwin N., Plank, Charles J., and Rosinski, Edward J., 3,813,330
Ross, Donald, to Automatic Timing & Controls, Inc. Analog to digital converter employing grooved disc. 3,813,668, Cl. 340-347.00p
Ross, Thomas J.: *See—*
Moe, James A., and Ross, Thomas J., 3,813,005
Rossler Wilh, to Tonwaren und Porzellanfabrik Rossler AG. Automatic production plant for forming workpieces. 3,813,202, Cl. 425-404.000
Roth, James F.: *See—*
Paulik, Frank E.; Hershman, Arnold; Roth, Walter R.; and Roth, James F., 3,813,428
Roth, Jobann, to Braun Aktiengesellschaft. Motion-picture apparatus capable of generating an electrical synchronizing signal for the synchronization of a sound track. 3,813,153, Cl. 352-12.000
Rothenberger, Hansjorg. Handheld applicator for adhesive tape. 3,813,274, Cl. 156-527.000
Rowe, D. Garth: *See—*
Goldman, Arthur J.; Rowe, D. Garth; and Jones, Cecil Roy, 3,813,288
Rowley, Edward Kenneth: *See—*
Barnes, John Grober; Bizon, Emil; Murray, Charles Robertson; Rowley, Edward Kenneth; and Waugh, Clayton Thomas, 3,812,769
Rublack, Wilfred D.: *See—*
Scott, Stanley J.; Noronki, William J.; and Rublack, Wilfred D., 3,813,568
Rucker Company, The: *See—*
Doyle, Richard C.; Wahlgren, Wallace W.; and Douglas, Ellwood S., 3,813,579
Rudszinat, Willy; and Ludszewat, Dieter, to Hauni-Werke Korber & Co. KG. Method of transporting cigarettes or the like. 3,812,950, Cl. 198-51.00a
Rudzinski, Stanley P. Screening and comminuting device. 3,812,967 Cl. 210-174.000
Ruemmele, Werner A. Tunnel lining and method of applying. 3,812,679, Cl. 61-42.000
Ruger, Verlyn C., to Roblin Industries, Inc. Bumper construction for shopping cart. 3,813,111, Cl. 280-33.99r
Russ, John C.: *See—*
Barnhart, Morris W., and Russ, John C., 3,813,545
Russell, David S.: *See—*
Hughes, Patrick A., and Russell, David S., 3,813,493
Rutz, Hans; and Gubler, Kurt, to Ciba-Geigy Corporation. Herbicidal aliphatic urea alkyl-2,4,5-tribalogeno-imidazoles. 3,813,235, Cl. 71-92.000
Ryberg, Arlen W., to Honeywell Information Systems Inc. Stepping motor acceleration and deceleration control. 3,813,592, Cl. 318-696.000
Ryers, Arnold L., to Allied Chemical Corporation. Method of dissolving spent nuclear fuel. 3,813,464, Cl. 423-20.000
Saari, Oliver Edward, to Illinois Tool Works Inc. Apparatus for forming equiconchoidal surfaces. 3,812,748, Cl. 82-16.000
Saeki, Toyoaki: *See—*
Kikuchi, Makoto; Asano, Hiroaki; Otsu, Ikuo; and Saeki, Toyoaki, 3,812,623
S.A.I.S. Getters S.p.A.: *See—*

delle Porta, Paolo; Giorgi, Tiziano; Kindl, Bruno; and Zucchinelli, Mario, 3,813,266.
Sahara, Masayoshi, to Minolta Camera Kabushiki Kaisha. Motor driven photographic camera. 3,813,681, Cl. 354-173.000.
Sahm, Bernd, to Wilhelm Will KG, Firma. Dovetail guide. 3,813,132, Cl. 308-3.00a.
Saifer, Mark G.: *See—*
Huber, Wolfgang; Chow, Silver H.; and Saifer, Mark G., 3,813,289.
Saito, Yosushi: *See—*
Matsuda, Youichi; Suzuki, Hiroshi; Shito, Nobuhiko; and Saito, Yosushi, 3,813,631.
Sajben, Johannes Otto; Lippert, Axel; Stumpen, Klaus; and Grunewald, Rainer, to Bayer Aktiengesellschaft. Reinforced synthetic plastic pipe. 3,812,885, Cl. 138-125.000.
Sakaguchi, Mamoru: *See—*
Katagiri, Keizo; Sakaguchi, Mamoru; and Kamata, Tokumaro, 3,813,278.
Sakamoto, Yoshio; and Iguchi, Shinsuke, to Hitachi, Ltd. Transistor circuit. 3,813,606, Cl. 330-13.000.
Sakumoto, Hideki; Namoto, Yoshiteru; Ushihara, Masaharu; Tanigawa, Shizuhiko; and Kanda, Shozo, to Matsushita Electric Industrial Co., Ltd. Reel mount elevating machanism. 3,813,057, Cl. 242-198.000.
Salmon, David; Weirzbicke, Edward J.; Langston, Benny; and Beegle, Donald W., to U. S. Reduction Company. Mechanical puddler. 3,813,238, Cl. 75-93.00r.
Salmon, Paul Mervyn, to Adams, William, & Company Limited (Manufacturing Division). Cringle assembly. 3,812,809, Cl. 114-114.000.
Salomon, Georges Pierre Joseph. Device for securing a boot to a ski. 3,813,109, Cl. 280-11.35y.
Saltman, William M.; and Auerbach, Melvin, to Goodyear Tire & Rubber Company. Process for increasing molecular weight of live polymers. 3,813,455, Cl. 260-879.000.
Samsing, Rolf, A., to Gillette Company, The and Carton for plurality of containers. 3,812,958, Cl. 204-45.310.
Sandrock, Heinrich K.: *See—*
Dolby, Dale P.; and Sandrock, Heinrich K., 3,813,688.
Sandy, Richard E.: *See—*
Schriever, Richard L.; Johansen, Harold R.; and Sandy, Richard E., 3,813,612.
Sankyo Kogaku Kogyo Kabushiki Kaisha: *See—*
Fujishige, Sadao, 3,813,154
Sargent Industries, Inc.: *See—*
Smith, Fred T., 3,812,676.
Sarracino, Marcello, to Industrie Pirelli Societa per Azioni. Double-trist stranding or cabling machine. 3,812,666, Cl. 57-58.520.
Saruwatari, Shigeto, to Matsushita Electric Industrial Co., Ltd. Indicator device. 3,812,818, Cl. 116-124.100.
Sato, Hisanao: *See—*.
Ikeda, Mitsusuke; Sato, Hisanao; Torii, Etsuko; Morimoto, Kazuhisa; and Hasegawa, Yo, 3,813,242.
Sato, Kohei, to Matsushita Electric Industrial Co., Ltd. High voltage transformer device in a horizontal deflection circuit. 3,813,574, Cl. 315-29.000.
Sato, Tatsuo; and Takimoto, Shingo, to Shimadzu Seisakusho Ltd. Method and apparatus for integrating the output of a measuring instrument. 3,813,532, Cl. 235-183.000.
Sato, Tomoyoshi, to Nihon-Yohin Co., Ltd. Shoe construction and method of manufacturing a shoe. 3,812,604, Cl. 36-14.000.
Satriana, Daniel R.: *See—*
Picard, Jean P.; Satriana, Daniel R.; and Masuelli, Frank J., 3,813,439.
Saucy, Gabriel: *See—*
Cohen, Noal; Rosenberger, Michael; and Saucy, Gabriel, 3,813,417
Saucy, Gabriel, to Hoffmann-La Roche Inc. Process for isoxazolyl lactones. 3,813,411, Cl. 260-307.00h.
Saunders Archery Co.: *See—*
Saunders, Charles A., 3,812,834.
Saunders, Charles A., to Saunders Archery Co. Slingshot assembly. 3,812,834, Cl. 124-20.00r.
Saunders, John Christopher: *See—*
Boyle, John Terence Arnoit; and Saunders, John Christopher, 3,813,400.
Saunders, Leonard Thomas, to Kidde, Walter, & Company, Inc. Frequency filter circuit apparatus. 3,813,669, Cl. 343-5.0pd.
Savage, Basil W. Tree shaker with tree embracing clamp. 3,812,662, Cl. 56-328.0ts.
Scanning Systems, Inc.: *See—*
Cowan, John Vincent; Cowan, Gerald DeG.; and Cowan, John Gerald, 3,812,708.
Schaefer, Erich: *See—*
Wanner, Max; and Schaefer, Erich, 3,812,983.
Schaffer, William G.: *See—*
Steckel, Elmer A.; Schaffer, William G.; and Payne, Roger A., 3,813,314.
Schampers, Paulus Phillippus Maria: *See—*
Boonstra, Alexander Hendrik; and Schampers, Paulus Phillippus Maria, 3,813,292.
Scheets, David F., to United States of America, Navy. System for measuring range to an electromagnetic radiation source. 3,813,671, Cl. 343-112.00d.
Scheffler, Gerhard: *See—*

Vogelsang, Dietrich; Scheffler, Gerhard; Brock, Norbert; and Lenke, Dieter, 3,813,384.
Scheldorf, Owen H., to General Electric Company. Centering spring arrangement for oscillatory compressors. 3,813,192, Cl. 417-416.000.
Schellenbaum, Max: *See—*
Duerr, Dieter; Hitz, Hans Rudolf; Duennenberger, Max; and Schellenbaum, Max, 3,813,437.
Schenck, Carl, Maschinenfabrik GmbH: *See—*
Frank, Helmut; Maus, Otfrid; and Tary, Endre, 3,812,725
Schering Aktiengesellschaft: *See—*
Hofmeister, Helmut; Laurent, Henry; Prezewowsky, Klaus, and Wiechert, Rudolf, 3,813,418.
Schiller, Edward: *See—*
Gooch, Beverly R.; and Schiller, Edward, 3,813,693.
Schippers, Heinz, to Barmag Barmer Maschinenfabrik Aktiengesellschaft. Continuous crimping of yarns. 3,812,664, Cl. 57-34.0hs.
Schlatter, Rene, to Latrobe Steel Company. Controlled pressure consumable electrode vacuum arc remelting process. 3,812,899, Cl. 164-52.000.
Schlauch, Richard M.: *See—*
Beach, William A.; and Schlauch, Richard M., 3,812,966.
Schlegel, P. L., Jr., to George Lithograph Company. Photo composing machine and method for making plates from microfilm. 3,813,159, Cl. 355-53.000.
Schloemann Aktiengesellschaft: *See—*
Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin, and Zeller, Josef, 3,812,900.
Schmidt, Donald L.: *See—*
Hatch, Melvin J.; Yoshimine, Masao; Smith, Hugh B., and Schmidt, Donald L., 3,813,413.
Schmidt, Donald L.; Smith, Hugh B.; and Walles, Wielm E., to Dow Chemical Company, The. Aqueous coating compositions of cyclic sulfonium zwitterions and colloidal sols. 3,813,363, Cl. 260-29.300.
Schmidt, Peter: *See—*
Bauman, Gunther; Schmidt, Peter; Eisele, Hermann, and Wahl, Josef, 3,812,710.
Schmuck, Peter, to Hilti Aktiengesellschaft. Electrical contact for stators in electric tools. 3,813,567, Cl. 310-50.000.
Schneider, Sol: *See—*
Weiner, Maurice; Carter, John L.; and Schneider, Sol, 3,813,608.
Schneider, William P.: *See—*
Pike, John E.; and Schneider, William P., 3,813,433.
Scholz, Hans, to English Electric Valve Company, Limited. Camera tube convertible from integral mesh to separate mesh type. 3,813,572, Cl. 315-3.000.
Scholz, Joerg, to Rexroth, G. L., GmbH. Hydraulic vane machine with controlled vanes. 3,813,194, Cl. 418-82.000.
Schon, Erwin: *See—*
Schranz, Karl-Wilhelm; Hunicke, Wolfgang; Brus, Gerhard H.; Schon, Erwin; Busch, Josef; and Bruck, Herbert, 3,813,246.
Schraft, Horst: *See—*
Baur, Hellmuth; and Schraft, Horst, 3,813,216.
Schranz, Karl-Wilhelm; Hunicke, Wolfgang; Brus, Gerhard H.; Schon, Erwin; Busch, Josef, and Bruck, Herbert, to Agfa-Gevaert Aktiengesellschaft. Process for the reoxidation of photographic bleaching and bleach-fix baths. 3,813,246, Cl. 96-60.0bf.
Schriever, Richard L., Johansen, Harold R., and Sandy, Richard E., to United States of America, Atomic Energy Commission. Method and apparatus for enhancing electrical discharges in gas lasers. 3,813,612, Cl. 331-94.500.
Schroeder, James E.: *See—*
McStrack, Darrel D., and Schroeder, James E., 3,813,296.
Schubert & Salzer Maschinenfabrik Aktiengesellschaft: *See—*
Landwehrkamp, Hans, 3,813,050.
Schultheis, Harry Baldwin, to Dillon, W. C., & Company, Inc. Boom length indicator. 3,812,589, Cl. 33-139.000.
Schultze, Edward F.: *See—*
Hardy, Willuam C.; Schultze, Edward F., and Shepard, John C., 3,812,913.
Schurger, Rainer: *See—*
Walter, Lothar; and Schurger, Rainer, 3,813,133.
Schurter, Gary Lee: *See—*
Cooper, James Joseph, Jr.; and Schurter, Gary Lee, 3,813,635.
Schurter, Gary Lee; and DeLuca, Carlo Bruno, to International Telephone and Telegraph Corporation. Electrical connection for high voltage electrical systems. 3,813,639, Cl. 339-111.000.
Schweitzer, George J.: *See—*
Ziegler, Arnold H.; and Schweitzer, George J., 3,812,800.
Schweizerische Industrie-Gesellschaft: *See—*
Luginbuhl, Pierre, 3,812,948.
SCM Corporation: *See—*
Hedman, Clarence L., Jr.; and Vartanian, Perry H., Jr., 3,813,145.
Scotoni, Ralph, Jr.: *See—*
Cohen, Joseph, and Scotoni, Ralph, Jr., 3,812,785.
Scott, Arthur A., to Eaton Corporation. Dual function thermal valve. 3,812,832, Cl. 123-119.00a.
Scott, Gini. Sphere and pins assembly puzzle. 3,813,099, Cl. 273-156.000.
Scott, Milford M., Jr.; and Wheeler, Floyd J., Jr., to STP Corporation. Vacuum advance control system. 3,812,831, Cl. 123-117.00a.
Scott, Stanley J.; Noroski, William J., and Rublack, Wilfred D., to General Electric Company. Contrast-enhancing picture tube

faceplate and process for producing same. 3,813,568, Cl. 313-92.00r.
Scott, Timothy F.: *See—*
Merrell, Kenneth C.; Scott, Timothy F.; Brushwyler, Gordon R.; Koegel, James H., and Poindexter, William E., 3,813,325.
Searcy, William W.: *See—*
Struger, Odo J.; Grants, Valdis; and Searcy, William W., 3,813,649.
Sears, Edward G., to Charrin, Paul J. Alignment of a datum line source. 3,813,170, Cl. 356-138.000.
Secretary of State for Defense, The: *See—*
Sidford, Michael John, 3,813,674.
Sedgwick, Alan Fred: *See—*
Wilkes, Don Earl; Thompson, Charles Larry; and Sedgwick, Alan Fred, 3,813,609.
Seeliger, Wolfgang: *See—*
Witte, Helmut, and Seeliger, Wolfgang, 3,813,378.
Seese, Kathleen Ann: *See—*
Boothe, Jerry Emile; Sharpe, Andrew Jackson, Jr.; and Seese, Kathleen Ann, 3,813,264.
Seilib: *See—*
Viser, Michel, 3,813,118.
Seino, Hiroshi; Suzuno, Shinichi; Takeya, Yoshiaki; Tobita, Tsutomu; and Fukaya, Takeshi, to Nissan Motor Company, Ltd. and Hitachi Powdered Metals Company. Sintered Fe-Cr-C-Mo-V-Ni alloys impregnated with Pb or Pb base alloys. 3,812,565, Cl. 29-182.100.
Seitz, David R.: *See—*
Compton, Jerry L., and Seitz, David R., 3,812,577.
Sekihara, Takeshi: *See—*
Ito, Ikoh; Sekihara, Takeshi; and Emura, Tomoyuki, 3,813,373.
Selin, Terry G.: *See—*
De Zuba, George P.; Berger, Abe; and Selin, Terry G., 3,813,364.
Sellstedt, John H.; Teller, Daniel M.; and Guinosso, Charles J., to American Home Products Corporation. 6-(2-Substituted 2-triphenylphosphonium acetamido) penicillanic acids. 3,813,388, Cl. 260-239.100.
Sellstedt, John H., and Wolf, Milton. Pyrrolo(1,2,3-de) quinoxalin-2(3H)-ones and related compounds. 3,813,392, Cl. 260-250.00r.
Setoguchi, Shinro: *See—*
Nakanishi, Michio; Munakata, Tomohiko; Setoguchi, Shinro; and Fukunari, Sunao, 3,813,395.
Shanni, Vincent, and Boassy, Emil J., to Champion, Inc. Swimming pool construction. 3,812,633, Cl. 52-169.000.
Shapiro, Leonard, to Pennwalt Corporation. Method of manufacturing a helical conveyor for a centrifuge. 3,812,564, Cl. 29-156.80r.
Sharpe, Andrew Jackson, Jr.: *See—*
Boothe, Jerry Emile; Sharpe, Andrew Jackson, Jr.; and Seese, Kathleen Ann, 3,813,264.
Shaw, Alexander, and McKee, Joseph, to National Research Development Corporation. Detachable blade handling tool. 3,812,743, Cl. 81-3.10r.
Shaw, Gordon Brian, to Pickford, Holland & Company Limited. Electrodes for glass furnaces. 3,813,468, Cl. 13-6.000.
Shaw, Roy L., Jr., to United States of America, Agriculture. Process for making potato starch without waste. 3,813,297, Cl. 127-66.000.
Shaw, Trevor: *See—*
Benisek, Ladislav; Winterbottom, Kenneth; Shaw, Trevor; and Edmondson, Gerald Keith, 3,813,220.
Shefsiek, Paul K.: *See—*
Miskolczy, Gabor; Shefsiek, Paul K.; and Brissens, Pierre J., 3,813,210.
Sheldahl, David B., to Atlantic Richfield Company. Metal working lubricant composition. 3,813,337, Cl. 252-33.400.
Shelledy, Frank B.: *See—*
Brock, George W., and Shelledy, Frank B., 3,813,692.
Shelor, Clifford D., to Westvaco Corporation. Papermachine headbox slice opening gauge. 3,813,285, Cl. 162-263.000.
Shelton, Ray T., and Jensen, Ellsworth O., to Weyerhaeuser Company. Resin-impregnated tissue overlays. 3,813,262, Cl. 117-155.0ua.
Sheng, Abel Ching Nam, to RCA Corporation. Current source. 3,813,595, Cl. 323-4.000.
Shepard, John C.: *See—*
Hardy, Willuam C.; Schultze, Edward F., and Shepard, John C., 3,812,913.
Sherwin Williams Company, The: *See—*
Jacobs, Richard L., 3,813,446.
Shiber, Samuel. Antiskid control system. 3,813,129, Cl. 303-21.00b.
Shieh, Kenneth K.; Donnelly, Brendan J., and Lee, Howard A., to Anheuser-Busch, Incorporated. Methods of making glucose isomerase and of coverting glucose to fructose. 3,813,320, Cl. 195-66.00r.
Shiley, Donald P. Center post heart valve. 3,812,542, Cl. 3-1.000.
Shim, Norman: *See—*
Szymber, Oleg, and Shim, Norman, 3,813,155.
Shima, Shunji; Kadowaki, Hideyoshi; Muto, Eiji; Okazaki, Ichiro; and Matsumura, Koichi, to Japan Storage Battery Co., Ltd. Paste type electrode backing plate for lead-acid battery. 3,813,300, Cl. 136-38.000.
Shimadzu Seisakusho Ltd.: *See—*
Sato, Tatsuo, and Takimoto, Shingo, 3,813,532.
Shimotsuma, Wataru, to Matsushita Electric Industrial Co., Ltd. Heat-sensitive record. 3,813,677, Cl. 346-76.00r.
Shirota, Masahiko, and Nagano, Tomoji. Ship partition and lining construction. 3,812,808, Cl. 114-78.000.
Shito, Nobuhiko: *See—*

Matsuda, Youichi; Suzuki, Hiroshi; Shito, Nobuhiko; and Saito, Yosushi, 3,813,631.
Shlesinger, Bernard Edward, Jr. Positive lock electrical connector and receptacle assembly. 3,813,644, Cl. 339-252.00s.
Shofner, Don L., and Alexander, Doyle L., to Phillips Petroleum Company. Rotating flame treater. 3,813,212, Cl. 432-183.000.
Shoji, Akira, to Toyo Automation Co., Ltd. Sensing device of acceleration and vibration. 3,813,505, Cl. 200-61.45r.
Shopsky, Harvey J., to Robertshaw Controls Company. Cased heat resistant alloy to reduce mercury corrosion. 3,812,718, Cl. 73-368.000.
Shopsky, Harvey J., to Robertshaw Controls Company. Temperature bulb with an inner liner to reduce mercury corrosion. 3,812,719, Cl. 73-368.000.
Shopsky, Harvey J., to Robertshaw Controls Company. Inhibitor to reduce mercury corrosion. 3,812,720, Cl. 73-368.400.
Short, John P.: *See—*
Davidsohn, Uryon S.; Short, John P.; Combs, Clyde, Jr.; and Guerra, Edward E., 3,813,584.
Sidford, Michael John, to Secretary of State for Defense, The. Cavity backed dipole-slot antenna for circular polarization. 3,813,674, Cl. 343-770.000.
Siemens Aktiengesellschaft: *See—*
Haas, Werner; and Isenser, Klaus Staffen, 3,812,890.
Huber, Josef, 3,813,648.
Kesselring, Fritz, 3,813,507.
SIG Schweizerische Industrie-Gesellschaft: *See—*
Kopp, Georg, 3,812,955.
Sigmatron, Inc., mesne: *See—*
Webb, Robert D., 3,813,575.
Sybring, Pieter Herman, to Instituut Voor Bewaring en Verwerking Van Landbouwprodukten. Process and apparatus for preparing fried edible products. 3,812,775, Cl. 99-404.000.
Silverberg, Morton, to Xerox Corporation. Corona generating apparatus. 3,813,547, Cl. 250-324.000.
Silverberg, Morton, to Xerox Corporation. Corona generating methods and apparatus therefor. 3,813,548, Cl. 250-324.000.
Silvestri, Anthony J.: *See—*
Weisz, Paul B., and Silvestri, Anthony J., 3,813,331.
Silvi, James J.: *See—*
Marshall, Preston F., and Silvi, James J., 3,812,553.
Siminski, Gerald W.: *See—*
Swann, Clifford, and Siminski, Gerald W., 3,813,052.
Simmonds, Robert C., Jr.: *See—*
Frederick, Eugene G.; Morse, Albert L., and Simmonds, Robert C., Jr., 3,813,281.
Simmons, Ronald L., to Hercules Incorporated. Random orientation of staple in slurry cast propellants. 3,813,458, Cl. 264-3.00c.
Sims, Wilbert Norman, and Misecevich, John A., to Marcona Corporation. Method and apparatus for continuously excavating particulate material and converting it to slurry. 3,813,125, Cl. 299-7.000.
Singer Company, The: *See—*
Bartlett, Kenneth G., 3,813,529.
Beer, Emanuel E., and Jeltrup, Eric H., 3,813,556.
Blanding, Curtis J., 3,813,528.
Kritterer, Stanley J., 3,812,729.
Sioma, Edward M., to Rohm & Haas Company. Electro-optical coupler unit. 3,813,539, Cl. 250-206.000.
Sitam Societa Industriale Telai Automatici Milano S.r.l.: *See—*
Colombo, Arturo, 3,812,556.
Sittmann, Brigitte, to Vereinigte Baubeschlagfabriken Gretsch & Co., GmbH. Adjusting mechanism for the retaining springs of safety ski bindings. 3,813,110, Cl. 280-11.35t.
Skerlos, Peter C., to Zenith Radio Corporation. Video signal processing system and method with above-white-level noise inversion. 3,812,921, Cl. 173-7.30r.
SKF Industrial Trading and Development Company N.V.: *See—*
Walter, Lothar, and Schurger, Rainer, 3,813,133.
SKF Industries, Inc.: *See—*
Martinie, Howard M., 3,813,135.
Skidmore, Paul H., to Hercules Incorporated. Case bonding system for cast composite propellants. 3,813,308, Cl. 149-109.000.
Skillern, John A. Elastic band gun. 3,812,833, Cl. 124-19.000.
Skinner, William A., Jr.: *See—*
Lemma, Aklilu; Parkhurst, Robert M., and Skinner, William A., Jr., 3,813,383.
Slowiron, Carl S., and Kolozsi, William A. Film holder for making prints. 3,813,164, Cl. 355-44.000.
Smidth, S. L., & Co.: *See—*
Gommesen, Hans, 3,813,211.
Smith, Dean G., to Goodrich, B. F., Company, The. Sealing ring. 3,813,104, Cl. 277-94.000.
Smith, Fred T., to Sargent Industries, Inc. Noise reduction apparatus and method. 3,812,676, Cl. 60-431.000.
Smith, George C. Force multiplying type archery bow. 3,812,835, Cl. 124-24.00r.
Smith, Herchel: *See—*
Douglas, George H.; Faust, Warren R., and Smith, Herchel, 3,813,420.
Smith, Hugh B.: *See—*
Hatch, Melvin J.; Yoshimine, Masao; Smith, Hugh B., and Schmidt, Donald L., 3,813,413.
Schmidt, Donald L.; Smith, Hugh B., and Walles, Wielm E., 3,813,363.

Smith, John I.; and McKinley, William R., to Rolm Corporation. Memory cell with reduced voltage supply while writing. 3,813,653, Cl. 340-173.0df.

Smith, Maurice N., to United States of America, Navy. Three-phase power disturbance monitor. 3,813,667, Cl. 340-248.00a.

Smith, Robert E., to Dayton Progress Corporation. Fastener and retainer assembly. 3,812,895, Cl. 151-41.740.

Smith, Robert William George; Barron, David Michael Arthur; and Wingrove, Arthur George, to Dialled Despatches Limited. Conveyor system. 3,813,058, Cl. 243-16.00r.

Smolyar, Anatoly Alexeevich: *See—*
Neshumaev, Anatoly Dmitrievich; Goncharov, Boris Konstantinovich; Smolyar, Anatoly Alexeevich; and Chigir, Leonid Nikolaevich, 3,812,763.

Snam Progetti, S.p.A.: *See—*
Mauri, Marcello Massi; and Moggi, Pietro Antonio, 3,813,377.
Pagani, Girogio, 3,813,229.

Snoddy, Lowell G.: *See—*
Abernathy, William J.; and Snoddy, Lowell G., 3,813,183.

Sobieniak, Mathew G.: *See—*
Burr, John W.; Fricke, Hans D.; and Sobieniak, Mathew G., 3,812,671.

Societa Italiana Resine S.I.R. S.p.A.: *See—*
Craveri, Renato; Manachini, Luigi; and Aragozzini, Fabrizio, 3,813,319.

Societe Anonyme Automobiles Citroen: *See—*
Cadiou, Jean, 3,813,151.

Societe de Constructions Mecaniques Panhard & Levasser: *See—*
Panhard, Jean, 3,812,906.

Societe des Procedes Modernes d'Injection Sopromi: *See—*
Traisnel, Pierre, 3,812,830.

Societe Financiere Francaise de Licences et Brevets: *See—*
Potin, Marcel, 3,813,459.

Societe Generale de Constructions Electriques et Mecaniques: *See—*
Chevalier, Gabriel; and Gatel, Gilbert, 3,813,530.

Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Bouiller, Jean Georges; Gobin, Michel Roland; Lacroix, Armand Jean-Baptiste; and Bauger, Louis Jules, 3,813,185.

Societe Nationale des Poudres et Explosifs, mesne: *See—*
Doin, Bernard; and Plantif, Bernard, 3,813,007.

Sokol, Kurt Rudolf Franz. Apparatus for measuring blood pressure with corresponding cuff section and indication ranges. 3,812,844, Cl. 128-2.05g.

Solomon, Arieh, to British & Foreign Tobacco Company Limited. Hinged container. 3,813,025, Cl. 229-2.500.

Solomon, Raymond Lewis, 1/2 to Trayler, William J. and Trayler, Lois J. Apparatus for treating noxious effluents. 3,812,793, Cl. 110-8.00r.

Sondergaard, Per: *See—*
Fisker, Jens Erik; and Sondergaard, Per, 3,813,203.

Sonicaid Limited: *See—*
Clifton, David A.; and Fielder, Frederick D., 3,813,654.

Sonotone Corporation, mesne: *See—*
Vignini, Walter R., 3,813,499.

Sorenson, Perc C. Engine efficiency determining apparatus. 3,812,711, Cl. 73-114.000.

Soudelier, Morris A., to Houma Valve Service, Inc. Fluid sampling device. 3,812,722, Cl. 73-422.0tc.

Southworth, Christopher John Morrison, to Machine Tool Divisional Services Limited. Gear hobbing machines. 3,812,761, Cl. 90-4.000.

Spadafora, Joe. Brake signal device for a vehicle. 3,813,542, Cl. 250-221.000.

Spanel, Abram N.: *See—*
Spanel, Abram N.; Wittler, Bernard H.; and Leszczak, Nicholas (said Leszczak and said Wittler assors. to said), 3,812,799.

Spanel, Abram N.; Wittler, Bernard H.; and Leszczak, Nicholas, said Leszczak and said Wittler assors. to said Spanel, Abram N. Method and means of tufting. 3,812,799, Cl. 112-79.00r.

Spartanics, Ltd.: *See—*
Mohan, William L.; and Willits, Samuel P., 3,813,523.

Sperry Rand Corporation: *See—*
Yound, Robert G.; Trible, Paul S.; and Glass, Emmett F., 3,812,777.

Spindt, Charles A.; and Heynick, Louis N., to Stanford Research Institute. Methods of producing field ionizer and field emission cathode structures. 3,812,559, Cl. 29-25.180.

Sprague, Stephen B. Device fo insulating material holding ajacent lengths of semi-rigid electrical conductors joined. 3,813,480, Cl. 174-92.000.

Sprecher & Schuh AG: *See—*
Blum, Alex, 3,813,621.

Squibb, E. R., & Sons, Inc.: *See—*
Haughwitz, Rudiger D., 3,813,409.
Yale, Harry L.; and Petigara, Ramesh B., 3,813,396.

Srinivasan, Sundaresa: *See—*
Heilweil, Israel J.; and Srinivasan, Sundaresa, 3,813,290.

St Cyr, David R., to Goodyear Tire & Rubber Company, The. Hydrocarbon-derived resins having low softening point. 3,813,357, Cl. 260-5.000.

St. Jacques, Leonard: *See—*
Wigby, Jon; and St. Jacques, Leonard, 3,813,634.

St. John, Daniel S., to Holotron Corporation. Holographis color television record system. 3,813,685, Cl. 358-.200.

Staal, John V., to Avco Everett Research Laboratory, Inc. Method of and apparatus for absorbing high power laser energy. 3,813,511, Cl. 219-121.0lm.

Stahl, Robert R.: *See—*
Laakaniemi, Richard N.; and Stahl, Robert R., 3,812,873.

Stahlfeld, Donald L.: *See—*
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L., and Young, John E., Jr., 3,812,652.

Standard Oil Company: *See—*
Steigelmann, Edward F., 3,812,651.

Standard Oil Company (Indiana): *See—*
Allen, John K., 3,813,355.

Stanford Research Institute: *See—*
Spindt, Charles A.; and Heynick, Louis N., 3,812,559.

Staples, Jon Tewsbury: *See—*
Minsk, Louis Morton; and Staples, Jon Tewsbury, 3,813,247.

Stars, William K., to Craftool Company, Inc., The. Shuttle for a hand loom. 3,812,887, Cl. 139-29.000.

Steamatic, Inc.: *See—*
Blackmon, William G., 3,812,552.

Stechler, Bernard G. Deep ocean mining, mineral harvesting and salvage vehicle. 3,812,922, Cl. 175-6.000.

Steckel, Elmer A.; Schaffer, William G.; and Payne, Roger A., to Gates Rubber Company, The. Continuously wrapped hose and method of making the same. 3,813,314, Cl. 156-162.000.

Steelcase Inc.: *See—*
Mohr, Robert G.; and Olree, Adrian R., 3,813,073.

Stefaniak, Ferdynand: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.

Steffy, Jack J.; and Duffield, Peter L., to Mead Corporation, The. Catching apparatus for a jet drop recorder. 3,813,675, Cl. 346-75.000.

Stehlin, Robert A., to Texas Instruments, Incorporated. Triggered monostable multivibrator circuit utilizing complementary transistor pairs. 3,813,562, Cl. 307-273.000.

Steigelmann, Edward F., to Standard Oil Company. Process for separating gas by diffusion. 3,812,651, Cl. 55-16.000.

Steinmuller, L. & C., G.m.b.H.: *See—*
Plura, Georg, 3,813,333.

Sterling Drug Inc.: *See—*
Clarke, Robert L.; and Daum, Sol J., 3,813,404.
Phillips, Donald K., 3,813,430.

Stern, Leif Einar, to Kritbruksbolaget i Malmo AB. Composition of matter for controlling oil pollution preferably oil discharge in water 3,812,973, Cl. 210-502.000.

Stewart, Oliver M.; Maringer, Robert E.; and Mobley, Carroll E., Jr., to Battelle Development Corporation. Method of producing continuous filaments using a rotating heat-extracting member. 3,812,901, Cl. 164-87.000.

Stinson, Ralph G. Movable bidet. 3,812,543, Cl. 4-7.000.

Stock, Edwin Henry, to Intertherm, Inc. Spin-flanging tool. 3,812,698, Cl. 72-71.000.

Stockburger, Dieter: *See—*
Klocke, Hans Joachim; Stockburger, Dieter, Gierth, Volker, and Zeitler, Gerhard, 3,813,375.

Stolle Corporation, The: *See—*
Maschke, Marvin Walter, 3,812,953.

Stolz, Albert, to Daimler-Benz Aktiengesellschaft. Air conditioning system for cooling the interior space of motor vehicle. 3,812,687, Cl. 62-323.000.

Stoody Company: *See—*
Woods, Marion D.; and Zvanut, Albert J., 3,813,509.

Stora Kopparbergs Bergslags Aktiebolag: *See—*
Backstrom, Sven Hjalmar; and Hellman, Per, 3,813,196.

STP Corporation: *See—*
Scott, Milford M., Jr.; and Wheeler, Floyd J., Jr., 3,812,831.

Strate, Lowell D. Power edge attachment for tractor. 3,812,917, Cl. 172-15.000.

Straughan, Clemens F., to CFS Corporation. Method and apparatus for simultaneously applying to an extended cylindrical object a coating and a plastic film wrapping to retain the coating. 3,813,272, Cl. 156-468.000.

Strehlow, Robert W., to Rexnord Inc. Dust control system utilizing temporarily stored aggregates. 3,812,889, Cl. 141-93.000.

Struger, Odo J.; Grants, Valdis; and Searcy, William W., to Bradley, Allen, Company. Controller program editor. 3,813,649, Cl. 340-172.500.

Stuart, Phillip G. Expandable waistband for trousers. 3,812,541, Cl. 2-237.000.

Stuart, Richard L., to Rexon Electronics, Inc. Single tone carrier recovery system. 3,813,598, Cl. 325-49.000.

Stubits, Marcella C., to Anheuser-Busch, Incorporated. Dry cleaning method. 3,813,221, Cl. 8-142.000.

Stumpen, Klaus: *See—*
Sajben, Johannes Otto; Lippert, Axel; Stumpen, Klaus, and Grunewald, Rainer, 3,812,885.

Sublistatic Holding S.A.: *See—*
De Plasse, Noel, 3,813,218.

Suchcicki, Henry J. Snow traction device for motor vehicles 3,813,131, Cl. 305-29.000.

Sugimori, Teruhiko: *See—*
Joh, Yasushi; and Sugimori, Teruhiko, 3,813,372.

Sugimoto, Takao; and Takagi, Izumi, to Kawasaki Jukogyo Kabushiki Kaisha. V-belt type automatic speed change gear. 3,812,731, Cl. 74-230.17e.

Suldin, Stanislav Nikolaevich: *See—*
Korotkov, Mikhail Mikhailovich; Suldin, Stanislav Nikolaevich; and Vasin, Alexandr Ivanovich, 3,812,806.

Sumitomo Chemical Company, Ltd.: *See—*
Ito, Ikoh; Seishara, Takeshi; and Umura, Tomoyuki, 3,813,373.

Sumitomo Precision Products Company, Limited: *See—*
Yokokawa, Takio, 3,812,883.

Sun Oil Company: *See—*
Hardy, William C.; Schultze, Edward F.; and Shepard, John C., 3,812,911.

Sun Oil Company of Pennsylvania: *See—*
Coppock, Walter J.; Amarose, James R.; and Griffith, John Q., III, 3,813,338.

Superior Continental Corporation: *See—*
Roberts, Walter L., 3,813,500.

Surgical Design Corporation: *See—*
Banko, Anton, 3,812,855.

Surgiewicz, Janusz: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.

Suzuki, Hiroshi: *See—*
Matsuda, Youichi; Suzuki, Hiroshi; Shita, Nobuhiko; and Sano, Yasushi, 3,813,631.

Suzuno, Shingichi: *See—*
Seino, Hiroshi; Suzuno, Shingichi; Takeya, Yoshiaki; Tabata, Toyotomu; and Fukaya, Takeshi, 3,812,565.

Svensson, Hugo Ragnvald, to ABU Aktiebolag. Coupling device for fishing reels. 3,812,940, Cl. 192-.17 000.

Swann, Clifford; and Symmski, Gerald W., to Arcata Graphics Corporation. Web tension control system. 3,813,052, Cl. 242-58.300.

Swiss Aluminium Ltd.: *See—*
Hofling, Erich; Baur, Rudolf; and Bloesch, Siegfried, 3,813,303.

Swiss Aluminum Ltd.: *See—*
Arbenz, Heinz; and Caspar, Jakob, 3,812,902.

Sybron Corporation: *See—*
Beach, William A.; and Schlauch, Richard M., 3,812,966.
Maroney, William J., 3,812,969.
Oringer, Maurice Jules, 3,812,858.
Rick, Michael Edward, 3,813,147.

Sygnator, Henry Anton, to Illinois Tool Works Inc. Locking and rust-resistant fastener. 3,812,639, Cl. 52-758.000.

Sykes, Alfred Ernest. Workpiece holders. 3,813,108, Cl. 279-4.000.

Sylvester, Rowland L. Green tire support. 3,812,974, Cl. 211-23.000.

Symon, Ted, to Universal Oil Products Company. Preparation of polyamide compounds. 3,813,450, Cl. 260-654.000.

Szczepanski, Harry. Hot water mask washing machine. 3,812,869, Cl. 134-111.000.

Szczepanski, Harry. Spray booth. 3,813,042, Cl. 239-191.000.

Szeverenyi, Nikolaus A., and Thompson, David F., to GTE Sylvania Incorporated. Temperature compensated fluid level sensor. 3,813,629, Cl. 337-324.000.

Stroke, Abraham, to Massachusetts Institute of Technology. Bistable optical device. 3,813,605, Cl. 330-4.300.

Szymber, Oleg, and Shim, Norman, to GAF Corporation. Automatic focusing system for projectors and the like. 3,813,155, Cl. 353-101.000.

Tadokoro, Tomeo: *See—*
Muroki, Takumi; and Tadokoro, Tomeo, 3,812,673.

Takagi, Izumi: *See—*
Sugimoto, Takao; and Takagi, Izumi, 3,812,731.

Takagi, Makoto, to Nippon Air Brake Co., Ltd., The. Differential pressure sensing valve. 3,812,874, Cl. 137-110.000.

Takahashi, Nobuhito: *See—*
Oshima, Akira; Tsuboshima, Kazuhiko; and Takahashi, Nobuhito, 3,813,438.

Takamura, Yoshihiko, Nakajima, Yusuke; Obi, Reiichi; and Miyazaki, Takushi, to Fuji Photo Film Co., Ltd. Silver halide photosensitive element containing an antifogging combination of a nitrated heterocyclic compound and a polymeric stabilizer. 3,813,250, C. 96-76.00r.

Takase, Tadayoshi, to Ramai Kabushiki Kaisha. Cooking oven. 3,812,837, Cl. 126-21.00a.

Takeda Chemical Industries, Ltd.: *See—*
Wada, Takeo; and Komai, Saburo, 3,813,346.

Takeya, Yoshiaki: *See—*
Seino, Hiroshi; Suzuno, Shingichi; Takeya, Yoshiaki; Tabata, Toyotomu; and Fukaya, Takeshi, 3,812,565.

Takimoto, Shingo: *See—*
Sato, Tatsuo; and Takimoto, Shingo, 3,813,532.

Talentum Developments Limited: *See—*
Broadbent, Arnold; and Frost, Peter, 3,813,551.

Tamarin, Bernard J.: *See—*
Meletti, Adolph; and Tamarin, Bernard J., 3,813,501.

Tan, Chiang Heng: *See—*
Crowne, Francis R.; Tan, Chiang Heng; and Vandenbrouck, Martin A., 3,813,327.

Tanabe, Kenzo: *See—*
Mino, Mineo; Fujisawa, Kiyoji; and Tanabe, Kenzo, 3,813,484.

Tanaka, Kyoichi, Mio, Takeshi; and Tanaka, Toyoyasu, to Toyo Contact Lens Company, Limited. Hydrophilic synthetic high polymers for soft contact lenses and a process for manufacturing the same. 3,813,447, Cl. 260-63.00s.

Tanaka, Toyoyasu: *See—*
Tanaka, Kyoichi; Mio, Takeshi; and Tanaka, Toyoyasu, 3,813,447.

Tanaka, Yoshinobu: *See—*
Nagata, Yoshihiro; Yoda, Tadashi; and Tanaka, Yoshinobu, 3,812,804.

Taneda, Yasuo: *See—*
Watabe, Kaname; Arai, Kosuke; Taneda, Yasuo; and Naka, Kiyomi, 3,813,162.

Tangawa, Shizuhiko: *See—*
Sakumoto, Hideki; Namoto, Yoshiteru; Ushihara, Masaharu; Tangawa, Shizuhiko; and Kanda, Shozo, 3,813,057.

Tardieu, Andre. Manufacture of concretes and mortars. 3,813,460, Cl. 264-29.000.

Tarui, Yasuo; Komiya, Yoshio; and Harada, Yasoi, to Industrial Science & Technology, Agency of. Compound semiconductor device having undercut oriented groove. 3,813,585, Cl. 317-235.00r.

Tary, Endre: *See—*
Frank, Helmut; Maus, Olfrid; and Tary, Endre, 3,812,724.

Taupin, Jean Marie, to Rahdener Maschinenfabrik August Kolbus. Device for inserting bookmarks into books. 3,813,093, Cl. 270-55.000.

Taylor, Fred W. Staustrip jet pulse incinerator. 3,812,794, Cl. 110-8.00r.

Taylor, Julian S. Restrictor valve. 3,812,882, Cl. 137-556.600.

Taylor, Richard P.: *See—*
Terbay, Joseph J.; and Taylor, Richard P., 3,812,946.

Teach, Ted L.; and Ramsay, James D., to Laserplane Corporation. Laser beam survey method and apparatus. 3,813,171, Cl. 356-152.000.

Technar Incorporated: *See—*
Bell, Lon E., 3,812,726.

Tecumseh Products Company: *See—*
Von Kaler, Roland L.; and Jolliff, Norman L., 3,812,735.

Tegin Limited: *See—*
Watabe, Kaname; Arai, Kosuke; Taneda, Yasuo; and Naka, Kiyomi, 3,813,162.

Teledyne, Inc.: *See—*
Ramos, Robert M., 3,813,207.

Telefonaktiebolaget L M Ericsson: *See—*
Hedenius, Jan Olof, 3,812,575.

Teller, Daniel M.: *See—*
Sellgquist, John H.; Teller, Daniel M.; and Guinosso, Charles J., 3,813,586.

Temperature Control Inc.: *See—*
Wicken, Robert H.; and Potter, Harland C., 3,812,797.

Temple, William F.; and Johnston, David K., to Allis-Chalmers Corporation. Inlet choke vane for transverse blower. 3,813,184, Cl. 415-54.000.

Tennessee Valley Authority: *See—*
Kendrick, Lucian A., Jr., 3,813,233.

Tenshi, Akira; Kamiya, Takashi; Yoshihisa, Saito; Hashimoto, Masashi; and Hidemi, Seki, to Fujisawa Pharmaceutical Co., Ltd. Purine derivatives having hypocholesterolemic activity. 3,813,394, Cl. 260-252.000.

Tepper, Leonard, to Mann, Henry, Inc. Adjustable die pair for cutting and forming axial leads of electrical components. 3,812,703, Cl. 72-326.000.

Terbay, Joseph J.; and Taylor, Richard P., to National Cash Register Company, The. Programmable platen compression rolls. 3,812,946, Cl. 197-129.000.

Terrell, Melvin Leon, to International Telephone and Telegraph Corporation. Vent valve. 3,812,879, Cl. 137-512.150.

Terrot, C. & Sochne: *See—*
Engelfried, Werner, 3,812,691.

Tesa S.A.: *See—*
Nigg, Fritz; and Rose, Jean-Claude, 3,812,590.

Texcom Corporation: *See—*
Dieschbacher, Joseph F.; and Hruby, Thomas W., 3,812,877.

Texter, Colin Alfred, to Winget Limited. Ice making apparatus. 3,812,686, Cl. 62-180.000.

Teter, Michael P., to Corning Glass Works. Defect sensing apparatus and method. 3,813,173, Cl. 356-239.000.

Texaco Inc.: *See—*
Fowler, Joe R., 3,813,656.
Higgs, Kenneth O.; Richmond, Robert C.; and Marsch, Lawrence F., 3,812,706.

Texas Instruments, Incorporated: *See—*
Johnson, Ralph B., 3,813,552.
Nygaard, James L., 3,812,947.
Stehlin, Robert A., 3,813,562.

Texas Royal Manufacturing Company: *See—*
Rogers, Richard L., 3,812,986.

Textron, Inc.: *See—*
Burr, John W.; Fricke, Hans D.; and Sobieniak, Mathew G., 3,812,671.
Chaplin, John B., 3,812,930.
Reiland, Bernard F., 3,812,757.

Textron Incorporated: *See—*
Palachek, Charles V.; and Underhill, William R., Jr., 3,813,186.

Thalmann, Armin: *See—*

Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin; and Zeller, Josef, 3,812,900.

Theriot, Gilbert A.: *See—*
Elkins, Johnny C.; and Theriot, Gilbert A., 3,812,587.

Thermal Dynamics Corporation: *See—*
Hatch, Bruce O., 3,813,510.

Thermo Electron Corporation: *See—*
Benson, Robert W.; and Chapman, James Ronald, 3,812,709.
Miskolczy, Gabor; Shefsiek, Paul K.; and Brosens, Pierre J., 3,813,210.

Theuerkaue, Fred, to Pipe Machinery Company, The. Tool head with differential motion recede mechanism. 3,812,548, Cl. 10-120.50r.

Thiokol Chemical Corporation: *See—*
Gillis, Marina N.; and Mazzeo, Michael P., 3,813,361.
Villa, Jose L., 3,813,368.

Thomason, Harry E. Heat, cold and dry storage. 3,812,903, Cl. 165-3.000.

Thompson, Alonzo C.: *See—*
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., 3,813,443.

Thompson, Arnold M. Ice skate sharpening device. 3,812,626, Cl. 51-170.0pt.

Thompson, Charles Larry: *See—*
Wilkes, Don Earl; Thompson, Charles Larry; and Sedgwick, Alan Fred, 3,813,609.

Thompson, David F.: *See—*
Szeverenyi, Nikolaus A.; and Thompson, David F., 3,813,629.

Thompson, Robert L. Tire chain. 3,813,049, Cl. 152-241.000.

Thomson, J. Brent, to Hercules Incorporated. Priming composition. 3,813,351, Cl. 260-2.0ep.

Thomson-CSF: *See—*
Hartemann, Pierre; and Dieulesaint, Eugene, 3,813,618.

Thorne-Booth, George M., to Bendix Corporation, The, mesne. System for automatically controlling a land vehicle. 3,813,538. Cl. 246-122.00r.

Thurston, Elvin Frederick William: *See—*
Ezekiel, Aaron David; Thurston, Elvin Frederick William; Harper, Michael Frederick; and Wood, Malcolm Barlow, 3,813,249.

Tice, James B.; and Bowler, Colin E. J., to General Electric Company. Reduction of turbine generator shaft torques. 3,813,593, Cl. 321-9.00r.

Tidwell, Hubert. Recreation vehicle. 3,812,926, Cl. 180-9.240.

Tiffany, Floyd L., to Fisher Controls Company, Inc. Electrical safety barrier. 3,813,578, Cl. 317-16.000.

Tillman, Harry L.: *See—*
Fellwock, Charles G.; Hortin, Kenneth L.; and Tillman, Harry L., 3,813,137.

Tirellis, Gus George: *See—*
Nowak, Matthew; and Tirellis, Gus George, 3,813,174.

Titus, Charles H.; and Wittle, J. Kenneth, to General Electric Company. Apparatus and process for segregating and decomposing heterogeneous waste materials. 3,812,620, Cl. 48-65.000.

Tlaamini, Gianpietro: *See—*
Gambaretto, Gian Paolo; Tlaamini, Gianpietro; and Palma, Giancarlo, 3,813,370.

Toaz, Milton W., to Gould Inc. Method of forming a composite bearing structure. 3,812,563, Cl. 29-149.5pm.

Tober, Gustav: *See—*
Pieper, Helmut; and Tober, Gustav, 3,813,258.

Tobita, Tsutomu: *See—*
Seino, Hiroshi; Suzuno, Shingichi; Takeya, Yoshiaki; Tobita, Tsutomu; and Fukaya, Takeshi, 3,812,565.

Todd, Peter Frank: *See—*
Pioli, Alexander Joseph Peter; Hollyhead, William Brian; and Todd, Peter Frank, 3,813,423.

Toida, Takashi: *See—*
Nikaido, Akira; Nakajima, Fumio; Onda, Mitsuo; Machida, Takayasu; and Toida, Takashi, 3,812,670.

Tokeim Corporation: *See—*
Lagnston, Earl M., 3,813,527.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Yamada, Hirohide, 3,813,651.

Tomita, Chuji; Kasai, Kazutomo; and Okonogi, Itaru, to Kabushiki Kaisha Suwa Seikosha. Hard, sintered gold-colored alloy TiN cemented with Ti, Al, Cr and Fe alloy binder. 3,813,227, Cl. 29-182.500.

Tompkins, Leo L. Low flow fluid motor. 3,813,189, Cl. 417-220.000.

Tong, Brian Peter: *See—*
Andrews, Kenneth John Maynard; and Tong, Brian Peter, 3,813,393.

Tong, Jeffrey H. Y.: *See—*
Benoiton, Norman L.; Tong, Jeffrey H. Y.; D'Ilorio, Antoine; and Petitclerc, Jean C., 3,813,317.

Tonwaren- und Porzellanfabrik Rossler AG: *See—*
Rossler, Willi, 3,813,202.

Torii, Etsuko: *See—*
Ikeda, Mitsusuke; Sato, Hisanao; Torii, Etsuko; Morimoto, Kazuhisa; and Hasegawa, Yo, 3,813,242.

Torii, Shuichi: *See—*
Hatsukano, Yoshikazu; Nomiya, Kosei; and Torii, Shuichi, 3,813,564.
Nomiya, Kosei; and Torii, Shuichi, 3,813,563.

Torrance, Gordon A.: *See—*
Boehm, Walter G.; and Torrance, Gordon A., 3,813,087.

Torrence, James D.; and Graves, Fred L., to Allis-Chalmers Corporation. Spider bearing assembly for gyratory crushers. 3,813,047, Cl 241-211.000.

Toth, Tibor Endre, to Union Carbide Corporation. Magnetically controlled power supply having pulsating output current control 3,813,594, Cl. 321-18.000.

Toyo Automation Co., Ltd.: *See—*
Shoji, Akira, 3,813,505.

Toyo Contact Lens Company, Limited: *See—*
Tanaka, Kyoichi; Mio, Takeshi; and Tanaka, Toyoyasu, 3,813,447.

Toyo Kogyo Co., Ltd.: *See—*
Muroki, Takumi; and Tadokoro, Tomoo, 3,812,673

Toyo Kohan Co., Ltd.: *See—*
Kawaguchi, Kiyoshi; Miyamatsu, Yasunori; Kamoi, Arao; and Fukuda, Kinya, 3,812,697.
Miyamatsu, Yasunori; Kamoi, Arao; and Fukuda, Kinya, 3,812,701.

Toyoda Koki Kabushiki Kaisha: *See—*
Kikuchi, Makoto; Asano, Hiroaki; Otsu, Ikuo; and Saeki, Toyoaki, 3,812,623.

Toyota Jidosha Kogyo Kabushika Kaisha: *See—*
Ogawa, Masahiro, 3,813,323.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Nakada, Masahiko; and Matsumoto, Hirofumi, 3,813,085

Traeger, Alfred H., to Traeger Patents Pty. Limited and Traeger Charitable Trust Incorporated. Gas turbine vehicle drive. 3,813,557, Cl. 290-2.000.

Traeger Charitable Trust Incorporated: *See—*
Traeger, Alfred H., 3,813,557.

Traeger Patents Pty. Limited: *See—*
Traeger, Alfred H., 3,813,557.

Traisnel, Pierre, to Societe des Procedes Modernes d'Injection Sopromi. Electronic fuel injection control devices for internal combustion motors. 3,812,830, Cl. 123-32.0ea.

Trans-Lux Corporation: *See—*
Holloman, Charles J., 3,813,673.

Transfer Systems Incorporated: *See—*
Goldman, Arthur J.; Rowe, D. Garth; and Jones, Cecil Roy, 3,813,286.

Trap, Hendrikus Johan Lodewijk, to U.S. Philips Corporation. Method of treating a glass body. 3,813,276, Cl. 161-1.000.

Trapasso, Louis E.: *See—*
Juelke, Charles V.; and Trapasso, Louis E., 3,813,454

Traver, Frank J., to General Electric Company. Process for producing polysiloxane useful as brake fluids. 3,813,425, Cl. 260-448.20e

Trayler, Lois J.: *See—*
Solomon, Raymond Lewis, 3,812,793.

Trayler, William J.: *See—*
Solomon, Raymond Lewis, 3,812,793.

Trennjaeger Maschinen-and Sagelfabrik: *See—*
Jaegers, Leopold, 3,812,752

Triad Fastener Corporation: *See—*
Merrick, Jim I.; Carlson, Carl J., Jr.; and Carlson, Donald W., 3,812,961.

Trible, Paul S.: *See—*
Yound, Robert G.; Trible, Paul S.; and Glass, Emmett F., 3,812,777.

Troeger, Henry, to Bendix Corporation, The. Eccentric flexural pivot 3,813,089, Cl. 267-160.000.

Trout, Horace I. Massaging machine. 3,812,846, Cl 128-5 700

Trueb, Viktor: *See—*
Weick, Heinz Hermann, Trueb, Viktor, and Hesener, Walter, 3,813,275.

TRW, Inc.: *See—*
Herbenar, Edward J.; and Pozolo, Kenneth R., 3,813,178
Mork, Halbert Louis, 3,813,067.

Tsuboshima, Kazuhiko: *See—*
Oshima, Akira; Tsuboshima, Kazuhiko; and Takahashi, Nobuhito, 3,813,438.

Tsuiki, Takao: *See—*
Nomiya, Kosei; and Tsuiki, Takao, 3,813,623

Tsukahara, Hirokazu: *See—*
Futaki, Kiyoshi; Tsukahara, Hirokazu, and Emoto, Kazuhiro, 3,813,248.

Tuchiya, Takao: *See—*
Kamogawa, Yoshiro; and Tuchiya, Takao, 3,812,693.

Tumlinson, James H., III: *See—*
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., 3,813,443.

Turner, Delber W., to Petrolite Corporation. Electric treater 3,813,328, Cl. 204-302.000.

Tysk, Jan: *See—*
Olofsson, Sven; and Tysk, Jan, 3,812,714.

U. S. Reduction Company: *See—*
Salmon, David; Weirzbicke, Edward J.; Langston, Benny, and Beegle, Donald W., 3,813,238.

Uittenbogaard, Teunis Hermanus: *See—*
Van Dijum, Adalbertus Hermanus Jacobus Nieveen; and Uittenbogaard, Teunis Hermanus, 3,813,602.

Ujihara, Takasumi: *See—*
Yokoyama, Nobuo; and Ujihara, Takasumi, 3,812,771.

Ulm, Klaus: *See—*

Muller-Schiedmayer, Gunther, Muller, Heinz, Hubner, Herbert, and Ulm, Klaus, 3,813,443

Umeda, Jun-Ichi, Aiki, Kunio; Kurata, Kazuhiro and Kusumoto, Hazime, to Hitachi, Ltd. Light emitting diodes of the injection type 3,813,587, Cl. 317-235.00n

Underground Mining Machinery Limited: *See—*
Laycock, Geoffrey, 3,812,821

Underhill, William K., Jr.: *See—*
Palachek, Charles V., and Underhill, William K., Jr., 3,813,186

Underwood, Ralph E. Can end construction. 3,813,000, Cl. 220-54.000

Unger, Paul Sebastian. Indicator device for spurt equipment 3,812,819, Cl. 116-135.000

Union Carbide Corporation: *See—*
Karol, Frederick J., 3,813,381
Matzner, Markus, and McGrath, James E., 3,813,367
Toth, Tibor Endre, 3,813,594

United Aircraft Corporation: *See—*
Martin, Anthony N., 3,813,063

United Kingdom Atomic Energy Authority: *See—*
Leaver, Bernard; and Mercer, Willard, 3,813,288
Lenning, David Lees, 3,812,907

United States of America
Agriculture: *See—*
Gueldner, Richard C.; Tumlinson, James H., III; Hardee, Dicky D.; Hedin, Paul A.; Thompson, Alonzo C.; and Minyard, James P., 3,813,443
McKelvey, John B., and Benerito, Ruth R., 3,813,421
Shaw, Roy L., Jr., 3,813,297

Army: *See—*
Aaron, Herbert S., and Reiff, Louis P., 3,813,483
Bernazzani, Richard J., 3,813,003
Burnett, Jimmy D., 3,813,307
Gikow, Emanuel, 3,813,582
Grossman, Sidney J., 3,813,553
Lintner, Michael A., and Long, Louis, Jr., 3,813,431
Mary, Donald J., 3,813,166
Nowak, Matthew, and Tirellis, Gus George, 3,813,174
Picard, Jean P.; Satriana, Daniel R.; and Masuelli, Frank J., 3,813,439
Reindl, Adolf, 3,813,601
Weiner, Maurice; Carter, John L.; and Schneider, Sol, 3,813,608

Army, mesne: *See—*
Baldwin, Mart G.; and Chaille, James L., 3,813,305
Mutchler, Paul A., 3,812,818
Reed, Samuel F., Jr., 3,813,304
Reed, Samuel F., Jr., 3,813,306

Atomic Energy Commission: *See—*
Anderson, Norman G., 3,813,031
Schriever, Richard L.; Johansen, Harold R.; and Sandy, Richard E., 3,813,612
Viecelli, James A., 3,813,555

National Aeronautics and Space Administration: *See—*
Abernathy, William J.; and Snoddy, Linwell G., 3,813,183
Dane, Dan H., 3,812,936
Yang, Lien C.; and Menichelli, Vincent J., 3,812,783

National Aeronautics and Space Administration, Administrator with respect to an invention of
Valinsky, Joseph P. Device for monitoring a change in mass in varying gravimetric environments. 3,812,924, Cl. 177-200.000

Navy: *See—*
Alpert, Frederick C., 3,813,670
Campbell, Kenneth J., 3,813,599
Geil, Fred G., 3,813,667
Gilliam, Clarence W., 3,813,534
Scheets, David F., 3,813,671
Smith, Maurice N., 3,813,667

Army: *See—*
Conner, Michael E., 3,813,586

United States Steel Corporation, mesne: *See—*
Pringle, William L., 3,812,935

Universal Oil Products Company: *See—*
Bieser, Herbert J., 3,813,452
Gatsis, John G., 3,813,329
Gattuso, Marion J.; and Arnold, Robert J., 3,813,332
Geiser, Edward M., 3,813,228
Hayes, Charles M., 3,813,347
Kahn, Samuel, 3,813,414
Massie, Stephen N., 3,813,445
Massie, Stephen N., 3,813,449
Symon, Ted, 3,813,450

Upjohn Company, The: *See—*
Gall, Martin; and Hester, Jackson B., Jr., 3,813,412
Pike, John E.; and Schneider, William P., 3,813,433

Urbas, John Christopher. Controlling drainage by addition of lomps and fines to stabilize stock system. 3,813,283, Cl. 162-190.000

Urton, John T., to Vanguard Chemical Company, Inc. Method of producing microcolloidal aqueous emulsions of unsaturated organic compounds 3,813,345, Cl. 252-312.000

U.S. Philips Corporation: *See—*
Boonstra, Alexander Hendrik; and Schampers, Paulus Phillippus Maria, 3,813,292
Cense, Adriaan; and Van Straaten, Jan, 3,813,603
Coville, Patrick; and Laurencier, Andre, 3,812,908
De Vries, Jan Lolke; and Lisemburg, Alt, 3,813,573
Delfsner, Jacob, 3,813,559
Jan Verstegen, Judicus Marinus Pieter; and De Meester, Emiel Petrus Julisan, 3,813,569
Knippenberg, Wilhelmus Franciscus; and Verspui, Gerrit, 3,813,340
Perilleux, Jean Robert; and Auphan, Michel Joseph, 3,812,597
Trap, Hendrikus Johan Lodewijk, 3,813,276
Van Dijum, Adalbertus Hermanus Jacobus Nieveen; and Uittenbogaard, Teunis Hermanus, 3,813,602
Van Eadonk, Johannes, 3,813,293
Veerman, Johannes Otto, 3,813,607

Ushihara, Masaharu: *See—*
Sakumoto, Hideki; Namoto, Yoshiteru; Ushihara, Masaharu; Tanigawa, Shizuhiko; and Kanda, Shozo, 3,813,057

Ushikovic, Milan Radoje; and Williams, Thomas Henry, to Hoffmann-La Roche Inc. 11 Substituted-desa-androstanes 3,813,442, Cl. 260-586.00h

USM Corporation: *See—*
Frederick, Eugene G.; Morse, Albert L.; and Simmonds, Robert C., Jr., 3,813,201
Wahoo, Richard E.; and Munchback, George E., 3,813,094

Vacuum Cleaner Corporation of America: *See—*
Meletti, Adolph; and Tamarin, Bernard J., 3,813,501

Valinsky, Joseph P.: *See—*
United States of America, National Aeronautics and Space Administration, 3,812,924

Valyi, Emery I. Apparatus for making composite plastic articles 3,813,198, Cl. 425-112.000

Valyi, Emery I. Method of laminating plastic to metal 3,813,315, Cl 156-254.000

Van Den Houte, Jozef Willy: *See—*
Laridon, Urbain Leopold; and Van Den Houte, Jozef Willy, 3,813,245

Van Dijum, Adalbertus Hermanus Jacobus Nieveen; and Uittenbogaard, Teunis Hermanus, to U.S. Philips Corporation. Input circuit for a television tuner. 3,813,602, Cl. 325-319.000

Van Eadonk, Johannes, to U.S. Philips Corporation. Method of applying a satisfactorily adhering, poorly reflecting, conductive layer to an insulating surface and electric discharge tube having a layer applied by said method. 3,813,293, Cl. 117-217.000

Van Straaten, Jan: *See—*
Cense, Adriaan; and Van Straaten, Jan, 3,813,603

Van Toorn, Cornelis Hendrik. Apparatus with built-in thermo-couple for measuring and controlling the temperature of a body. 3,813,515, Cl. 219-471.000

Vancini, Carlo A.: *See—*
Arnold, Orlan M.; and Vancini, Carlo A., 3,812,658

Vandenbrock, Martin A.: *See—*
Crowne, Francis R.; Tan, Chong-Heng; and Vandenbrock, Martin A., 3,813,527

Vandenbrock, J. Paul, to Combustion Equipment Associates, Inc. Filter apparatus 3,812,660, Cl. 55-378.000

Vanguard Chemical Company, Inc.: *See—*
Urton, John T., 3,813,345

Vann, Roy R. Retrievable blanking plug. 3,812,911, Cl. 166-135.000

Varner, Lawrence C., Jr. Elastic foam carpet underlay. 3,813,279, Cl 161-127.000

Vartanian, Perry H., Jr.: *See—*
Hedman, Clarence L., Jr., and Vartanian, Perry H., Jr., 3,813,145

Vasin, Alexandr Ivanovich: *See—*
Korotkov, Mikhail Mikhailovich; Suldin, Stanislav Nikolaevich; and Vasin, Alexandr Ivanovich, 3,812,806

Vazirani, Hargovind Nihchaldas, to Bell Telephone Laboratories, Incorporated. Radiation curable styrenated polyester coating compositions and process of curing them. 3,813,322, Cl. 204-159.150

Vector Company: *See—*
Fennell, Dag C. G.; and Folson, Henry J., 3,812,805

Veilleux, Joseph C., to Moto Naute, Inc. Water vehicle. 3,812,814, Cl 115-70.000

Velicka, Alvydas: *See—*
Kotuby, Paul M.; and Velicka, Alvydas, 3,813,013

Venetta, Henry J. Preheating of metal scrap. 3,813,209, Cl. 432-11.000

Vereinigte Baubeschlagfabriken Gretsch & Co., GmbH: *See—*
Sittmann, Brigitte, 3,813,110

Vereinigte Flugtechnische Werke-Fokker Gellschaft mit beschrankter Haftung: *See—*
Geyer, Wolf, 3,813,664

Vereinigte Flugtechnische Werke-Fokker Gesellschaft mit beschrankter Haftung: *See—*
Pieper, Helmut; and Tober, Gustav, 3,813,258

Vereinigte Flugtechnische Werke-Fokker, Gesellschaft mit beschrankter Haftung: *See—*
Meyer, Ulrich, 3,812,780

Verge, John Pomfret: *See—*
Hughes, Peter Graham; and Verge, John Pomfret, 3,813,401

Vergobbi, Robert W., to Pneumatic Scale Corporation. Semi-automatic machine for packaging tea bags. 3,812,643, Cl. 53-24.000

Verspui, Gerrit: *See—*
Knippenberg, Wilhelmus Franciscus; and Verspui, Gerrit, 3,813,340

Victor Company of Japan, Ltd.: *See—*

Oka, Toshiichiro, 3,813,690.

Viecelli, James A., to United States of America, Atomic Energy Commission. Method and means for producing coherent X-ray and gamma-ray emissions. 3,813,555, Cl. 250-493.000.

Vignini, Walter R., to Sonotone Corporation, mesne. Hearing aid nozzle with resilient bayonet lock. 3,813,499, Cl. 179-107.00h.

Villa, Jose L., to Thiokol Chemical Corporation. Abietate modified polysulfide polymers. 3,813,368, Cl. 260-79.000.

Villard, George, to Eastman Kodak Company. 'Onium indo-n-arylsulfoaniline. 3,813,244, Cl. 96-3.000.

VIP Machinery Inc.: *See—*
Nemeth, Edward; and Gromek, Joseph, 3,812,568.

Vodraska, Kenneth F.: *See—*
Block, Leo; Ashton, Larry J.; and Vodraska, Kenneth F., 3,812,872.

Vogelsang, Dietrich; deceased (by Vogelsang, Ursula, nee Schafer; heir); Scheffler, Gerhard; Brock, Norbert; and Lenke, Dieter, to Asta-Werke Aktiengesellschaft Chemische Fabrik. Basically substituted benzyl phthalazone derivatives, acid salts thereof and rocess for the production thereof. 3,813,384, Cl. 260-239.00a.

Vogelsang, Ursula, nee Schafer: *See—*
Vogelsang, Dietrich; Scheffler, Gerhard; Brock, Norbert; and Lenke, Dieter, 3,813,384.

Volden, Eugene A. Knockdown picture frame. 3,812,609, Cl. 40-155.000.

Volkswagenwerk Aktiengesellschaft: *See—*
Heitland, Herbert; and Manderscheid, Peter, 3,813,226.
Lukasczyk, Hans, 3,812,594.

Von Kaler, Roland L.; and Jolliff, Norman E., to Tecumseh Products Company. Transmission. 3,812,735, Cl. 74-371.000.

Von Tresckow, Hans-Udo; and Davis, Calvin R., to Rexnord Inc. Dynamic stop. 3,812,790, Cl. 104-252.000.

Voorman, Johannes Otto, to U.S. Philips Corporation. Current amplifier. 3,813,607, Cl. 330-17.000.

Vora, Madhukar B.; and Wu, Leon L., to International Business Machines Corporation. Thermal printing device. 3,813,513, Cl. 219-216.000.

Vyzkumny Ustav Bavlnarsky: *See—*
Marsalek, Milan; Junek, Jan; Brynda, Vaclav; Burysek, Frantisek; Hortlik, Frantisek; Ripka, Josef; and Lanta, Jiri, 3,812,667.

Wachs, Marvin Richard; and Berman, Arnold, to Communications Satellite Corporation. Microwave multiplex switch. 3,813,497, Cl. 179-18.0gf.

Wada, Takeo; and Komai, Saburo, to Takeda Chemical Industries, Ltd. Method for expanding mica-group minerals with hydrogen peroxide plus an acid. 3,813,346, Cl. 252-378.00r.

Wada, Yasuo; and Watanabe, Nanao, to Koei Chemical Co., Ltd. Process for preparing 1-alkyl-1,8-naphthyridine compounds. 3,813,406, Cl. 260-295.50b.

Wadlow, David Edward: *See—*
Cowham, Michael John; and Wadlow, David Edward, 3,813,487.

Wagensonner, Eduard; and Winkler, Alfred, to Agfa-Gevaert Aktiengesellschaft. Camera having incrementally controllable aperture. 3,813,680, Cl. 354-44.000.

Wahl, Josef: *See—*
Bauman, Gunther; Schmidt, Peter; Eisele, Hermann; and Wahl, Josef, 3,812,710.

Wahlgren, Wallace W.: *See—*
Doyle, Richard C.; Wahlgren, Wallace W.; and Douglas, Ellwood S., 3,813,579.

Walbrohl, Heinz-Theo. Shiftable support for use in tunnels, mines and the like. 3,812,680, Cl. 61-45.000.

Walker, Richard A.; and Weisner, Ralph M., to Kollmorgen Corporation. Photometric device with a plurality of measuring fields. 3,813,172, Cl. 356-225.000.

Walla, Joann R.: *See—*
Lerner, Irwin S.; and Walla, Joann R., 3,813,465.

Walles, Wielm E.: *See—*
Schmidt, Donald L., Smith, Hugh B.; and Walles, Wielm E., 3,813,363.

Walser, Albert, Prazisionsmechanik & Werkzeugbau: *See—*
Walser, Alberto, 3,812,630.

Walser, Alberto, to Walser, Albert, Prazisionsmechanik & Werkzeugbau. Method for adjusting machine tools and controlling the machining operation, 3,812,630, Cl. 51-281.00r.

Walter, Lothar; and Schurger, Rainer, to SKF Industrial Trading and Development Company N.V. Axial thrust bearing. 3,813,133, Cl. 308-9.000.

Walton, Richard R.; and Munchback, George E., to USM Corporation. Mechanism for transfering flexible work pieces. 3,813,094, Cl. 271-19.000.

Wanderman, Alice R.: *See—*
Wanderman, Robert M.; and Wanderman, Alice R., 3,812,867.

Wanderman, Robert M.; and Wanderman, Alice R. Capless wig. 3,812,867, Cl. 132-53.000.

Wang Laboratories, Inc.: *See—*
Koplow, Harold Stanley; Eberle, Fritz; Ho, Shu-Kuang; and Lesnick, Edward, 3,812,945.

Wanner, Max; and Schaefer, Erich, to Index-Werke KG Hahn & Tessky. Apparatus for feeding bars in automatic single-spindle bar machines. 3,812,983, Cl. 214-1.200.

Ward, Henry Arthur John, to Electrothermal Engineering Limited. Subjecting samples to elevated temperature. 3,813,215, Cl. 432-226.000.

Ward, Samuel A.: *See—*
Foss, Norman A.; and Ward, Samuel A., 3,813,541.

Wassilieff, Alexander: *See—*
Murphy, Brian Egmont; Burford, John Reginald; and Wassilieff, Alexander, 3,812,859.

Watabe, Kaname; Arai, Kosuke; Taneda, Yasuo; and Naka, Kiyomi, to Teijin Limited. Apparatus for forming relief printing plate from liquid photo-sensitive resin. 3,813,162, Cl. 355-85.000.

Watanabe, Hideyo. Method and apparatus for manufacturing expanded structural members and its products. 3,812,558, Cl. 29-6.100.

Watanabe, Nanao: *See—*
Wada, Yasuo; and Watanabe, Nanao, 3,813,406.

Waterbury Lock & Specialty Co.: *See—*
Bennett, Robert A., 3,812,588.

Watson, Fred D.; and Mohr, John L., to McDonnell Douglas Corporation. Gain change control circuit for time synchronization. 3,813,526, Cl. 235-150.230.

Watson, James Power, to RCA Corporation. Hinged drum system. 3,813,678, Cl. 346-138.000.

Waugh, Clayton Thomas: *See—*
Barnes, John Grober; Bizon, Emil; Murray, Charles Robertson, Rowley, Edward Kenneth; and Waugh, Clayton Thomas, 3,812,769.

Wayne Manufacturing Company: *See—*
Mortensen, Donald G., 3,812,551.

Weatherhead Company, The: *See—*
Courtot, Louis B., 3,812,738.

Webb, Jervis B., Company: *See—*
Boehm, Walter G.; and Torrance, Gordon A., 3,813,087.

Webb, Robert D., to Sigmatron, Inc., mesne. Electroluminescent display system and method of driving the same. 3,813,575, Cl. 315-167.000.

Weber, Heinz Paul: *See—*
Danielmeyer, Hans Guenter; and Weber, Heinz Paul, 3,813,613.

Wehmeyer, Eugene E. Closure device. 3,812,745, Cl. 81-56.000.

Weick, Heinz Hermann: *See—*
Weick, Heinz Hermann; Trueb, Viktor; and Hesener, Walter (said Trueb and said Hesener assors to said), 3,813,275.

Weick, Heinz Hermann; Trueb, Viktor; and Hesener, Walter, said Trueb and said Hesener assors to said Weick, Heinz Hermann. Hand-operated dispenser for applying adhesive tape. 3,813,275, Cl. 156-527.000.

Weigert, Wolfgang: *See—*
Heimberger, Werner; and Weigert, Wolfgang, 3,813,410.

Weikert, Roy J. Tube applicator. 3,812,572, Cl. 29-208.00b.

Weiner, Maurice; Carter, John L., and Schneider, Sol, to United States of America, Army. Amplifier device. 3,813,608, Cl. 330-34.000.

Weinstein, Bernard: *See—*
Mukai, Cromwell D.; and Weinstein, Bernard, 3,813,343.

Weirzbicke, Edward J.: *See—*
Salmon, David; Weirzbicke, Edward J., Langston, Benny, and Beegle, Donald W., 3,813,238.

Weisner, Ralph M.: *See—*
Walker, Richard A.; and Weisner, Ralph M., 3,813,172.

Weiss, Dieter. Work locating apparatus. 3,812,766, Cl. 92-14.000.

Weiss, Eduard: *See—*
Hartwimmer, Robert; and Weiss, Eduard, 3,813,449.

Weisser, Werner. Automatically controlled digital VHF direction finder. 3,813,672, Cl. 343-113.00r.

Weisz, Paul B.; and Silvestri, Anthony J., to Mobil Oil Corporation. Demetalation of hydrocarbon charge stocks with manganese nodule catalyst. 3,813,331, Cl. 208-251.00h.

Welch Allyn, Inc.: *See—*
Moore, William C.; and Connors, John D., 3,812,847.

Welch, Ralph E. Elastic facial exerciser. 3,813,096, Cl. 272-82.000.

Wells Electronics, Inc.: *See—*
Larson, Raymond B.; and Wogoman, Frank W., 3,812,581.

Wells, Gilbert J. Heat exchanger. 3,813,039, Cl. 237-55.000.

Wellstein, William. Positive seal pitless well adapter. 3,812,910, Cl. 166-88.000.

Wemyss, Anthony Charles. Device for passing a line around an object. 3,813,122, Cl. 294-19.00r.

Wenger, Maurice J. Positive lock self-retained fastener. 3,812,756, Cl. 85-8.800.

Wenstrup, Leo J.: *See—*
Jasinski, Stanley C.; Wenstrup, Leo J., and Duffty, Bryant, 3,812,892.

Werner & Pfleiderer, Firma: *See—*
Baur, Hellmuth; and Schraft, Horst, 3,813,216.

Werth, Carl H. Tool arm structure. 3,812,747, Cl. 82-36.00r.

West, Frederick P. Crop orienting mechanism. 3,812,863, Cl. 130-30.00c.

West, James C., to Goodyear Tire & Rubber Company, The. Composite structure and method of preparing the composite structure. 3,813,257, Cl. 117-47.00r.

Westenberger, Walter. High pressure dosing apparatus, especially for grinding and polishing machines. 3,813,044, Cl. 239-533.000.

Westerberg, Sven Peter Jonas, to Atlas Copco Aktiebolag. Torque control device for a nut runner of the continuous torque type. 3,812,744, Cl. 81-52.40r.

Westergren, Folke, to Aktiebolaget Svenska Flaktfabriken. Device for air conditioning a number of rooms having mutually different heat requirements, preferably rooms having a heat requirement varying with time. 3,812,904, Cl. 165-22.000.

Westergren, George A.; Koland, David G.; and Eggert, Thomas F., to Whirlpool Corporation. Canister vacuum cleaner latching means. 3,812,659, Cl. 55-373.000.

Westinghouse Air Brake Company: *See—*
Adkins, Russell M., 3,813,620.
Darrow, John O. G., 3,813,614.
Noble, Peter M., 3,812,934.

Westinghouse Bremsen- und Apparatebau: *See—*
Krieter, Horst, 3,812,676.

Weston Instruments, Inc.: *See—*
Andreaggi, Joseph R., 3,813,604.

Westvaco Corporation: *See—*
Forbes, Hampton E., Jr., 3,812,957.
Shelor, Clifford D., 3,813,285.

Weyer, Herbert: *See—*
Espenschied, Helmut; and Weyer, Herbert, 3,812,942.

Weyer, Rudi: *See—*
Aumuller, Walter; Weyer, Rudi; and Heerdt, Ruth, 3,813,398.

Weyerhaeuser Company: *See—*
Allan, George Graham, 3,813,236.
Fullaway, Allan Vanstone, 3,812,951.

Weyerhauser Company: *See—*
Shelton, Ray T.; and Jensen, Ellsworth O., 3,813,262.

Whalen, Francis Cuthbert, to Elliott Brothers (London) Limited. Variable-area fluid flow-meters. 3,812,715, Cl. 73-209.000.

Whaler, Kenneth P. Portable grill. 3,812,840, Cl. 126-275.00b.

Wheeler, Floyd J., Jr.: *See—*
Scott, Milford M., Jr.; and Wheeler, Floyd J., Jr., 3,812,831.

Whirlpool Corporation: *See—*
Fellwock, Charles G.; Hurtin, Kenneth L.; and Tillman, Harry L., 3,813,137.
Westergren, George A.; Koland, David G.; and Eggert, Thomas F., 3,812,659.

Wickens, James Charles: *See—*
Osbond, John Mervyn; and Wickens, James Charles, 3,813,427.

Wideman, Lawren G., to Goodyear Tire & Rubber Company, the. Preparation of 1-butene. 3,813,453, Cl. 260-683.15d.

Wiechert, Rudolf: *See—*
Hafmenter, Helmut; Laurent, Henry; Przewlocky, Klaus; and Wiechert, Rudolf, 3,813,413.

Wieken, Robert H.; and Potter, Harland C., to Temperature Control, Inc. Smoke eliminator dump chute door. 3,812,797, Cl. 110-18.00a.

Wiese, Winfred J., to Borg-Warner Corporation. Mechanical seal with improved leakage control. 3,813,103, Cl. 277-27.000.

Wiesenborn, Robert F.: *See—*
Canfield, Robert C.; Neta, Thomas F.; and Wiesenborn, Robert F., 3,813,451.

Wigby, Jon; and St. Jacques, Leonard, to Burndy Corporation. Strain relief for flat cable or the like. 3,813,634, Cl. 339-17.00f.

Wiget, Fridolin, to Ebauches S.A. Electronic timepiece. 3,812,669, Cl. 58-23.00b.

Wijnant, Petrus Leo Clemens; and Louwaard, Richardus Theodorus Gerardus, to Reactor Centrum Nederland (Stichting). Vibration dampers. 3,813,134, Cl. 308-156.000.

Wildhaber, Ernest, to Bird Island, Inc. Cutting teeth on workpieces. 3,812,759, Cl. 90-3.000.

Wildhaber, Ernest, to Bird Island, Inc. Gear making. 3,812,760, Cl. 90-3.000.

Wilhelm Wilke G., Firma: *See—*
Sahm, Bernd, 3,813,132.

Wilhite, Alan Ray: *See—*
Droege, Lee John; Reardon, Michael J.; and Wilhite, Alan Ray, 3,813,310.

Wilkes, Don Earl; Thompson, Charles Larry; and Sedgwick, Alan Fred, to Petty-Ray Geophysical, Inc. Multiple input sample normalizing amplifier with automatic gain preselection. 3,813,609, Cl. 330-51.000.

Williams, Heyward Sturges; and Robbins, Robert, to LRC, Inc. Voltage control switch driver. 3,813,561, Cl. 307-263.000.

Williams, Laurence Lyman: *See—*
Cuscia, Anthony Thomas; and Williams, Laurence Lyman, 3,813,362.

Williams, Thomas Henry: *See—*
Ushkovic, Milan Radoje; and Williams, Thomas Henry, 3,813,442.

Willis, Wilburn C., to Aluminum Company of America. Safety closure assembly. 3,812,990, Cl. 215-9.000.

Willits, Samuel P.: *See—*
Mahan, William L.; and Willits, Samuel P., 3,813,523.

Wilmanns, Ingo, to Leybold-Heraeus Verwaltung GmbH. Control and monitoring of processes in dependence on the vapor pressure. 3,812,596, Cl. 34-51.000.

Wilson, Ronald M.: *See—*
Boehringer, Raymond H.; Wilson, Ronald M.; and Margevich, Mark A., 3,813,339.

Wilson, William, to Imperial Chemical Industries Limited. Processes for the manufacture of dish effect yarns. 3,812,668, Cl. 57-157.00f.

Winget Limited: *See—*
Tester, Colin Alfred, 3,812,686.

Wingrove, Arthur George: *See—*
Smith, Robert William George; Barron, David Michael Arthur; and Wingrove, Arthur George, 3,813,038.

Winkler, Alfred: *See—*
Wagensommer, Eduard; and Winkler, Alfred, 3,813,680.

Winter, Klaus, to International Telephone and Telegraph Industries, Inc. Vane-type hydraulic pump. 3,813,187, Cl. 417-79.000.

Wintertottom, Kenneth: *See—*
Bennett, Ladislav; Wintertottom, Kenneth; Shaw, Trevor; and Edmondson, Gerald Keith, 3,813,220.

Wisco Chemical Corporation: *See—*
Abbott, William J.; and Rankin, Malcolm, 3,812,937.

Witte, Helmut; and Seeliger, Wolfgang, to Chemische Werke Huls Aktiengesellschaft. Process for the production of cyclic imidic acid esters. 3,813,378, Cl. 260-244.000.

Witte, John R. Self-inflatable life preserver apparatus. 3,812,546, Cl. 9-319.000.

Wittle, J. Kenneth: *See—*
Titus, Charles H.; and Wittle, J. Kenneth, 3,812,620.

Wittler, Bernard H.: *See—*
Spanel, Abram N.; Wittler, Bernard H.; and Leszczak, Nicholas, 3,812,799.

Witzel, Gunter; and Muller, Anton, to Eisen- und Drahtwerk Erlau Aktiengesellschaft. Closure member for antiskid chains for tires. 3,812,896, Cl. 152-242.000.

Wohig, Alberto, Armaturenfabrik, Firma: *See—*
Wohig, Alberto Bruno, 3,813,035.

Wohig, Alberto Bruno, to Wohig, Alberto, Armaturenfabrik, Firma. Four-way valve for warm water heaters. 3,813,035, Cl. 236-101.000.

Wogoman, Frank W.: *See—*
Larson, Raymond B.; and Wogoman, Frank W., 3,812,581.

Wolf, Edward M.; and Koll, Stanley J., to American Flange & Manufacturing Co., Inc. Infant feeding package. 3,812,992, Cl. 215-253.000.

Wolf Machine Company, The, mesne: *See—*
Peter, Joseph E., 3,812,584.

Wolff, Milton: *See—*
Sellstedt, John H.; and Wolff, Milton, 3,813,392.

Wolfe, Bruce A., to International Business Machines Corporation. Non-sequential symbol generation system for fluid jet printer. 3,813,676, Cl. 346-75.000.

Wolfson, Alan B., to Procter & Gamble Company, The. Liquid detergent compositions. 3,813,349, Cl. 252-526.000.

Wood, Alvin P.; and Ratts, Kenneth Wayne, to Monsanto Company. Process for preparing methylphosphonothioic dichloride. 3,813,435, Cl. 260-543.00p.

Wood, Louis L.; Kehr, Clifton L.; and Frisch, Kurt C., to Grace, W. R., & Co. Seed-foam fabric composite. 3,812,618, Cl. 47-56.000.

Wood, Louis L.; and Frisch, Kurt C., to Grace, W. R., & Co. Horticultural foam structures and method. 3,812,619, Cl. 47-58.000.

Wood, Malcolm Barlow: *See—*
Ezekiel, Aaron David; Thurston, Elvin Frederick; William, Harper Michael Frederick; and Wood, Malcolm Barlow, 3,813,249.

Woodruff, Curtis H., to Cabas Mills. Veneer sorter and stacker. 3,812,964, Cl. 209-73.000.

Woods, Marvin D.; and Zvanut, Albert J., to Stoody Company. System for internal-combustion engine valve production. 3,813,509, Cl. 219-76.000.

Woolson, John A.; and Rives, George S., to Lear Siegler, Inc. Method and apparatus for injecting contrast media into the vascular system. 3,812,843, Cl. 128-2.06e.

Wright, William Howell; Bingham, Alex John; and Fox, William Albert, to Allied Chemical Corporation. Method to prepare nylon 6 prepolymer providing a final shaped article of low oligomer content. 3,813,366, Cl. 260-78.000.

Wu, Leon L.: *See—*
Vora, Madhukar B.; and Wu, Leon L., 3,813,513.

Wurmscheit, Paul C., to Gulf Research & Development Company. Reproducible shut-hole apparatus. 3,812,912, Cl. 166-207.000.

Wurl, Wilhelm, to Coca-Cola Company, The. Pilferproof closure with vertical weakening lines. 3,812,991, Cl. 215-252.000.

Wurlitzer Company, The: *See—*
Ippolito, Anthony C., 3,813,474.

Wycoff, Paul L.: *See—*
Lee, Henry B.; Otem, Donald L.; and Wycoff, Paul L., 3,812,728.

Wyden, John J. Golf-ball level device. 3,812,593, Cl. 33-373.000.

Wyeth, John & Brother Limited: *See—*
Boyle, John Terence Arnott; and Saunders, John Christopher, 3,813,400.

Xerox Corporation: *See—*
Curtis, David M., 3,813,161.
Fantuzzo, Louis J., 3,813,157.
Hagen, James M.; and Haigh, Clayton M., 3,813,056.
Hamerdinger, Randolph W.; and Dunn, Phillip D., 3,812,905.
Silverberg, Morton, 3,813,547.
Silverberg, Morton, 3,813,548.

Xomox Inc.: *See—*
Proudian, Andrew P., 3,813,546.

Yale, Harry L.; and Petitpas, Ramesh B., to Squibb, E. R., & Sons, Inc. 1,2-Dihydroquinobenzazepine[piperazinylalkyl]- oximes. 3,813,391, Cl. 260-268.0pc.

Yamada, Hirohide, to Tokyo Shibaura Electric Co., Ltd. Data processing system. 3,813,651, Cl. 340-172.500.

Yamaguchi, Terumine, to Nippondenso Co., Ltd. Method of making commutator for revolving armature. 3,812,576, Cl. 29-597.000.

Yamakyu Chain Kabushiki Kaisha: *See—*
Yoshida, Hiroshi, 3,812,733.

Yamamoto, Samuel. Apparatus for dehydrating a slurry. 3,812,971, Cl. 210-327.000.

Yamane, Nobuo: *See—*
Abe, Yasunori; Yamane, Nobuo; Itoh, Kensaku; Ishida, Shuichi; and Kobayashi, Hisabumi, 3,813,444.
Yamatake-Honeywell Company Limited: *See—*
Akiyama, Tadashi, 3,813,583.
Yamazaki, Masahiko. Separating apparatus. 3,812,970, Cl. 210-316.000.
Yanagawa, Nobuyuki, to Ricoh Co. Ltd. Device for intermittently moving an information card or the like for an adjustable predetermined distance. 3,812,730, Cl. 74-112.000.
Yanagawa, Nobuyuki, to Ricoh Co., Ltd. Power transmitting and zero position restoring device. 3,812,941, Cl. 192-26.000.
Yang, Lien C.; and Menichelli, Vincent J., to United States of America, National Aeronautics and Space Administration. Optically detonated explosive device. 3,812,783, Cl. 102-70.20r.
Yang, Yue-Chyou; and De Quesada, Jorge. Method for erecting a reinforced concrete building. 3,812,637, Cl. 52-745.000.
Yetter, Harry G.: *See—*
Baughman, Herbert W.; and Yetter, Harry G., 3,812,919.
Yoda, Tadashi: *See—*
Nagata, Yoshihiro; Yoda, Tadashi; and Tanaka, Yoshinobu, 3,812,804.
Yoder, Douglas J.: *See—*
Beck, Roger W.; and Yoder, Douglas J., 3,813,311.
Yokokawa, Takio, to Sumitomo Precision Products Company, Limited. Mechanism for preventing the sticking of spool valves. 3,812,883, Cl. 137-625.690.
Yokokawa, Toshiki; and Kawakita, Chihiro, to OKI Electric Industry Co., Ltd. Reed switches and method of manufacturing the same. 3,813,508, Cl. 200-268.000.
Yokoyama, Nobuo; and Ujihara, Takasumi, to Mitsubishi Jukogyo Kabushiki Kaisha. Steel-tower chimney. 3,812,771, Cl. 98-60.000.
Yoshida, Hiroshi, to Yamakyu Chain Kabushiki Kaisha. Tensioning device for flexible members. 3,812,733, Cl. 74-242.11s.
Yoshida Kogyo Kabushiki Kaisha: *See—*
Dori, Hisashi, 3,812,571.
Fukuroi, Takeo, 3,812,573.
Kawakami, Koichi, 3,812,754.
Yoshida, Tadahiro, 3,812,555.
Yoshida, Tadahiro, to Yoshida Kogyo Kabushiki Kaisha. Slide fastener having a filling core. 3,812,555, Cl. 24-205.10c.
Yoshihisa, Saito: *See—*
Tensho, Akira; Kamiya, Takashi; Yoshihisa, Saito; Hashimoto, Masashi; and Hideo, Seki, 3,813,394.
Yoshimine, Masao: *See—*
Hatch, Melvin J.; Yoshimine, Masao; Smith, Hugh B.; and Schmidt, Donald L., 3,813,413.
Yoshioka, Tsuyoshi; and Nishiyama, Sumio, to Daiwa Can Company, Ltd. Container cover. 3,812,993, Cl. 215-256.000.
Yoshitomi Pharmaceutical Industries, Ltd.: *See—*
Nakanishi, Michio; Munakata, Tomohiko; Setoguchi, Shinro; and Fukunari, Sunao, 3,813,395.
Yound, Robert G., Trible, Paul S.; and Glass, Emmett F., to Sperry Rand Corporation. Mounting structures for the feed mechanism of a crop baler. 3,812,777, Cl. 100-18.900.
Young, John E., Jr.: *See—*
Carr, Norman L.; Massoth, Franklin E.; Stahlfeld, Donald L.; and Young, John E., Jr., 3,812,652.
Massoth, Franklin E.; and Young, John E., Jr., 3,812,653.
Zahn, Wolfgang; Fergg, Berthold; and Knapp, Walter, to Agfa-Gevaert Aktiengesellschaft. Color printer using light flash tubes. 3,813,158, Cl. 255-38.000.
Zahuranec, Emery J.; Bedo, Alfred; and Barth, Ross E., to Crawford Fitting Company. Dispensing package for elongated bodies. 3,812,963, Cl. 206-468.000.
Zaichenko, Jury Leonidovich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich, and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Zaniuk, Jan: *See—*
Kycia, Henryk; Chmielewska, Danuta; Rolak, Hanna; Michno, Zbigniew; Zaniuk, Jan; Surgiewicz, Janusz; Stefaniak, Ferdynand; Lenkowski, Przemyslaw; and Kobosko, Anna, 3,813,415.
Zaritsky, Vaktor Nikolaevich: *See—*
Rogalsky, Anatoly Viktorovich; Markevich, Vitaly Mikhailovich; Kheifets, Georgy Naumovich; Zaichenko, Jury Leonidovich; Baburov, Valery Efremovich; Pavlovsky, Vladimir Petrovich; Golban, Eduard Vasilievich; Pechennik, Leonid Naumovich; Knyazhinsky, Zakhar sipovich; Bogatov, Nikolai Alexandrovich; Raichuk, Jury Isaakovich; Zaritsky, Vaktor Nikolaevich, and Grodzitsky, Evgeny Fedorovich, 3,812,909.
Zeitler, Gerhard: *See—*
Klocke, Hans Joachim; Stockburger, Dieter; Gierth, Volker, and Zeitler, Gerhard, 3,813,375.
Zeller, Josef: *See—*
Bollig, Georg; Grothe, Horst; Knell, Bernhard; Thalmann, Armin; and Zeller, Josef, 3,812,900.
Zenith Radio Corporation: *See—*
Skerlos, Peter C., 3,812,921.
Ziegler, Arnold H.; and Schweitzer, George J., to Gillman Industries, Inc. Lable attaching machine. 3,812,800, Cl. 112-104.000.
Ziska, John C., to Addressograph-Multigraph Corporation. Plate retainer assembly. 3,812,778, Cl. 101-110.000.
Zollinger, Hans-Rudolf. Method and apparatus for the production of electrical contacts on contact carriers. 3,812,582, Cl. 29-630.00a.
Zucchinelli, Mario: *See—*
delle Porta, Paolo; Giorgi, Tiziano; Kindl, Bruno; and Zucchinelli, Mario, 3,813,266.
Zvanut, Albert J.: *See—*
Woods, Marion D.; and Zvanut, Albert J., 3,813,509.
05/28/74; Ebner, Heinrich; and Enenkel, Anton, to Frings, Heinrich, Firma. Device for aerating liquids. 3,813,086, Cl. 261-93.000

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 28TH DAY OF MAY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice)

Boxman, Peter, and F. J. van Roessel, to Philips Broadcast Equipment Corp. Chroma key circuits. Re. 28,021, 5-28-74, Cl. 178—5.40.
Contract Cleaning Co. Pty. Ltd.: *See—*
Lamont, George L. Re. 28,022.
Courtin, Jacques M. Rotary douche for treating breasts. Re. 28,023, 5-28-74, Cl. 128—66.
Dedrick, Dallas S., to Weyerhaeuser Co. Kiln drying process. Re. 28,020, 5-28-74, Cl. 34—30.
Knetemann, Alexander, deceased, by M. Knetemann, nee Groeneveld, heir; H. L. M. Lelieveld, R. van Rhee, and G. T. Muya, to Lever Brothers Co. Process for the sterilization of solid surfaces. Re. 28,024, 5-28-74, Cl. 21—57.
Knetemann, Marie: *See—*
Knetemann, Alexander, Lelieveld, Van Rhee, and Muya. Re. 28,024.
Lamont, George L., to Contract Cleaning Co. Pty. Ltd. Combined floor polisher and suction cleaner. Re. 28,022, 5-28-74, Cl. 15—385.
Lelieveld, Hubertus: *See—*
Knetemann, Alexander, Lelieveld, Van Rhee, and Muya. Re. 28,024.
Lever Brothers Co.: *See—*
Knetemann, Alexander, Lelieveld, Van Rhee, and Muya. Re. 28,024.
Matsushita Electric Industrial Co. Ltd.: *See—*
Oka, Shunso. Re. 28,026.
Murata, Tomoji, and S. Yamaoka. Automatic control device for electronic flash. Re. 28,025, 5-28-74, Cl. 315—151.
Muya, Gerard T.: *See—*
Knetemann, Alexander, Lelieveld, Van Rhee, and Muya. Re. 28,024.
Oka, Shunso, to Matsushita Electric Industrial Co. Ltd. Shading type variable resistor. Re. 28,026, 5-28-74, Cl. 338—183.
Philips Broadcast Equipment Corp.: *See—*
Boxman, Peter and Van Roessel. Re. 28,021.
Rhee, Reiner V.: *See—*
Knetemann, Alexander, Lelieveld, Van Rhee, and Muya. Re. 28,024.
Schmitt, Donald J., to Therm-O-Disc Inc. Adjustable thermostat. Re. 28,019, 5-28-74, Cl. 337—347.
Therm-O-Disc Inc.: *See—*
Schmitt, Donald J. Re. 28,019.
Van Roessel, Frederik J.: *See—*
Boxman, Peter, and Van Roessel. Re. 28,021.
Weyerhaeuser Co.: *See—*
Dedrick, Dallas S. Re. 28,020.
Yamaoka, Sadao: *See—*
Murata, Tomoji, and Yamaoka. Re. 28,025.

LIST OF PLANT PATENTEES

Flanagan, Russell N., to Stark Bro's Nurseries & Orchards Co. Apple tree. 3,557, 5-28-74, Cl. 35.
Hanners, Daniel A., to Stark Bro's Nurseries & Orchards Co. Apple tree. 3,560, 5-28-74, Cl. 35.
Holdren, Robert E. Apple tree. 3,558, 5-28-74, Cl. 34.
Swim, Herbert C., and O. L. Weeks, to O. L. Weeks, d.b.a. Weeks Wholesale Rose Grower. Rose plant. 3,559, 5-28-74, Cl. 28.
Stark Bro's Nurseries & Orchard Co.: *See—*
Flanagan, Russell N. 3,557.
Hanners, Daniel A. 3,560.
Van Well Nursery, Inc.: *See—*
Ward, Arlie M. 3,556.
Ward, Arlie M., to Van Well Nursery, Inc. Apple tree. 3,556, 5-28-74, Cl. 35.
Weeks, O. L.: *See—*
Swim, Herbert C., and Weeks. 3,559.
Weeks Wholesale Rose Grower: *See—*
Swim, Herbert C., and Weeks. 3,559.

LIST OF DESIGN PATENTEES

Arthur, Michael D. Identification clip. 231,714, 5-28-74, Cl. D74—2.
Associated Mills, Inc.: *See—*
Grube, Clifford E. 231,697.
Grube, Clifford E. 231,698.
Grube, Clifford E. 231,699.
Grube, Clifford E. 231,700.
Grube, Clifford E. 231,701.
Grube, Clifford E. 231,702.
Grube, Clifford E. 231,703.
Beckman, Glenn B., to Corning Glass Works. Beverage server. 231,685, 5-28-74, Cl. D7—59.
Christiansen, Godtfred K., to Interlego A.G. Connecting member for a toy figure. 231,706, 5-28-74, Cl. D34—15.
Christiansen, Godtfred K., to Interlego A.G. Joint for a toy figure. 231,705, 5-28-74, Cl. D34—15.
Continental Can Co., Inc.: *See—*
Stanley, Thomas R., and Mascia. 231,690.
Stanley, Thomas R., and Mascia. 231,691.
Corning Glass Works: *See—*
Beckman, Glenn B. 231,685.
Reyda, Theodore M. 231,684.
Dattner, Richard. Shelter. 231,692, 5-28-74, Cl. D13—1.
Dattner, Richard. Shelter. 231,693, 5-28-74, Cl. D13—1.
Dattner, Richard. Shelter. 231,694, 5-28-74, Cl. D13—1.
Dattner, Richard. Shelter. 231,695, 5-28-74, Cl. D13—1.
Dattner, Richard. Shelter. 231,696, 5-28-74, Cl. D13—1.
Embart Corp.: *See—*
Gerlach, John R. 231,688.
Excelsior Hardware Co., The: *See—*
Humphries, John B. 231,689.
Fleni, Walter, to Societe Anonyme Francais du Feredo. Ash tray. 231,715, 5-28-74, Cl. D85—2.
Flambeau Products Corp.: *See—*
Mason, Leroy W., Hellman, and Rau. 231,707.
Gerlach, John R., to Embart Corp. U-shaped keeper lock for semi-trailers and the like. 231,688, 5-28-74, Cl. D8—114.
Gillette Co., The: *See—*
Kenney, Peter C., and Tremblay. 231,708.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,697, 5-28-74, Cl. D23—34.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,698, 5-28-74, Cl. D23—34.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,699, 5-28-74, Cl. D23—34.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,700, 5-28-74, Cl. D23—34.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,701, 5-28-74, Cl. D23—34.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,702, 5-28-74, Cl. D23—34.
Grube, Clifford E., to Associated Mills, Inc. Aeration nozzle for a hydrotherapy unit. 231,703, 5-28-74, Cl. D23—34.
Hayes, Jimmy D.: *See—*
Nesbitt, Duane H., and Hayes. 231,713.
Hellman, Werner F.: *See—*
Mason, Leroy W., Hellman, and Rau. 231,707.
Hewson, C. Bruce, to York Lambton Corp. Ltd. Head implement for carpet shampoo machine. 231,686, 5-28-74, Cl. D7—173.
Humphries, John B., to The Excelsior Hardware Co. Draw bolt. 231,689, 5-28-74, Cl. D8—127.
Interlego A.G.: *See—*
Christiansen, Godtfred K. 231,705.
Christiansen, Godtfred K. 231,706.
Kenney, Peter C., and P. V. Tremblay, to The Gillette Co. Table lighter base. 231,708, 5-28-74, Cl. D48—27.
Mascia, Carmen T.: *See—*
Stanley, Thomas R., and Mascia. 231,690.
Stanley, Thomas R., and Mascia. 231,691.
Mason, Leroy W., W. F. Hellman, and G. A. Rau, to Flambeau Products Corp. Return top. 231,707, 5-28-74, Cl. D34—15.
Meaddings, Inc.: *See—*
Rast, James T., and Peacock. 231,683.
Nesbitt, Duane H., and J. P. Hayes, said Hayes assignor to said Nesbitt. Mail box or similar article. 231,713, 5-28-74, Cl. D74—9.
Peacock, Gary: *See—*
Rast, James T., and Peacock. 231,683.
Priscilla, Francis P. Pneumatically operated injection molding instructional device. 231,709, 5-28-74, Cl. D54—8.

Pracilio, Francis P. Rotational molding instruction device. 231,710, 5–28–74, Cl. D54—8.
Prevot, Oliver C. H. Vegetable cutter. 231,711, 5–28–74, Cl. D55—1.
Rash, James T., and G. Peacock, to Mouldings, Inc. Display stand for strip material. 231,683, 5–28–74, Cl. D6—188.
Rau, Gerald A.: *See*—
Mason, Leroy W., Hellman, and Rau. 231,707.
Reyda, Theodore M., to Corning Glass Works. Condiment dispenser. 231,684, 5–28–74, Cl. D7—54.
Singer Co., The: *See*—
Snitzel, John E. 231,712.
Snitzel, John E., to The Singer Co. Type font. 231,712, 5–28–74, Cl. D64—12.
Societe Anonyme Francais du Ferodo: *See*—
Fieni, Walter. 231,715.
Sperry Rand Corp.: *See*—
Vrabel, Edward J. 231,687.
Stanley, Thomas R., and C. T. Mascia, to Continental Can Co., Inc. Can or similar article. 231,690, 5–28–74, Cl. D9—216.
Stanley, Thomas R., and C. T. Mascia, to Continental Can Co., Inc. Can or similar article. 231,691, 5–28–74, Cl. D9—216.
Tremblay, Peter V.: *See*—
Kenney, Peter C., and Tremblay. 231,708.
Vrabel, Edward J., to Sperry Rand Corp. Shaver assembling tool. 231,687, 5–28–74, Cl. D8—14.
Wale, Kenneth E. Whirling device for demonstrating physics. *231,704, 5–28–74, Cl. D25—1.*
York Lambton Corp. Ltd.: *See*—
Hewson, C. Bruce. 231,686.

CLASSIFICATION OF PATENTS

ISSUED MAY 28, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2
69.5 3,812,539
93 3,812,540
237 3,812,541
CLASS 3
1 3,813,542
CLASS 4
7 3,812,543
18 3,812,544
67A 3,812,545
CLASS 8
2.5 3,813,218
115.5 3,813,219
127.A 3,813,220
142 3,813,221
CLASS 9
119 3,812,546
CLASS 10
101 3,812,547
120.5R 3,812,548
CLASS 13
6 3,813,463
9 3,813,465
29 3,813,470
CLASS 15
21D 3,812,549
21E 3,812,550
179 3,812,551
321 3,812,552
385 Re 28,022
CLASS 19
136.5 3,812,553
CLASS 21
57 Re 28,024
CLASS 23
230R 3,813,222
259 3,813,223
273SP 3,813,224
280 3,813,225
283J 3,813,226
CLASS 24
200.1 3,812,554
205.1C 3,812,555
230AA 3,812,556
263A 3,812,557
CLASS 29
6.1 3,812,558
23.1B 3,812,559
96 3,812,560
121A 3,812,561
148.4D 3,812,562
149.5PW 3,812,563
156.5R 3,812,564
182.1 3,812,565
182.3 3,813,227
183.5 3,812,566
203R 3,812,567
203D 3,812,568
203D 3,812,570
207.5SL 3,812,571
208R 3,812,572
427 3,812,573
560 3,812,574
594 3,812,575
597 3,812,576
660 3,812,577
603 3,812,578
611 3,812,580
628 3,812,581
630A 3,812,582
CLASS 30
164.9 3,812,583
273 3,812,584
CLASS 32
63 3,812,585
CLASS 33
1C 3,812,586
139 3,812,587
3,812,588
139 3,812,589
172F 3,812,590
174R 3,812,591
198 3,812,592
203.13 3,812,593
373 3,812,594
CLASS 34
10 3,812,595
30 Re 28,020
51 3,812,596
103 3,812,597
155 3,812,598
216 3,812,599
CLASS 35
7R 3,812,600
13H 3,813,471
CLASS 36
2.5AL 3,812,602
2.5AN 3,812,603
2.5C 3,812,604
14 3,812,604
67D 3,812,605
72R 3,812,606
CLASS 37
4 3,812,607
141T 3,812,608
CLASS 40
153 3,812,609
CLASS 42
79 3,812,610
CLASS 44
58 3,813,228
CLASS 46
13 3,812,611
79 3,812,612
115 3,812,613
223 3,812,614
CLASS 47
9 3,812,615
17 3,812,616
41 3,812,617
56 3,812,618
59 3,812,619
CLASS 48
63 3,812,620
196R 3,813,209
CLASS 49
365 3,812,621
CLASS 51
35D 3,812,623
5 3,812,622
115 3,812,624
163 3,812,625
170PT 3,812,626
210R 3,812,629
230R 3,812,627
241.5 3,812,628
281P 3,812,630
291 3,813,230
298 3,813,231
CLASS 52
1 3,812,631
81 3,812,632
105 3,812,633
354 3,812,634
361 3,812,635
3,813,451
365 3,812,636
3,812,637
CLASS 53
14 3,812,640
3,812,641
218 3,812,642
24 3,812,643
29 3,812,644
33 3,812,645
42 3,812,646
62 3,812,647
124A 3,812,648
187 3,812,649
CLASS 54
47 3,812,650
CLASS 55
16 3,812,651
68 3,812,652
3,812,653
92 3,812,654
204 3,812,655
220 3,812,656
225 3,812,657
230 3,812,658
373 3,812,659
378 3,812,660
CLASS 56
14.4 3,812,661
PORTS 3,812,662
126R 3,812,663
CLASS 57
140S 3,812,664
84R 3,812,665
58.32 3,812,666
58.89 3,812,667
157P 3,812,668
CLASS 58
23R 3,812,669
3,812,670
CLASS 60
35.41 3,812,671
244 3,812,672
280 3,812,673
327 3,812,674
413 3,812,675
431 3,812,676
517 3,812,677
591 3,812,678
CLASS 61
42 3,812,679
45C 3,812,680
45D 3,812,681
CLASS 62
3,812,682
45 3,812,683
85 3,812,684
93 3,812,685
100 3,812,686
323 3,812,687
CLASS 65
13 3,812,688
23 3,813,232
55 3,812,689
240 3,812,690
CLASS 66
50R 3,812,691
120R 3,812,692
CLASS 71
34 3,813,233
76 3,813,234
92 3,813,235
94 3,813,236
117 3,813,237
CLASS 72
33 3,812,693
51 3,812,694
56 3,812,695
58 3,812,696
59 3,812,697
60 3,812,698
75 3,812,699
76 3,812,700
79 3,812,701
163 3,812,702
295 3,812,703
326 3,812,704
392 3,812,705
CLASS 73
10 3,812,706
39 3,812,707
61.4 3,812,708
67 5R 3,812,709
114 3,812,710
3,812,711
188 3,812,712
193R 3,812,713
194R 3,812,714
209 3,812,715
341 3,812,716
365SC 3,812,717
368 3,812,718
3,812,719
368.4 3,812,720
422TC 3,812,722
422R 3,812,721
454 3,812,723
458 3,812,724
460 3,812,725
503 3,812,726
514R 3,812,727
CLASS 74
25 3,812,728
56 3,812,729
102 3,812,730
200.17R 3,812,731
240 3,812,732
242.11S 3,812,733
243PC 3,812,734
351 3,812,735
404 3,812,736
425 3,812,737
501R 3,812,738
503 3,812,739
CLASS 75
91R 3,813,238
122 3,813,239
126D 3,813,240
178A 3,813,241
CLASS 76
82 3,812,740
CLASS 81
3.32 3,812,742
3.4 3,812,743
5.1R 3,812,744
52.4R 3,812,745
56 3,812,746
15 3,812,746
36R 3,812,747
CLASS 83
12 3,812,748
66 3,812,749
411.5 3,812,751
470 3,812,752
522 3,812,753
622 3,812,754
835 3,812,755
CLASS 84
1.03 3,813,472
1.16 3,813,473
1.17 3,813,474
CLASS 85
1.8 3,812,756
61 3,812,757
62 3,812,758
CLASS 86
3 3,812,759
3,812,760
4 3,812,761
32 3,812,762
111A 3,812,763
115R 3,812,764
CLASS 91
387 3,812,765
CLASS 92
14 3,812,766
48 3,813,467
CLASS 93
1C 3,812,768
55R 3,812,769
CLASS 96
6R 3,813,242
1.5 3,813,243
3,813,244
3 3,813,245
45R 3,813,246
60DET 3,813,247
67 3,813,248
68 3,813,249
70CR 3,813,250
114 3,813,251
CLASS 98
40D 3,812,750
60 3,812,751
110 3,812,752
CLASS 99
290 3,812,773
323.1 3,812,774
404 3,812,775
421H 3,812,776
CLASS 100
189 3,812,777
CLASS 101
110 3,812,778
115 3,812,779
216 3,812,780
298 3,812,781
307 3,812,782
CLASS 102
70.2R 3,812,783
95 3,812,784
100 3,812,785
CLASS 104
88 3,812,786
96 3,812,787
130 3,812,788
3,812,789
252 3,812,790
CLASS 105
393 3,812,791
CLASS 106
84 3,813,253
CLASS 108
58 3,812,792
CLASS 110
RC 3,812,793
8R 3,812,793
3,812,794
10 3,812,796
18A 3,812,797
99R 3,812,798
CLASS 112
79R 3,812,799
104 3,812,800
121.14 3,812,801
218R 3,812,802
CLASS 113
121C 3,812,803
CLASS 114
16R 3,812,804
61 3,812,805
66.5H 3,812,806
74R 3,812,807
78 3,812,808
114 3,812,809
191 3,812,810
218 3,812,811
CLASS 115
34R 3,812,812
7B 3,812,813
3,812,814
CLASS 116
28R 3,812,815
70 3,812,816
114R 3,812,817
124.1 3,812,818
135 3,812,819
CLASS 117
12 3,813,254
35.3 3,813,255
47H 3,813,256
47R 3,813,257
133M 3,813,258
100C 3,813,259
114R 3,813,260
153 3,813,261
155LA 3,813,262
201 3,813,263
3,813,264
211 3,813,265
212 3,813,266
3,813,291
213 3,813,292
217 3,813,293
218 3,813,294
221 3,813,295
229 3,813,296
CLASS 118
3 3,812,820
41R 3,812,821
CLASS 119
17 3,812,822
34 3,812,823
CLASS 122
32 3,812,824
34 3,812,825
250R 3,812,826
CLASS 123
E.01 3,812,827
E.45 3,812,828
32EA 3,812,830
32VN 3,812,829
117A 3,812,831
119A 3,812,832
CLASS 124
19 3,812,833
20R 3,812,834
24R 3,812,835
CLASS 126
9R 3,812,836
21A 3,812,837
3,812,838
58 3,812,839
275R 3,812,840
CLASS 127
66 3,813,297
69 3,813,298
CLASS 128
1R 3,812,841
2A 3,812,842
2R 3,812,843
2.05G 3,812,844
2.06R 3,812,845
9 3,812,847
36 3,812,848
57 3,812,846
Re 28,023
67 3,812,849
80A 3,812,850
133 3,812,851
134 3,812,852
173 3,812,853
194 3,812,854
276 3,812,855
285 3,812,856
303.1 3,812,857
303.14 3,812,858
330 3,812,859
349B 3,812,860
415 3,812,861
57B 3,812,862
CLASS 139
30C 3,812,863
CLASS 131
2 3,812,864
171A 3,812,865
CLASS 132
40 3,812,866
53 3,812,867
75.4 3,812,868
CLASS 134
24 3,813,299
111 3,812,869
122 3,812,870
CLASS 136
3R 3,813,300
86A 3,813,301
CLASS 137
1 3,812,871
62 3,812,872
84 3,812,873
110 3,812,874
454.6 3,812,875
501 3,812,876
505.42 3,812,877
512 3,812,878
512.15 3,812,879
516.15 3,812,880
556.6 3,812,882
596.14 3,812,881
625.69 3,812,883
CLASS 138
103 3,812,884
125 3,812,885
149 3,812,886
CLASS 139
29 3,812,887

CLASS 141
39 3,812,888
93 3,812,889
94 3,812,890

CLASS 144
3R 3,812,891
309AC 3,812,892
326 3,812,893

CLASS 145
50R 3,812,894

CLASS 148
6.15R 3,813,302
3,813,303

CLASS 149
19.2 3,813,304
19.3 3,813,305
19.9 3,813,306
19.9I 3,813,307
109 3,813,308

CLASS 151
41.74 3,812,895

CLASS 152
241 3,813,049
242 3,812,896

CLASS 156
2 3,813,309
3 3,813,310
17 3,813,311
39 3,813,312
156 3,813,313
162 3,813,314
236 3,813,267
238 3,813,268
254 3,813,315
272 3,813,269
382 3,813,270
417 3,813,271
468 3,813,272
469 3,813,273
527 3,813,274
3,813,275

CLASS 159
49 3,812,897

CLASS 161
1 3,813,276
24 3,813,277
82 3,813,278
127 3,813,279
151 3,813,280
159 3,813,281
164 3,813,282

CLASS 162
190 3,813,283
219 3,813,284
263 3,813,285

CLASS 164
25 3,812,898
52 3,812,899
76 3,812,900
87 3,812,901
208 3,812,902

CLASS 165
3 3,812,903
22 3,812,904
32 3,812,905
44 3,812,906
83 3,812,907
105 3,812,908
120 3,812,909

CLASS 166
88 3,812,910
135 3,812,911
207 3,812,912
288 3,812,913

CLASS 169
20 3,812,914
38 3,812,915

CLASS 172
7 3,812,916
15 3,812,917
19 3,812,918
328 3,812,919
350 3,812,920

CLASS 174
21C 3,813,475
37 3,813,476
70R 3,813,477
3,813,478
88C 3,813,479
92 3,813,480
130 3,813,481

CLASS 175
6 3,812,922

CLASS 176
19R 3,813,286
68 3,813,287

CLASS 177
1 3,812,923
200 3,812,924

CLASS 178
5.1 3,813,482
5.4ST 3,813,490
5.4R Re.28,021
6 3,813,483
6.6FS 3,813,484
6.8 3,813,485
7.1 3,813,486
3,813,487
3,813,488
7.2 3,813,489
7.3R 3,812,921
7.81 3,813,491
30 3,813,492

CLASS 179
1GQ 3,813,494
1.5S 3,813,493
7MM 3,813,495
15BS 3,813,496
18GF 3,813,497
100.3R 3,813,498
107H 3,813,499
175.2C 3,813,500

CLASS 180
6.48 3,812,925
9.24 3,812,926
54A 3,812,927
65F 3,812,928
98 3,812,929
117 3,812,930

CLASS 181
33E 3,812,931

CLASS 182
126 3,812,932

CLASS 185
37 3,812,933

CLASS 188
62 3,812,934
71.8 3,812,935
106P 3,812,750
171 3,812,936
266 3,812,937
322 3,812,938

CLASS 190
49 3,812,939

CLASS 191
12.2R 3,813,501
30 3,813,502

CLASS 192
17 3,812,940
26 3,812,941
91R 3,812,942
93A 3,812,943
105B 3,812,944

CLASS 195
4 3,813,288
3,813,289
28R 3,813,290
3,813,316
29 3,813,317
31F 3,813,318
65 3,813,319
66R 3,813,320

CLASS 197
19 3,812,945
129 3,812,946

CLASS 198
19 3,812,947
20R 3,812,948
21 3,812,949
31AA 3,812,950
34 3,812,951
57 3,812,952
131 3,812,953
138 3,812,954
170 3,812,955
213 3,812,956

CLASS 200
11TC 3,813,503
48R 3,813,504
61.45R 3,813,505
144B 3,813,506
148A 3,813,507
268 3,813,508

CLASS 204
149 3,813,321
159.15 3,813,322
181 3,813,323
195B 3,813,325
195M 3,813,324
268 3,813,326
300 3,813,327
302 3,813,328

CLASS 206
45.14 3,812,957
45.31 3,812,958
320 3,812,959
338 3,812,961
387 3,812,960
427 3,812,962
468 3,812,963

CLASS 208
9 3,813,329
66 3,813,330
251H 3,813,331
290 3,813,332

CLASS 209
47.4M 3,812,965
73 3,812,964

CLASS 210
33 3,813,333
70 3,812,966
174 3,812,967
242 3,812,968
274 3,812,969
316 3,812,970
321 3,813,334
327 3,812,971
489 3,812,972
502 3,812,973

CLASS 211
23 3,812,974
40 3,812,975
60T 3,812,976
177 3,812,977

CLASS 212
35R 3,812,979

CLASS 213
76 3,812,980
201 3,812,978

CLASS 214
1BB 3,812,981
1QA 3,812,982
1.2 3,812,983
15B 3,812,984
83.32 3,812,985
84 3,812,986
87 3,812,987
505 3,812,988

CLASS 215
9 3,812,989
3,812,990
252 3,812,991
253 3,812,992
256 3,812,993
3,812,994

CLASS 219
76 3,813,509
121LM 3,813,511
121P 3,813,510
158 3,813,512
216 3,813,513
354 3,813,514
438 3,813,517
471 3,813,515
3,813,516
3,813,518
522 3,813,519
543 3,813,520

CLASS 220
1.5 3,812,995
21 3,812,996
22 3,812,997
30.5 3,812,998
41 3,812,999
54 3,813,000
3,813,001
63R 3,813,002
94R 3,813,003
96 3,813,004

CLASS 221
90 3,813,005

CLASS 222
4 3,813,007
70 3,813,008
90 3,813,009
129.1 3,813,010
136 3,813,011
326 3,813,012
402.2 3,813,013
413 3,813,014
445 3,813,015

CLASS 224
5R 3,813,016
26R 3,813,017
33R 3,813,018

CLASS 226
97 3,813,019
3,813,020

CLASS 228
1 3,813,006
3,813,021
3 3,813,022
19 3,813,023
58 3,813,024

CLASS 229
2.5 3,813,025
4.5 3,813,026
45 3,813,027
70 3,813,028

CLASS 232
17 3,813,029

CLASS 233
18 3,813,030
26 3,813,031

CLASS 235
61.11D 3,813,521
92PE 3,813,525
92SB 3,813,523
92T 3,813,524
98R 3,813,522
150.23 3,813,526
151.34 3,813,527
152 3,813,528
3,813,529
153AC 3,813,032
153AK 3,813,531
153A 3,813,530
156 3,813,533
176 3,813,623
183 3,813,532

CLASS 236
9R 3,813,033
87 3,813,034
101 3,813,035

CLASS 237
2R 3,813,036
9R 3,813,037
55 3,813,039

CLASS 238
37 3,813,038
84 3,813,040

CLASS 239
55 3,813,041
193 3,813,042
204 3,813,043
533 3,813,044

CLASS 240
2.25 3,813,534
57 3,813,535
67 3,813,536
108R 3,813,537

CLASS 241
88.4 3,813,045
202 3,813,046
211 3,813,047
224 3,813,048

CLASS 242
18A 3,813,050
46.4 3,813,051
58.3 3,813,052
58.4 3,813,053
86.5A 3,813,055
86.5R 3,813,054
197 3,813,056
198 3,813,057

CLASS 243
16R 3,813,058

CLASS 244
3.22 3,813,057
12C 3,813,059
13 3,813,060
16 3,813,061
3,813,062
77D 3,813,063
114R 3,813,064
115 3,813,065
150 3,813,066

CLASS 246
122R 3,813,538

CLASS 248
14 3,813,068
188.1 3,813,069
223 3,813,070
251 3,813,071
313 3,813,072
373 3,813,073
452 3,813,074
461 3,813,075

CLASS 249
50 3,813,076

CLASS 250
206 3,813,539
3,813,540
211J 3,813,541
221 3,813,542
281 3,813,544
306 3,813,545
315 3,813,546
324 3,813,547
3,813,548
3,813,549
338 3,813,550
3,813,551
347 3,813,552
3,813,553
3,813,554
461 3,813,555
493 3,813,543
562 3,813,556
575 3,813,557

CLASS 251
9 3,813,077
28 3,813,078
127 3,813,079
285 3,813,080

CLASS 252
14 3,813,335
32.7E 3,813,336
33.4 3,813,337
42.1 3,813,338
56S 3,813,339
62.3C 3,813,340
77 3,813,341
111 3,813,343
170 3,813,342
301.1R 3,813,344
312 3,813,345
378R 3,813,346
428 3,813,347
431N 3,813,348
520 3,813,252
526 3,813,349
547 3,813,350

CLASS 254
131 3,813,081

CLASS 259
6 3,813,082
8 3,813,083
72 3,813,084

CLASS 260
2EP 3,813,351
3,813,352
2.1C 3,813,353
2.2R 3,813,354
2.5AB 3,813,355
2.5F 3,813,356
5 3,813,357
16 3,813,358
17.4ST 3,813,359
28 3,813,379
29.2TN 3,813,361
29.2N 3,813,362
29.3 3,813,363
37SB 3,813,364
63UY 3,813,447
77.5AP 3,813,380
77.5R 3,813,365
78L 3,813,366
3,813,367
79 3,813,368
80.6 3,813,369
88.02S 3,813,370
88.2R 3,813,381
88.5 3,813,371
88.7R 3,813,372
92.8W 3,813,373
94.3 3,813,374
94.9GD 3,813,375
112.5 3,813,382
236.5 3,813,383
239A 3,813,384
239.1 3,813,385
3,813,386
239.6 3,813,387
243C 3,813,376
3,813,388
3,813,389
3,813,390
3,813,391
244R 3,813,378
249.5 3,813,393
250R 3,813,392
251A 3,813,360
252 3,813,394
268PC 3,813,396
268TR 3,813,395
268C 3,813,397
279R 3,813,377
283SA 3,813,398
287OX 3,813,399
292 3,813,403
3,813,404
293.68 3,813,405
295AM 3,813,400
295.5B 3,813,406
296B 3,813,407
296H 3,813,408
302H 3,813,401
306.7 3,813,409
307F 3,813,410
307H 3,813,411
308R 3,813,412
330.5 3,813,413
343.2R 3,813,414
3,813,415
3,813,416
3,813,417
3,813,402
3,813,418
3,813,420
3,813,419
3,813,421
3,813,422
3,813,423
3,813,424
448.2E 3,813,425
453R 3,813,426
468H 3,813,427
471R 3,813,429
479R 3,813,430
505R 3,813,431
514D 3,813,433
514H 3,813,432
532 3,813,428
534E 3,813,434
543P 3,813,435
553A 3,813,436
3,813,437
561N 3,813,438
564F 3,813,439
566AC 3,813,440
567.6 3,813,441
586H 3,813,442
586R 3,813,443
607A 3,813,444
620 3,813,445
622R 3,813,446
650R 3,813,448
653.1R 3,813,449
654R 3,813,450
671P 3,813,451
674SA 3,813,452
683.15D 3,813,453
873 3,813,454
879 3,813,455
968 3,813,456
971 3,813,457

CLASS 261
39B 3,813,085
93 3,813,086

CLASS 264
3C 3,813,458
23 3,813,459
28 3,813,460
41 3,813,461
45 3,813,462
3,813,463

CLASS 266
2A 3,813,087
25 3,813,088

CLASS 267
160 3,813,089

CLASS 269
217 3,813,090
322 3,813,091
3,813,092

CLASS 270
55 3,813,093

CLASS 271
19 3,813,094

CLASS 272
78 3,813,095
82 3,813,096

CLASS 273
25 3,813,097
72R 3,813,098
156 3,813,099

CLASS 274
23A 3,813,100
38 3,813,101

CLASS 277
9 3,813,102
27 3,813,103
94 3,813,104
164 3,813,105
173 3,813,106
189 3,813,107

CLASS 279
4 3,813,108

CLASS 280
11.35T 3,813,110
11.35Y 3,813,109
33.99R 3,813,111
150AB 3,813,112
150R 3,813,113
434 3,813,114

CLASS 285
92 3,813,115
236 3,813,116

CLASS 290
2 3,813,557

CLASS 292
54 3,813,117
3,813,118
122 3,813,119
251 3,813,120

CLASS 294
1R 3,813,121
19R 3,813,122
87.2 3,813,123

CLASS 297
191 3,813,147
231 3,813,148
335 3,813,149
353 3,813,150

196 3,813,351

CLASS 298
17R 3,813,124

CLASS 299
7 3,813,125
33 3,813,126

CLASS 302
27 3,813,127
39 3,813,128

CLASS 303
21B 3,813,129
219 3,813,130

CLASS 305
29 3,813,131

CLASS 307
221R 3,813,558
237 3,813,559
253 3,813,560
263 3,813,561
273 3,813,562
279 3,813,563
3,813,564
308 3,813,565

CLASS 308
3A 3,813,132
9 3,813,133
156 3,813,134
188 3,813,135
213 3,813,136

CLASS 310
36 3,813,566
50 3,813,567

CLASS 312
214 3,813,137
309 3,813,138

CLASS 313
92R 3,813,568
108R 3,813,569
318 3,813,570
326 3,813,571

CLASS 315
3 3,813,572
13C 3,813,573
29 3,813,574
151 Re.28,025
167 3,813,575
205 3,813,576

CLASS 317
16 3,813,577
3,813,578
18D 3,813,579
23 3,813,580
96 3,813,581
101DH 3,813,582
148.5B 3,813,583
235D 3,813,584
235N 3,813,585
235R 3,813,586
3,813,587
3,813,588

CLASS 318
223 3,813,589
266 3,813,590
331 3,813,591
696 3,813,592

CLASS 321
9R 3,813,593
18 3,813,594

CLASS 323
4 3,813,595

CLASS 324
16R 3,813,596
176 3,813,597

CLASS 325
49 3,813,598
67 3,813,599
126 3,813,600
141 3,813,601
319 3,813,602

CLASS 329
122 3,813,604

CLASS 330
4.3 3,813,605
13 3,813,606
17 3,813,607
34 3,813,608
51 3,813,609

CLASS 331
1A 3,813,610
94.5G 3,813,612
94.5Q 3,813,611
94.5 3,813,613
108B 3,813,614
109 3,813,615
116R 3,813,616

CLASS 332
318 3,813,617

CLASS 333
72 3,813,618
81R 3,813,602

CLASS 335
14 3,813,619
18 3,813,620
96 3,813,621
131 3,813,622
206 3,813,624
243 3,813,625

CLASS 337
245 3,813,626
274 3,813,627
322 3,813,628
324 3,813,629
347 Re.28,019
360 3,813,630

CLASS 338
183 Re.28,026
320 3,813,631

CLASS 339
10 3,813,632
14R 3,813,633
17F 3,813,634
22B 3,813,635
59R 3,813,636
3,813,637
64R 3,813,638
111 3,813,639
156R 3,813,640
170 3,813,641
198R 3,813,642
223S 3,813,643
232S 3,813,644
259R 3,813,645

CLASS 340
3D 3,813,654
18LD 3,813,656
26 3,813,657
146.3AE 3,813,646
146.3R 3,813,658
3,813,659
151 3,813,655
172.5 3,813,647
3,813,648
3,813,649
3,813,650
3,813,651
3,813,652
3,813,653
3,813,660
3,813,661
3,813,662
3,813,665
3,813,666
3,813,667
3,813,664
3,813,663
3,813,668
3,813,675

CLASS 343
5PD 3,813,669
7.3 3,813,670
112D 3,813,671
113R 3,813,672
730 3,813,673
3,813,674

CLASS 346
75 3,813,675
3,813,676
76R 3,813,677
138 3,813,678

CLASS 350
3.5 3,813,139
7 3,813,140
96W.G 3,813,141
3,813,142
97 3,813,143
150 3,813,144
160L.C 3,813,145
285 3,813,146

CLASS 351
153 3,813,152

CLASS 352
12 3,813,153
169 3,813,154

CLASS 353
101 3,813,155
119 3,813,156

CLASS 354
24 3,813,679
44 3,813,680
173 3,813,681
203 3,813,682
292 3,813,683
341 3,813,684

CLASS 355
14 3,813,157
36 3,813,158
44 3,813,164
53 3,813,159
71 3,813,160
76 3,813,161
83 3,813,162
109 3,813,163

CLASS 356
3 3,813,165
28 3,813,166
74 3,813,167
97 3,813,168
127 3,813,169
138 3,813,170
152 3,813,171
225 3,813,172
239 3,813,173
241 3,813,174

CLASS 358
2 3,813,685
27 3,813,686

CLASS 360
9 3,813,687
17 3,813,688
74 3,813,689
90 3,813,690
3,813,691
113 3,813,692
119 3,813,693

CLASS 401
65 3,813,175
94 3,813,176

CLASS 403
27 3,813,177
3,813,178
3,813,179

CLASS 404
48 3,813,180
84 3,813,181

CLASS 408
72 3,813,182
80 3,813,183

CLASS 415
54 3,813,184

CLASS 416
198 3,813,185
226 3,813,186

CLASS 417
79 3,813,187
202 3,813,188
220 3,813,189
236 3,813,190
406 3,813,191
416 3,813,192

CLASS 419
63 3,813,193
82 3,813,194
86 3,813,195

CLASS 423
20 3,813,464

CLASS 424
3 3,813,465
28 3,813,466

CLASS 425
7 3,813,196
111 3,813,197
112 3,813,198
113 3,813,199
140 3,813,200
242 3,813,201
404 3,813,202
441 3,813,203
466 3,813,204

CLASS 426
393 3,813,467

CLASS 431
94 3,813,205
143 3,813,206
253 3,813,207
277 3,813,208

CLASS 432
11 3,813,209
15 3,813,210
80 3,813,211
121 3,813,213
144 3,813,214
183 3,813,212
226 3,813,215
230 3,813,216
258 3,813,217

CLASSIFICATION OF DESIGNS

D6–	188	231,683	D9–	127	231,689			231,695			231,701			231,705	D55–	1A	231,711
D7–	54	231,684		216	231,690			231,696			231,702		GG	231,706	D64–	12B	231,712
	59	231,685			231,691	D23–	24	231,699			231,703	D48–	27R	231,708	D74–	2	231,714
	173	231,686	D13–	1D	231,692			231,700	D25–	1R	231,704	D54–	8	231,709		9R	231,713
D8–	14	231,687			231,693		34	231,697	D34–	15AH	231,707			231,710	D85–	2J	231,715
	114	231,688			231,694			231,698									

CLASSIFICATION OF PLANTS

P –	28	3,539	P –	34	3,558	P –	35	3,536	P –	3,537	P –	3,560	

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,812,918 3,812,936 3,813,091 3,813,167 3,813,183 3,813,233 3,813,305 3,813,307 3,813,552
2 : 3,813,064
4 : 3,812,541 3,812,583 3,812,931 3,813,022 3,813,032 3,813,055 3,813,467 3,813,584 3,813,588 3,813,650 3,813,652
5 : 3,812,929
6 : 3,812,542 3,812,551 3,812,559 3,812,579 3,812,589 3,812,603 3,812,628 3,812,631 3,812,637 3,812,641 3,812,682 3,812,716 3,812,723 3,812,726 3,812,727 3,812,728 3,812,732 3,812,751 3,812,774 3,812,783 3,812,785 3,812,805 3,812,835 3,812,836 3,812,848 3,812,853 3,812,854 3,812,857 3,812,861

3,812,865 3,812,872 3,812,878 3,812,879 3,812,884 3,812,888 3,812,905 3,812,917 3,812,923 3,812,924 3,812,995 3,813,012 3,813,016 3,813,017 3,813,018 3,813,033 3,813,037 3,813,049 3,813,056 3,813,067 3,813,095 3,813,099 3,813,103 3,813,105 3,813,116 3,813,120 3,813,125 3,813,138 3,813,145 3,813,146 3,813,148 3,813,156 3,813,159 3,813,172 3,813,188 3,813,191 3,813,207 3,813,289 3,813,325 3,813,334 3,813,336 3,813,379 3,813,383 3,813,478 3,813,480 3,813,485 3,813,498 3,813,509 3,813,516 3,813,528 3,813,529

8 : 3,812,679 3,812,977 3,813,310 3,813,314 3,813,456 3,813,624 3,813,692
9 : 3,812,588 3,812,606 3,812,649 3,812,658 3,812,708 3,812,758 3,812,776 3,812,802 3,812,860 3,812,862 3,813,013 3,813,021 3,813,063 3,813,362 3,813,465 3,813,494 3,813,541 3,813,634 3,813,640 3,813,673

10 : 3,812,957 3,812,988 3,813,685
11 : 3,812,903
12 : 3,812,548 3,812,611 3,812,655 3,812,663 3,812,707 3,812,794 3,812,810 3,812,849 3,813,435 3,813,493 3,813,678
13 : 3,812,684 3,812,816 3,812,822 3,812,863 3,813,351
16 : 3,812,569
17 : 3,812,595 3,812,608 3,812,612 3,812,613 3,812,624 3,812,626 3,812,634 3,812,639 3,812,651 3,812,683 3,812,704 3,812,746 3,812,757 3,812,798 3,812,832 3,812,868 3,812,886 3,812,919 3,812,921 3,812,928 3,812,959 3,812,962 3,812,967 3,813,001 3,813,027 3,813,074 3,813,100 3,813,119 3,813,123 3,813,129

18 : 3,813,149 3,813,155 3,813,160 3,813,180 3,813,190 3,813,228 3,813,238 3,813,268 3,813,298 3,813,312
21 : 3,813,318
22 : 3,813,329 3,813,332 3,813,347
24 : 3,813,355 3,813,371 3,813,445 3,813,448 3,813,450 3,813,452 3,813,491 3,813,517 3,813,523 3,813,524 3,813,535 3,813,545 3,813,570 3,813,539 3,813,570 3,813,581 3,812,592 3,812,647 3,812,656 3,812,695 3,812,722 3,812,827 3,812,974 3,812,990 3,813,137 3,813,179 3,813,294 3,813,311 3,813,337 3,813,358 3,813,389 3,813,407 3,813,408 3,813,419 3,813,527 3,813,534 3,813,580

19 : 3,813,686 3,812,920 3,813,578
20 : 3,812,661 3,812,842 3,812,851 3,813,000 3,813,270 3,813,345
21 : 3,813,192
22 : 3,813,193 3,812,722 3,812,930 3,813,421
24 : 3,812,618 3,812,619 3,812,712 3,812,841 3,813,062 3,813,166 3,813,177 3,813,308 3,813,403 3,813,434 3,813,458 3,813,471 3,813,496 3,813,497 3,813,586 3,813,598 3,813,658 3,813,659
25 : 3,812,553 3,812,561 3,812,629 3,812,640 3,812,643 3,812,646 3,812,767 3,812,812 3,812,833 3,812,897 3,812,915 3,812,945 3,812,958 3,812,982 3,813,003 3,813,011 3,813,020 3,813,053 3,813,070

3,813,072 3,813,079 3,813,094 3,813,098 3,813,142 3,813,201 3,813,210 3,813,295 3,813,369 3,813,431 3,813,511
30 : 3,813,596 3,813,627 3,813,641 3,813,660 3,813,669
31 : 3,812,557
32 : 3,812,566
33 : 3,812,600 3,812,607 3,812,614 3,812,672 3,812,676 3,812,678
34 : 3,812,735 3,812,747 3,812,792 3,812,869 3,812,925 3,812,935 3,812,981 3,813,042 3,813,051 3,813,073 3,813,087 3,813,092 3,813,111 3,813,114 3,813,126 3,813,140 3,813,178 3,813,214 3,813,230 3,813,299 3,813,301 3,813,363 3,813,365 3,813,412 3,813,433 3,813,517 3,813,522 3,813,637 3,813,638 3,813,645 3,812,546 3,812,609 3,812,659 3,812,784 3,812,791 3,812,797 3,812,877 3,812,975 3,813,005 3,813,010 3,813,297 3,813,592 3,813,189 3,813,443 3,812,698 3,812,740 3,812,741 3,812,745 3,812,838 3,812,840 3,813,075 3,813,106

3,813,184 3,813,197 3,813,221 3,813,234 3,813,320 3,813,426 3,813,504
35 : 3,813,526 3,813,625 3,813,635
36 : 3,813,639
30 : 3,812,616 3,812,815
31 : 3,812,737 3,812,834 3,812,961
32 : 3,812,826 3,812,831
33 : 3,813,039 3,813,510 3,813,531 3,813,561
34 : Re 28,021 3,812,544 3,812,568 3,812,574 3,812,615 3,812,633 3,812,717 3,812,729 3,812,734 3,812,736 3,812,799 3,812,824 3,812,825 3,812,894 3,812,966 3,812,972 3,812,989 3,812,992 3,813,004 3,813,061 3,813,141 3,813,150 3,813,174 3,813,182 3,813,204 3,813,219 3,813,256 3,813,280 3,813,290 3,813,322 3,813,330 3,813,342 3,813,343 3,813,359 3,813,360 3,813,367 3,813,368 3,813,381 3,813,396 3,813,409 3,813,411 3,813,414 3,813,416 3,813,417 3,813,439 3,813,442 3,813,454 3,813,464 3,813,466 3,813,482 3,813,488 3,813,506 3,813,550 3,813,553 3,813,576

3,813,582 3,813,595 3,813,601 3,813,608 3,813,622 3,813,661 3,813,665
35 : 3,812,793 3,812,911 3,813,413
36 : 3,812,540 3,812,545 3,812,547 3,812,635 3,812,660 3,812,671 3,812,688 3,812,689 3,812,748 3,812,759 3,812,760 3,812,779 3,812,786 3,812,800 3,812,801 3,812,811 3,812,817 3,812,847 3,812,850 3,812,852 3,812,855 3,812,858 3,812,867 3,812,922 3,812,960 3,812,969 3,812,994 3,812,997 3,813,006 3,813,028 3,813,036 3,813,089 3,813,121 3,813,139 3,813,147 3,813,157 3,813,161 3,813,169 3,813,173 3,813,198 3,813,222 3,813,232 3,813,241 3,813,244 3,813,247 3,813,251 3,813,260 3,813,261 3,813,263 3,813,265 3,813,286 3,813,309 3,813,315 3,813,316 3,813,364 3,813,388 3,813,397 3,813,404 3,813,425 3,813,430 3,813,462 3,813,474 3,813,477 3,813,492 3,813,499 3,813,513

3,813,514 3,813,520 3,813,547 3,813,548 3,813,549 3,813,554 3,813,556 3,813,558 3,813,566 3,813,568 3,813,593 3,813,600 3,813,616 3,813,619 3,813,666 3,813,676
37 : 3,812,554 3,812,864 3,812,887 3,812,978 3,813,124 3,813,181 3,813,500
39 : Re 28,019 3,812,562 3,812,563 3,812,572 3,812,577 3,812,584 3,812,617 3,812,738 3,812,778 3,812,803 3,812,843 3,812,856 3,812,895 3,812,898 3,812,901 3,812,910 3,812,932 3,812,944 3,812,946 3,812,949 3,812,953 3,812,963 3,812,979 3,813,015 3,813,077 3,813,104 3,813,164 3,813,171 3,813,195 3,813,199 3,813,205 3,813,209 3,813,257 3,813,269 3,813,271 3,813,279 3,813,313 3,813,339 3,813,349 3,813,350 3,813,357 3,813,374 3,813,446 3,813,453 3,813,455 3,813,463 3,813,470
44 : 3,813,521 3,813,633 3,813,649
45 : 3,813,675
40 : 3,812,662

3,812,674 3,812,780 3,812,882 3,813,081
47 : 3,813,212 3,813,272 3,812,549 3,812,622 3,812,813 3,812,964 3,812,564 3,812,580 3,812,585 3,812,593 3,812,620 3,812,627 3,812,636 3,812,638 3,812,653 3,812,690 3,812,696 3,812,703 3,812,718 3,812,719 3,812,720 3,812,753 3,812,756 3,812,777 3,812,839 3,812,899 3,812,912 3,812,934 3,812,937 3,813,066 3,813,078 3,813,090 3,813,097 3,813,107 3,813,131 3,813,135 3,813,223
49 : 3,813,224 3,813,254 3,813,264 3,813,281 3,813,285 3,813,304 3,813,306 3,813,321 3,813,326 3,813,331 3,813,338 3,813,348 3,813,353 3,813,361 3,813,382 3,813,386 3,813,392 3,813,402 3,813,420 3,813,475 3,813,501 3,813,539 3,813,589 3,813,590 3,813,614 3,813,629 3,813,642 3,813,643 3,813,657 3,813,668 3,812,591 3,812,881 3,812,914 3,813,525 3,813,594

3,813,620 3,812,610 3,812,625 3,813,143 3,812,665 3,812,709 3,813,031 3,813,034 3,813,096 3,813,365 3,813,495 3,812,543 3,812,552 3,812,587 3,812,621 3,812,700 3,812,706 3,812,742 3,812,789 3,812,795 3,812,846 3,812,913 3,812,947 3,812,980 3,812,986 3,813,002 3,813,029 3,813,030 3,813,038 3,813,040 3,813,115 3,813,170 3,813,186 3,813,231 3,813,328 3,813,428 3,813,451 3,813,562 3,813,609 3,813,656 3,812,685 3,812,828 3,812,829 3,812,926 3,812,550 3,812,648 3,812,650 3,813,200 3,813,366 3,813,481 3,813,591 3,813,644
53 : Re 28,020 3,812,724 3,812,951 3,813,065 3,813,076 3,813,236 3,813,262
54 : 3,813,117 3,813,225
55 : 3,812,711 3,812,845 3,812,873 3,812,889 3,813,024 3,813,046 3,813,047 3,813,068 3,813,296 3,813,632
56 : 3,812,654

DESIGN PATENTS

6 231,688
8 231,713
9 231,687 231,689
17 231,690

231,691 231,697 231,698 231,699 231,700

231,701 231,702 231,703
25 231,708

32 231,683
36 231,684 231,685 231,692

231,693 231,694 231,695 231,696

231,709 231,710 231,712
55 231,707

PLANT PATENTS

6 3,559

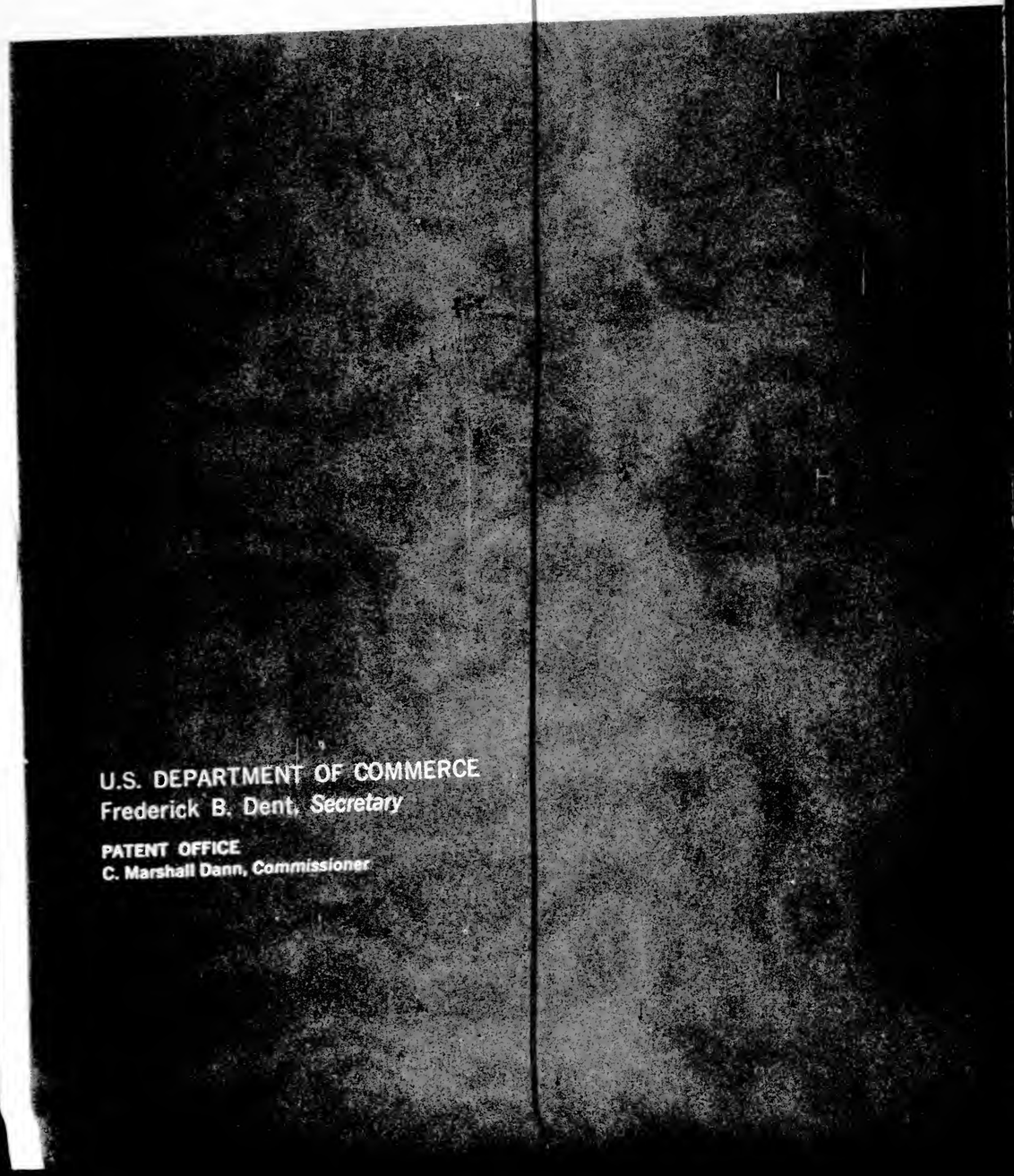
24 3,557

39 3,558

40 3,560

53 3,556

U. S. GOVERNMENT PRINTING OFFICE : O - 1974



U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, *Secretary*

PATENT OFFICE
C. Marshall Dann, *Commissioner*

U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
VOL. 922

MAY
1974

MICRO PHOTO DIVISION

BELL & HOWELL